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Running Head: Exercise RCT reporting and conduct quality

Comparing the reporting and conduct quality of exercise and pharmacological randomized controlled trials: A systematic review

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ABSTRACT

Objective. Evaluate the quality of exercise randomized controlled trial (RCT) reporting and conduct in clinical populations (*i.e.*, adults with or at-risk of chronic conditions) and compare with matched pharmacological RCTs.

Design. Systematic review.

Data Sources. Embase (Elsevier), PubMed (NLM), and CINAHL (EBSCO)

Study Selection. RCTs of exercise in clinical populations with matching pharmacological RCTs published in leading clinical, medical and specialist journals with impact factors ≥15.

Review Methods. Overall RCT quality was evaluated by two independent reviewers using three research reporting guidelines (*i.e.*, Consolidated Standards of Reporting Trials (CONSORT; pharmacological RCTs) / CONSORT-Non-pharmacological trial (CONSORT-NPT; exercise RCTs), CONSORT-Harms, Template for Intervention Description and Replication (TIDieR)) and two risk of bias assessment (research conduct) tools (*i.e.*, Cochrane Risk of Bias, Jadad Scale). We compared research reporting and conduct quality within exercise RCTs with matched pharmacological RCTs, and examined factors associated with quality in exercise and pharmacological RCTs, separately.

Findings. Forty-eight exercise RCTs (11,658 patients; median sample n=138) and 48 matched pharmacological RCTs were evaluated (18,501 patients; median sample n=160). RCTs were conducted primarily in cardiovascular medicine (43%) or oncology (31%). Overall quality score (composite of all research reporting and conduct quality scores; primary endpoint) for exercise RCTs was 58% (median score 46/80; interquartile range: 39-51) compared with 77% (53/68; interquartile range: 47-58) in the matched pharmacological RCTs ($p \leq 0.001$). Individual quality scores for trial reporting and conduct were lower in exercise RCTs compared with matched pharmacological RCTs ($p \leq 0.02$). Factors associated with higher overall quality scores for exercise RCTs were journal impact factor (≥25), sample size (≥152) and publication year (≥2013).

Conclusions and Relevance. Research reporting and conduct quality within exercise RCTs is inferior to matched pharmacological RCTs. Suboptimal RCT reporting and conduct impact the fidelity,

interpretation, and reproducibility of exercise trials and, ultimately, implementation of exercise in clinical populations.

Registration. CRD42018095033

STRENGTHS AND LIMITATIONS OF THIS STUDY

- A total of n=30,159 participants from ninety-six randomized controlled trials (RCTs) of exercise and pharmacological therapies published in high-impact journals were included.
- We used a combination of five established and one investigator developed inventories to comprehensively evaluate and compare the quality of research reporting and conduct of exercise and pharmacological RCTs.
- Main limitations of the study include the restriction to journals with impact factors ≥15 and the lack of broadly applicable or unified guidelines to compare across exercise and pharmacological therapy RCTs.

INTRODUCTION

Reports from epidemiological studies and randomized controlled trials (RCTs) indicate that exercise therapy is safe and well-tolerated, and associated with broad health benefits in adults.[1] Accordingly, exercise is considered standard of care therapy for many clinical populations (*i.e.*, adults with or at risk of chronic conditions), with established guidelines from numerous international agencies.[2-4]

Clinical recommendation of exercise for a particular clinical indication is predicated on evidence from RCTs.[5] Optimal reporting of RCTs evaluating pharmacological and non-pharmacological therapies is facilitated by multiple standardized guidelines [*e.g.,* Consolidated Standards of Reporting Trials (CONSORT),[6,7] Template for Intervention Description and Replication (TIDieR)[8]]. Reports of RCTs are required to conform to at least one of these guidelines when submitting to scientific journals across all areas of medicine. Relatedly, risk of bias (ROB) tools (e.g., Cochrane ROB,[9] Jadad Scale[10]) evaluate RCT research conduct. However, the quality of exercise RCT reporting and conduct have received minimal attention.

Our primary objective was to evaluate the overall quality of exercise therapy RCT reporting and conduct in clinical populations. The primary outcome was overall quality score (*i.e.*, the combined quality scores from three research reporting and two research conduct inventories). We also compared the overall quality score from exercise RCTs to matched RCTs of pharmacological therapies (a well-established field of biomedical research with a long history of adopting RCT methods[11]) to provide context for our findings. Secondary objectives were to compare quality scores for research reporting and conduct inventories and to examine factors associated with overall quality score.

METHODS

Search Strategy

This review was conducted in accordance with the PRISMA[12] and AMSTAR 2[13] guidelines (PROSPERO identifier CRD42018095033; supplementary Methods 1 and 2). Full study search, selection, and data extraction methods are provided in supplementary Methods 3. Briefly, a Research Informationist (KM) conducted two sequential literature searches for exercise (first search) and pharmacological (second search) RCTs within the Embase (Elsevier), PubMed (NLM), and CINAHL (EBSCO) databases (fig 1). The search for exercise RCTs (supplementary Methods 4) was conducted on March 8th, 2018 using a combination of relevant keywords and controlled vocabulary: (1) exercise training intervention and (2) RCTs. Meta-data (*i.e.,* journal, cohort / population, sample size, and number of study sites) was extracted for eligible exercise RCTs and used to define the matching criteria for pharmacological RCTs. The pharmacological RCT search (supplementary Methods 5) was conducted on November 20th, 2018. The search was restricted by date (January 1st, 2008 to November 20th, 2018) and used a combination of relevant search terms and matching criteria for: (1) pharmaceutical intervention, (2) RCTs, (3) journal, (4) cohort / population, and (5) number of study sites (single or multi-center). We also purposefully restricted our search to medical journals with impact factors ≥15 since journals with higher impact factors are more likely to endorse and enforce reporting quality guidelines.[14-16]

Study Eligibility Criteria

Exercise RCTs involving adults (≥18 years of age) with chronic conditions, written in English, and published in journals with impact factors ≥15 according to the 2016 Journal Citation Reports (Clarivate Analytics) between January 1st, 2008 and the search date (March 8th, 2018) were eligible. Exercise therapy interventions were defined as those involving chronic (>3 weeks), repeated sessions of supervised (in person, with or without a distance-based component) aerobic training (i.e., endurance activity, ≥15 minutes/session), resistance training (i.e., multiple large muscle group exercises involving repeated voluntary muscle contractions against a resistance greater than those normally encountered

in activities of daily living), or the combination, with the objective of improving health-related outcomes.[17,18] Pharmacological interventions were defined as studies involving the administration of established or experimental pharmacological agents with the objective of improving health.

Study Selection, Data Extraction and Additional Sources

Trained study reviewers (JM and KS; see supplementary Methods 3 for training description) independently screened and evaluated identified article titles and abstracts in the DistillerSR web platform (Evidence Partners, Ottawa, Canada; fig 1). Next, full manuscripts of potentially eligible articles were independently reviewed using DistillerSR. Excluded exercise records are listed in supplementary Table 1.[19] Matching criteria for exercise and pharmacological therapy RCTs included: (1) journal (±5 impact factor points according to the 2016 Journal Citation Reports (Clarivate Analytics)), (2) cohort / population (sharing similar disease characteristics), (3) sample size (±30% difference in study samples), and (4) number of study sites (single vs multiple sites). Exercise and pharmacological therapy RCTs had to be matched on a minimum of two of the four matching criteria to be eligible. The pharmacological therapy RCT with values closest to the target exercise RCT was used if more than one potential match was identified. Full data was extracted for all eligible RCTs from the primary article and all other publicly available supplemental data sources using DistillerSR and Reference Guides. Disagreements concerning eligibility, data extractions, and ROB assessments were resolved by consensus (JM and KS) and adjudicated by a third party (SCA) when consensus could not be obtained. The corresponding author for each article was contacted by investigators (SCA, JMS, LWJ) to request information on incomplete and missing items. After four weeks, non-responding authors were re-contacted and provided an additional ~four weeks to respond. Reporting totals were revised after the close of data collection (*i.e.*, final author contact (September 1st, 2019)).

Evaluation measures

Each trial was evaluated on two sets of criteria: (1) quality of research reporting and (2) quality of research conduct using four standardized inventories and one investigator developed inventory. Exercise RCTs were evaluated on a maximum of 78 potential items and pharmacological RCTs were

evaluated on a maximum of 63 potential items. However, there were items within the CONSORT-based reporting quality guidelines that were not applicable (NA) based on the unique aspects of each RCT. Items rated as NA were excluded from the calculation of primary and secondary outcomes for each study (see *End Points* and *Data Analysis*). The quality of research reporting was assessed using either CONSORT [37 items][7] (pharmacological only) or CONSORT-Nonpharmacologic Treatments (NPT) [52 items][6] (exercise only), CONSORT-Harms [10 items],[20] and TIDieR [16 items].[21] The TIDieR guideline evaluates the reporting quality of exercise intervention prescription components.[21] Equivalent guidelines were not available for pharmacological intervention reporting thus we applied six relevant TIDieR-based criteria for comparison purposes [6 items; including intervention length, modality, location, frequency, dose, and adherence]. Exercise dose consisted of session intensity and duration (aerobic and resistance interventions) as well as the number of sets and repetitions (resistance interventions only). All research reporting quality items were rated (with equal weighting and maximum score of 1 point per item) as: 1 = 'properly reported'; or, 0 = 'unclear' (incompletely reported) or 'not reported' (missing); NA = 'not applicable.'

The quality of research conduct was assessed using the Cochrane ROB inventory [7 items][9] and the Jadad scale [3 items].[10] Cochrane ROB was items were rated (with equal weighting) as: 2 = 'low risk of bias'; 1 = 'unclear risk of bias'; or, 0 = 'high risk of bias'. The first two items in the Jadad scale were scored as 2 = 'low risk of bias' or 0 = 'high risk of bias' and the third item was scored as 1 = 'low risk of bias' or 0 = 'high risk of bias.'

End Points

The primary end point was overall quality score defined as the sum of numerical quality scores from all research reporting and conduct inventories relative to the total number of applicable items. Secondary end points were defined as the numerical quality scores for each research reporting guideline and conduct inventory relative to the total number of applicable items for the study.

Data Analysis

Characteristics of RCTs were summarized using descriptive statistics. Quality scores were calculated and reported in numerical and percentage score formats. Percentage quality scores were calculated for the primary end point (overall quality score) and secondary endpoints (individual scores for the quality of reporting guidelines and quality of conduct inventories) as the achieved score relative to the total number of applicable items per RCT. All items from the two research conduct inventories were applicable for every study and scored with values of 0,1 or 2 resulting in total quality score for research conduct-related items of 19 per study. The variation in the total number of applicable items per study was caused by different numbers of reporting quality guideline items being rated as 'Not Applicable', resulting in median numbers of eligible items (*i.e.*, denominators for percentage score calculations) of 80 for exercise RCTs and 68 for pharmacological RCTs. Generalized linear models (GLMs) were specified with a binomial family and logit link to compare the scores of exercise and pharmacological RCTs. The model accounted for differences in the number of eligible items and the matching between the exercise and pharmacological RCTs. GLMs were also used to evaluate factors associated with overall quality scores for exercise and pharmacological therapy RCTs separately. Potential factors included journal impact factor (<25 vs. ≥25), RCT sample size (<152 vs. ≥152 participants), number of study sites (single vs. multiple sites), and year of publication (<2013 vs. ≥2013). Cut offs for impact factor, sample size, and year of publication were based on the medians. For comparisons of the individual components of the composite scores, *p*-values were adjusted for multiple comparisons within research reporting and conduct inventories using a Bonferroni correction. Data are presented as median (Interquartile Range (IQR)) and odds ratios (OR; 95% confidence intervals (CI)). Inter-rater reliability was evaluated using intraclass correlation coefficient (ICC) calculated via one-way ANOVA.[22] Analyses were performed using R version 4.0.2.[23]

RESULTS

A total of 2836 potential exercise records were identified with 866 duplicate records removed using Endnote citation management software (Clarivate Analytics). A total of 1970 records underwent title and abstract screening (fig 1). Of these, 264 records underwent full review with 48 exercise RCTs

meeting eligibility criteria.[24-71] The 48 primary searches for pharmacological therapy trials produced 2815 records. The median number of records returned per search was 15 (range: 0-853). Review of the primary search results produced 19 matched pharmacological RCTs; the remaining 29 were pharmacological RCTs were identified via review of modified secondary searches.[72-119] On average, exercise and pharmacological therapy RCTs were matched on 3 of 4 criteria (supplementary Table 2). The results of agreement for the two raters' assessments for the exercise and pharmaceutical studies publication scores were: overall quality score: ICC = 0.85 (95% CI: 0.78 to 0.89); quality of research reporting guidelines: ICC = 0.83 (95% CI: 0.75 to 0.88); and quality of research conduct inventories: ICC = 0.73 (95% CI: 0.62 to 0.81).

Missing Information (Author Contact)

Each RCT had missing information. The median number of eligible reporting quality items for exercise RCTs was 61 (IQR 59, 62) and pharmacological RCTs was 49 (IQR 48, 50). The median percentage (numerical; numerical range) of missing or indeterminate reporting quality items in exercise RCTs was 46% (28/61 items; 13-49) compared to 27% (13/49 items; 5-26) in pharmacological RCTs. Sixteen (33%) and 7 (15%) corresponding authors of the exercise and pharmacological RCTs responded with a median of 12.5 (IQR: 10.0, 16.2) and 5.0 (IQR: 4.0, 6.5) additional items (supplementary Table 3).

RCT Characteristics

RCT characteristics are summarized in Table 1. Individual RCT and intervention characteristics are provided in supplementary Tables 4-7. Exercise therapy RCTs included a total of 11,658 participants (7,411 (64%) were allocated to experimental arms; including studies with 1-3 intervention arms) compared with 18,501 participants (11,909 (64%) allocated to experimental arms) in the pharmacological therapy RCTs. The median sample size of exercise RCTs was 138 (IQR: 100, 236) and 160 (IQR: 98, 314) for pharmacological RCTs.

Primary and Secondary End Points

The median overall quality score for RCTs of exercise therapy was 58% (46/80; IQR: 49, 65) compared to 77% (53/68; IQR: 71, 84; $p \leq 0.001$) for pharmacological therapy RCTs (Table 2). For secondary end points, median research reporting quality scores across all guidelines were significantly lower in exercise RCTs in comparison with pharmacological RCTs (Table 2). The lowest scoring research reporting quality guideline was CONSORT-Harms for both exercise and pharmaceutical studies. In exercise RCTs, median CONSORT-Harms score was 32% (3/9; IQR: 11, 51) compared with 67% (6/10; IQR: 40, 73) in pharmacological RCTs ($p \leq 0.001$; Table 2). Harms reporting was missing entirely from 19% (9/48) of exercise RCTs and 4% (2/48) of pharmacological RCTs. Exercise RCTs reported 57% (8/15; IQR: 7, 10) of TIDieR items (Table 2). All exercise RCTs (100%) reported the intervention names, rationale, and total intervention lengths (Table 3); while >75% of exercise RCTs were missing details related to intervention personnel, progression, and participant adherence (Table 3). Additional summaries of individual reporting quality items are provided for CONSORT-NPT (supplementary Table 8; exercise trials), CONSORT (supplementary Table 9; pharmacological trials), CONSORT-Harms (supplementary Table 10; exercise and pharmacological trials), and TIDieR-based intervention items (supplementary Table 11; exercise and pharmacological trials). In exercise RCTs, median Cochrane ROB score was 71% (10/14; IQR: 64, 79) compared with 93% (13/14; IQR: 86, 93) in pharmacological RCTs ($p \leq 0.001$; Table 2). A summary of Cochrane ROB assessments for individual exercise and pharmacological therapy RCTs is provided in Table 4.

Factors Associated with Reporting Quality

Journal impact factor ≥25 (OR: 1.36; 95% CI: 1.18 to 1.57), larger sample size ≥152 (OR: 1.29; 95% CI: 1.11 to 1.51), and more recent publication year ≥2013 (OR: 1.18; 95% CI: 1.03 to 1.34) were significantly associated with higher overall quality scores in exercise RCTs (Table 5). The only factor associated with greater overall quality scores in pharmacological RCTs was more recent publication year ≥2013 (OR: 1.35; 95% CI: 1.14 to 1.60; $p<0.001$).

DISCUSSION

We evaluated the quality of research reporting and conduct within exercise therapy RCTs in clinical populations, then compared with the quality of reporting and conduct in matched pharmacological therapy RCTs. Our findings demonstrate that the quality of exercise therapy RCT reporting and conduct is suboptimal according to all the research reporting guidelines and conduct inventories used in this study and is inferior to RCTs of pharmacological therapy.

To our knowledge, five systematic reviews[120-124] have evaluated the overall quality of research reporting and conduct within exercise RCTs in clinical populations. Our findings corroborate the findings of these systematic reviews demonstrating the overall quality of exercise RCT reporting and conduct is suboptimal. For instance, in 27 exercise RCTs involving 1,467 patients with metabolic syndrome, Ostman et al.[123] reported a median overall quality of 60% (range: 33-87%) using the TESTEX (Tool for the assEssment of Study qualiTy and reporting in EXercise[125]) guideline. Similarly, Borror and colleagues[120] evaluated 12 exercise RCTs (representing 135 patients) with type 2 diabetes using a combination of 16 items from CONSORT, Jadad, PEDro (Physiotherapy Evidence Database) guidelines,[126] and the Delphi list.[127] The combined trial reporting and conduct quality score was 49% (range: 38%-58%). Nevertheless, prior reviews have several important limitations. First, these reviews[120-124] did not use the complete versions of comprehensive and widely accepted guidelines (*e.g.*, CONSORT, Cochrane ROB) and, thus, did not rigorously evaluate the quality of all salient aspects of trial reporting and conduct. In addition, the number of exercise trials evaluated were small, comparisons of reporting with matched pharmacological trials were not performed, and no data extraction training or standardization were described within these studies. Thus, our review that was conducted by well-trained independent reviewers using specialized reference guides to facilitate standardized data extraction according to five distinct but complementary established guidelines / tools to assess and compare a large number of exercise trials and matched pharmacological trials provides the most rigorous evaluation of exercise research quality to date.

Although overall quality scores were poor in RCTs of exercise therapy, these findings were generally driven by poor research reporting quality scores across select individual guidelines rather than suboptimal RCT conduct per se. Foremost among these, the finding that harms were the most poorly reported aspects of exercise RCTs is concerning. Previous reviews in patients with cancer,[128] chronic fatigue,[129] and multiple sclerosis[130] have specifically focused on evaluating the reporting of adverse event frequency and descriptions; this information was completely missing within 23-88% of included exercise trials.[128-130] Our study extends these findings by demonstrating that harms-related monitoring and reporting were missing or incompletely reported in ≥75% of exercise RCTs; and, relatedly, >50% of articles failed to provide a balanced discussion of risks to benefits for the tested interventions. Based on our findings, we cannot support or refute the prevailing dogma that exercise is a safe and tolerable intervention strategy in most areas of clinical medicine.[1] However, it is not possible to fully evaluate the harms to benefit ratio of exercise without accurate monitoring and reporting of adverse events within exercise RCTs - a critical consideration in the clinical recommendation of any medical intervention.

Reporting of intervention methods is the most commonly assessed quality metric in exercise RCTs to date. Our findings support previous reviews of exercise interventions in patients with peripheral arterial disease,[131] cancer,[132] hypertension,[133] and recovering from stroke[134] demonstrating essential elements, including details on the exercise prescription regimen itself, are incompletely reported. For example, Hacke et al. used TIDieR to assess intervention reporting quality in 24 exercise RCTs involving 1,195 patients with hypertension and reported that 91% of exercise intervention studies in were missing information about intervention supervisors and 52% were missing details of intervention adherence.[133] Relatedly, Tew et al. also used TIDieR and reported that 20-26% of reports failed to describe several of the most fundamental exercise intervention elements (*i.e.*, exercise mode, intensity, tailoring, and progression) in 58 exercise RCTs in patients with peripheral arterial disease.[131] In our study, information on patient compliance to the planned exercise regimen as well as the expertise of the individuals implementing the intervention was missing or incomplete in >90% of trials; fundamental

details pertaining to dose of prescribed exercise were also missing in over a third of trials. Incomplete intervention description not only hinders study reproducibility and cross-study integration (for meta-analyses) but also precludes quantification of exercise therapy dose – a key metric for elucidation of dose/exposure-response relationships and translation into clinical practice.[135]

A major strength of this review is that, to our knowledge, it is the first to compare the quality of research reporting and conduct within exercise and pharmacological therapy RCTs. We used rigorous data extraction and evaluation processes to provide the first direct evidence that the quality of research reporting and conduct within exercise RCTs is inferior to similar pharmacological RCTs. For context, the reporting quality of pharmacological RCTs in our review is comparable with previous reviews. For example, using CONSORT, Peron and colleagues[136] found that reporting quality of pharmacological RCTs in oncology ranged from 72% to 74%; the mean CONSORT-Harms score was 63%.[137] A similar review conducted by Ritchie et al. reported a CONSORT score of 72% in 57 pharmacological RCTs (33% of studies involved patients with metabolic and cardiorespiratory diseases).[138] Our findings are consistent with these studies and suggest that comparable research reporting quality scores for exercise RCTs are, on average, 15%-20% lower.

Several factors may contribute to the lower quality scores for research reporting and conduct within exercise trials. For instance, CONSORT was developed primarily to support the reporting of pharmacological trials and may not adequately capture aspects unique to the conduct of non-pharmacological trials such as exercise.[139] This issue should have been addressed, in theory, with publication of the CONSORT-NPT extension in 2008.[6,140] Indeed, this extension was developed to facilitate complete reporting across the fundamental aspects of RCTs applicable to all non-pharmacologic trials, including exercise. Reporting quality of traditional biomedical therapy RCTs (*e.g.*, surgical, pharmaceutical) has improved since the publication of the CONSORT guidelines and superior in journals adopting these guidelines.[141-143] We similarly found that exercise RCTs published more recently (>2013) had higher overall quality scores. These findings are encouraging and suggest that the awareness and use of established guidelines and inventories to support research reporting and conduct

may be increasing, although there remains marked room for improvement. Continued improvement in this context will require continued education of exercise investigators to conform with such guidelines and journals / reviewers hold authors accountable to use of such guidelines. Stricter adherence to CONSORT-NPT, for example, would improve the reporting quality of most fundamental trial aspects; however, this tool may still be too generic to support the comprehensive reporting of features unique to exercise trials, especially intervention description. To this end, adoption of TIDieR, or the more recent exercise-specific CERT (*i.e.*, Consensus on Exercise Reporting Template) guidelines,[144] is warranted to improve the reporting and reproducibility of exercise interventions within exercise RCTs.

Our study has several limitations. First, the restriction to journals with impact factors ≥15 may overestimate the quality of research reporting and conduct within the included exercise and pharmacological therapy RCTs. Nevertheless, we felt it was necessary to selectively draw from this subset of journals given they are most likely to endorse and enforce reporting quality guidelines[14-16] to impartially compare and contextualize our findings. Second, the lack of broadly applicable or unified guidelines to compare across exercise and pharmacological therapy RCTs also merits consideration. Guidelines used to evaluate the quality of RCT reporting were either different between study types (*i.e.*, CONSORT-NPT[6] vs. CONSORT[7]), developed specifically for harms reporting in pharmacological trials,[20] or investigator-derived given that there are formal standards for non-pharmacological (*i.e.*, TIDieR[21]), but not pharmacological, intervention reporting. Nevertheless, we controlled for differences in the numbers of evaluable and applicable items across the reporting quality guidelines.

In summary, the overall quality of research reporting and conduct within exercise RCTs is suboptimal and inferior to pharmacological RCTs. Stricter adherence to established guidelines and inventories is warranted to facilitate the generation of high-quality evidence needed to optimize the safety, efficacy, and implementation of exercise therapy in clinical populations.

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Contributors: LWJ conceived the study idea. SCA and JMS coordinated the systematic review. SCA, LWJ and JMS wrote the first draft of the manuscript. KM designed the search strategy. KS and JM screened abstracts and full texts. JM, KS and SCA acquired the data and judged risk of bias in the studies. JL and CM performed the data analyses. SCA, JM, KS, KM, NMI, ABW, JL, CSM, MMZC, DSM, JMS and LWJ interpreted the data analysis. SCA, JM, KS, KM, NMI, ABW, JL, CSM, MMZC, DSM, JMS and LWJ critically revised the manuscript. LWJ had full access to all study data and takes responsibility for the integrity of the data and the accuracy of the data analysis. The findings of this study have been presented clearly, honestly, and without fabrication, falsification, or inappropriate data manipulation. LWJ is the guarantor.

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Transparency: The senior author (the manuscript's guarantor) confirms that the manuscript is an honest, accurate, and transparent account of the conducted review; that no important aspects of the study or data have been omitted; and that any discrepancies from the study as planned (i.e., reported in the trial registry) have been explained.

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Table 1. Characteristics of exercise and pharmacological therapy RCTs

Characteristic	Exercise Therapy RCTs[1] No. (%)	Pharmacological Therapy RCTs[2] No. (%)
Journal (*Impact Factors*[3])		
Annals of Internal Medicine (*19.315*)	2 (4.2%)	4 (8.3%)
British Medical Journal (*27.604*)	1 (2.1%)	0 (0%)
Circulation (*23.054*)	0 (0%)	2 (4.2%)
European Heart Journal (*24.889*)	4 (8.3%)	4 (8.3%)
European Urology (*17.298*)	3 (6.2%)	3 (6.2%)
Gastroenterology (*19.809*)	0 (0%)	2 (4.2%)
Gut (*17.943*)	1 (2.1%)	0 (0%)
Journal of the American College of Cardiology (*18.639*)	7 (15%)	7 (15%)
Journal of the American Medical Association (JAMA; *51.273*)	12 (25%)	9 (19%)
JAMA Internal Medicine (*20.768*)	2 (4.2%)	1 (2.1%)
JAMA Oncology (*22.416*)	1 (2.1%)	0 (0%)
Journal of Clinical Oncology (*28.349*)	11 (23%)	13 (27%)
Lancet (*59.102*)	0 (0%)	1 (2.1%)
New England Journal of Medicine (*70.670*)	4 (8.3%)	2 (4.2%)
Journal impact factor		
Overall (median [IQR])	28 (19, 51)	28 (19, 34)
Number of sites		
Single	33 (69%)	15 (31%)
Multi-center	15 (31%)	33 (69%)
Sample size		
Overall (median [IQR])	138 (100, 236)	160 (98, 314)
Year of publication		
<2013	24 (50%)	17 (35%)
≥2013	24 (50%)	31 (65%)
Author response	16 (33%)	7 (15%)

Notes: %, percent; IQR, interquartile range; No., number; RCTs, randomized controlled trials
[1] n=48 exercise therapy RCTs; [2] n=48 pharmacological therapy RCTs; [3] Clarivate (2018)

Table 2. Quality of exercise and pharmacological therapy RCT reporting and conduct

Outcomes	Exercise RCTs[1]		Pharmacological RCTs[2]		p-values*
	Median	IQR	Median	IQR	
Primary Outcome					
Overall Quality Score	45.5	38.8, 51.2	52.5	46.8, 58.0	<0.001
Eligible score [3a,b]	80.0	78.0, 81.0	68.0	67.0, 69.0	
Percent	58.2	48.6, 64.5	77.1	70.5, 83.9	
Secondary Outcomes					
Research Reporting Guidelines					
CONSORT Score	25.0	23.0, 28.0	25.0	22.0, 28.0	<0.001
Eligible score [4a,b]	45.0	44.0, 47.0	33.0	32.0, 34.0	
Percent	56.8	50.0, 62.8	75.4	69.7, 84.7	
CONSORT-Harms Score	3.0	1.0, 5.0	6.0	4.0, 7.2	<0.001
Eligible score [5]	9.0	9.0, 10.0	10.0	10.0, 10.0	
Percent	31.7	11.1, 51.4	66.7	40.0, 72.5	
Intervention Score	4.0	3.0, 4.0	4.0	4.0, 4.2	0.02
Eligible score [6]	6.0	-	6.0	-	
Percent	66.7	50, 66.7	66.7	66.7, 70.8	
TIDieR Score	8.0	7.0, 10.0	-	-	-
Eligible score [7]	15.0	14.0, 15.0	-	-	
Percent	57.4	49.2, 67.9	-	-	
Research Conduct Inventories					
Cochrane ROB Score	10.0	9.0, 11.0	13.0	12.0, 13.0	<0.001
Eligible score [8]	14.0	-	14.0	-	
Percent	71.4	64.3, 78.6	92.9	85.7, 92.9	
Jadad Score	3.0	2.8, 5.0	5.0	4.0, 5.0	<0.001
Eligible score [9]	5.0	-	5.0	-	
Percent	60.0	55.0, 100.0	100.0	80.0, 100.0	

Notes: %, percent; IQR, interquartile range; RCTs, randomized controlled trials

[1] n=48 exercise therapy RCTs; [2] n=48 pharmacological therapy RCTs

* p-values were adjusted for multiple comparisons within Research Reporting Guidelines and within Research Conduct Inventories using a Bonferroni correction.

Maximum possible quality scores:

[3a,b] Overall quality for exercise therapy RCTs = 87[3a] and pharmacological therapy RCTs = 72[3b]

[4a,b] CONSORT-NPT for exercise therapy RCTs = 52[4a]; CONSORT for pharmacological therapy RCTs = 37[4b]

[5] CONSORT-Harms for all RCTs = 10

[6] Intervention for all RCTs = 6

[7] TIDieR for exercise RCTs = 16

[8] Cochrane ROB for all RCTs = 14

[9] Jadad scale for all RCTs = 5

Table 3. Individual TIDieR item reporting summary for exercise therapy RCTs

Item No.	Expanded TIDieR Criteria	Evaluation Outcomes			
		Yes No. (%)	Unclear No. (%)	No No. (%)	NA No. (%)
1	Provide the name or a phrase that describes the intervention.	48 (100%)	0 (0%)	0 (0%)	0 (0%)
2	Describe any rationale, theory, or goal of the elements essential to the intervention.	48 (100%)	0 (0%)	0 (0%)	0 (0%)
3	Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of providers.	20 (42%)	5 (10%)	0 (0%)	23 (48%)
4	Describe each of the procedures, activities, & / or processes used in the intervention, including any enabling or support activities.	33 (69%)	5 (10%)	10 (21%)	0 (0%)
5	For each category of intervention provider, describe their expertise, background & any specific training given.	7 (15%)	4 (8%)	37 (77%)	0 (0%)
6	Describe the modes of delivery of the intervention & whether it was provided individually or in a group.	17 (35%)	3 (6%)	28 (58%)	0 (0%)
7	Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features.	36 (75%)	5 (10%)	7 (15%)	0 (0%)
8a	Describe the intensity of intervention sessions.	31 (65%)	0 (0%)	17 (35%)	0 (0%)
8b	Describe the frequency of intervention sessions.	40 (83%)	0 (0%)	8 (17%)	0 (0%)
8c	Describe the duration of intervention sessions.	28 (58%)	0 (0%)	20 (42%)	0 (0%)
8d	Describe the total length of the intervention period.	48 (100%)	0 (0%)	0 (0%)	0 (0%)
9i	If the intervention was planned to be personalised, then describe when & how.	19 (40%)	9 (19%)	20 (42%)	0 (0%)
9ii	If the intervention was planned to be progressed, then describe when & how.	3 (6%)	6 (13%)	39 (81%)	0 (0%)
10	If the intervention was modified during the course of the study, describe the changes (what, why, when, & how).	1 (2%)	0 (0%)	0 (0%)	47 (98%)
11	If intervention adherence or fidelity was assessed, describe how and by whom, & if any strategies were used to maintain or improve fidelity, describe them.	16 (33%)	10 (21%)	22 (46%)	0 (0%)
12	If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned.	2 (4%)	3 (6%)	43 (90%)	0 (0%)

Notes: %, percent; NA, not applicable; No., number

Table 4. Cochrane ROB ratings for individual exercise and pharmacological therapy RCTs

Exercise RCTs	Sequence Generation	Allocation Concealment	Participant Blinding	Assessment Blinding	Attrition Bias	Selective Reporting	Other Sources	Pharmacological RCTs	Sequence Generation	Allocation Concealment	Participant Blinding	Assessment Blinding	Attrition Bias	Selective Reporting	Other Sources
Beckers et al. (2008)	−	?	−	?	+	+	+	Ahmed et al. (2008)	?	?	+	+	+	+	+
Beer et al. (2008)	?	?	−	?	+	+	−	Gheorghiade et al. (2008)	?	?	+	+	+	+	+
Ligibel et al. (2008)	?	?	−	?	+	+	+	Greenspan et al. (2008)	+	+	+	+	?	+	+
Maltais et al. (2008)	+	+	−	?	+	+	+	Grudell et al. (2008)	?	?	+	+	+	+	+
Adamsen et al. (2009)	+	+	−	?	+	?	+	Irani et al. (2008)	?	?	−	?	+	+	+
Courneya et al. (2009)	+	+	−	?	+	+	+	Nissen et al. (2008)	?	+	+	+	?	+	+
McDermott et al. (2009)	+	?	−	+	?	?	+	Ratziu et al. (2008)	?	+	+	+	+	+	+
Monninkhof et al. (2009)	+	?	−	?	+	?	+	Caminiti et al. (2009)	?	?	+	?	+	+	+
O'Connor et al. (2009)	+	+	−	+	+	+	+	Frustaci et al. (2009)	+	+	+	+	+	+	+
Patwala et al. (2009)	+	+	−	?	?	+	+	Lapperre et al. (2009)	+	?	+	+	−	+	+
Schmitz et al. (2009)	+	?	−	?	+	?	+	Pradhan et al. (2009)	+	+	+	+	+	+	+
Segal et al. (2009)	+	+	−	−	+	+	?	Loprinzi et al. (2010)	+	?	+	+	?	+	+
Church et al. (2010)	+	+	−	+	+	+	+	Smith et al. (2010)	+	+	+	+	?	+	+
Friedenreich et al. (2010)	+	+	−	+	+	?	+	Ellis et al. (2011)	+	?	+	?	+	+	+
Galvao et al. (2010)	+	+	−	−	+	+	+	Rosenheck et al. (2011)	+	+	?	?	+	+	−
Schmitz et al. (2010)	+	+	−	+	+	+	+	Spitzer et al. (2012)	+	+	+	+	+	+	+
Edelmann et al. (2011)	+	+	−	+	+	+	+	Gheorghiade et al. (2013)	?	?	+	+	+	+	+
Hallsworth et al. (2011)	?	?	?	?	+	?	+	Hurvitz et al. (2013)	+	?	−	−	+	+	+
Villareal et al. (2011)	+	?	−	?	+	+	+	Klotz et al. (2013)	+	?	+	?	?	+	+
Belardinelli et al. (2012)	?	?	−	+	?	+	+	Kosmala et al. (2013)	+	+	+	?	+	+	+
Campbell et al. (2012)	+	?	−	+	+	+	+	Poole et al. (2013)	+	?	+	+	+	+	+
Duijts et al. (2012)	+	+	−	?	?	+	+	van der Bom et al. (2013)	+	+	+	+	+	+	+
Sandri et al. (2012)	+	+	−	?	?	+	+	Yardley et al. (2013)	+	?	+	+	+	+	+
Winter et al. (2012)	+	+	−	?	?	+	+	Ford et al. (2014)	+	?	+	+	+	+	+

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Exercise RCTs	Sequence Generation	Allocation Concealment	Participant Blinding	Assessment Blinding	Attrition Bias	Selective Reporting	Other Sources	Pharmacological RCTs	Sequence Generation	Allocation Concealment	Participant Blinding	Assessment Blinding	Attrition Bias	Selective Reporting	Other Sources
Daumit et al. (2013)	+	+	−	+	+	+	+	Han et al. (2014)	+	+	+	+	+	+	+
Kitzman et al. (2013)	?	?	−	+	+	+	+	Harman et al. (2014)	+	+	+	+	+	+	+
Messier et al. (2013)	?	?	−	+	+	+	+	Taplin et al. (2014)	?	?	+	+	+	+	+
Pitkala et al. (2013)	+	+	−	?	+	+	+	Cummings et al. (2015)	?	+	+	+	+	+	+
Galvao et al. (2014)	+	+	−	−	+	+	+	Hamshere et al. (2015)	+	?	+	+	+	+	+
Hollekim-Strand et al. (2014)	?	?	−	?	?	+	+	Hoendermis et al. (2015)	+	?	+	+	+	+	+
Jones et al. (2014)	?	?	−	?	+	+	+	Krankenberg et al. (2015)	?	+	+	+	?	+	+
Pahor et al. (2014)	+	?	−	+	+	?	+	Tsujita et al. (2015)	+	?	+	+	?	+	+
Fakhry et al. (2015)	+	+	−	+	+	+	+	Ulrich et al. (2015)	+	?	+	+	+	+	+
Friedenreich et al. (2015)	+	+	−	+	+	+	+	Cortelazzo et al. (2016)	+	+	+	?	+	+	+
Irwin et al. (2015)	?	?	−	?	?	+	+	Cusi et al. (2016)	+	+	+	+	+	+	+
Murphy et al. (2015)	+	?	−	+	−	+	?	Kosmala et al. (2016)	?	+	+	+	+	+	+
Ross et al. (2015)	+	+	−	+	+	+	?	McKay et al. (2016)	?	?	+	?	+	+	+
van Waart et al. (2015)	+	?	−	?	−	−	+	Schmid et al. (2016)	+	?	+	+	+	+	+
Ehlken et al. (2016)	?	?	−	+	+	+	+	Yoshimura et al. (2016)	?	+	+	?	+	+	+
Kitzman et al. (2016)	+	?	−	?	+	+	+	Goebel et al. (2017)	+	+	+	+	+	+	+
Zhang et al. (2016)	+	+	−	+	+	+	+	Soiffer et al. (2017)	+	?	+	?	−	+	+
Johansen et al. (2017)	+	+	−	+	+	+	+	Urruticoechea et al. (2017)	+	+	+	?	+	+	+
McDermott et al. (2017)	+	?	−	+	+	+	+	Wysham et al. (2017)	?	+	+	+	+	+	+
Saberi et al. (2017)	+	?	−	+	+	+	+	Devereux et al. (2018)	+	+	+	?	+	+	+
Taaffe et al. (2017)	+	?	−	?	+	+	?	Johnson et al. (2018)	+	+	+	?	+	+	+
Villareal et al. (2017)	+	?	−	+	+	+	+	Kim et al. (2018)	+	?	+	+	+	+	+
Dieli-Conwright et al. (2018)	+	+	−	?	+	+	+	Rimawi et al. (2018)	+	+	+	?	+	+	+
McDermott et al. (2018)	+	?	−	?	+	+	+	Wapnir et al. (2018)	+	+	+	?	+	+	+

Table 5. Factors associated with overall quality score, stratified by study type

Outcome	Study Characteristics	Analysis Dichotomy	Exercise Therapy RCTs[1]			Pharmacological Therapy RCTs[2]		
			OR	95% CI	*p*-value	OR	95% CI	*p*-value
Overall quality score	Impact factor	≥25 vs <25	1.36	1.18, 1.57	<0.001	1.02	0.84, 1.24	0.80
	Sample size	≥152 vs <152	1.29	1.11, 1.51	0.001	1.20	0.97, 1.47	0.089
	Number of sites	Multi- vs Single Centre	1.08	0.92, 1.27	0.30	1.21	0.98, 1.49	0.078
	Publication year	≥2013 vs <2013	1.18	1.03, 1.34	0.015	1.35	1.14, 1.60	<0.001

Notes: CI, confidence interval; OR, odds ratio; RCTs, randomized controlled trials
[1] n=48 exercise therapy RCTs; [2] n=48 pharmacological therapy RCTs

Figure Caption

Fig 1. PRISMA Flow Diagram

Notes: RCT, randomized controlled trial

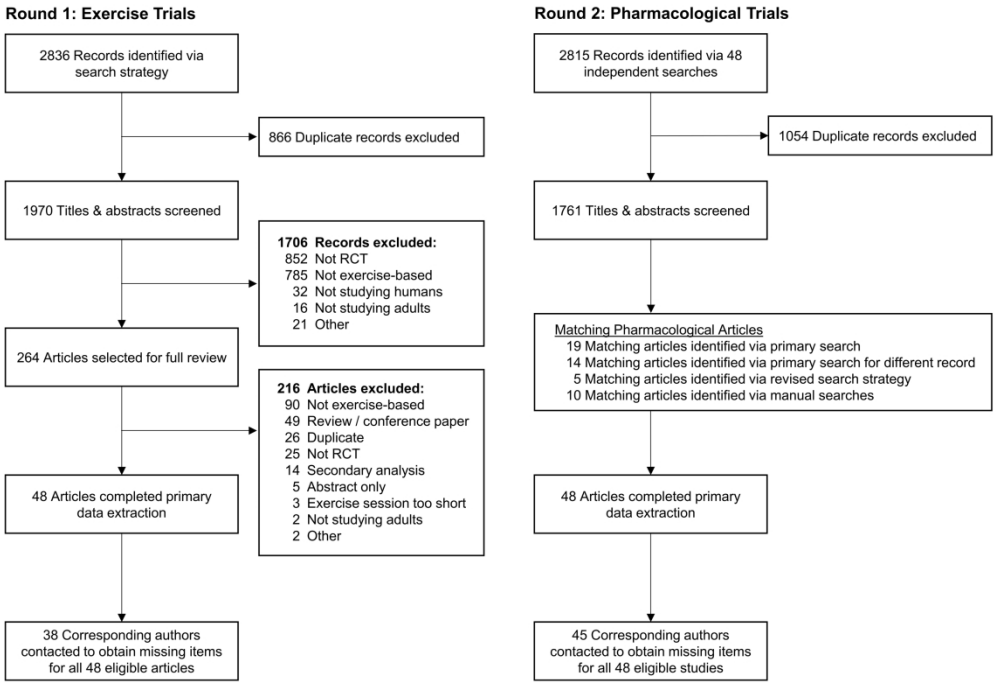

Fig 1. PRISMA Flow Diagram

Notes: RCT, randomized controlled trial

Online Supplement

Comparing the quality of reporting and conduct of exercise therapy and pharmacological randomized controlled trials: A systematic review

Table of Contents

Supplementary Methods 1: PRISMA Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	5
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	5
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	6
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	6
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	6, eMethods
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	eMethods
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	6,7, eMethods
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	6,7, eMethods
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	7,8
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	7,8
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	8
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	8

Supplementary Methods 1: PRISMA Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	7,8
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	8,9
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	10, eMethods, Fig 1
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	eResults
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	eResults
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	eResults
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	NA
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	10, Table 2, eResults
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	11, Table 3, eResults
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	12-14
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	14-15
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	15
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	1

Supplementary Methods 2: AMSTAR 2 Checklist

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

1. Did the research questions and inclusion criteria for the review include the components of PICO?

For Yes:	Optional (recommended)	
☒ Population	☐ Timeframe for follow-up	☒ Yes
☒ Intervention		☐ No
☒ Comparator group		
☒ Outcome		

2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?

For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following:	For Yes: As for partial yes, plus the protocol should be registered and should also have specified:	
		☒ Yes
☐ review question(s)	☐ a meta-analysis/synthesis plan, if appropriate, *and*	☐ Partial Yes
☐ a search strategy	☐ a plan for investigating causes of heterogeneity	☐ No
☐ inclusion/exclusion criteria	☐ justification for any deviations from the protocol	
☐ a risk of bias assessment		

3. Did the review authors explain their selection of the study designs for inclusion in the review?

For Yes, the review should satisfy ONE of the following:	
☒ *Explanation for* including only RCTs	☒ Yes
☐ OR *Explanation for* including only NRSI	☐ No
☐ OR *Explanation for* including both RCTs and NRSI	

4. Did the review authors use a comprehensive literature search strategy?

For Partial Yes (all the following):	For Yes, should also have (all the following):	
☐ searched at least 2 databases (relevant to research question)	☒ searched the reference lists / bibliographies of included studies	☒ Yes
☐ provided key word and/or search strategy	☒ searched trial/study registries	☐ Partial Yes
☐ justified publication restrictions (e.g. language)	☒ included/consulted content experts in the field	☐ No
	☒ where relevant, searched for grey literature	
	☒ conducted search within 24 months of completion of the review	

5. Did the review authors perform study selection in duplicate?

For Yes, either ONE of the following:	
☒ at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include	☒ Yes
☐ OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer.	☐ No

Supplementary Methods 2: AMSTAR 2 Checklist

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

6. Did the review authors perform data extraction in duplicate?

For Yes, either ONE of the following:
- ☒ at least two reviewers achieved consensus on which data to extract from included studies
- ☐ OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer.

☒ Yes ☐ No

7. Did the review authors provide a list of excluded studies and justify the exclusions?

For Partial Yes:
- ☐ provided a list of all potentially relevant studies that were read in full-text form but excluded from the review

For Yes, must also have:
- ☒ Justified the exclusion from the review of each potentially relevant study

☒ Yes ☐ Partial Yes ☐ No

8. Did the review authors describe the included studies in adequate detail?

For Partial Yes (ALL the following):
- ☐ described populations
- ☐ described interventions
- ☐ described comparators
- ☐ described outcomes
- ☐ described research designs

For Yes, should also have ALL the following:
- ☒ described population in detail
- ☒ described intervention in detail (including doses where relevant)
- ☒ described comparator in detail (including doses where relevant)
- ☒ described study's setting
- ☒ timeframe for follow-up

☒ Yes ☐ Partial Yes ☐ No

9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?

RCTs

For Partial Yes, must have assessed RoB from
- ☐ unconcealed allocation, *and*
- ☐ lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality)

For Yes, must also have assessed RoB from:
- ☒ allocation sequence that was not truly random, *and*
- ☒ selection of the reported result from among multiple measurements or analyses of a specified outcome

☒ Yes ☐ Partial Yes ☐ No ☐ Includes only NRSI

NRSI

For Partial Yes, must have assessed RoB:
- ☐ from confounding, *and*
- ☐ from selection bias

For Yes, must also have assessed RoB:
- ☐ methods used to ascertain exposures and outcomes, *and*
- ☐ selection of the reported result from among multiple measurements or analyses of a specified outcome

☐ Yes ☐ Partial Yes ☐ No ☒ Includes only RCTs

10. Did the review authors report on the sources of funding for the studies included in the review?

For Yes
- ☒ Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies

☒ Yes ☐ No

Supplementary Methods 2: AMSTAR 2 Checklist

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?

RCTs

For Yes:

- ☐ The authors justified combining the data in a meta-analysis
  - ☐ AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present.
  - ☐ AND investigated the causes of any heterogeneity

☐ Yes
☐ No
☒ No meta-analysis conducted

For NRSI

For Yes:

- ☐ The authors justified combining the data in a meta-analysis
  - ☐ AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present
  - ☐ AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available
  - ☐ AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review

☐ Yes
☐ No
☒ No meta-analysis conducted

12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?

For Yes:

- ☐ included only low risk of bias RCTs
- ☐ OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect.

☐ Yes
☐ No
☒ No meta-analysis conducted

13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review?

For Yes:

- ☐ included only low risk of bias RCTs
- ☒ OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results

☒ Yes
☐ No

14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?

For Yes:

- ☐ There was no significant heterogeneity in the results
- ☒ OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review

☒ Yes
☐ No

15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?

For Yes:

- ☐ performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias

☐ Yes
☐ No
☒ No meta-analysis conducted

Supplementary Methods 2: AMSTAR 2 Checklist

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?

For Yes:

- ☒ The authors reported no competing interests OR
- ☐ The authors described their funding sources and how they managed potential conflicts of interest

☒ Yes
☐ No

To cite this tool: Shea BJ, Reeves BC, Wells G, Thuku M, Hamel C, Moran J, Moher D, Tugwell P, Welch V, Kristjansson E, Henry DA. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. BMJ. 2017 Sep 21;358:j4008.

Supplementary Methods 3: Study Search, Selection & Data Extraction Methods

This review was conducted in accordance with the PRISMA[1] and AMSTAR 2[2] guidelines (PROSPERO identifier CRD42018095033) (**eMethods 1** and **2**).

Data Sources and Searches

A Research Informationist (KM) conducted two sequential literature searches for articles from RCTs of exercise (first search) and pharmacological (second search) therapies within the Cochrane Central Register of Controlled Trials (Wiley), Embase (Elsevier), PubMed (NLM), and CINAHL (EBSCO) databases (eFigure 1). The exercise literature search was conducted on March 8th, 2018 and consisted of two component concepts using a combination of relevant keywords and controlled vocabulary: (1) exercise training intervention and (2) RCTs (**eMethods 4**). The Round 1 search was limited to trials published between January 1st 2008 (the year the CONSORT extension for Non-Pharmacologic Treatments was first published[3]) and the search date (March 8th, 2018). The searches were also limited to publications within leading clinical, general medicine and specialist medical journals based on having impact factors ≥15 according to the 2016 Journal Citation Reports (Clarivate Analytics, formerly ISI Web of Knowledge). We purposefully restricted our search to medical journals with impact factors ≥15 since: (1) journals with higher impact factors are more likely to endorse and enforce reporting quality guidelines;[14-16] and, therein (2) we believed that more homogeneous publication standards would allow us to better contextualize our findings comparing the quality of research reporting and conduct between exercise and pharmacological therapy RCTs. This approach is also consistent with the methods from similar reviews of medical, psychosocial, and behavioural RCTs.[4-10]

Trial meta-data (i.e., publishing journal, cohort / population, sample size, and number of study sites) was extracted from eligible exercise studies and used as 'matching criteria' to define search parameters for the pharmacological trial searches. In Round 2, 48 independent searches were initially conducted to identify pharmacological trials to match each of the 48 eligible exercise RCTs identified in Round 1. The initial Round 2 searches were conducted on November 20th, 2018. Each search consisted of five component concepts using a combination of relevant search terms and 'matching criteria' for: 1) pharmacological intervention, 2) RCTs, 3) publishing journal, 4) population, and 5) number of study sites (single- vs. multi-site studies). The Round 2 searches were similarly limited to trials published between January 1st 2008 and the search date within leading clinical, general medicine and specialist medical journals based on having impact factors ≥15 according to the 2016 Journal Citation Reports (**eMethods 4**). Per Round, search strategy components were first searched individually

(combining synonyms describing that concept with the Boolean operator OR), followed by the individual component search sets combined together using the Boolean operator AND.

Study Eligibility

Published RCTs of exercise and pharmacological interventions involving human adults (≥18 years of age), written in English, published after January 1st 2008, and published in leading clinical, general medicine and specialist medical journals were eligible (**eMethods 4** and **5**). Exercise therapy interventions were defined as those involving chronic (>3 weeks), repeated sessions of supervised (in person, with or without a distance-based component) aerobic training (i.e., endurance activity, ≥15 minutes/session), resistance training (i.e., multiple large muscle group exercises involving repeated voluntary muscle contractions against a resistance greater than those normally encountered in activities of daily living), or the combination, with the objective of improving health-related outcomes.[11,12] Pharmacological interventions were defined as studies involving the administration of established or experimental pharmacological agents with the objective of improving health.

Data Extractor Training

Study reviewers (JM and KS) were trained in eligibility screening and data extraction over the course of eight weeks (>25 hours of group training), consisting of: (1) independent screening and data extraction from 12 "training" articles of both exercise and pharmacological RCTs using custom study Data Extraction Reference Guides (**eMethods 6** and **7**), and (2) regular investigator-led (SCA) review sessions to evaluate extraction completeness.

Study Selection, Data Extraction and Additional Sources

Article screening and data extraction for all trials was conducted sequentially following each round of literature searches (fig 1). First, two trained reviewers (JM and KS) independently screened and evaluated exercise article titles and abstracts (n=1,970) against review eligibility criteria using DistillerSR (Evidence Partners, Ottawa, Canada). Second, full manuscripts (n=264) of potentially eligible exercise articles were independently reviewed (JM and KS) using DistillerSR. Third, meta-data from each eligible exercise RCT (n=48) was extracted and used to develop the targeted systematic search strategies for Round 2 (i.e., pharmacological trial search). Fourth, detailed data from all studies (e.g., study design and methods, patient characteristics and flow, intervention descriptions) were extracted for each eligible exercise RCT from the primary manuscript and all data sources that were publicly available at the time the primary manuscript was published, including online

supplements, clinical trial registries, and related publications as appropriate using DistillerSR and a custom Exercise Therapy RCT Data Extraction Reference Guide (**eMethods 6**). Fourth, "incomplete" and "missing" items were compiled, and corresponding authors were emailed (from SCA, JMS, LWJ) with a request to provide missing items within ~4 weeks. Non-responding authors were sent a reminder email within 3 weeks providing up to an additional ~4 weeks to respond.

The Round 2 pharmacological therapy RCT searches were conducted (KM, SCA) concurrently with the author contact step from round 1. Titles, abstracts, and full texts (n=1,761) were screened (SCA) to identify pharmacological therapy RCTs that were best matched to the n=48 eligible exercise therapy RCTs according to our matching criteria. The **specific matching criteria** used included: (1) **journal** (±5 impact factor points according to the 2016 Journal Citation Reports (Clarivate Analytics, formerly ISI Web of Knowledge)), (2) **population** (sharing similar disease characteristics), (3) **sample size** (±30% difference in study samples), and (4) **number of study sites** (single vs multiple sites). Nineteen of the initial 48 searches (40%) successfully identified 'matching' pharmacological trials, leaving 29 exercise trials unmatched. Matching pharmacological trials were found for the remaining 29 exercise trials within the search results for different records (n=14 (29%); SCA), by running revised searches (n=5 (10%); KM), and by manual searches of journal databases (n=10 (21%); SCA). Once all exercise trials had been matched, the team (JM and KS) independently extracted data from the primary manuscript and all data sources that were publicly available at the time the primary manuscript was published, including online supplements, clinical trial registries, and related publications as appropriate using DistillerSR and a custom Pharmacological Therapy RCT Data Extraction Reference Guide (**eMethods 7**). Finally, "incomplete" and "missing" items were compiled, and corresponding authors were emailed (from SCA, JMS, LWJ) with a request to provide missing items within ~4 weeks. Non-responding authors were sent a reminder email within 3-4 weeks providing up to an additional ~4 weeks to respond. Disagreements concerning eligibility, data extractions, and risk of bias assessments were resolved by consensus (JM and KS). Disagreements were adjudicated by a third party (SCA) when a consensus could not be reached.

Supplementary Methods 4: Exercise RCT Search Strategies

Exercise Search Strategies

Comprehensive searches were conducted (March 8th, 2018) in three electronic databases:

1) PubMed/Medline (NLM)
2) EMBASE (Elsevier)
3) CINAHL (EBSCO)

The literature search strategy was developed first in PubMed and then translated to the other databases. A combination of relevant keywords and controlled vocabulary (MeSH - Medical Subject Headings in PubMed and Emtree in EMBASE) were used in the PubMed and EMBASE searches. Comparable keyword search strategies were used in CINAHL. A "Last 10 years" (2008-2018) date range was applied. No language restrictions were applied.

Two component parts made up the search strategy:

1) Exercise training intervention
2) RCTs

Date range limit: Last 10 years
Publications limit: 45 target journals

Search filters were used for finding RCTs in PubMed and EMBASE. Available database limiters were used in CINAHL (Publication Type: Clinical Trial, Randomized Controlled Trial).

For the RCT search set, we used Cochrane Handbook recommended search filters for finding RCTs:
http://work.cochrane.org/pubmed

sensitivity- and precision-maximizing version (2008 revision); PubMed format[1]

(randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti] NOT (animals[mh] NOT humans [mh]))
http://work.cochrane.org/embase

Embase search strategy for finding RCTs in Embase[1]

('crossover procedure':de OR 'double-blind procedure':de OR 'randomized controlled trial':de OR 'single-blind procedure':de OR (random* OR factorial* OR crossover* OR cross NEXT/1 over* OR placebo* OR doubl* NEAR/1 blind* OR singl* NEAR/1 blind* OR assign* OR allocat* OR volunteer*):de,ab,ti)

1. Lefebvre C, Manheimer E, Glanville J. Chapter 6: Searching for studies. In: Higgins J, Green S (editors). Cochrane Handbook for Systematic Reviews of Interventions. Version 5.1.0 (updated March 2011). The Cochrane Collaboration, 2011. Available from **www.cochrane-handbook.org**

Each of the two components of the search strategy was first searched upon individually, combining synonyms describing that concept with the Boolean operator OR. The three individual component search sets were then combined together using the Boolean operator AND. Resulting citations were managed and duplicates removed using the Endnote citation management software program (Clarivate Analytics).

Supplementary Methods 4: Exercise RCT Search Strategies

PubMed/MEDLINE Search Strategy	
1	("Exercise"[Mesh] OR "exercise" OR "exercises" OR "Exercise Therapy"[Mesh] OR "exercise therapy" OR "exercise therapies" OR "exercise prescription" OR "training program" OR "exercise program" OR "Physical Conditioning, Human"[Mesh] OR "physical conditioning" OR "physical activity" OR "physical activities" OR "Motor Activity"[Mesh] OR "motor activity" OR "motor activities" OR "Muscle Contraction"[Mesh] OR "muscle contraction" OR "Resistance Training"[Mesh] OR "resistance training" OR "Circuit-Based Exercise"[Mesh] OR "circuit-based exercise" OR "circuit training" OR "Muscle Stretching Exercises"[Mesh] OR "muscle stretching exercises" OR "aerobic exercise" OR "anaerobic exercise" OR "Locomotion"[Mesh] OR "locomotion" OR "Running"[Mesh] OR "running" OR "Jogging"[Mesh] OR "jogging" OR "Swimming"[Mesh] OR "swimming" OR "Walking"[Mesh] OR "walking" OR "Sports"[Mesh] OR "sports") **AND** ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) **AND** ("CA Cancer J Clin"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal] OR "JAMA"[Journal] OR "Nat Biotechnol"[Journal] OR "Nature"[Journal] OR "Science"[Journal] OR "Lancet Oncol"[Journal] OR "Cell"[Journal] OR "Nat Med"[Journal] OR "Nat Genet"[Journal] OR "Cancer Cell"[Journal] OR "World Psychiatry"[Journal] OR "Lancet Neurol"[Journal] OR "Nat Chem"[Journal] OR "J Clin Oncol"[Journal] OR "Cell Stem Cell"[Journal] OR "Immunity"[Journal] OR "Nat Immunol"[Journal] OR "BMJ"[Journal] OR "Eur Heart J"[Journal] OR "Nat Cell Biol"[Journal] OR "Cancer Discov"[Journal] OR "J Am Coll Cardiol"[Journal] OR "Lancet Infect Dis"[Journal] OR "Lancet Diabetes Endocrinol"[Journal] OR "Circulation"[Journal] OR "Lancet Respir Med"[Journal] OR "Gastroenterology"[Journal] OR "Cell Metab"[Journal] OR "Nat Neurosci"[Journal] OR "Lancet Glob Health"[Journal] OR "Ann Intern Med"[Journal] OR "Psychol Bull"[Journal] OR "Sci Transl Med"[Journal] OR "Gut"[Journal] OR "Trends Biochem Sci"[Journal] OR "JAMA Oncol"[Journal] OR "JAMA Intern Med"[Journal] OR "Psychol Inq"[Journal] OR "Eur Urol"[Journal] OR "Cell Res"[Journal] OR "Trends Cogn Sci"[Journal] OR "JAMA Psychiatry"[Journal] OR "Nat Chem Biol"[Journal]) **AND** ("2008/01/01"[PDAT] : "2018/12/31"[PDAT])

Abbreviations: Mesh = Medical Subject Heading, pt = Publication Type, tiab = Title/Abstract, ti = Title, mh = MeSH Terms

EMBASE Search Strategy	
1	('exercise'/exp OR 'exercise' OR 'exercises' OR 'kinesiotherapy'/exp OR 'exercise therapy' OR 'exercise therapies' OR 'exercise prescription' OR 'training program' OR 'exercise program' OR 'physical conditioning' OR 'physical activity' OR 'physical activities' OR 'motor activity'/exp OR 'motor activity' OR 'motor activities' OR 'muscle contraction'/exp OR 'muscle contraction' OR 'resistance training'/exp OR 'resistance training' OR 'circuit training'/exp OR 'circuit-based exercise' OR 'circuit training' OR 'stretching exercise'/exp OR 'muscle stretching exercises' OR 'aerobic exercise' OR 'anaerobic exercise' OR 'locomotion' OR 'running'/exp OR 'running' OR 'jogging'/exp OR 'jogging' OR 'swimming'/exp OR 'swimming' OR 'walking'/exp OR 'walking' OR 'sport'/exp OR 'sports') AND (('crossover procedure':de OR 'double-blind procedure':de OR 'randomized controlled trial':de OR 'single-blind procedure':de OR random*:de,ab,ti OR factorial*:de,ab,ti OR crossover*:de,ab,ti OR (cross NEXT/1 over*):de,ab,ti OR placebo*:de,ab,ti OR (doubl* NEAR/1 blind*):de,ab,ti OR (singl* NEAR/1 blind*):de,ab,ti OR assign*:de,ab,ti OR allocat*:de,ab,ti OR volunteer*:de,ab,ti)) AND (('15424863':is OR 'CA Cancer Journal for Clinicians'/jt) OR ('15334406':is OR 'New England Journal of Medicine'/jt) OR ('1474547X':is OR 'The Lancet'/jt) OR ('15383598':is OR 'JAMA - Journal of the American Medical Association'/jt) OR ('15461696':is OR 'Nature Biotechnology'/jt) OR ('14764687':is OR 'Nature'/jt) OR ('10959203':is OR 'Science'/jt) OR ('14745488':is OR 'The Lancet Oncology'/jt) OR ('10974172':is OR 'Cell'/jt) OR ('1546170X':is OR 'Nature Medicine'/jt) OR ('15461718':is OR 'Nature Genetics'/jt) OR ('18783686':is OR 'Cancer Cell'/jt) OR ('20515545':is OR 'World Psychiatry'/jt) OR ('14744465':is OR 'The Lancet Neurology'/jt) OR ('15277755':is OR 'Journal of Clinical Oncology'/jt) OR ('18759777':is OR 'Cell Stem Cell'/jt) OR ('10974180':is OR 'Immunity'/jt) OR ('17561833':is OR 'BMJ (Online)'/jt) OR ('15229645':is OR 'European Heart Journal'/jt) OR ('14764679':is OR 'Nature Cell Biology'/jt) OR ('21598290':is OR 'Cancer Discovery'/jt) OR ('15583597':is OR 'Journal of the American College of Cardiology'/jt) OR ('14744457':is OR 'The Lancet Infectious Diseases'/jt) OR ('22138595':is OR 'The Lancet Diabetes and Endocrinology'/jt) OR ('15244539':is OR 'Circulation'/jt) OR ('22132619':is OR 'The Lancet Respiratory Medicine'/jt) OR ('15280012':is OR 'Gastroenterology'/jt) OR ('19327420':is OR 'Cell Metabolism'/jt) OR ('15461726':is OR 'Nature Neuroscience'/jt) OR ('2214109X':is OR 'The Lancet Global Health'/jt) OR ('15393704':is OR 'Annals of Internal Medicine'/jt) OR ('19466242':is OR 'Science Translational Medicine'/jt) OR ('14683288':is OR 'Gut'/jt) OR ('13624326':is OR 'Trends in Biochemical Sciences'/jt) OR ('21686106':is OR 'JAMA Internal Medicine'/jt) OR ('18737560':is OR 'European Urology'/jt) OR ('1879307X':is OR 'Trends in Cognitive Sciences'/jt) OR ('2168622X':is OR 'JAMA Psychiatry'/jt) OR ('15524469':is OR 'Nature Chemical Biology'/jt)) AND (2008:py OR 2009:py OR 2010:py OR 2011:py OR 2012:py OR 2013:py OR 2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py) NOT 'conference abstract'/it
2	(('15424863':is OR 'CA Cancer Journal for Clinicians'/jt) OR ('15334406':is OR 'New England Journal of Medicine'/jt) OR ('1474547X':is OR 'The Lancet'/jt) OR ('15383598':is OR 'JAMA - Journal of the American Medical Association'/jt) OR ('15461696':is OR 'Nature Biotechnology'/jt) OR ('14764687':is OR 'Nature'/jt) OR ('10959203':is OR 'Science'/jt) OR ('14745488':is OR 'The Lancet Oncology'/jt) OR ('10974172':is OR 'Cell'/jt) OR ('1546170X':is OR 'Nature Medicine'/jt) OR ('15461718':is OR 'Nature Genetics'/jt) OR ('18783686':is OR 'Cancer Cell'/jt) OR ('20515545':is OR 'World Psychiatry'/jt) OR ('14744465':is OR 'The Lancet Neurology'/jt) OR ('15277755':is OR 'Journal of Clinical Oncology'/jt) OR ('18759777':is OR 'Cell Stem Cell'/jt) OR ('10974180':is OR 'Immunity'/jt) OR ('17561833':is OR 'BMJ (Online)'/jt) OR ('15229645':is OR 'European Heart Journal'/jt) OR ('14764679':is OR 'Nature Cell Biology'/jt) OR ('21598290':is OR 'Cancer Discovery'/jt) OR ('15583597':is OR 'Journal of the American College of Cardiology'/jt) OR ('14744457':is OR 'The Lancet Infectious Diseases'/jt) OR ('22138595':is OR 'The Lancet Diabetes and Endocrinology'/jt) OR ('15244539':is OR 'Circulation'/jt) OR ('22132619':is OR 'The Lancet Respiratory Medicine'/jt) OR ('15280012':is OR 'Gastroenterology'/jt) OR ('19327420':is OR 'Cell Metabolism'/jt) OR ('15461726':is OR 'Nature Neuroscience'/jt) OR ('2214109X':is OR 'The Lancet Global Health'/jt) OR ('15393704':is OR 'Annals of Internal Medicine'/jt) OR ('19466242':is OR 'Science Translational Medicine'/jt) OR ('14683288':is OR 'Gut'/jt) OR ('13624326':is OR 'Trends in Biochemical Sciences'/jt) OR ('21686106':is OR 'JAMA Internal Medicine'/jt) OR ('18737560':is OR 'European Urology'/jt) OR ('1879307X':is OR 'Trends in Cognitive Sciences'/jt) OR ('2168622X':is OR 'JAMA Psychiatry'/jt) OR ('15524469':is OR 'Nature Chemical Biology'/jt)) **Note: EMBASE does not index the following 6 titles so they were not included in the search string: -Nature Chemistry -Nature Immunology -Psychological Bulletin -JAMA Oncology -Psychological Inquiry -Cell Research

Supplementary Methods 4: Exercise RCT Search Strategies

	CINAHL Search Strategy
1	("exercise" OR "exercises" OR "exercise therapy" OR "exercise therapies" OR "exercise prescription" OR "training program" OR "exercise program" OR "physical conditioning" OR "physical activity" OR "physical activities" OR "motor activity" OR "motor activities" OR "muscle contraction" OR "resistance training" OR "circuit-based exercise" OR "circuit training" OR "muscle stretching exercises" OR "aerobic exercise" OR "anaerobic exercise" OR "locomotion" OR "running" OR "jogging" OR "swimming" OR "walking" OR "sports") AND Limiters - Publication Type: Clinical Trial, Randomized Controlled Trial
2	(((ZJ "new england journal of medicine")) or ((ZJ "lancet")) or ((ZJ "jama journal of the american medical association")) or ((ZJ "lancet oncology")) or ((ZJ "journal of clinical oncology")) or ((ZJ "bmj british medical journal international edition")) or ((ZJ "journal of the american college of cardiology jacc"))) or ((ZJ "circulation"))) or ((ZJ "annals of internal medicine")) or ((ZJ "jama internal medicine"))) AND Limiters - Published Date: 20080101-20181231

Supplementary Methods 5: Pharmacological RCT Search Strategies & Matches

Summary:

Database: PubMed (searched run on November 20th, 2018)

Total (including duplicates): 2815 records

Duplicates: 1054 records

Total (without duplicates): 1761 records to be reviewed

PubMed search strategies for each identified Population from the 48 included EXERCISE papers

1) Exercise trial matching search: ID 33
("Pulmonary Disease, Chronic Obstructive"[Mesh] OR COPD OR "Chronic Obstructive Pulmonary Disease" OR COAD OR "Chronic Obstructive Airway Disease" OR "Chronic Obstructive Lung Disease" OR "Chronic Airflow Obstructions" OR "Chronic Airflow Obstruction" OR ("chronic" AND "obstructive" AND "pulmonary" AND "disease")) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("Ann Intern Med"[Journal]) **Results:** 3 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000073/public/ **Pharma trial match:** Found in original search – Lapperre et al. (2009)
2) Exercise trial matching search: ID 51
(cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant OR "hematooncological" OR "hemato oncological" OR "hemato-oncological" OR hematologic neoplasms OR hematolo*) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("BMJ"[Journal]) **Results:** 14 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000123/public/ **Pharma trial match:** Found in original search from an alternate record (#36) – Rimawi et al. (2018)
3) Exercise trial matching search: ID 96
(("peripheral arterial disease"[MeSH Terms] OR ("peripheral" AND ("arterial" OR "artery" OR "arteries") AND "disease") OR "peripheral arterial disease") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal]) **Results:** 3 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000170/public/ **Pharma trial match:** Found in original search from an alternate record (#31) – Ford et al. (2014)
4) Exercise trial matching search: ID 103
("Heart Failure"[Mesh] OR "heart failure" OR "Cardiac Failure" OR "Heart Decompensation" OR (("heart" OR "cardiac") AND ("failure" OR "decompensation"))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR

Supplementary Methods 5: Pharmacological RCT Search Strategies & Matches

"pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal]) **Results:** 29 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000252/public/ **Pharma trial match:** Found in original search – Gheorghiade et al. (2013)
5) Exercise trial matching search: ID 107
(("Breast Cancer Lymphedema"[Mesh] OR (("lymphedema" OR "lymphedemas") AND ("Breast Neoplasms"[Mesh] OR (("breast" OR "breasts" OR "mammary") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("N Engl J Med"[Journal]) **Results:** NONE – check how match found **Pharma trial match:** Found in original search from an alternate record (#35) – Wapnir et al. (2018)
6) Exercise trial matching search: ID 133
(("Diabetes Mellitus, Type 2"[Mesh] OR "NIDDM" OR "type 2 diabetes mellitus" OR "diabetes mellitus type 2") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal]) **Results:** 18 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000319/public/ **Pharma trial match:** Found in manual search – Nissen et al. (2008)
7) Exercise trial matching search: ID 180
("Breast Neoplasms"[Mesh] OR (("breast" OR "breasts" OR "mammary") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant)) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("N Engl J Med"[Journal]) **Results:** 6 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000333/public/ **Pharma trial match:** Found in original search from an alternate record (#35) – Hurvitz et al. (2013)
8) Exercise trial matching search: ID 282
(("Obesity"[Mesh]OR "obesity" OR "obese") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("N Engl J Med"[Journal]) **Results:** 14 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000364/public/ **Pharma trial match:** Found in manual search – Smith et al. (2010)
9) Exercise trial matching search: ID 394

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("Mental Disorders"[Mesh] OR ((mental* OR psycholog* OR brain OR mind) AND ("disorder" OR "disorders" OR "illness" OR "ill" OR "disease" OR "diseases"))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("N Engl J Med"[Journal])

Results: 79 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000661/public/

Pharma trial match: Found in original search – Rosenheck et al. (2011)

10) Exercise trial matching search: ID 431

((((((((("Obesity"[Mesh] OR "obesity" OR "obese" OR "Overweight"[Mesh] OR "overweight" OR "Weight Loss"[MeSH Terms] OR "Body Mass Index"[MeSH Terms])))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre"))) AND (("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))))) AND (((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh]))))) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]))) AND ("CA Cancer J Clin"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal] OR "JAMA"[Journal] OR "Nat Biotechnol"[Journal] OR "Nature"[Journal] OR "Science"[Journal] OR "Lancet Oncol"[Journal] OR "Cell"[Journal] OR "Nat Med"[Journal] OR "Nat Genet"[Journal] OR "Cancer Cell"[Journal] OR "World Psychiatry"[Journal] OR "Lancet Neurol"[Journal] OR "Nat Chem"[Journal] OR "J Clin Oncol"[Journal] OR "Cell Stem Cell"[Journal] OR "Immunity"[Journal] OR "Nat Immunol"[Journal] OR "BMJ"[Journal] OR "Eur Heart J"[Journal] OR "Nat Cell Biol"[Journal] OR "Cancer Discov"[Journal] OR "J Am Coll Cardiol"[Journal] OR "Lancet Infect Dis"[Journal] OR "Lancet Diabetes Endocrinol"[Journal] OR "Circulation"[Journal] OR "Lancet Respir Med"[Journal] OR "Gastroenterology"[Journal] OR "Cell Metab"[Journal] OR "Nat Neurosci"[Journal] OR "Lancet Glob Health"[Journal] OR "Ann Intern Med"[Journal] OR "Psychol Bull"[Journal] OR "Sci Transl Med"[Journal] OR "Gut"[Journal] OR "Trends Biochem Sci"[Journal] OR "JAMA Oncol"[Journal] OR "JAMA Intern Med"[Journal] OR "Psychol Inq"[Journal] OR "Eur Urol"[Journal] OR "Cell Res"[Journal] OR "Trends Cogn Sci"[Journal] OR "JAMA Psychiatry"[Journal] OR "Nat Chem Biol"[Journal])

Results: 187 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57349993/public/

Pharma trial match: Found in original search – Spitzer et al. (2012)

11) Exercise trial matching search: ID 528

("Aged"[Mesh] OR (("aged" OR "elderly" OR "older") AND ("adult" OR "adults"))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal])

Results: 310 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000777/public/

Pharma trial match: Found in manual search – Devereux et al. (2018)

12) Exercise trial matching search: ID 585

("peripheral arterial disease"[MeSH Terms] OR ("peripheral" AND ("arterial" OR "artery" OR "arteries") AND "disease") OR "peripheral arterial disease") AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal])

Results: 3 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000794/public/

Pharma trial match: Found in original search – Poole et al. (2013)

13) Exercise trial matching search: ID 631

(("Obesity"[Mesh]OR "obesity" OR "obese") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR

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controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("Ann Intern Med"[Journal])

Results: 9 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000827/public/

Pharma trial match: Found in manual search – Kim et al. (2018)

14) Exercise trial matching search: ID 709

NOTE - Originally considered this strategy:

((("Obesity"[Mesh]OR "obesity" OR "obese") AND ("Heart Failure"[Mesh] OR "heart failure" OR "Cardiac Failure" OR "Heart Decompensation" OR (("heart" OR "cardiac") AND ("failure" OR "decompensation")) AND ("Preserved Ejection Fraction" OR ("Preserved" AND "Ejection" AND "Fraction"))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal])

However - including the "Obesity" concept led to NO results, so removed it

Final search strategy used:

((("Heart Failure"[Mesh] OR "heart failure" OR "Cardiac Failure" OR "Heart Decompensation") OR (("heart" OR "cardiac") AND ("failure" OR "decompensation"))) AND (("Preserved Ejection Fraction") OR ("Preserved" AND "Ejection" AND "Fraction")) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal])

Results: 3 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000925/public/

Pharma trial match: Found in original search from an alternate record (#27) – Gheorghiade et al. (2008)

15) Exercise trial matching search: ID 822

(("peripheral arterial disease"[MeSH Terms] OR ("peripheral" AND ("arterial" OR "artery" OR "arteries") AND "disease") OR "peripheral arterial disease") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal])

Results: 3 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55001534/public/

Pharma trial match: Found in manual search – Pradhan et al. (2009)

16) Exercise trial matching search: ID 842

(("Cardiomyopathy, Hypertrophic"[Mesh] OR "Hypertrophic Cardiomyopathies" OR "Hypertrophic Cardiomyopathy" OR ("hypertrophic" AND "cardiomyopathy")) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal])

Results: NONE

Pharma trial match: Found in original search from an alternate record (#1184) – Kosmala et al. (2016)

17) Exercise trial matching search: ID 856

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(((((((("Obesity"[Mesh] OR "obesity" OR "obese" OR "Overweight"[Mesh] OR "overweight" OR "Weight Loss"[MeSH Terms] OR "Body Mass Index"[MeSH Terms])))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre"))) AND (("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))))) AND (((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])))) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]))) AND ("CA Cancer J Clin"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal] OR "JAMA"[Journal] OR "Nat Biotechnol"[Journal] OR "Nature"[Journal] OR "Science"[Journal] OR "Lancet Oncol"[Journal] OR "Cell"[Journal] OR "Nat Med"[Journal] OR "Nat Genet"[Journal] OR "Cancer Cell"[Journal] OR "World Psychiatry"[Journal] OR "Lancet Neurol"[Journal] OR "Nat Chem"[Journal] OR "J Clin Oncol"[Journal] OR "Cell Stem Cell"[Journal] OR "Immunity"[Journal] OR "Nat Immunol"[Journal] OR "BMJ"[Journal] OR "Eur Heart J"[Journal] OR "Nat Cell Biol"[Journal] OR "Cancer Discov"[Journal] OR "J Am Coll Cardiol"[Journal] OR "Lancet Infect Dis"[Journal] OR "Lancet Diabetes Endocrinol"[Journal] OR "Circulation"[Journal] OR "Lancet Respir Med"[Journal] OR "Gastroenterology"[Journal] OR "Cell Metab"[Journal] OR "Nat Neurosci"[Journal] OR "Lancet Glob Health"[Journal] OR "Ann Intern Med"[Journal] OR "Psychol Bull"[Journal] OR "Sci Transl Med"[Journal] OR "Gut"[Journal] OR "Trends Biochem Sci"[Journal] OR "JAMA Oncol"[Journal] OR "JAMA Intern Med"[Journal] OR "Psychol Inq"[Journal] OR "Eur Urol"[Journal] OR "Cell Res"[Journal] OR "Trends Cogn Sci"[Journal] OR "JAMA Psychiatry"[Journal] OR "Nat Chem Biol"[Journal])

Results: 187 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57349993/public/

Pharma trial match: Found in manual search – Grudell et al. (2008)

18) Exercise trial matching search: ID 892

(("Heart Failure"[Mesh] OR "heart failure" OR "Cardiac Failure" OR "Heart Decompensation" OR (("heart" OR "cardiac") AND ("failure" OR "decompensation"))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (Eur Heart J[Journal])

Results: 87 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57137958/public/

Pharma trial match: Found in original search – Hoendermis et al. (2015)

19) Exercise trial matching search: ID 901

(("hypertension, pulmonary"[MeSH Terms] OR ("hypertension" AND "pulmonary") OR "pulmonary hypertension") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (Eur Heart J[Journal])

Results: 6 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138124/public/

Pharma trial match: Found in original search – Ulrich et al. (2015)

20) Exercise trial matching search: ID 927

("heart failure"[MeSH Terms] OR "heart failure" OR "Heart Decompensation" OR (("heart" OR "cardiac") AND ("failure" OR "decompensation"))) AND (("ejection fraction" OR "Ventricular Dysfunction"[Mesh] OR ("ejection" AND "fraction") OR ("ventricular" AND "dysfunction"))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (Eur Heart J[Journal])

Results: 33 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138774/public/

Pharma trial match: Found in original search – Frustaci et al. (2009)

21) Exercise trial matching search: ID 942

((((((("transposition of great arteries" OR "Ventricular Dysfunction, Right"[Mesh] OR "Right Ventricular Dysfunction" OR "Right Ventricular Dysfunctions" OR ("Right" AND "Ventricular" AND ("systemic" OR "Dysfunction")) OR "systemic right ventricle" OR (("systemic" or dysfunction*) AND ("right ventricle" OR "right ventricles" OR "heart ventricles"[MeSH Terms] OR "heart ventricles" OR "heart ventricle"))))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND (("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR

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"therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))))) AND (((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh]))))) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT])

Results: 85 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57350826/public/

Pharma trial match: Found in revised search – van der Bom et al. (2013)

22) Exercise trial matching search: ID 948

("Prostatic Neoplasms"[Mesh] OR ((“prostate” OR “prostatic”) AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR “drug therapy” OR “therapeutic use” OR “pharmacotherapy” OR “pharmacotherapies” OR “chemotherapy” OR “chemotherapies” OR “medication” OR “medications” OR ((“drug” OR “pharmacologic” OR “pharmacological” OR “prescription” OR “pharmaceutical”) AND (“therapy” OR “therapies” OR “treatment” OR “treatments” OR “intervention” OR “interventions” OR “drug” OR “drugs” OR “preparation” OR “preparations”))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (Eur Urol[Journal])

Results: 45 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138696/public/

Pharma trial match: Found in original search from an alternate record (#23) – Irani et al. (2008)

23) Exercise trial matching search: ID 952

("Prostatic Neoplasms"[Mesh] OR ((“prostate” OR “prostatic”) AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR “drug therapy” OR “therapeutic use” OR “pharmacotherapy” OR “pharmacotherapies” OR “chemotherapy” OR “chemotherapies” OR “medication” OR “medications” OR ((“drug” OR “pharmacologic” OR “pharmacological” OR “prescription” OR “pharmaceutical”) AND (“therapy” OR “therapies” OR “treatment” OR “treatments” OR “intervention” OR “interventions” OR “drug” OR “drugs” OR “preparation” OR “preparations”))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (Eur Urol[Journal])

Results: 141 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138441/public/

Pharma trial match: Found in original search from an alternate record (#22) – Yoshimura et al. (2016)

24) Exercise trial matching search: ID 962

("Prostatic Neoplasms"[Mesh] OR ((“prostate” OR “prostatic”) AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR “drug therapy” OR “therapeutic use” OR “pharmacotherapy” OR “pharmacotherapies” OR “chemotherapy” OR “chemotherapies” OR “medication” OR “medications” OR ((“drug” OR “pharmacologic” OR “pharmacological” OR “prescription” OR “pharmaceutical”) AND (“therapy” OR “therapies” OR “treatment” OR “treatments” OR “intervention” OR “interventions” OR “drug” OR “drugs” OR “preparation” OR “preparations”))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (Eur Urol[Journal])

Results: 45 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138696/public/

Pharma trial match: Found in original search – Klotz et al. (2013)

25) Exercise trial matching search: ID 1164

(((((((((("non-alcoholic fatty liver disease"[MeSH Terms] OR "Fatty Liver"[Mesh] OR "fatty liver" OR ("fatty" AND "liver") OR "steatosis" OR "steatoses" OR "Steatohepatitis" OR (("non-alcoholic" OR "nonalcoholic") AND "fatty" AND "liver" AND "disease") OR "non-alcoholic fatty liver disease" OR “NAFLD” OR "nonalcoholic fatty liver disease" OR “non-alcoholic steatohepatitis” OR “nonalcoholic steatohepatitis” OR “NASH” OR ((fatty AND (liver* OR hepat*)) OR steatohepat* OR NAFL* OR NASH*)))) NOT (("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")))) AND (("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR “drug therapy” OR “therapeutic use” OR “pharmacotherapy” OR “pharmacotherapies” OR “chemotherapy” OR “chemotherapies” OR “medication” OR “medications” OR ((“drug” OR “pharmacologic” OR “pharmacological” OR “prescription” OR “pharmaceutical”) AND (“therapy” OR “therapies” OR “treatment” OR “treatments” OR “intervention” OR “interventions” OR “drug” OR “drugs” OR “preparation” OR “preparations”))))) AND (((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh]))))) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]))) AND ((("CA Cancer J Clin"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal] OR "JAMA"[Journal] OR "Nat Biotechnol"[Journal] OR "Nature"[Journal] OR "Science"[Journal] OR "Lancet Oncol"[Journal] OR "Cell"[Journal] OR "Nat Med"[Journal] OR "Nat Genet"[Journal] OR "Cancer Cell"[Journal] OR "World Psychiatry"[Journal] OR "Lancet Neurol"[Journal] OR "Nat Chem"[Journal] OR "J Clin Oncol"[Journal] OR "Cell Stem Cell"[Journal] OR "Immunity"[Journal] OR "Nat Immunol"[Journal] OR "BMJ"[Journal] OR "Eur Heart J"[Journal] OR "Nat Cell Biol"[Journal] OR "Cancer Discov"[Journal] OR "J Am Coll Cardiol"[Journal] OR "Lancet Infect Dis"[Journal] OR "Lancet Diabetes Endocrinol"[Journal] OR "Circulation"[Journal] OR "Lancet Respir Med"[Journal] OR "Gastroenterology"[Journal] OR "Cell Metab"[Journal] OR "Nat Neurosci"[Journal] OR "Lancet Glob Health"[Journal] OR "Ann Intern Med"[Journal] OR "Psychol Bull"[Journal] OR "Sci Transl Med"[Journal] OR "Gut"[Journal] OR "Trends Biochem Sci"[Journal] OR "JAMA Oncol"[Journal] OR "JAMA Intern Med"[Journal] OR "Psychol Inq"[Journal] OR "Eur Urol"[Journal] OR "Cell Res"[Journal] OR "Trends Cogn Sci"[Journal] OR "JAMA Psychiatry"[Journal] OR "Nat Chem Biol"[Journal]))

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Results: 123 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57351095/public/

Pharma trial match: Found in revised search – Ratziu et al. (2008)

26) Exercise trial matching search: ID 1183

(("cardiomyopathy, dilated"[MeSH Terms] OR (("cardiomyopathy" OR "cardiomyopathies") AND ("dilated" OR "familial idiopathic" OR "Congestive")) OR "dilated cardiomyopathy" OR "dilated cardiomyopathies") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Am Coll Cardiol[Journal])

Results: 2 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140665/public/

Pharma trial match: Found in original search from an alternate record (#18) – Hamshere et al. (2015)

27) Exercise trial matching search: ID 1184

(("heart failure"[MeSH Terms] OR "heart failure" OR ("chronic" AND "heart" AND "failure") OR "chronic heart failure" OR "Cardiac Failure" OR "Heart Decompensation" OR (("heart" OR "cardiac") AND ("failure" OR "decompensation"))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Am Coll Cardiol[Journal])

Results: 117 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138880/public/

Pharma trial match: Found in manual search – Goebel et al. (2017)

28) Exercise trial matching search: ID 1198

((("heart failure"[MeSH Terms] OR "heart failure" OR "Heart Decompensation" OR (("heart" OR "cardiac") AND ("failure" OR "decompensation"))) AND ("ejection fraction" OR "Ventricular Dysfunction"[Mesh] OR ("ejection" AND "fraction") OR ("ventricular" AND "dysfunction"))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Am Coll Cardiol[Journal])

Results: 44 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57139980/public/

Pharma trial match: Found in original search – Kosmala et al. (2013)

29) Exercise trial matching search: ID 1218

(("T2DM" OR "Diabetes Mellitus, Type 2"[Mesh] OR "NIDDM" OR "type 2 diabetes mellitus" OR "diabetes mellitus type 2" OR "diabetes") AND ("Ventricular Dysfunction"[Mesh] OR "diastolic dysfunction" OR ("diastolic" AND "dysfunction") OR "diastolic")) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Am Coll Cardiol[Journal])

Results: 1 record – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57139674/public/

Pharma trial match: Found in original search from an alternate record (#27) – Han et al. (2014)

30) Exercise trial matching search: ID 1232

((("heart failure"[MeSH Terms] OR "heart failure" OR "Heart Decompensation" OR (("heart" OR "cardiac") AND ("failure" OR "decompensation"))) AND ("ejection fraction" OR "Ventricular Dysfunction"[Mesh] OR ("ejection" AND "fraction") OR ("ventricular" AND "dysfunction"))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND

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((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Am Coll Cardiol[Journal])

Results: 44 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57139980/public/

Pharma trial match: Found in original search from an alternate record (#27) – Caminiti et al. (2009)

31) Exercise trial matching search: ID 1251

("peripheral arterial disease"[MeSH Terms] OR ("peripheral" AND ("arterial" OR "artery" OR "arteries") AND "disease") OR "peripheral arterial disease") AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Am Coll Cardiol[Journal])

Results: 14 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140267/public/

Pharma trial match: Found in manual search – Krankenberg et al. (2015)

32) Exercise trial matching search: ID 1256

(("Cardiac Resynchronization" OR ("Cardiac" AND "Resynchronization") OR "Resynchronization Pacing" OR "Biventricular Pacing" OR (("Resynchronization" OR "Biventricular" OR "Atrio-Biventricular") AND ("Pacing")) OR "Cardiac Resynchronization Therapy"[Mesh] OR "Cardiac Resynchronization Therapy Devices"[Mesh]) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Am Coll Cardiol[Journal])

Results: 3 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140355/public/

Pharma trial match: Found in manual search – Tsujita et al. (2015)

33) Exercise trial matching search: ID 1292

(("Postmenopause"[Mesh] OR "Postmenopause" OR "Post-menopause" OR "Postmenopausal" OR "Post-menopausal" OR "Postmenopauses" OR "Post-menopauses") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal])

Results: 42 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138370/public/

Pharma trial match: Found in original search – Ellis et al. (2011)

34) Exercise trial matching search: ID 1296

(("lymphoma"[MeSH Terms] OR "lymphoma" OR "lymphomas") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal])

Results: 96 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140430/public/

Pharma trial match: Found in original search – Cortelazzo et al. (2016)

35) Exercise trial matching search: ID 1298

(("Breast Neoplasms"[Mesh] OR ("breast" OR "breasts" OR "mammary") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR

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"pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 242 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57139370/public/ **Pharma trial match:** Found in revised search – Greenspan et al. (2008)
36) Exercise trial matching search: ID 1299
("Breast Neoplasms"[Mesh] OR (("breast" OR "breasts" OR "mammary") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 179 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140047/public/ **Pharma trial match:** Found in original search – Urruticoechea et al. (2017)
37) Exercise trial matching search: ID 1301
("Postmenopause"[Mesh] OR "Postmenopause" OR "Post-menopause" OR "Postmenopausal" OR "Post-menopausal" OR "Postmenopauses" OR "Post-menopauses") AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 49 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138311/public/ **Pharma trial match:** Found in original search from an alternate record (#35) – Johnston et al. (2018)
38) Exercise trial matching search: ID 1303
("Prostatic Neoplasms"[Mesh] OR (("prostate" OR "prostatic") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 85 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138499/public/ **Pharma trial match:** Found in original search – Taplin et al. (2014)
39) Exercise trial matching search: ID 1310
(("Breast Neoplasms"[Mesh] OR (("breast" OR "breasts" OR "mammary") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 242 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57139370/public/ **Pharma trial match:** Found in original search – Yardley et al. (2013)
40) Exercise trial matching search: ID 1314

Supplementary Methods 5: Pharmacological RCT Search Strategies & Matches

(("Breast Neoplasms"[Mesh] OR ((“breast” OR “breasts” OR “mammary”) AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR “drug therapy” OR “therapeutic use” OR “pharmacotherapy” OR “pharmacotherapies” OR “chemotherapy” OR “chemotherapies” OR “medication” OR “medications” OR ((“drug” OR “pharmacologic” OR “pharmacological” OR “prescription” OR “pharmaceutical”) AND (“therapy” OR “therapies” OR “treatment” OR “treatments” OR “intervention” OR “interventions” OR “drug” OR “drugs” OR “preparation” OR “preparations”))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal])

Results: 242 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57139370/public/

Pharma trial match: Found in original search – Schmid et al. (2016)

41) Exercise trial matching search: ID 1320

(("Postmenopause"[Mesh] OR "Postmenopause" OR "Post-menopause" OR "Postmenopausal" OR "Post-menopausal" OR "Postmenopauses" OR "Post-menopauses") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR “drug therapy” OR “therapeutic use” OR “pharmacotherapy” OR “pharmacotherapies” OR “chemotherapy” OR “chemotherapies” OR “medication” OR “medications” OR ((“drug” OR “pharmacologic” OR “pharmacological” OR “prescription” OR “pharmaceutical”) AND (“therapy” OR “therapies” OR “treatment” OR “treatments” OR “intervention” OR “interventions” OR “drug” OR “drugs” OR “preparation” OR “preparations”))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal])

Results: 42 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138370/public/

Pharma trial match: Found in original search – Loprinzi et al. (2010)

42) Exercise trial matching search: ID 1328

("Prostatic Neoplasms"[Mesh] OR ((“prostate” OR “prostatic”) AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR “drug therapy” OR “therapeutic use” OR “pharmacotherapy” OR “pharmacotherapies” OR “chemotherapy” OR “chemotherapies” OR “medication” OR “medications” OR ((“drug” OR “pharmacologic” OR “pharmacological” OR “prescription” OR “pharmaceutical”) AND (“therapy” OR “therapies” OR “treatment” OR “treatments” OR “intervention” OR “interventions” OR “drug” OR “drugs” OR “preparation” OR “preparations”))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal])

Results: 85 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138499/public/

Pharma trial match: Found in original search from an alternate record (#38) – McKay et al. (2016)

43) Exercise trial matching search: ID 1332

(cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant OR "hematooncological" OR "hemato oncological" OR "hemato-oncological" OR hematologic neoplasms OR hematolo*) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR “drug therapy” OR “therapeutic use” OR “pharmacotherapy” OR “pharmacotherapies” OR “chemotherapy” OR “chemotherapies” OR “medication” OR “medications” OR ((“drug” OR “pharmacologic” OR “pharmacological” OR “prescription” OR “pharmaceutical”) AND (“therapy” OR “therapies” OR “treatment” OR “treatments” OR “intervention” OR “interventions” OR “drug” OR “drugs” OR “preparation” OR “preparations”))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal])

Results: 853 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140190/public/

Pharma trial match: Found in original search – Soiffer et al. (2017)

44) Exercise trial matching search: ID 1385

(("peripheral arterial disease"[MeSH Terms] OR ("peripheral" AND ("arterial" OR “artery” OR “arteries”) AND "disease") OR "peripheral arterial disease") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR “drug therapy” OR “therapeutic use” OR “pharmacotherapy” OR “pharmacotherapies” OR “chemotherapy” OR “chemotherapies” OR “medication” OR “medications” OR ((“drug” OR “pharmacologic” OR “pharmacological” OR “prescription” OR “pharmaceutical”) AND (“therapy” OR “therapies” OR “treatment” OR “treatments” OR “intervention” OR “interventions” OR “drug” OR “drugs” OR “preparation” OR “preparations”))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("JAMA"[Journal])

Results: 3 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138957/public/

Supplementary Methods 5: Pharmacological RCT Search Strategies & Matches

Pharma trial match: Found in manual search – Ahmed et al. (2008)

45) Exercise trial matching search: ID 1599

("Alzheimer Disease"[Mesh] OR "Alzheimer Disease" OR "Alzheimer's Disease" OR ("alzheimer's" AND "disease") OR ("alzheimer" AND "disease")) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (JAMA Intern Med[Journal])

Results: 0 records

NOTE: Since this string let to zero results, changed journal title limit to JAMA:

(alzheimer* OR "Alzheimer Disease"[Mesh] OR "Alzheimer Disease" OR "Alzheimer's Disease" OR ("alzheimer's" AND "disease") OR ("alzheimer" AND "disease")) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (JAMA [Journal])

Results: 10 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140943/public/

Pharma trial match: Found in original search – Cummings et al. (2015)

46) Exercise trial matching search: ID 1610

(("non-alcoholic fatty liver disease"[MeSH Terms] OR "Fatty Liver"[Mesh] OR "fatty liver" OR ("fatty" AND "liver") OR "steatosis" OR "steatoses" OR "Steatohepatitis" OR (("non-alcoholic" OR "nonalcoholic") AND "fatty" AND "liver" AND "disease") OR "non-alcoholic fatty liver disease" OR "NAFLD" OR "nonalcoholic fatty liver disease") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (JAMA Intern Med[Journal])

Result: 1 record – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140841/public/

NOTE: Also tried changing the journal title to JAMA…see below:

(("non-alcoholic fatty liver disease"[MeSH Terms] OR "Fatty Liver"[Mesh] OR "fatty liver" OR ("fatty" AND "liver") OR "steatosis" OR "steatoses" OR "Steatohepatitis" OR (("non-alcoholic" OR "nonalcoholic") AND "fatty" AND "liver" AND "disease") OR "non-alcoholic fatty liver disease" OR "NAFLD" OR "nonalcoholic fatty liver disease") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (JAMA[Journal])

Result: 2 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140782/public/

Revised search:

(((((((((("non-alcoholic fatty liver disease"[MeSH Terms] OR "Fatty Liver"[Mesh] OR "fatty liver" OR ("fatty" AND "liver") OR "steatosis" OR "steatoses" OR "Steatohepatitis" OR (("non-alcoholic" OR "nonalcoholic") AND "fatty" AND "liver" AND "disease") OR "non-alcoholic fatty liver disease" OR "NAFLD" OR "nonalcoholic fatty liver disease" OR "non-alcoholic steatohepatitis" OR "nonalcoholic steatohepatitis" OR "NASH" OR ((fatty AND (liver* OR hepat*)) OR steatohepat* OR NAFL* OR NASH*)))) NOT (("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")))) AND (("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations")))) AND (((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh]))) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]))) AND ((("CA Cancer J Clin"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal] OR "JAMA"[Journal] OR "Nat Biotechnol"[Journal] OR "Nature"[Journal] OR "Science"[Journal] OR "Lancet Oncol"[Journal] OR "Cell"[Journal] OR "Nat Med"[Journal] OR "Nat Genet"[Journal] OR "Cancer Cell"[Journal] OR "World Psychiatry"[Journal] OR "Lancet Neurol"[Journal] OR "Nat Chem"[Journal] OR "J Clin Oncol"[Journal] OR "Cell Stem Cell"[Journal] OR "Immunity"[Journal] OR "Nat Immunol"[Journal] OR "BMJ"[Journal] OR "Eur Heart J"[Journal] OR "Nat Cell Biol"[Journal] OR "Cancer Discov"[Journal] OR "J Am Coll Cardiol"[Journal] OR "Lancet Infect Dis"[Journal] OR "Lancet Diabetes Endocrinol"[Journal] OR "Circulation"[Journal] OR "Lancet Respir Med"[Journal] OR "Gastroenterology"[Journal] OR "Cell Metab"[Journal] OR "Nat Neurosci"[Journal] OR "Lancet Glob Health"[Journal] OR "Ann Intern Med"[Journal] OR "Psychol Bull"[Journal] OR "Sci Transl Med"[Journal] OR "Gut"[Journal] OR "Trends Biochem Sci"[Journal] OR "JAMA Oncol"[Journal] OR "JAMA Intern Med"[Journal] OR "Psychol Inq"[Journal] OR "Eur Urol"[Journal] OR "Cell Res"[Journal] OR "Trends Cogn Sci"[Journal] OR "JAMA Psychiatry"[Journal] OR "Nat Chem Biol"[Journal])))

Supplementary Methods 5: Pharmacological RCT Search Strategies & Matches

Results: 123 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57351095/public/

Pharma trial match: Found in revised search – Cusi et al. (2016)

47) Exercise trial matching search: ID 1691

("Postmenopause"[Mesh] OR "Postmenopause" OR "Post-menopause" OR "Postmenopausal" OR "Post-menopausal" OR "Postmenopauses" OR "Post-menopauses") AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (JAMA Oncol[Journal])

Results: 4 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138206/public/

Revised search

(((((((("Postmenopause"[Mesh] OR Postmenopaus* OR "Post-menopause" OR "Post-menopausal" OR "Post-menopauses" OR (("Menopause"[Mesh] OR menopaus*) AND (post OR after OR following))))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND (("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))))) AND (((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh]))))) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT])))) AND (("CA Cancer J Clin"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal] OR "JAMA"[Journal] OR "Nat Biotechnol"[Journal] OR "Nature"[Journal] OR "Science"[Journal] OR "Lancet Oncol"[Journal] OR "Cell"[Journal] OR "Nat Med"[Journal] OR "Nat Genet"[Journal] OR "Cancer Cell"[Journal] OR "World Psychiatry"[Journal] OR "Lancet Neurol"[Journal] OR "Nat Chem"[Journal] OR "J Clin Oncol"[Journal] OR "Cell Stem Cell"[Journal] OR "Immunity"[Journal] OR "Nat Immunol"[Journal] OR "BMJ"[Journal] OR "Eur Heart J"[Journal] OR "Nat Cell Biol"[Journal] OR "Cancer Discov"[Journal] OR "J Am Coll Cardiol"[Journal] OR "Lancet Infect Dis"[Journal] OR "Lancet Diabetes Endocrinol"[Journal] OR "Circulation"[Journal] OR "Lancet Respir Med"[Journal] OR "Gastroenterology"[Journal] OR "Cell Metab"[Journal] OR "Nat Neurosci"[Journal] OR "Lancet Glob Health"[Journal] OR "Ann Intern Med"[Journal] OR "Psychol Bull"[Journal] OR "Sci Transl Med"[Journal] OR "Gut"[Journal] OR "Trends Biochem Sci"[Journal] OR "JAMA Oncol"[Journal] OR "JAMA Intern Med"[Journal] OR "Psychol Inq"[Journal] OR "Eur Urol"[Journal] OR "Cell Res"[Journal] OR "Trends Cogn Sci"[Journal] OR "JAMA Psychiatry"[Journal] OR "Nat Chem Biol"[Journal]))

Results: 139 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57350758/public/

Pharma trial match: Found in revised search – Harman et al. (2014)

48) Exercise trial matching search: ID 2837

(("diabetes mellitus"[MeSH Terms] OR ("diabetes" AND "mellitus") OR "diabetes mellitus" OR "diabetes" OR "diabetic" OR "diabetics") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("JAMA"[Journal])

Results: 51 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57139460/public/

Pharma trial match: Found in original search from an alternate record (#11) – Wysham et al. (2017)

Supplementary Methods 6: Data Extraction Reference Guide – Exercise RCTs

Data Extraction Reference Guide – Exercise RCTs

Memorial Sloan Kettering Cancer Center™

EXTRACTION ABBREVIATIONS

- %: percent
- 1-RM: 1 repetition maximum (strength test)
- AET: Aerobic exercise training
- BL: baseline
- BMI: body mass index
- bpm: heart beats per minute
- d: days
- EX: exercise
- FU: follow-up
- HR: heart rate
- HRR: heart rate reserve
- hr/hrs: hour/hours
- Man: manuscript
- MAX: maximum
- MIN: minimum
- mins: minutes
- mo: months
- PA: physical activity
- Reg: registry
- RET: Resistance exercise training
- RPE: rate of perceived exertion (self-reported exercise intensity)
- sec: seconds
- UC: usual care/control
- VO_{2peak}: peak aerobic exercise capacity
- wk/wks: week/weeks
- yrs: years

GENERAL NOMENCLATURE & EXTRACTION GUIDELINES

Nomenclature Guidelines

- Ranges:
  - Use ‘to’ and not ‘-’ (e.g., 150 bpm to 175 bpm)
- Units:
  - List all units of measure including percentages
- Significant figures:
  - Raw values / averages ⁋ round to the nearest 0.1
  - Percentages ⁋ round to the nearest whole number
- Averages:
  - Mean value is preferred and assumed
  - Only list median values if mean are not reported
    - If listing median values, please label appropriately
- Lists:
  - Be succinct ⁋ only include pertinent details and use bullet form with semicolon separated values

- List details in the same order as it is presented in the manuscript
- *Examples*:
  - Inclusion/exclusion criteria: e.g., 40 to 65 yrs; BMI<40; sedentary
  - Primary/secondary outcomes: e.g., resting HR; body weight; PA mins/wk

Extraction Guidelines

- Multiple intervention arms
  - Base group numbering on layout of flow diagram (e.g., AET 1 = left-most group; AET 2 = group immediately to the right, etc.)
- In the case of discrepancies between data sources:
  - Prioritize the data provided in the primary manuscript.
  - Report both sets of numbers (e.g., Man: ##; Reg: ##)

ARTICLE INCLUSION/EXCLUSION

- **Should this article be included in our systematic review?**
  - **Yes** ☐ Does not meet any exclusion criteria.
  - **No** ☐ Meets one or more exclusion criteria.

DATA SOURCES

- **Data Sources:**
  - Please list all sources of information included in this extraction.
  - **Options:**
    - Primary manuscript
    - Online supplement
    - Protocol paper
    - Clinical trial registry
    - Clinical trial protocol
    - Other

- **If Other, please list.**

PUBLICATION INFORMATION

- **Country of publication?**
  - Please provide the full name of the country where the study was conducted/where the primary author is based

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Supplementary Methods 6: Data Extraction Reference Guide – Exercise RCTs

TITLE, ABSTRACT & INTRODUCTION

- **CONSORT (1a) – Identification as a randomized trial in the title.**
  - **Options:**
    - **Yes** 𝕋 Either randomized controlled trial; randomized trial; randomized
    - **No** 𝕋 Not mentioned

- **CONSORT (1b) – Structured summary of trial design, methods, results, and conclusions.**
  - **Options:**
    - **Yes** 𝕋 Introduction/Background + Methods + Results + Discussion/Conclusion
    - **No** 𝕋 Not properly structured

- **CONSORT (2a) – Scientific background and explanation of rationale.**
  - **Options:**
    - **Yes** 𝕋 Reviews relevant literature ***AND*** identifies a knowledge gap/question
    - **No** 𝕋 Did not adequately review the literature and/or identify the knowledge gap/question the study attempted to address

- **CONSORT (2b) – Specific objectives or hypothesis.**
  - **Options:**
    - **Yes** (*objectives*) 𝕋 Must provide a specific purpose/objective for study in the context of the intervention ***AND*** the specific outcomes of interest

      OR
    - **Yes** (*hypothesis*) 𝕋 Must provide a specific hypothesis in the context of a group-related change in a specific outcome of interest ***AND*** the expected direction of change
    - **Unclear** 𝕋 Provided the specific purpose/objective or hypothesis but only 1 of 2 additional required components
    - **No** 𝕋 Failed to provide either (1) the specific purpose/objective **OR** hypothesis, and/or (2) both additional required components
  - **TIP:**
    - This information is typically reported within final paragraph of the introduction or early in the methods section.

METHODS

- **CONSORT (3ai) – Description of trial design (such as parallel, factorial) including allocation ratio.**
  - **Options:**
    - **Yes** 𝕋 Must provide both a description of overall study design (e.g., parallel arm, crossover) ***AND*** allocation ratio
    - **Unclear** 𝕋 Description of study design is provided but ***NOT*** allocation ratio
    - **No** 𝕋 If missing the study design (even if allocation ratio is provided)
  - **EXAMPLES:**
    - Parallel trials, cross-over trials, factorial trials ***AND*** 1:1, 1:2, 1:1:1

- **CONSORT (4b) – Settings and locations where the data were collected.**
  - **Options:**
    - **Yes** 𝕋 Provided details of where the data were collected for the trial

        - *This includes single-location trials when the authors clearly state the entire trial took place onsite*
      - **Unclear** – Specifies that data was collected in a lab/testing room but does not provide the actual location of said room (e.g., at a hospital or university)
      - **No** – Details not provided
    - **TIP:**
      - This does ***NOT*** include where the recruitment or intervention took place.

- **DETAILS – Population:**
  - List the population being studied
  - **NR** – If not reported

- **DETAILS – Disease setting:**
  - Identify the disease phase [Prevention (P) vs. Management (M)] during which the exercise intervention took place.
  - **NR** – If not reported
  - **NA** – If the intervention was not conducted in the context of a disease

- **CONSORT (3aii) – When applicable, how care providers were allocated to each trial group.**
  - **Options:**
    - **NA** – Only one interventionist involved with study – no allocation strategy required.
    - **Yes** – Must describe how the interventionists were assigned to supervise intervention arms
      - *This applies to all components of the intervention (e.g., AET, RET, counseling)*
    - **Yes** – Authors clearly state that no allocation strategy was used
    - **No** – Fails to report any details
  - **TIP:**
    - These details are seldom reported in exercise-based RCTs.

- **CONSORT (3b) – Important changes to methods after trial commencement (such as eligibility criteria), with reasons.**
  - **Options:**
    - **NA** – The methods did not change
    - **Yes** – Methods changed and reasons were provided
      - *Examples include (but are not limited to): study design, sample size (% ± 10%), eligibility criteria, recruitment strategy, randomization, blinding, data analysis, etc.*
    - **Unclear** – It appears that methods may have changed but there is not enough information to make assessment
    - **No** – Methods changed but no reasons were provided
  - **TIPS:**
    - This includes under/over recruitment according to the a priori-defined sample size without adequate justification.
    - Does ***NOT*** include changes to the intervention – that data is captured in the TIDieR inventory
    - Does ***NOT*** include changes in trial outcomes – that data is captured in a separate CONSORT item

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Eligibility Criteria

- **CONSORT (4ai) – Eligibility criteria for participants.**
  - **Options:**
    - **Yes** 𝕋 Provided details/criteria for ***BOTH*** inclusion ***AND*** exclusion of participants
    - **Unclear** 𝕋 Only provides details of inclusion ***OR*** exclusion but ***NOT*** both
    - **No** 𝕋 Details not provided

- **CONSORT (4aii) – When applicable, eligibility criteria for centers and for care providers.**
  - **Options:**
    - **Yes** (*multicenter trials*) 𝕋 Provided criteria for eligible centers ***AND*** interventionists
    - **Unclear** (*multicenter trials*) 𝕋 Provided criteria for interventionists but ***NOT*** centers or vice versa
    - **Yes** (*single center trials*) 𝕋 Provided criteria for interventionists
    - **Yes** 𝕋 Authors clearly state there were no eligibility criteria for centers and/or care providers
    - **Unclear** (multi and *single center trials*) 𝕋 Stated professional background and/or study-specific training for interventionists but did not describe them as requirements
    - **No** 𝕋 Eligibility criteria not specifically stated
  - **TIPS**:
    - Eligibility criteria for centers is applicable for all multi-center trials.
    - Eligibility criteria for care providers is applicable for all trials.
    - This is seldom reported.

Data Comparison: Eligibility Criteria

- **Was there a difference in Eligibility Criteria between the Registry and the Manuscript?**
  - **Options:**
    - **Yes** 𝕋 One or more differences between the two data sources.
    - **No** 𝕋 No difference between the two data sources.
    - **Unclear** 𝕋 Possible difference between the two data sources, but insufficient information to make a determination.
    - **Not Applicable** 𝕋 No clinical trial registry data available.

- **Was the change noted in the Manuscript?**
  - **Options:**
    - **Yes** 𝕋 The change in eligibility criteria was clearly stated and explained.
    - **No** 𝕋 The change in eligibility criteria was apparent but not explained.
    - **Not Applicable** 𝕋 There was no difference in the eligibility criteria between the Registry and the Manuscript.
    - **Not Applicable** 𝕋 No clinical trial registry data available.

- **How many Inclusion Criteria were listed in the Registry?**
  - Please record the total number of individual Inclusion Criteria listed in the Registry.

- **DC DETAILS - Please list the Inclusion Criteria reported in the Registry.**
  - Please record each individual Inclusion Criteria listed in the Registry.

- **How many Inclusion Criteria were listed in the Manuscript?**

- Please record the total number of individual Inclusion Criteria listed in the Manuscript.

- **DC DETAILS - Please list the Inclusion Criteria reported in the Manuscript.**
  - Please record each individual Inclusion Criteria listed in the Manuscript.

- **How many Exclusion Criteria were listed in the Registry?**
  - Please record the total number of individual Exclusion Criteria listed in the Registry.

- **DC DETAILS - Please list the Exclusion Criteria reported in the Registry.**
  - Please record each individual Exclusion Criteria listed in the Registry.

- **How many Exclusion Criteria were listed in the Manuscript?**
  - Please record the total number of individual Exclusion Criteria listed in the Manuscript.

- **DC DETAILS - Please list the Exclusion Criteria reported in the Manuscript.**
  - Please record each individual Exclusion Criteria listed in the Manuscript.

Outcome Measures

- **CONSORT (6a) – Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed.**
  - **Options:**
    - **Yes** 𝕋 Clearly defined a single primary outcome (*co-primary outcomes at max*), all relevant secondary outcomes ***AND*** provide all requisite details of the timing ***AND*** procedures used to assess these outcomes
    - **Unclear** 𝕋 Primary and secondary outcomes defined but the descriptions of the timing and procedures used to assess the outcomes were lacking details required to reproduce the measurements
    - **No** 𝕋 If no primary or secondary outcomes are clearly defined ***OR*** if the assessment details (e.g., ***how & when***) were missing altogether
  - **TIPS**:
    - Some studies may identify multiple primary outcomes. Although this type of study design is inappropriate in the context of medical oncology research, we are evaluating the quality of reporting and not the quality of the study design. Therefore, a 'Yes' can be assigned provided the authors clearly identify which outcomes are considered primary and secondary.

- **CONSORT (6b) – Any changes to trial outcomes after the trial commenced, with reasons.**
  - **Options:**
    - **NA** 𝕋 No observable changes to trial outcomes were made
    - **Yes** 𝕋 Describes changes in outcomes according to all pertinent features (e.g., what, why & when)
    - **Unclear** 𝕋 Describes changes according to all but one pertinent feature
    - **No** 𝕋 If the description is missing or unclear on two or more pertinent features

Data Comparison: Primary Outcome

- **Was there a difference in the Primary Outcome(s) between the Registry and the Manuscript?**
  - **Options:**
    - **Yes** – difference between the two data sources.
    - **No** – No difference between the two data sources.
    - **Unclear** – Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** – No clinical trial registry data available.

- **Was the change in Primary Outcome noted in the Manuscript?**
  - **Options:**
    - **Yes** – The change in Primary Outcome was clearly stated and explained.
    - **No** – The change in Primary Outcome was apparent but not explained.
    - **NR** – No clinical trial registry data available.
    - **NA** – No difference (i.e., Q1 = No)

- **Was a new Primary Outcome reported in the Manuscript which was not reported in the Registry?**
  - **Options:**
    - **Yes** – Primary Outcome reported in the Manuscript that was not listed in the Registry.
    - **No** – No new Primary Outcome added to the Manuscript.
    - **Unclear** – Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** – No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

- **Was the Primary Outcome reported in the Registry reported as a Secondary Outcome in the Manuscript?**
  - **Options:**
    - **Yes** – Primary Outcome reported in the Registry listed as a Secondary Outcome in the Manuscript.
    - **No** – No Primary Outcome from the Registry listed as a Secondary Outcome in the Manuscript.
    - **Unclear** – Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** – No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

- **Was the Primary Outcome reported in the Registry omitted from the Manuscript?**
  - **Options:**
    - **Yes** – The Primary Outcomes reported in the Registry was omitted from the Manuscript.
    - **No** – The Primary Outcome reported in the Registry was included in the Manuscript.
    - **Unclear** – Possible difference between the two data sources, but insufficient information to make a determination.

- **NR** – No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

Data Comparison: Secondary Outcomes

- **Were different (new) Secondary Outcomes reported in the Manuscript which were not reported in the Registry?**
  - **Options:**
    - **Yes** – Secondary Outcomes reported in the Manuscript were not reported in the Registry.
    - **No** – The Secondary Outcomes reported in the Manuscript were consistent with the Registry.
    - **Unclear** – Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** – No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

- **If different (new) Secondary Outcomes were added to the Manuscript, were the reasons noted in the Manuscript?**
  - **Options:**
    - **Yes** – The change(s) in Secondary Outcomes were clearly stated and explained
    - **No** – The changes in Secondary Outcomes were apparent but not explained
    - **NR** – No clinical trial registry data available
    - **NA** – No difference in Secondary Outcomes (i.e., Q6 = No)

- **Was one or more of the Secondary Outcomes reported in the Registry reported as Primary Outcomes in the Manuscript?**
  - **Options:**
    - **Yes** – A Secondary Outcome reported in the Registry was reported as a Primary Outcome in the Manuscript.
    - **No** – None of the Secondary Outcomes reported in the Registry were reported as Primary Outcomes in the Manuscript.
    - **Unclear** – Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** – No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

Randomization & Blinding

- **CONSORT (8a) – Method used to generate the random allocation sequence.**
  - **Options:**

- **Yes** 𝕋 Clearly stated the specific process used to generate the randomization (e.g., a coin flip, computer generated)
- **No** 𝕋 Not provided

- **CONSORT (8b) – Type of randomization; details of any restriction (such as blocking and block size).**
  - **Options:**
    - **Yes** 𝕋 Provided the details of how the randomization accounted for key confounding variables (e.g., blocking, minimization, stratification)
    - **No** 𝕋 Not provided

- **CONSORT (9) – Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned.**
  - **Options:**
    - **Yes** 𝕋 Provided details of how the physical randomization was performed or how the participants were notified of their allocation (e.g., phone call, sealed envelopes, centralized allocation)
    - **No** 𝕋 Not provided

- **CONSORT (10) – Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions.**
  - **Options:**
    - **Yes** 𝕋 Must include a clear description of who performed ***ALL*** of these tasks
    - **Unclear** 𝕋 If description of one of these tasks is inadequate or missing
    - **No** 𝕋 If two or more of these tasks are poorly described or not described at all
  - **TIP:**
    - An exception can be made for participant assignment criteria for studies using centralized allocation.

- **CONSORT (11a) – If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how.**
  - **Options:**
    - **Yes** 𝕋 Details regarding testers ***AND*** data analyzers are provided
    - **Unclear** 𝕋 If any of the aforementioned details are provided but poorly described
    - **No** 𝕋 If any of the aforementioned details are missing
  - **TIP:**
    - Remember, we are assessing if the reporting is complete ***NOT*** how good the methods are. Therefore, if authors state that the testers and data analyzers were not blinded, we would consider this good reporting and assign a 'Yes' for this category.

- **CONSORT (11c) – If blinding not possible, description of attempts to limit bias.**
  - **Options:**
    - **NA** 𝕋 If testers ***AND*** data analyzers were blinded
    - **Yes** 𝕋 Clearly stated that a specific strategy (e.g., physical or statistical) was employed to help reduce the potential confounding influence of unblinded investigators
      - *Example strategies: Identified strategy 'following standardized procedures' **AND** provided requisite details*
    - **Yes** 𝕋 Authors stated that no strategy was used limit bias related to lack of blinding
    - **Unclear** 𝕋 If strategies were identified ***OR*** described for ***ALL*** unblinded personnel but not identified ***AND*** described
    - **No** 𝕋 If not clearly stated either in the methods, results or discussion

- *Simply listing lack of blinding in the limitations does not count*

- **TIP:**
  - Remember, we are evaluating these studies according to the quality of their reporting and not their methods. We are looking for transparency in methods. As such, it does not matter, per se, if investigators were not blinded – rather, it matters how they report it and how well they report the strategies used to compensate for it.

- **CONSORT (11b) – If relevant, description of the similarity of interventions.**
  - **Options:**
    - **NA** 𝕋 If it is a 2-arm trial with a non-exercise control group comparison ***OR*** a 3+ -arm trial with obviously different intervention groups (e.g., AET v RET v UC)
    - **Yes** 𝕋 If details are adequately provided for two or more intervention arms with similar modalities of exercise
    - **No** 𝕋 If details are not adequately provided for two or more intervention arms with similar modalities of exercise
  - **TIP:**
    - NA is not an option for superiority trials (i.e., exercise trials with only two similar intervention arms)

Intervention Details

- **TIDieR (1) – Provide the name or a phrase that describes the intervention.**
  - **Options:**
    - **Yes** 𝕋 Provided a phrase to describe the intervention
    - **No** 𝕋 A clear summary phrase describing the intervention was not provided

- **TIDieR (2) – Describe any rationale, theory, or goal of the elements essential to the intervention.**
  - **Options:**
    - **Yes** 𝕋 Provides any rationale, theory ***OR*** goal of the elements essential to the intervention
    - **No** 𝕋 Did not provide at least one of the above

- **INTERVENTION TYPE – Exercise or Pharmaceutical**
  - **Options:**
    - **Exercise** 𝕋 Stated methods included delivery of a structured exercise program with a stated goal of improving a health/fitness/psychosocial outcome.
    - **Pharmaceutical** 𝕋 Stated methods included delivery of a pharmaceutical intervention with a stated goal of improving health.

- **TIDieR (4) – Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities.**
  - **Options:**
    - **Yes** 𝕋 Provides complete details for each of the major intervention procedures, activities, and processes, including enabling or supporting activities
    - **Unclear (*multi-component interventions*)** 𝕋 If a single component of the intervention is identified but not adequately described (e.g., the aerobic exercise component is well described but the behavioral support component is not)
    - **No** 𝕋 If the primary component or more than one secondary component of the intervention is (are) not adequately described

- **CONSORT (5ii) – Precise details of both the experimental treatment and comparator.**
  - **Options:**
    - **Yes** 𝕋 Clear descriptions of the intervention arm(s) and control group
    - **No** 𝕋 Control group conditions/requirements not defined

- **TIDieR (8d) – Describes length of the intervention period.**
  - **Options:**
    - **Yes** 𝕋 Must define the period over which the intervention was delivered according to a specific number of weeks/months or life period
    - **No** 𝕋 Not clearly defined (e.g., stated during chemotherapy without providing the average number of weeks/months)

- **DETAILS – What was the total length of the program/intervention (weeks)?**
  - Note the total duration of the intervention in weeks
  - **NR** 𝕋 If not reported
  - **TIP:**
    - Actual intervention length preferred (if provided); proposed intervention length if actual is not reported

- **DETAILS – How many phases did the intervention have?**
  - Note the total number of intervention phases
  - **TIP:**
    - Lead-in period considered part of the intervention but not necessarily a separate phase

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PHASE I/II – DETAILS

- **How many weeks was this phase?**
  - Note number of weeks
  - **NR** 𝕋 If not reported

- **TIDieR (7) – Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features.**
  - **Options:**
    - **Yes** 𝕋 If specifically described
      - *This includes single-location trials when the authors clearly state the entire trial took place onsite.*
    - **Unclear** 𝕋 Inadequate description provided
    - **No** 𝕋 Details not provided
  - **TIP:**
    - Interventions described as being telephone- / mail-based can be considered home-based by default – even if the authors do not specifically state the intervention took place at home.
    - However, these trials should be further identified according to the location of the interventionists (e.g., medical center or university).

- **Where did this phase of the intervention take place?**

- Check off which of these intervention settings apply
  - Medical Center
  - Rehabilitation Center
  - University
  - Public Gym
  - Home
  - Other
- **TIP:**
  - Check off more than one if needed (e.g., telephone-based or mixed facility- / home-based interventions).

- **TIDieR (5) – For each category of intervention provider (e.g. physiologist, psychologist, nursing assistant), describe their expertise/background *AND* any specific training given.**
  - **Options:**
    - **Yes** – Must provide formal education, professional designation, ***OR*** certified designation ***with*** certifying organization ***AND*** any study-specific training they received
    - **Unclear** – If education/designation ***AND*** study-specific training are provided ***BUT*** are poorly described
    - **No** – If either education/designation ***OR*** study specific training are not provided
  - **Background Examples:**
    - Kinesiologist (KIN), Exercise Physiologist (EP), Physiotherapist (PhT), Cancer Exercise Specialist (CES), Personal Trainer + certifying organization (PT-org)
  - **Training Examples:**
    - Interventionists were required to complete 3 hours of training pertaining to intervention delivery and participant follow-up.
    - Interventionists completed 4 online training modules related to delivering the exercise and behavioral support components of the intervention.

- **PHASE I (AET / RET / CET) – Was aerobic (AET), resistance (RET), combined (CET) exercise training prescribed.**
  - **Options:**
    - **Yes** – It/they were
    - **No** – It/they were not

- **DETAILS – How many AET / RET / CET groups were there?**
  - Indicate 1 or 2 groups as appropriate.

- **DETAILS – What modalities of AET / RET / CET were prescribed?**
  - Check off which of these intervention modalities apply
    - **AET**
      - Cycle ergometer
      - Treadmill
      - Elliptical ergometer
      - Walking (e.g., outdoors, indoor track)
      - Other
      - **NR** – If not reported
    - **RET**
      - Machine weights
      - Free weights
      - Resistance bands

- Body weight
- Other
- **NR** – If not reported

  - **TIP:**
    - Check off more than one modality when applicable (e.g., RET trials which list the names of exercises but not the specific modalities should be assigned Machine weights and Free weights)

- **TIDieR (6) – Describe the modes of delivery (e.g. face-to-face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group.**
  - **Options:**
    - **Yes** – If clearly described for ***ALL*** phases ***AND*** components of the intervention
    - **Unclear** – If clearly described for one phase/component ***BUT*** is poorly described for another
    - **No** – If not described ***OR*** is unclear for more than one intervention phase/component
  - **TIP:**
    - Must be specifically stated and **NOT** just implied (e.g., home based programs)

- **DETAILS – Mode of AET / RET / CET supervision:**
  - Check off which of these supervision modes apply
    - Individual
    - Group
    - Mixed
    - Not applicable
    - Not reported

- **DETAILS – Method of AET / RET / CET supervision:**
  - Check off which of these supervision modes apply
    - In person
    - Phone
    - Other

- **DETAILS – If Other, please list:**
  - Please list the method of exercise supervision

- **TIDieR (8b) – Describes the frequency of intervention sessions.**
  - **Options:**
    - **Yes** – Must define a specific minimum ***OR*** range of sessions per week
    - **No** – Not provided

- **DETAILS – How many sessions per week was AET / RET / CET prescribed?**
  - Note the number or the range

- **TIDieR (8a) – Describes the intensity of intervention sessions.**
  - **Options:**
    - **Yes** – Must define prescribed intensity according to a standardized and measurable unit (e.g., $\%VO_{2peak}$, $\%HR_{max}$, %1-RM, RPE range)
    - **No** – Not provided
  - **TIP:**
    - It is acceptable if authors state in the Methods that participants were asked to train between XX% and XX% without specifically stating that the intensity was prescribed between these values.

However, this information must be apriori defined (i.e., Methods) and not reported after the fact (i.e., Results).

- **DETAILS – How was the intensity of AET / RET / CET prescribed?**
  - Note the test/scale (e.g., VO_{2peak}, HR_{max}, 1-RM, RPE) upon which the relative intensity of exercise was prescribed.

- **DETAILS – Minimum prescribed AET / RET / CET intensity:**
  - Note the lowest relative intensity of exercise prescribed
  - **NR** 𝕋 If not reported

- **DETAILS – Maximum prescribed AET / RET / CET intensity:**
  - Note the highest relative intensity of exercise prescribed
  - **NR** 𝕋 If not reported

- **TIDieR (8c) – Describes the duration of AET / RET / CET sessions.**
  - **Options:**
    - **Yes** 𝕋 Must define a specific minimum ***OR*** range for exercise session durations
    - **No** 𝕋 Not provided

- **DETAILS – Minimum prescribed AET / RET / CET session duration (minutes):**
  - Note the shortest duration of exercise prescribed in minutes
  - **NR** 𝕋 If not reported

- **DETAILS – Maximum prescribed AET / RET / CET session duration (minutes):**
  - Note the longest duration of exercise prescribed in minutes
  - **NR** 𝕋 If not reported

- **DETAILS – Number of prescribed sets (RET only):**
  - Provide details
  - **NR** 𝕋 If not reported

- **DETAILS – Number of prescribed repetitions (RET only):**
  - Provide details
  - **NR** 𝕋 If not reported

- **CONSORT (5a) – Description of the different components of the interventions and, when applicable, description of the procedure for tailoring the interventions to individual participants?**
  - **Options:**
    - **Yes** 𝕋 Must describe the major (primary and secondary) intervention components and, when applicable, when ***AND*** how the intervention was individually tailored (personalized or progressed)
    - **Unclear** 𝕋 If any of the major intervention components are not well described and/or if either the timing or manner in which the intervention was tailored was not well described
    - **No** 𝕋 If any of the major intervention components and/or tailoring was not described
    - **No** 𝕋 If multiple intervention components and/or tailoring was not well described

- **TIDieR (9i) – If the intervention was planned to be personalized / individualized, then describe when and how.**
  - **Options:**

- **Yes** 𝕋 Must at least describe when ***AND*** how the intervention was personalized
- **Unclear** 𝕋 If either the timing or manner in which the intervention was personalized was not well described
- **No** 𝕋 If either the timing or manner in which the intervention was personalized was missing

- **TIDieR (9ii) – If the intervention was planned to be progressed, then describe when and how.**
  - **Options:**
    - **Yes** 𝕋 Must at least describe when ***AND*** how the intervention was progressed
    - **Unclear** 𝕋 If either the timing or manner in which the intervention was progressed was not well described
    - **No** 𝕋 If either the timing or manner in which the intervention was progressed was missing
  - **TIP:**
    - Progressions must be defined according to the timing and increment of change throughout the intervention
    - Lead-in periods are not considered progressions

- **TIDieR (11) – If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them.**
  - **Options:**
    - **Yes** 𝕋 Must both identify the strategy ***AND*** provide requisite details describing how the strategy was implemented ***(including how & by whom)***
    - **Unclear** 𝕋 If the strategy was identified but not adequately described
    - **No** 𝕋 If the strategy was identified but not described ***OR*** no strategy identified
  - **TIP:**
    - This only applies to strategies related to supporting the exercise or physical activity component of interventions.

- **CONSORT (5b) – Details of whether and how the AET / RET / CET interventions were standardized.**
  - **Options:**
    - **Yes** 𝕋 Provided enough detail related to the consistency of how the exercise intervention was prescribed ***AND*** progressed **AND/OR** modified in a structured manner
      - *This could also apply to how participants were coached or counseled.*
    - **Unclear** 𝕋 Used the word 'standardized' but failed to provide the requisite details
    - **Unclear** 𝕋 Attempted to provide the requisite details but a key aspect is not well described
    - **No** 𝕋 Failed to describe the intervention as standardized and/or failed to describe more than one key aspect of the exercise prescription, progression, and/or modification process

- **CONSORT (5c) – Details of whether and how adherence of care providers to the protocol was assessed or enhanced.**
  - **Options:**
    - **Yes** 𝕋 Provided details as to how ***AND*** when the actions of the **interventionists** were evaluated by **study investigators**
    - **Yes** 𝕋 Authors stated that interventionist adherence was not tracked
    - **Unclear** 𝕋 Provided details as to how ***OR*** when the actions of the **interventionists** were evaluated by **study investigators**
    - **No** 𝕋 Details not provided
  - **TIPS:**
    - This specifically pertains to someone evaluating the interventionists' performance and ***NOT*** training or supporting the interventionists in any way.

- **CONSORT (5d), TIDieR (12) – Details of whether and how intervention fidelity or adherence of participants to interventions was assessed or enhanced – describe the extent to which the intervention was delivered as planned.**
    - **Options:**
        - **Yes** 𝕋 Provided details ***AND*** data related to how much of the prescribed dose of exercise was actually delivered to each participant relative to what was intended
        - **Yes** 𝕋 Authors stated that participant adherence was not tracked
        - **Unclear** 𝕋 Provides details (i.e., intensity ***AND*** volume) ***AND*** data but one or both are unclear
        - **No** 𝕋 Failed to report the method ***OR*** the results of this assessment
    - **TIPS:**
        - Although a participant must attend a session in order to adhere to the prescription, attendance does ***NOT*** count toward adherence.
        - Authors must describe the method of assessing participant adherence which captures both **target intensity** (e.g., % VO_{2peak} or % HR_{max}) ***AND*** **target volume** (e.g., total exercise time) ***as well as*** the results data comparing actual vs target exercise dose delivery.
        - Must describe findings in the context of the planned dose.
        - This ONLY applies to the exercise-specific components of the interventions.

Other Phase I/II Information

- **DETAILS – Was there a co-intervention prescribed in this trial?**
    - **Options:**
        - **Yes** 𝕋 There was/were
        - **Unclear** 𝕋 There was/were but not well described
        - **No** 𝕋 There was/were not
    - **TIP:**
        - Behavioral support strategies are counted as non-exercise intervention components and the data should be extracted here and for the formal CONSORT behavioral support item.

- **DETAILS – Please describe the co-intervention.**
    - Note all pertinent details of the non-exercise intervention component(s)

- **TIDieR (3) – Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (e.g. online appendix, URL).**
    - **Options:**
        - **NA** 𝕋 No physical or informational material was provided (stated or not)
        - **Yes** 𝕋 Provides details on any physical or informational materials used in the intervention (including those provided to participants or used to train interventionists)
        - **Unclear** 𝕋 Appears physical or informational material was provided but the details were not well described
        - **No** 𝕋 Appears physical or informational material was provided but the details were not provided
    - **TIPS:**
        - This pertains to physical or informational material which are only provided to the intervention group(s) and **NOT** the usual care/control group.

- **TIDieR (10) – If the intervention was modified during the course of the study, describe the changes (what, why, when, and how).**

- **Options:**
  - **NA** – No observable modification to the intervention
  - **Yes** – Describes modification according to all pertinent features (e.g., what, why, when & how)
  - **Unclear** – Notes intervention modification but fails to describe and justify it appropriately
  - **No** – If the description or justification is missing
- **TIPS:**
  - Again, base this evaluation solely on the information provided in the primary paper (and online supplement, when applicable) for ***Round I - Data Extraction***.

Intervention Summary

- **CONSORT (5i) – Described the interventions for each group with sufficient details to allow replication, including how and when they were actually administered.**
  - **Options:**
    - **Yes** – Provided a complete description of the intervention, such that you could confidently reproduce the intervention
    - **No** – If they failed to provide sufficient detail (even if they provided a reasonable amount)
  - **TIP:**
    - Wait to answer this question until after you have gone through the TIDieR questions. If you assign 'Yes's' to TIDieR items 5.3, 5.4, 5.6, 5.7, 5.8a, 5.8b, 5.8c, 5.8d, and 5.9, then this CONSORT-based item will also be 'Yes'. If any of these TIDieR items are not labelled 'Yes', you will assign a 'No' to this CONSORT-based inventory item (*this may often be the case*).

Sample Size & Statistics

- **CONSORT (12ai) – Statistical methods used to compare groups for primary and secondary outcomes.**
  - **Options:**
    - **Yes** – The methods used to compare the groups on the primary and secondary outcomes are clearly described
    - **Unclear** – There is any ambiguity in the description
    - **No** – Any aspect is not described

- **CONSORT (7ai) – How sample size was determined.**
  - **Options:**
    - **Yes** – Provides the details of the power calculation (i.e., based on [illegible] and, when applicable, adjustment for drop-outs – how many participants were needed per group/overall)
    - **Yes** – Authors specifically stated that no power calculation was performed
    - **No** – Any details not provided

- **CONSORT (7aii; *sample size*) – When applicable, details of whether and how the clustering by care providers or centers was addressed.**
  - **Options:**

- **NA** 𝕋 If study was conducted at a single center and under the supervision of the same group of interventionists
- **Yes** (*multicenter trials*) 𝕋 If details of how the analyses were adjusted to account for potential differences across intervention sites and interventionists
- **Yes** (*single center/multi-intervention location*) 𝕋 If details of how the analyses were adjusted to account for potential differences across interventionists
- **Yes** 𝕋 Authors clearly stated that no clustering was performed
- **No** 𝕋 Details not provided

- **CONSORT (7b) – When applicable, explanation of any interim analysis or stopping guidelines.**
  - **Options:**
    - **NA** 𝕋 No interim analysis or apriori defined stopping criteria
    - **Yes** 𝕋 Authors apriori defined the rationale, nature and methods for interim analyses or stopping criteria
    - **Unclear** 𝕋 If any aspect of the rationale, nature and methods for the interim analysis or stopping criteria are poorly described
    - **No** 𝕋 If any aspect of the rationale, nature and methods are missing or if results are reported without details provided in the methods section
  - **TIPS:**
    - **Interim analyses**: Typically used to assess the safety, feasibility, or establish the preliminary efficacy of an intervention at a prespecified time-point in a trial with the express purpose of making decisions around whether the trial should continue as planned, if modifications are required, or if the trial should be stopped altogether. Do not mistake this type of analysis for a midpoint assessment wherein the primary and/or secondary outcome data are collected and reported as another testing time-point in the overall trial.
    - **Stopping criteria**: Likely related to the outcome of the aforementioned interim analyses. Must be apriori defined and described and ***NOT*** just reported on after the fact.

- **CONSORT (12aii; *statistics*) – When applicable, details of whether and how the clustering by care providers or centers was addressed.**
  - **Options:**
    - **NA** 𝕋 If study was conducted at a single center and under the supervision of the same group of interventionists
    - **NA** 𝕋 If multicenter trial stratified by center and no further exploratory analyses were performed
    - **Yes** (*multicenter trials*) 𝕋 If details of how the analyses were adjusted to account for potential differences across intervention sites and interventionists
    - **Yes** (*single center/multi-intervention location*) 𝕋 If details of how the analyses were adjusted to account for potential differences across interventionists
    - **Yes** 𝕋 Authors stated that clustering was not performed
    - **No** 𝕋 Details not provided

- **CONSORT (12b) – Methods for additional analyses, such as subgroup analyses and adjusted analyses.**
  - **Options:**
    - **NA** 𝕋 If no additional subgroup analyses were performed
    - **Yes** 𝕋 If any analysis other than the primary/secondary intervention effects are described
    - **No** 𝕋 If any analysis other than the primary/secondary intervention effects are reported but not described

Data Comparison: Sample Size

	Sample Size Calculated	Sample Size Recruited
Sample size – calculated vs actual?	Number: _____	Number: _____

- **TIP:**
  - If the calculated sample size listed in the Registry and Manuscript are different, please note both values (e.g., Reg: ##; Man: ##).

- **DETAILS – If different, were the changes noted in the Manuscript?**
  - **Options:**
    - **Yes** – The difference(s) in Sample Size were clearly stated and explained.
    - **No** – The difference(s) in Sample Size were apparent but not explained.
    - **Not Applicable** – There was no difference in the Sample Size calculations between the Registry and the Manuscript.
    - **Not Applicable** – No clinical trial registry data available.

RESULTS

Participant Flow

- **CONSORT (13) – Participant flow diagram (a diagram is strongly recommended).**
  - **Options:**
    - **Yes** – A clear depiction of participant flow was provided
    - **No** – Not provided

- **CONSORT (13b) – For each group, losses and exclusions after randomization, together with reasons.**
  - **Options:**
    - **NA** – If authors specifically state there were no losses/exclusions post randomization
    - **Yes** – Provided a complete account of all randomized participants
    - **Unclear** – If all randomized participants are accounted for but the details of any participant are unclear
    - **No** – If any details of any participant are missing

Centers & Care Providers

- **CONSORT (13aii) – The number of care providers and/or centers performing the intervention in each group and the number of patients treated by each care provider or in each center.**

- **Options:**
  - **Yes** 𝕋 (Multi-site trials) List the number of intervention sites ***OR*** individually identify each site ***AND*** must clearly state the number of interventionists at each study site.
  - **Yes** 𝕋 (Single-site trials) Must clearly state the number of interventionists at the study site.
  - **No** 𝕋 (Multi-site trials) Data not provided for number of centers and/or number of interventionists.
  - **No** 𝕋 (Single-site trials) Data not provided for number of interventionists.

- **CONSORT (15ii) – When applicable, a description of care providers (case volume, qualification, expertise, etc.) and centers (volume) in each group.**
  - **Options:**
    - **Yes** 𝕋 (Multi-site trials) Must at least provide the background education or training of the interventionists ***AND*** the volume of participants at each site.
    - **Yes** 𝕋 (Single-site trials) Must at least provide the background education or training of the interventionists.
    - **No** 𝕋 (Multi-site trials) Data not provided for interventionists and/or centers.
    - **No** 𝕋 (Single-site trials) Data not provided for interventionists.

Participants, Analyses & Outcomes

- **CONSORT (15i) – A table showing baseline demographic and clinical characteristics for each group.**
  - **Options:**
    - **Yes** 𝕋 A unique table displaying demographic data is provided
    - **No** 𝕋 Table not provided

- **CONSORT (13ai) – For each group, the number of participants who were randomly assigned, received intended treatment, and were analyzed for the primary outcome.**
  - **Options:**
    - **Yes** 𝕋 All requisite details were provided
    - **No** 𝕋 Any of the requisite details are not provided
  - **TIP:**
    - Must include sample sizes in the body of the Results or directly within the Results tables.

- **CONSORT (16) – For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups.**
  - **Options:**
    - **Yes** 𝕋 Must provide details of how many participants from each group were included within each analysis
    - **Unclear** 𝕋 The authors suggest that analyses were performed according to intention-to-treat but failed to provide a description of how missing data from drop-outs or testing errors was accounted for
    - **Unclear** 𝕋 The authors provided numbers for the analysis but did not indicate that analyses adhered to intention-to-treat principles
    - **No** 𝕋 Data not provided
  - **TIPS:**
    - This information is typically reported in the main results tables in the form of (n = #) but may also be found in the results section.
    - Double check the flow diagram to check for potential dropouts/missing data.

        - If any participants withdrew or were lost to follow-up, the authors should disclose how their missing data was treated.
    - Must include sample sizes in the body of the Results or directly within the Results tables.

- **CONSORT (17a) – For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval).**
    - **Options:**
        - **Yes** 𝕋 Authors must provide the raw baseline data, raw or adjusted follow-up data, change scores or effect sizes, ***AND*** 95% CI data
        - **No** 𝕋 Missing any of the aforementioned data

- **CONSORT (17b) – For binary outcomes, presentation of both absolute and relative effect sizes is recommended.**
    - **Options:**
        - **NA** 𝕋 If no binary outcomes are tracked/reported
        - **Yes** 𝕋 Authors provide an indication of the actual number of observations relative to the expected number of observations ***AND*** whether the ratio of observations differed between groups
        - **No** 𝕋 Missing any of the aforementioned data

- **CONSORT (18) – Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory.**
    - **Options:**
        - **NA** 𝕋 If no subgroup or sensitivity analysis were performed
        - **Yes** 𝕋 If the results of any analysis other than the main intervention effects were performed and reported
        - **No** 𝕋 If the results of any analysis other than the main intervention effects were performed but not reported

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- **DETAILS – What was the outcome of this trial?**
    - **Options:**
        - **Positive** 𝕋 As hypothesized, there was a significant difference in the primary outcome
        - **Positive → As hypothesized, equivalency was demonstrated**
        - **Negative** 𝕋 Contrary to the hypothesis, there was no significant difference in the primary outcome
        - **Negative → Contrary to the hypothesis, equivalency was not demonstrated**
        - **Unclear** 𝕋 If the primary findings are not well defined or not interpretable
        - **Mixed** 𝕋 Only an option for trials with more than one primary outcome (rare)

Trial Characteristics

- **CONSORT (13d) – Details of the experimental treatment and comparator as they were implemented.**
    - **Options:**
        - **Yes** 𝕋 Clearly reported findings for the intervention arms(s) and control group
        - **No** 𝕋 Results not clearly defined for each group

- **CONSORT (14b) – Why the trial ended or was stopped.**
  - **Options:**
    - **NA** 𝕋 If the trial appeared to finish as planned (i.e., achieved target sample size and concluded the intervention and follow-up tested as intended)
    - **Yes** 𝕋 If the trial stopped early or was extended ***AND*** a full justification was provided
    - **Unclear** 𝕋 If the trial stopped early or was extended ***AND*** the authors made special note of that fact without providing an adequate justification
    - **Unclear** 𝕋 If the trial stopped early or was extended ***AND*** an inadequate discussion was provided
    - **No** 𝕋 If the trial stopped early or was extended ***BUT*** an adequate justification was not provided
  - **TIP:**
    - The majority of studies will finish as planned and will be assigned an **NA**

- **CONSORT (14a) – Dates defining the periods of recruitment and follow-up.**
  - **Options:**
    - **Yes** 𝕋 Must provide both the dates of when the trial was open to recruitment ***AND*** at least indicate a specific date as to when participant follow-up finished
    - **Unclear** 𝕋 Authors provided recruitment dates but only eluded to how long the follow-up period lasted (e.g., 12 months)
    - **No** 𝕋 Only provided dates of recruitment but not follow-up ***OR*** not at all

DETAILS

- **Recruitment (enrollment) start date:**
  - *Note details*
  - **Nomenclature:** Date format 𝕋 MM/YY
  - **NR** 𝕋 If not reported

- **Recruitment (enrollment) end date:**
  - *Note details*
  - **Nomenclature:** Date format 𝕋 MM/YY
  - **NR** 𝕋 If not reported

- **Trial start date:**
  - *Note details*
  - **Nomenclature:** Date format 𝕋 MM/YY
  - **NR** 𝕋 If not reported

- **Trial end date:**
  - *Note details*
  - **Nomenclature:** Date format 𝕋 MM/YY
  - **NR** 𝕋 If not reported

Timing of Assessments

- **CONSORT (13c) – For each group, the delay between randomization and the initiation of the intervention.**
  - **Options:**

- **Yes** 𝕋 Explicitly states an average or maximum time (days/weeks) between randomization and intervention start
- **No** 𝕋 Data not provided

Randomization & Testing

- **Number of subjects randomized to Exercise:**
  - **AET (2) / RET (2) / COMB (2)** 𝕋 *Note details* for each group as relevant
  - **NR** 𝕋 If not reported
- **Number of subjects randomized to Usual Care/Control:**
  - *Note details*
  - **NR** 𝕋 If not reported
- **Number of Exercise participants with baseline data:**
  - **AET (2) / RET (2) / COMB (2)** 𝕋 *Note details* for each group as relevant
  - **NR** 𝕋 If not reported
- **Number of Usual Care/Control participants with baseline data:**
  - *Note details*
  - **NR** 𝕋 If not reported
- **Number of Exercise participants with follow-up data:**
  - **AET (2) / RET (2) / COMB (2)** 𝕋 *Note details* for each group as relevant
  - **NR** 𝕋 If not reported
- **Number of Usual Care/Control participants with follow-up data:**
  - *Note details*
  - **NR** 𝕋 If not reported

Demographics

- **Total number of subjects:**
  - *Note details*
  - **NR** 𝕋 If not reported
- **Number of male participants:**
  - *Note details*
  - **NR** 𝕋 If not reported
- **Number of female participants:**
  - *Note details*

- **NR** – If not reported

- **Average age of all participants:**
  - *Note details*
  - **NR** – If not reported

- **Average age of Exercise participants:**
  - *Note details*
  - **NR** – If not reported

- **Average age of Usual Care/Control participants:**
  - *Note details*
  - **NR** – If not reported

Medical Characteristics

- **Average disease duration (*months*):**
  - Not Applicable
  - <6 months
  - <12 months
  - <24 months
  - <60 months
  - <120 months
  - □months
  - **NR** – If not reported

Comorbidities

Hypertension (n):
- *Note details*
- **NR** – If not reported
- **NA** – If listed in exclusion criteria

Hypertension (%): *Note details*

Hypercholesterolemia (n):
- *Note details*
- **NR** – If not reported
- **NA** – If listed in exclusion criteria

Hypercholesterolemia (%): *Note details*

Diabetes (n):
- *Note details*
- **NR** – If not reported
- **NA** – If listed in exclusion criteria

Diabetes (%): *Note details*

Attendance

AET (2) Attendance – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** If not reported ***OR*** if trial reports attendance as X% attended X% of sessions

RET (2) Attendance – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** If not reported ***OR*** if trial reports attendance as X% attended X% of sessions

CET (2) Attendance – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** If not reported ***OR*** if trial reports attendance as X% attended X% of sessions

- **TIPS:**
  - **Attendance**: Only report attendance with the exercise-based components of the intervention and NOT attendance to other components (e.g., telephone counseling sessions).

Exclusion

AET (2) Exclusion – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** If not reported

RET (2) Exclusion – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** If not reported

CET (2) Exclusion – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** If not reported

UC Exclusion – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** If not reported

- **TIP (*if patient attrition has occurred*):**
  - **NA** When missing data strategies are used (e.g., imputation) and authors confirm that the results do not differ with or without the imputed data.
  - For trials reporting intention to treat analyses, 'zero exclusion' cannot be assigned unless confirmed by analysis sample sizes defined in either the body of the results or the results tables.

CONSORT – HARMS

- **HARMS (19a) – If the study collected data on harms and benefits, the title or abstract should so state.**
  - **Options:**
    - **Yes** 𝕋 If authors mention safety or AEs anywhere in the title or abstract
    - **No** 𝕋 If safety or AEs are not mentioned in these sections
  - **TIPS:**
    - **IMPORTANT – All Phase I-III, by definition, should report safety outcomes. Thus, the safety of the intervention should be assessed and reported on.**

- **HARMS (19b) – If the trial addresses both harms and benefits, the introduction should so state.**
  - **Options:**
    - **Yes** 𝕋 Authors should state the safety of the intervention is in question ***OR*** they should state that one of the trial objectives (typically last paragraph of the intro) is to assess the safety of the intervention.
    - **No** 𝕋 Not mentioned

- **HARMS (19c) – List addressed adverse events with definitions for each** (*when relevant, attention to grading, expected vs. unexpected AEs, reference to standardized and validated definition, and description of new definitions*)**.**
  - **Options:**
    - **Yes** 𝕋 Authors listed ***AND*** defined the potential/anticipated AEs being studied
    - **Unclear** 𝕋 Authors listed the AEs but failed to define them
    - **No** 𝕋 Details not provided
  - **TIPS:**
    - For trials reporting AEs as the primary and secondary outcomes, the definitions for the outcomes count towards defining the AEs.

- **HARMS (19d) – Clarify how harms-related data was collected (***mode of collection, timing, attribution methods, intensity of ascertainment, and harms-related monitoring and stopping rules***).**
  - **Options:**
    - **Yes** 𝕋 Authors should clearly state how, when ***AND*** by whom AE data was collected
    - **Unclear** 𝕋 Authors fail to properly describe a single aspect (how, when, by whom) of how the AE data was collected but adequately describe all other aspects
    - **No** 𝕋 Details not provided
  - **TIPS:**
    - For trials reporting AEs as the primary and secondary outcomes, the collection methods for the outcomes count towards collecting the AEs.

- **HARMS (19e) – Describe plans for presenting and analyzing information on harms (***including coding, handling of recurrent event, specification of timing issues, handling of continuous measures, and statistical analyses***).**
  - **Options:**
    - **Yes** 𝕋 Authors should clearly state how AE data was analyzed
    - **Unclear** 𝕋 Authors fail to properly describe a single aspect of how the AE data was analyzed but adequately describe all other aspects
    - **No** 𝕋 Details not provided

GENERAL TIPS FOR HARMS:

- If authors fail to explicitly state if AEs were attributable to the intervention, check to see if there were analyses comparing AE frequency or relative risk per arm.
    - If analyses were performed:
        - For AEs which occur significantly more frequently within the intervention group(s) 𝕋 list details for those specific AEs under 'intervention-related'
        - For AEs which do not occur significantly more frequently within the intervention group(s) 𝕋 list details for those specific AEs under 'non-intervention-related'
    - If analyses were not performed:
        - Rate 'intervention-related' AEs as **NR**
        - List all reported AEs for both groups as 'non-intervention-related'
- For trials reporting AEs as the primary and secondary outcomes, the analysis methods for the outcomes count towards analyzing the AEs.

Testing-related AEs

- **DETAILS – Did any testing-related AE occur?**
    - **NA** 𝕋 Specifically stated that no testing-related AEs occurred
    - **Yes** 𝕋 Specifically stated the type and number of testing-related AEs
    - **Unclear** 𝕋 The numbers are provided but the details were unclear
    - **No** 𝕋 Details not provided

- **DETAILS – If so, how many?**
    - Note pertinent details
    - **NR** 𝕋 If not reported
    - **TIPS:**
        - Report both values if there are discrepancies between the Registry and Manuscript

- **DETAILS – How were testing-related AE defined?**
    - Note pertinent details
    - **NR** 𝕋 If not reported

- **DETAILS – How were testing-related AE monitored/tracked?**
    - Note pertinent details
    - **NR** 𝕋 If not reported

Intervention-related AEs

- **DETAILS – Did any intervention-related AE occur?**
    - **NA** 𝕋 Specifically stated that no intervention-related AEs occurred
    - **Yes** 𝕋 Specifically stated the type and number of intervention-related AEs
    - **Unclear** 𝕋 The numbers are provided but the details are unclear
    - **No** 𝕋 Details not provided

- **DETAILS – If so, how many?**
    - Note pertinent details
    - **NR** 𝕋 If not reported

- **TIPS:**
  - Report both values if there are discrepancies between the Registry and Manuscript

- **DETAILS – How were intervention-related AE defined?**
  - Note pertinent details
  - **NR** 𝕋 If not reported

- **DETAILS – How were intervention-related AE monitored/tracked?**
  - Note pertinent details
  - **NR** 𝕋 If not reported

Non-Intervention-related AEs

- **DETAILS – Did any non-intervention-related AE occur?**
  - **NA** 𝕋 Specifically stated that no intervention-related AEs occurred
  - **Yes** 𝕋 Specifically stated the type and number of intervention-related AEs
  - **Unclear** 𝕋 The numbers are provided but the details are unclear
  - **No** 𝕋 Details not provided

- **DETAILS – If so, how many?**
  - Note pertinent details
  - **NR** 𝕋 If not reported
  - **TIPS:**
    - Report both values if there are discrepancies between the Registry and Manuscript

- **DETAILS – How were non-intervention-related AE defined?**
  - Note pertinent details
  - **NR** 𝕋 If not reported

- **DETAILS – How were non-intervention-related AE monitored/tracked?**
  - Note pertinent details
  - **NR** 𝕋 If not reported

AEs Per Group

- **DETAILS – How many AEs were reported for the PHARMA (4) & UC groups?**
  - Note pertinent details
  - **NR** 𝕋 If not reported

HARMS Continued…

- **HARMS (19f) – Describe for each arm the participant withdrawals that are due to harms and their experiences with the allocated treatment.**
  - **Options:**
    - **NA** 𝕋 If the authors specifically stated there were no AEs ***OR*** that no participant withdrew/was lost to follow-up due to AEs

- **Yes** 𝕋 If the authors clearly identify the number of participants who withdrew or were lost to follow-up due to AEs
- **No** 𝕋 If the reasons why participants withdrew or were lost-to-follow-up are not provided for every applicable case

- **HARMS (19g) – Provide denominators for analyses on harms.**
  - **Options:**
    - **NA** 𝕋 If the authors specifically stated there were no AEs
    - **Yes** 𝕋 Reference numbers provided for AE risk calculations
    - **No** 𝕋 Details not provided

- **HARMS (19h) – Presents absolute risk per arm and per AE type, grade, and seriousness, and present appropriate metrics for recurrent events, continuous variables, and scale variables.**
  - **Options:**
    - **NA** 𝕋 If the authors specifically stated there were no AEs
    - **Yes** 𝕋 If the authors present the absolute risk per arm ***AND*** per adverse event type/grade ***AND*** describe the frequency of AEs
    - **No** 𝕋 Details not provided

- **HARMS (19i) – Describes any subgroup analyses and exploratory analyses for harms.**
  - **Options:**
    - **NA** 𝕋 If the authors specifically stated there were no AEs
    - **NA** 𝕋 There were no subgroup / exploratory analyses proposed or reported
    - **NA** 𝕋 If the number of AEs were so small that it was not reasonable to perform subgroup or exploratory analyses
    - **Yes** 𝕋 If the authors present the results of subgroup analyses or exploratory analyses
    - **No** 𝕋 Details not provided

- **HARMS (19j) – Provide a balanced discussion of benefits and harms with emphasis on study limitation, generalizability, and other sources of information on harms.**
  - **Options:**
    - **NA** 𝕋 If the authors specifically stated there were no AEs
    - **Yes** 𝕋 Should formally address any AEs in the Discussion in the context of trial limitations and whether the risk intervention-related AEs should be considered when implementing or conducting further tests of the intervention in question.
    - **No** 𝕋 Not discussed

DISCUSSION & OTHER

- **CONSORT (20i) – Trial limitations: addressing sources of potential bias, imprecision, and if relevant, multiplicity of analyses.**
  - **Options:**
    - **Yes** 𝕋 If authors listed major sources of potential bias or measurement error ***AND*** provided basic details as to how these factors may have influenced results
    - **Unclear** 𝕋 Authors listed sources of bias but failed to adequately discuss the potential impact/implications of these factors

- **No** 𝕋 Failed to list and adequately discuss potential sources of bias within the description of trial limitations

- **CONSORT (20ii) – Trial limitations: taking into account the choice of comparator, lack of or partial blinding, and unequal expertise of care providers or centers in each group.**
  - **Options:**
    - **Yes** 𝕋 If authors listed sources of potential bias related to the control group(s), incomplete or lack of blinding, and/or between care providers/intervention sites ***AND*** provided basic details as to how these factors may have influenced results
    - **Unclear** 𝕋 Authors listed sources of bias but failed to adequately discuss the potential impact/implications of these factors
    - **No** 𝕋 Failed to list and adequately discuss potential sources of bias within the description of trial limitations
  - **TIPS:**
    - Trials with only PROs: ***analysis*** must be blinded to be rated ***Low***.
    - Trials with only physiologic outcomes: ***testing*** must be blinded to be rated ***Low***.
    - Trials with both physiologic and PROs: ***testing*** and ***analysis*** must be blinded to be rated ***Low***. In these mixed outcome trials, an Unclear can be assigned if the ***analysis*** details are missing.

- **CONSORT (21) – Generalizability of trial findings according to the intervention, comparators, patients, and care providers and centers involved in the trial.**
  - **Options:**
    - **Yes** 𝕋 Authors must discuss their findings in the context of similar interventions, comparators, patient groups, and care provider/centers.
    - **No** 𝕋 None of these aspects were not adequately discussed within the context of other research (past and future)

- **CONSORT (22) – Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence.**
  - **Options:**
    - **Yes** 𝕋 Authors should not overstate non-significant or modestly altered endpoints; nor should they dismiss/ignore/fail to adequately describe non-significant findings for any of the primary outcomes in favor of discussing secondary outcomes
    - **No** 𝕋 Authors do not present an unbiased interpretation of their findings
  - **TIP:**
    - Look closely at the results for the primary outcomes (data tables). The first paragraph of the Discussion should summarize these results without inflating/downplaying the findings. Similarly, the Conclusion should also provide an unbiased summary of the main trial findings.

- **CONSORT (23) – Registration number and name of trial registry.**
  - **Options:**
    - **Yes** 𝕋 If the number was provided
    - **Yes** 𝕋 If authors clearly stated the trial was not registered
    - **No** 𝕋 If the number was not provided
  - **TIP:**
    - Check the abstract, methods, and footnotes/margins of the paper to locate this number.

- **DETAILS – If so, please list.**
  - Note pertinent details

- **CONSORT (24) – Where the full trial protocol can be accessed, if available.**
  - **Options:**
    - **Yes** – If the full protocol or a link to the full protocol is provided in the primary manuscript or as an online supplement
    - **No** – Data not provided

- **DETAILS – If so, please provide the URL:**
  - Note pertinent details

- **CONSORT (25) – Sources of funding and other support, role of funders.**
  - **Options:**
    - **Yes** – If funder and funder's role are both described
    - **Unclear** – If either funder ***OR*** funder's role are described
    - **No** – Neither funder nor funder's role are described
  - **TIP:**
    - Similar to the registration number, check the footnotes, margins, and any supplemental information listed between the Conclusion and the Reference list.

- **DETAILS – If so, please provide the details:**
  - Note pertinent details

COCHRANE – Risk of Bias

- **Selection Bias: Random sequence generation**
  - **High** 𝕋 Selection bias (biased allocation to interventions) due to inadequate generation of a randomized sequence
  - **Low** 𝕋 Random sequence generation method should produce comparable groups
  - **Unclear** 𝕋 Not described in sufficient detail to permit judgement

- **Selection Bias: Allocation concealment**
  - **High** 𝕋 Selection bias (biased allocation to interventions) due to inadequate concealment of allocations prior to assignment
  - **Low** 𝕋 Intervention allocations likely could not have been foreseen in before or during enrollment
  - **Unclear** 𝕋 Not described in sufficient detail to permit judgement

- **Performance Bias: Blinding (participants & personnel)**
  - **High** 𝕋 Performance bias due to knowledge of the allocated interventions by participants and personnel during the study
  - **Low** 𝕋 Blinding was likely effective
  - **Unclear** 𝕋 Not described in sufficient detail to permit judgement

- **Detection Bias: Blinding (outcome assessment)**
  - **High** 𝕋 Detection bias due to knowledge of the allocated interventions by outcome assessors
  - **Low** 𝕋 Blinding was likely effective
  - **Unclear** 𝕋 Not described in sufficient detail to permit judgement
  - **TIPS:**
    - Trials with only PROs: ***analysis*** must be blinded to be rated ***Low***.
    - Trials with only physiologic outcomes: ***testing*** must be blinded to be rated ***Low***.
    - Trials with both physiologic and PROs: ***testing*** and ***analysis*** must be blinded to be rated ***Low***. In these mixed outcome trials, an Unclear can be assigned if the ***analysis*** details are missing.

- **Attrition Bias: Incomplete outcome data**
  - **High** 𝕋 Attrition bias due to amount, nature or handling of incomplete outcome data
  - **Low** 𝕋 Handling of incomplete outcome data was complete and unlikely to have produced bias
  - **Unclear** 𝕋 Insufficient reporting of attrition/exclusions to permit judgment (e.g., number randomized not stated, no reasons for missing data provided)

- **Reporting Bias: Selective reporting**
  - **High** 𝕋 Reporting bias due to selective outcome reporting
  - **Low** 𝕋 Selective reporting bias not detected
  - **Unclear** 𝕋 Insufficient information to permit judgment

- **Other sources of bias**
  - **High** 𝕋 Bias due to problems not covered elsewhere in the criteria
  - **Low** 𝕋 No other bias detected
  - **Unclear** 𝕋 There may be a risk of bias, but there is insufficient information to assess whether an important risk of bias exists or insufficient rationale or evidence that an identified problem will introduce bias

- **Quality Comments: Justify 'high-risk' & 'unclear' decisions**
  - Please note pertinent details

JADAD Score

- **Randomization Score:**
  - 1 point if randomization is mentioned
  - 1 additional point if the method of randomization is appropriate
  - Deduct 1 point if the method of randomization is inappropriate (minimum 0)

- **Blinding Score:**
  - 1 point if blinding is mentioned
  - 1 additional point if the method of blinding is appropriate
  - Deduct 1 point if the method of blinding is inappropriate (minimum 0)
  - **TIPS:**
    - For trials reporting exclusively PROs the analysis must be blinded.
    - For trials reporting any physiologic outcomes the testing must be blinded.
    - For trials with both physiologic and PROs the testing and analysis must be blinded.

- **Account of All Patient Score:**
  - 1 point if the fate of all patients in the trial is known. If there are no data the reason is stated.

Supplementary Methods 7: Data Extraction Reference Guide – Pharmacological RCTs

Data Extraction Reference Guide – Pharmacological RCTs

Memorial Sloan Kettering Cancer Center™

EXTRACTION ABBREVIATIONS

- %: percent
- BL: baseline
- d: days
- FU: follow-up
- hr/hrs: hour/hours
- IN: injection
- INH: inhalent
- IO: intraosseous
- mins: minutes
- mo: months
- PHARMA: pharmaceutical intervention
- PO: oral
- PR: per rectum
- SL: sublingual
- TD: transdermal
- Top: topical
- UC: usual care/control
- wk/wks: week/weeks
- yrs: years

GENERAL NOMENCLATURE & EXTRACTION GUIDELINES

Nomenclature Guidelines

- Ranges:
  - Use 'to' and not '-' (e.g., 150 bpm to 175 bpm)
- Units:
  - List all units of measure including percentages
- Significant figures:
  - Raw values / averages – round to the nearest 0.1
  - Percentages – round to the nearest whole number
- Averages:
  - Mean value is preferred and assumed
  - Only list median values if mean are not reported
    - If listing median values, please label appropriately
- Lists:
  - Be succinct – only include pertinent details and use bullet form with semicolon separated values
  - List details in the same order as it is presented in the manuscript
  - *Examples*:
    - Inclusion/exclusion criteria: e.g., 40 to 65 yrs; BMI<40; sedentary
    - Primary/secondary outcomes: e.g., resting HR; body weight; PA mins/wk

Extraction Guidelines

- Multiple intervention arms
  - Base group numbering on layout of flow diagram (e.g., PHARMA 1 = left-most group; PHARMA 2 = group immediately to the right, etc.)
- Placebo group
  - Extract data into Control group fields
- In the case of discrepancies between conflicting sources of data, prioritize the data provided in the primary manuscript.

ARTICLE INCLUSION/EXCLUSION

- **Should this article be included in our systematic review?**
  - **Yes** ⍑ Does not meet any exclusion criteria.
  - **No** ⍑ Meets one or more exclusion criteria.

PUBLICATION INFORMATION

- **Country of publication?**
  - Please provide the full name of the country where the study was conducted/where the primary author is based

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TITLE, ABSTRACT & INTRODUCTION

- **CONSORT (1a) – Identification as a randomized trial in the title.**
  - **Options:**
    - **Yes** ⍑ Either randomized controlled trial; randomized trial; randomized
    - **No** ⍑ Not mentioned

- **CONSORT (1b) – Structured summary of trial design, methods, results, and conclusions.**
  - **Options:**
    - **Yes** ⍑ Introduction/Background + Methods + Results + Discussion/Conclusion
    - **No** ⍑ Not properly structured

- **CONSORT (2a) – Scientific background and explanation of rationale.**
  - **Options:**
    - **Yes** ⍑ Reviews relevant literature ***AND*** identifies a knowledge gap/question
    - **No** ⍑ Did not adequately review the literature and/or identify the knowledge gap/question the study attempted to address

- **CONSORT (2b) – Specific objectives or hypothesis.**
  - **Options:**

- **Yes** (*objectives*) 𝕋 Must provide a specific purpose/objective for study in the context of the intervention ***AND*** the specific outcomes of interest

OR

- **Yes** (*hypothesis*) 𝕋 Must provide a specific hypothesis in the context of a group-related change in a specific outcome of interest ***AND*** the expected direction of change
- **Unclear** 𝕋 Provided the specific purpose/objective or hypothesis but only 1 of 2 additional required components
- **No** 𝕋 Failed to provide either (1) the specific purpose/objective **OR** hypothesis, and/or (2) both additional required components

- **TIP:**
  - This information is typically reported within final paragraph of the introduction or early in the methods section.

METHODS

- **CONSORT (3a) – Description of trial design (such as parallel, factorial) including allocation ratio.**
  - **Options:**
    - **Yes** 𝕋 Must provide both a description of overall study design (e.g., parallel arm, crossover) ***AND*** allocation ratio
    - **Unclear** 𝕋 Description of study design is provided but ***NOT*** allocation ratio
    - **No** 𝕋 If missing the study design (even if allocation ratio is provided)
  - **EXAMPLES:**
    - Parallel trials, cross-over trials, factorial trials ***AND*** 1:1, 1:2, 1:1:1

- **CONSORT (4b) – Settings and locations where the data were collected.**
  - **Options:**
    - **Yes** 𝕋 Provided details of where the data were collected for the trial
      - *This includes single-location trials when the authors clearly state the entire trial took place onsite*
    - **Unclear** 𝕋 Specifies that data was collected in a lab/office but does not provide the actual location of said room (e.g., at which hospital)
    - **No** 𝕋 Details not provided
  - **TIP:**
    - This does ***NOT*** include where the recruitment or intervention took place.
    - Listing the institutional / ethics review board does not count.

- **DETAILS – Clinical population:**
  - List the clinical population being studied
  - **NR** 𝕋 If not reported

- **DETAILS – Disease setting:**
  - Identify the disease phase [Prevention (P) vs. Management (M)] during and after) during which the PHARMA intervention took place.

- **CONSORT (3b) – Important changes to methods after trial commencement (such as eligibility criteria), with reasons.**

- **Options:**
  - **NA** 𝕋 The methods did not change
  - **Yes** 𝕋 Methods changed and reasons were provided
    - *Examples include (but are not limited to): study design, sample size (± 10%), eligibility criteria, recruitment strategy, randomization, blinding, data analysis, etc.*
  - **Unclear** 𝕋 Described change in methods but no reasons were provided
  - **No** → It appears that methods may have changed but there is not enough information to make assessment
- **TIPS:**
  - This includes under/over recruitment according to the a priori-defined sample size without adequate justification.
  - Does ***NOT*** include changes in trial outcomes 𝕋 that data is captured in a separate CONSORT item

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Eligibility Criteria

- **CONSORT (4a) – Eligibility criteria for participants.**
  - **Options:**
    - **Yes** 𝕋 Provided details/criteria for ***BOTH*** inclusion ***AND*** exclusion of participants
    - **Unclear** 𝕋 Only provides details of inclusion ***OR*** exclusion but ***NOT*** both
    - **No** 𝕋 Details not provided

Data Comparison: Eligibility Criteria

- **Was there a difference in Eligibility Criteria between the Registry and the Manuscript?**
  - **Options:**
    - **Yes** 𝕋 One or more differences between the two data sources.
    - **No** 𝕋 No difference between the two data sources.
    - **Unclear** 𝕋 Possible difference between the two data sources, but insufficient information to make a determination.
    - **Not Applicable** 𝕋 No clinical trial registry data available.

- **Was the change noted in the Manuscript?**
  - **Options:**
    - **Yes** 𝕋 The change in eligibility criteria was clearly stated and explained.
    - **No** 𝕋 The change in eligibility criteria was apparent but not explained.
    - **Not Applicable** 𝕋 There was no difference in the eligibility criteria between the Registry and the Manuscript.
    - **Not Applicable** 𝕋 No clinical trial registry data available.

- **How many Inclusion Criteria were listed in the Registry?**
  - Please record the total number of individual Inclusion Criteria listed in the Registry.

- **DC DETAILS - Please list the Inclusion Criteria reported in the Registry.**
  - Please record each individual Inclusion Criteria listed in the Registry.
- **How many Inclusion Criteria were listed in the Manuscript?**
  - Please record the total number of individual Inclusion Criteria listed in the Manuscript.
- **DC DETAILS - Please list the Inclusion Criteria reported in the Manuscript.**
  - Please record each individual Inclusion Criteria listed in the Manuscript.
- **How many Exclusion Criteria were listed in the Registry?**
  - Please record the total number of individual Exclusion Criteria listed in the Registry.
- **DC DETAILS - Please list the Exclusion Criteria reported in the Registry.**
  - Please record each individual Exclusion Criteria listed in the Registry.
- **How many Exclusion Criteria were listed in the Manuscript?**
  - Please record the total number of individual Exclusion Criteria listed in the Manuscript.
- **DC DETAILS - Please list the Exclusion Criteria reported in the Manuscript.**
  - Please record each individual Exclusion Criteria listed in the Manuscript.

Outcome Measures

- **CONSORT (6a) – Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed.**
  - **Options:**
    - **Yes** 𝕋 Clearly defined a single primary outcome (*co-primary outcomes at max*), all relevant secondary outcomes ***AND*** provide all requisite details of the timing ***AND*** procedures used to assess these outcomes
    - **Unclear** 𝕋 Primary and secondary outcomes defined but the descriptions of the timing and procedures used to assess the outcomes were lacking details required to reproduce the measurements
    - **No** 𝕋 If no primary or secondary outcomes are clearly defined ***OR*** if the assessment details (e.g., ***how & when***) were missing altogether
  - **TIPS**:
    - Some studies may identify multiple primary outcomes. Although this type of study design is inappropriate in the context of medical oncology research, we are evaluating the quality of reporting and not the quality of the study design. Therefore, a 'Yes' can be assigned provided the authors clearly identify which outcomes are considered primary and secondary.
- **DETAILS – Please list the primary endpoint(s):**
  - When entering data, list the primary endpoint(s) using a semicolon to separate individual criteria
  - **NR** 𝕋 If not reported.
- **DETAILS – Please list the secondary endpoint(s):**

- When entering data, list the secondary endpoints using a semicolon to separate individual criteria
- **NR** – If not reported.

- **CONSORT (6b) – Any changes to trial outcomes after the trial commenced, with reasons.**
  - **Options:**
    - **NA** – No observable changes to trial outcomes were made
    - **Yes** – Describes changes in outcomes according to all pertinent features (e.g., what, why & when)
    - **Unclear** – Describes changes according to all but one pertinent feature
    - **No** – If the description is missing or unclear on two or more pertinent features

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Data Comparison: Primary Outcome

- **Was there a difference in the Primary Outcome(s) between the Registry and the Manuscript?**
  - **Options:**
    - **Yes** – Ž difference between the two data sources.
    - **No** – No difference between the two data sources.
    - **Unclear** – Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** – No clinical trial registry data available.

- **Was the change in Primary Outcome noted in the Manuscript?**
  - **Options:**
    - **Yes** – The change in Primary Outcome was clearly stated and explained.
    - **No** – The change in Primary Outcome was apparent but not explained.
    - **NR** – No clinical trial registry data available.
    - **NA** – No difference (i.e., Q1 = No)

- **Was a new Primary Outcome reported in the Manuscript which was not reported in the Registry?**
  - **Options:**
    - **Yes** – Ž Primary Outcome reported in the Manuscript that was not listed in the Registry.
    - **No** – No new Primary Outcome added to the Manuscript.
    - **Unclear** – Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** – No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

- **Was the Primary Outcome reported in the Registry reported as a Secondary Outcome in the Manuscript?**
  - **Options:**
    - **Yes** – Ž Primary Outcome reported in the Registry listed as a Secondary Outcome in the Manuscript.
    - **No** – No Primary Outcome from the Registry listed as a Secondary Outcome in the Manuscript.

- **Unclear** – Possible difference between the two data sources, but insufficient information to make a determination.
- **NR** – No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

- **Was the Primary Outcome reported in the Registry omitted from the Manuscript?**
  - **Options:**
    - **Yes** – The Primary Outcomes reported in the Registry was omitted from the Manuscript.
    - **No** – The Primary Outcome reported in the Registry was included in the Manuscript.
    - **Unclear** – Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** – No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

Data Comparison: Secondary Outcomes

- **Were different (new) Secondary Outcomes reported in the Manuscript which were not reported in the Registry?**
  - **Options:**
    - **Yes** – Secondary Outcomes reported in the Manuscript were not reported in the Registry.
    - **No** – The Secondary Outcomes reported in the Manuscript were consistent with the Registry.
    - **Unclear** – Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** – No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

- **If different (new) Secondary Outcomes were added to the Manuscript, were the reasons noted in the Manuscript?**
  - **Options:**
    - **Yes** – The change(s) in Secondary Outcomes were clearly stated and explained
    - **No** – The changes in Secondary Outcomes were apparent but not explained
    - **NR** – No clinical trial registry data available
    - **NA** – No difference in Secondary Outcomes (i.e., Q6 = No)

- **Was one or more of the Secondary Outcomes reported in the Registry reported as Primary Outcomes in the Manuscript?**
  - **Options:**
    - **Yes** – A Secondary Outcome reported in the Registry was reported as a Primary Outcome in the Manuscript.
    - **No** – None of the Secondary Outcomes reported in the Registry were reported as Primary Outcomes in the Manuscript.
    - **Unclear** – Possible difference between the two data sources, but insufficient information to make a determination.

- **NR** 𝕋 No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

Randomization & Blinding

- **CONSORT (8a) – Method used to generate the random allocation sequence.**
  - **Options:**
    - **Yes** 𝕋 Clearly stated the specific process used to generate the randomization (e.g., a coin flip, computer generated)
    - **No** 𝕋 Not provided

- **CONSORT (8b) – Type of randomization; details of any restriction (such as blocking and block size).**
  - **Options:**
    - **Yes** 𝕋 Provided the details of how the randomization accounted for key confounding variables (e.g., blocking, minimization, stratification)
    - **No** 𝕋 Not provided

- **CONSORT (9) – Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned.**
  - **Options:**
    - **Yes** 𝕋 Provided details of how the physical randomization was performed or how the participants were notified of their allocation (e.g., phone call, sealed envelopes, centralized allocation)
    - **No** 𝕋 Not provided

- **CONSORT (10) – Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions.**
  - **Options:**
    - **Yes** 𝕋 Must include a clear description of who performed ***ALL*** of these tasks
    - **Unclear** 𝕋 If description of one of these tasks is inadequate or missing
    - **No** 𝕋 If two or more of these tasks are poorly described or not described at all
  - **TIP:**
    - An exception can be made for participant assignment criteria for studies using centralized allocation.

- **CONSORT (11a) – If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how.**
  - **Options:**
    - **Yes** 𝕋 Details regarding testers ***AND*** data analyzers are provided
    - **Unclear** 𝕋 If any of the aforementioned details are provided but poorly described
    - **No** 𝕋 If any of the aforementioned details are missing
  - **TIP:**

- Remember, we are assessing if the reporting is complete ***NOT*** how good the methods are. Therefore, if authors state that the outcome assessors were not blinded, we would consider this good reporting and assign a 'Yes' for this category.
- Trials listing "double-blind" or "open label" qualify as complete reporting

- **CONSORT (11b) – If relevant, description of the similarity of interventions.**
  - **Options:**
    - **NA** ⟦ If it is a 2-arm trial with a non-pharma control group comparison ***OR*** a 3+ -arm trial with obviously different intervention groups
    - **Yes** ⟦ If details are adequately provided for two or more intervention arms with similar pharma interventions
    - **No** ⟦ If details are not adequately provided for two or more intervention arms with similar pharma interventions
  - **TIP:**
    - NA is not an option for superiority trials (i.e., pharma trials with only two similar intervention arms)

Intervention Details

- **INTERVENTION TYPE – Exercise or Pharmaceutical**
  - **Options:**
    - **Exercise** ⟦ Stated methods included delivery of a structured exercise program with a stated goal of improving a health/fitness/psychosocial outcome.
    - **Pharmaceutical** ⟦ Stated methods included delivery of a pharmaceutical intervention with a stated goal of improving health.

- **DETAILS – Was there a run-in / lead-in period?**
  - **Options:**
    - **Yes** ⟦ Authors clearly stated there was a run-in period
    - **Unclear** ⟦ Appears to be a run-in period, but it was not well described
    - **No** ⟦ No evidence of a run-in period

- **DETAILS – How many weeks was the run-in period?**
  - Note the total duration of the run-in period in weeks
  - **NR** ⟦ If not reported

- **DETAILS – Please provide the details of the run-in period, including the modality of drug administration, dose and frequency.**
  - Note all pertinent details

- **DETAILS – What was the total length of the program/intervention (weeks)?**
  - Note the total duration of the intervention in weeks
  - **NR** ⟦ If not reported
  - **Options:**
    - **Yes** ⟦ Must define the period over which the intervention was delivered according to a specific number of weeks/months or life period

- **No** Not clearly defined (e.g., stated during chemotherapy without providing the average number of weeks/months)

- **DETAILS – How many phases did the intervention have?**
  - Note the total number of intervention phases

- **DETAILS – How many pharmaceutical intervention groups were there?**
  - Indicate 1, 2, 3 or 4 groups, as appropriate.

PHASE I/II – DETAILS

- **DETAILS – How many weeks was this phase?**
  - Note number of weeks
  - **NR** If not reported

- **DETAILS – Where did this phase of the intervention take place?**
  - Check off which of these intervention settings apply
    - Hospital
    - Research laboratory
    - Outpatient medical clinic
    - Home
    - Other
  - **TIP:**
    - Check off more than one if needed
    - Check off Home if regular (e.g., daily) doses are prescribed and no other locations are described

- **DETAILS – If Other, please list.**
  - Note location of intervention
  - **NR** If not reported

- **DETAILS – What was the modality of drug administration?**
  - Check off which of these intervention modalities apply
    - Oral (PO)
    - Injection (IN)
    - Topical (Top)
    - Intraosseous (IO)
    - Transdermal (TD)
    - Inhalent (INH)
    - Per rectum (PR)
    - Sublingual (SL)
    - Other
    - Not Reported
  - **TIP:**
    - Check off more than one modality when applicable

- **DETAILS – If Other, please list.**
  - Note modality of drug administration
  - **NR** If not reported

Pharma Dose and Frequency Extraction Example:

- Patients taking two 500 mg capsules of a drug (total 1000 mg) twice a day
  - **Dose:** 1000 mg / 2
  - **Frequency:** 2x / day

- **DETAILS – What dose of drug was administered?**
  - Note the dose of drug administered
  - **NR** – If not reported
  - **TIP:**
    - List total dose and fractionation (e.g., two 500 mg capsules – 1000 mg / 2)

- **DETAILS – What was the frequency of drug administration (# per day or week)?**
  - Note the frequency (number or range) of drug administration
  - **NR** – If not reported
  - **TIP:**
    - List frequency per day or week (e.g., twice daily – 2x / day)

- **DETAILS – Was there a co-intervention prescribed for this group?**
  - **Options:**
    - **Yes** – If the details of a non-pharmacologic co-intervention was described
      - If yes, write 'Yes' and provide details
    - **No** – If there was no non-pharmacologic co-intervention described
      - If no, write 'No' only
  - **TIP:**
    - Co-interventions do not include concomitant use of medications or therapies unless they have been specifically administered/prescribed in the context of the intervention

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Intervention Summary

- **CONSORT (5) – Described the interventions for each group with sufficient details to allow replication, including how and when they were actually administered.**
  - **Options:**
    - **Yes** – Provided a complete description of the intervention, such that you could confidently reproduce the intervention
    - **No** – If they failed to provide sufficient detail (even if they provided a reasonable amount)
  - **TIP:**
    - Must describe the type, modality, dose, frequency and any co-interventions to warrant a Yes (intervention location not necessarily required).

Sample Size & Statistics

- **CONSORT (12a) – Statistical methods used to compare groups for primary and secondary outcomes.**
  - **Options:**
    - **Yes** – The methods used to compare the groups on the primary and secondary outcomes are clearly described

- **Unclear** – There is any ambiguity in the description
- **No** – Any aspect is not described

- **CONSORT (7a) – How sample size was determined.**
  - **Options:**
    - **Yes** – Provides the details of the power calculation (i.e., based on [ ] and, when applicable, adjustment for drop-outs – how many participants were needed per group/overall)
    - **Yes** – Authors specifically stated that no power calculation was performed
    - **No** – Any details not provided

- **CONSORT (7b) – When applicable, explanation of any interim analysis or stopping guidelines.**
  - **Options:**
    - **NA** – No interim analysis or apriori defined stopping criteria
    - **Yes** – Authors apriori defined the rationale, nature and methods for interim analyses or stopping criteria
    - **Unclear** – If any aspect of the rationale, nature and methods for the interim analysis or stopping criteria are poorly described
    - **No** – If any aspect of the rationale, nature and methods are missing or if results are reported without details provided in the methods section
  - **TIPS:**
    - **Interim analyses**: Typically used to assess the safety, feasibility, or establish the preliminary efficacy of an intervention at a prespecified time-point in a trial with the express purpose of making decisions around whether the trial should continue as planned, if modifications are required, or if the trial should be stopped altogether. Do not mistake this type of analysis for a midpoint assessment wherein the primary and/or secondary outcome data are collected and reported as another testing time-point in the overall trial.
    - **Stopping criteria**: Likely related to the outcome of the aforementioned interim analyses. Must be apriori defined and described and ***NOT*** just reported on after the fact.

- **CONSORT (12b) – Methods for additional analyses, such as subgroup analyses and adjusted analyses.**
  - **Options:**
    - **NA** – If no additional subgroup analyses were performed
    - **Yes** – If any analysis other than the primary/secondary intervention effects are described
    - **No** – If the results of any analysis other than the primary/secondary intervention effects are reported but no methods are described

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Data Comparison: Sample Size

	Sample Size Calculated	Sample Size Recruited
Sample size – calculated vs actual?	Number: _____	Number: _____

- **TIP:**
  - If the calculated sample size listed in the Registry and Manuscript are different, please note both values (e.g., Reg: ##; Man: ##).

- **DETAILS – If different, were the changes noted in the Manuscript?**
  - **Options:**
    - **Yes** – The difference(s) in Sample Size were clearly stated and explained.
    - **No** – The difference(s) in Sample Size were apparent but not explained.
    - **Not Applicable** – There was no difference in the Sample Size calculations between the Registry and the Manuscript.
    - **Not Applicable** – No clinical trial registry data available.

RESULTS

Participant Flow

- **CONSORT (13) – Participant flow diagram (a diagram is strongly recommended).**
  - **Options:**
    - **Yes** – A clear depiction of participant flow was provided
    - **No** – Not provided

- **CONSORT (13b) – For each group, losses and exclusions after randomization, together with reasons.**
  - **Options:**
    - **NA** – If authors specifically state there were no losses/exclusions post randomization
    - **Yes** – Provided a complete account of all randomized participants
    - **Unclear** – If all randomized participants are accounted for but the details of any participant are unclear
    - **No** – If any details of any participant are missing

Participants, Analyses & Outcomes

- **CONSORT (15) – A table showing baseline demographic and clinical characteristics for each group.**
  - **Options:**
    - **Yes** – A unique table displaying demographic data is provided
    - **No** – Table not provided

- **CONSORT (13a) – For each group, the number of participants who were randomly assigned, received intended treatment, and were analyzed for the primary outcome.**
  - **Options:**
    - **Yes** – All requisite details were provided
    - **No** – Any of the requisite details are not provided
  - **TIP:**
    - Must include sample sizes in the body of the Results or directly within the Results tables.

- **CONSORT (16) – For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups.**
  - **Options:**

- **Yes** 𝕋 Must provide details of how many participants from each group were included within each analysis
- **Unclear** 𝕋 The authors suggest that analyses were performed according to intention-to-treat but failed to provide a description of how missing data from drop-outs or testing errors was accounted for
- **Unclear** 𝕋 The authors provided numbers for the analysis but did not indicate that analyses adhered to intention-to-treat principles
- **No** 𝕋 Data not provided

  - **TIPS:**
    - This information is typically reported in the main results tables in the form of (n = #) but may also be found in the results section.
    - Double check the flow diagram to check for potential dropouts/missing data.
      - If any participants withdrew or were lost to follow-up, the authors should disclose how their missing data was treated.
    - Must include sample sizes in the body of the Results or directly within the Results tables.

- **CONSORT (17a) – For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval).**
  - **Options:**
    - **Yes** 𝕋 Authors must provide the raw baseline data, raw or adjusted follow-up data, change scores or effect sizes, ***AND*** 95% CI data
    - **No** 𝕋 Missing any of the aforementioned data

- **CONSORT (17b) – For binary outcomes, presentation of both absolute and relative effect sizes is recommended.**
  - **Options:**
    - **NA** 𝕋 If no binary outcomes are tracked/reported
    - **Yes** 𝕋 Authors provide an indication of the actual number of observations relative to the expected number of observations ***AND*** whether the ratio of observations differed between groups
    - **No** 𝕋 Missing any of the aforementioned data

- **CONSORT (18) – Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory.**
  - **Options:**
    - **NA** 𝕋 If no subgroup or sensitivity analysis were performed
    - **Yes** 𝕋 If the results of any analysis other than the main intervention effects were performed and reported
    - **No** 𝕋 If the results of any analysis other than the main intervention effects were performed but not reported

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- **DETAILS – What was the outcome of this trial?**
  - **Options:**
    - **Positive** 𝕋 As hypothesized, there was a significant difference in the primary outcome
    - **Negative** 𝕋 Contrary to the hypothesis, there was no significant difference in the primary outcome
    - **Unclear** 𝕋 If the primary findings are not well defined or not interpretable
    - **Mixed** 𝕋 Only an option for trials with more than one primary outcome (rare)

Trial Characteristics

- **CONSORT (14b) – Why the trial ended or was stopped.**
  - **Options:**
    - **NA** 𝕋 If the trial appeared to finish as planned (i.e., achieved target sample size and concluded the intervention and follow-up tested as intended)
    - **Yes** 𝕋 If the trial stopped early or was extended ***AND*** a full justification was provided
    - **Unclear** 𝕋 If the trial stopped early or was extended ***AND*** the authors made special note of that fact without providing an adequate justification
    - **Unclear** 𝕋 If the trial stopped early or was extended ***AND*** an inadequate discussion was provided
    - **No** 𝕋 If the trial stopped early or was extended ***BUT*** an adequate justification was not provided
  - **TIP:**
    - The majority of studies will finish as planned and will be assigned an **NA**

- **CONSORT (14a) – Dates defining the periods of recruitment and follow-up.**
  - **Options:**
    - **Yes** 𝕋 Must provide both the dates of when the trial was open to recruitment ***AND*** at least indicate a specific date as to when participant follow-up finished
    - **Unclear** 𝕋 Authors provided recruitment dates but only eluded to how long the follow-up period lasted (e.g., 12 months)
    - **No** 𝕋 Only provided dates of recruitment but not follow-up ***OR*** not at all

DETAILS

- **Recruitment (enrollment) start date:**
  - *Note details*
  - **Nomenclature:** Date format 𝕋 MM/YY
  - **NR** 𝕋 If not reported

- **Recruitment (enrollment) end date:**
  - *Note details*
  - **Nomenclature:** Date format 𝕋 MM/YY
  - **NR** 𝕋 If not reported

- **Trial start date:**
  - *Note details*
  - **Nomenclature:** Date format 𝕋 MM/YY
  - **NR** 𝕋 If not reported

- **Trial end date:**
  - *Note details*
  - **Nomenclature:** Date format 𝕋 MM/YY
  - **NR** 𝕋 If not reported

Randomization & Testing

- **Number of subjects randomized to PHARMA intervention:**
  - **PHARMA (4)** 𝕋 *Note details* for each group as relevant
  - **NR** 𝕋 If not reported
- **Number of subjects randomized to Usual Care/Control:**
  - *Note details*
  - **NR** 𝕋 If not reported
- **Number of PHARMA participants tested at baseline:**
  - **PHARMA (4)** 𝕋 *Note details* for each group as relevant
  - **NR** 𝕋 If not reported
- **Number of Usual Care/Control participants tested at baseline:**
  - *Note details*
  - **NR** 𝕋 If not reported
- **Number of PHARMA participants tested at follow-up:**
  - **PHARMA (4)** 𝕋 *Note details* for each group as relevant
  - **NR** 𝕋 If not reported
- **Number of Usual Care/Control participants tested at follow-up:**
  - *Note details*
  - **NR** 𝕋 If not reported

Demographics

- **Total number of subjects:**
  - *Note details*
  - **NR** 𝕋 If not reported
- **Number of male participants:**
  - *Note details*
  - **NR** 𝕋 If not reported
- **Number of female participants:**
  - *Note details*
  - **NR** 𝕋 If not reported
- **Average age of all participants:**
  - *Note details*
  - **NR** 𝕋 If not reported
- **Average age of PHARMA participants:**

- *Note details*
- **NR** If not reported

- **Average age of Usual Care/Control participants:**
  - *Note details*
  - **NR** If not reported

Medical Characteristics

- **Average disease duration (*months*):**
  - Not Applicable
  - <6 months
  - <12 months
  - <24 months
  - <60 months
  - <120 months
  - months
  - **NR** If not reported

Comorbidities

Hypertension (n):
- *Note details*
- **NR** If not reported
- **NA** If listed in exclusion criteria

Hypertension (%): *Note details*

Hypercholesterolemia (n):
- *Note details*
- **NR** If not reported
- **NA** If listed in exclusion criteria

Hypercholesterolemia (%): *Note details*

Diabetes (n):
- *Note details*
- **NR** If not reported
- **NA** If listed in exclusion criteria

Diabetes (%): *Note details*

Pharmaceutical Outcomes

PHARMA (4) & UC Compliance:

Number: **Percent:** *Note details*
- *Note details*
- **NR** If not reported ***OR*** if trial reports compliance as X% attended X% of sessions

- Cannot be NA

PHARMA (4) & UC RDI:

Number: **Percent:** *Note details*

- *Note details*
- **NR** If not reported
- Cannot be **NA**

PHARMA (4) & UC Dose Modification:

Number: **Percent:** *Note details*

- *Note details*
- **NR** If not reported
- If no dose modifications occurred list as '0' not **NA**

PHARMA (4) & UC Treatment Discontinuation:

Number: **Percent:** *Note details*

- *Note details*
- **NR** If not reported
- If no dose modifications occurred list as '0' not NA

Exclusion

PHARMA (4) Exclusion –

Number: **Percent:** *Note details*

- *Note details*
- **NR** If not reported
- If no participants were excluded list as '0' not NA

UC Exclusion – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** If not reported
- If no participants were excluded list as '0' not NA

- **TIP (*if patient attrition has occurred*):**
  - **NA** When missing data strategies are used (e.g., imputation) and authors confirm that the results do not differ with or without the imputed data.
  - For trials reporting intention to treat analyses, 'zero exclusion' cannot be assigned unless confirmed by analysis sample sizes defined in either the body of the results or the results tables.

Supplementary Methods 7: Data Extraction Reference Guide – Pharmacological RCTs

CONSORT – HARMS

- **HARMS (19a) – If the study collected data on harms and benefits, the title or abstract should so state.**
  - **Options:**
    - **NA** 𝕋 Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **Yes** 𝕋 If authors mention safety or AEs anywhere in the title or abstract
    - **No** 𝕋 If safety or AEs are not mentioned in these sections
  - **TIPS:**
    - **IMPORTANT – All Phase I-II, by definition, should report safety outcomes. Thus, the safety of the intervention should be assessed and reported on.**

- **HARMS (19b) – If the trial addresses both harms and benefits, the introduction should so state.**
  - **Options:**
    - **NA** 𝕋 Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **Yes** 𝕋 Authors should state the safety of the intervention is in question ***OR*** they should state that one of the trial objectives (typically last paragraph of the intro) is to assess the safety of the intervention.
    - **No** 𝕋 Not mentioned

- **HARMS (19c) – List addressed adverse events with definitions for each** (*when relevant, attention to grading, expected vs. unexpected AEs, reference to standardized and validated definition, and description of new definitions*)**.**
  - **Options:**
    - **NA** 𝕋 Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **Yes** 𝕋 Authors listed ***AND*** defined the potential/anticipated AEs being studied
    - **Unclear** 𝕋 Authors listed the AEs but failed to define them
    - **No** 𝕋 Details not provided
  - **TIPS:**
    - For trials reporting AEs as the primary and secondary outcomes, the definitions for the outcomes count towards defining the AEs.

- **HARMS (19d) – Clarify how harms-related data was collected (***mode of collection, timing, attribution methods, intensity of ascertainment, and harms-related monitoring and stopping rules***).**
  - **Options:**
    - **NA** 𝕋 Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **Yes** 𝕋 Authors should clearly state how, when ***AND*** by whom AE data was collected
    - **Unclear** 𝕋 Authors fail to properly describe a single aspect (how, when, by whom) of how the AE data was collected but adequately describe all other aspects
    - **No** 𝕋 Details not provided
  - **TIPS:**
    - For trials reporting AEs as the primary and secondary outcomes, the collection methods for the outcomes count towards collecting the AEs.

- **HARMS (19e) – Describe plans for presenting and analyzing information on harms (***including coding, handling of recurrent event, specification of timing issues, handling of continuous measures, and statistical analyses***).**
  - **Options:**

- **NA** – Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
- **Yes** – Authors should clearly state how AE data was analyzed
- **Unclear** – Authors fail to properly describe a single aspect of how the AE data was analyzed but adequately describe all other aspects
- **No** – Details not provided

GENERAL TIPS FOR HARMS:

- If authors fail to explicitly state if AEs were attributable to the intervention, check to see if there were analyses comparing AE frequency or relative risk per arm.
  - If analyses were performed:
    - For AEs which occur significantly more frequently within the intervention group(s) – list details for those specific AEs under 'intervention-related'
    - For AEs which do not occur significantly more frequently within the intervention group(s) – list details for those specific AEs under 'non-intervention-related'
  - If analyses were not performed:
    - Rate 'intervention-related' AEs as **NR**
    - List all reported AEs for both groups as 'non-intervention-related'
- For trials reporting AEs as the primary and secondary outcomes, the analysis methods for the outcomes count towards analyzing the AEs.

Intervention-related AEs

- **DETAILS – Did any intervention-related AE occur?**
  - **NA** – Specifically stated that no intervention-related AEs occurred
  - **Yes** – Specifically stated the type and number of intervention-related AEs
  - **Unclear** – The numbers are provided but the details are unclear
  - **No** – Details not provided

- **DETAILS – If so, how many?**
  - Note pertinent details
  - **NR** – If not reported

- **DETAILS – How were intervention-related AE defined?**
  - Note pertinent details
  - **NR** – If not reported

- **DETAILS – How were intervention-related AE monitored/tracked?**
  - Note pertinent details
  - **NR** – If not reported

Non-Intervention-related AEs

- **DETAILS – Did any non-intervention-related AE occur?**

- **NA** 𝕋 Specifically stated that no intervention-related AEs occurred
- **Yes** 𝕋 Specifically stated the type and number of intervention-related AEs
- **Unclear** 𝕋 The numbers are provided but the details are unclear
- **No** 𝕋 Details not provided

- **DETAILS – If so, how many?**
  - Note pertinent details
  - **NR** 𝕋 If not reported

- **DETAILS – How were non-intervention-related AE defined?**
  - Note pertinent details
  - **NR** 𝕋 If not reported

- **DETAILS – How were non-intervention-related AE monitored/tracked?**
  - Note pertinent details
  - **NR** 𝕋 If not reported

AEs Per Group

- **DETAILS – How many AEs were reported for the PHARMA (4) & UC groups?**
  - Note pertinent details
  - **NR** 𝕋 If not reported

HARMS Continued…

- **HARMS (19f) – Describe for each arm the participant withdrawals that are due to harms and their experiences with the allocated treatment.**
  - **Options:**
    - **NA** 𝕋 Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **NA** 𝕋 If the authors specifically stated there were no AEs ***OR*** that no participant withdrew/was lost to follow-up due to AEs
    - **Yes** 𝕋 If the authors clearly identify the number of participants who withdrew or were lost to follow-up due to AEs
    - **No** 𝕋 If the reasons why participants withdrew or were lost-to-follow-up are not provided for every applicable case

- **HARMS (19g) – Provide denominators for analyses on harms.**
  - **Options:**
    - **NA** 𝕋 Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **NA** 𝕋 If the authors specifically stated there were no AEs
    - **Yes** 𝕋 Reference numbers provided for AE risk calculations
    - **No** 𝕋 Details not provided

- **HARMS (19h) – Presents absolute risk per arm and per AE type, grade, and seriousness, and present appropriate metrics for recurrent events, continuous variables, and scale variables.**

- **Options:**
  - **NA** – Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
  - **NA** – If the authors specifically stated there were no AEs
  - **Yes** – If the authors present the absolute risk per arm ***AND*** per adverse event type/grade ***AND*** describe the frequency of AEs
  - **No** – Details not provided

- **HARMS (19i) – Describes any subgroup analyses and exploratory analyses for harms.**
  - **Options:**
    - **NA** – Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **NA** – If the authors specifically stated there were no AEs
    - **Yes** – If the authors present the results of subgroup analyses or exploratory analyses
    - **No** – Details not provided

- **HARMS (19j) – Provide a balanced discussion of benefits and harms with emphasis on study limitation, generalizability, and other sources of information on harms.**
  - **Options:**
    - **NA** – Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **NA** – If the authors specifically stated there were no AEs
    - **Yes** – Should formally address any AEs in the Discussion in the context of trial limitations and whether the risk intervention-related AEs should be considered when implementing or conducting further tests of the intervention in question.
    - **No** – Not discussed

DISCUSSION & OTHER

- **CONSORT (20) – Trial limitations: addressing sources of potential bias, imprecision, and if relevant, multiplicity of analyses.**
  - **Options:**
    - **Yes** – If authors listed major sources of potential bias or measurement error ***AND*** provided basic details as to how these factors may have influenced results
    - **Unclear** – Authors listed sources of bias but failed to adequately discuss the potential impact/implications of these factors
    - **No** – Failed to list and adequately discuss potential sources of bias within the description of trial limitations

- **CONSORT (21) – Generalizability of trial findings according to the intervention, comparators, patients, and care providers and centers involved in the trial.**
  - **Options:**
    - **Yes** – Authors must discuss their findings in the context of similar interventions, comparators, patient groups, and care provider/centers.

- **No** – None of these aspects were not adequately discussed within the context of other research (past and future)

- **CONSORT (22) – Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence.**
  - **Options:**
    - **Yes** – Authors should not overstate non-significant or modestly altered endpoints; nor should they dismiss/ignore/fail to adequately describe non-significant findings for any of the primary outcomes in favor of discussing secondary outcomes
    - **No** – Authors do not present an unbiased interpretation of their findings
  - **TIP:**
    - Look closely at the results for the primary outcomes (data tables). The first paragraph of the Discussion should summarize these results without inflating/downplaying the findings. Similarly, the Conclusion should also provide an unbiased summary of the main trial findings.

- **CONSORT (23) – Registration number and name of trial registry.**
  - **Options:**
    - **Yes** – If the number was provided
    - **Yes** – If authors clearly stated the trial was not registered
    - **No** – If the number was not provided
  - **TIP:**
    - Check the abstract, methods, and footnotes/margins of the paper to locate this number.

- **DETAILS – If so, please list.**
  - Note pertinent details

- **CONSORT (24) – Where the full trial protocol can be accessed, if available.**
  - **Options:**
    - **Yes** – If the full protocol or a link to the full protocol is provided in the primary manuscript or as an online supplement
    - **No** – Data not provided
  - **TIP:**
    - Check the abstract, methods, and footnotes/margins of the paper to locate this number.

- **DETAILS – If so, please provide the URL:**
  - Note pertinent details

- **CONSORT (25) – Sources of funding and other support, role of funders.**
  - **Options:**
    - **Yes** – If described
    - **Unclear** – If described either the funder or the role but not both
    - **No** – Not described
  - **TIP:**
    - Similar to the registration number, check the footnotes, margins, and any supplemental information listed between the Conclusion and the Reference list.

- **DETAILS – If so, please provide the details:**
  - Note pertinent details

COCHRANE – Risk of Bias

- **Selection Bias: Random sequence generation**
  - **High** – Selection bias (biased allocation to interventions) due to inadequate generation of a randomized sequence
  - **Low** – Random sequence generation method should produce comparable groups
  - **Unclear** – Not described in sufficient detail to permit judgement

- **Selection Bias: Allocation concealment**
  - **High** – Selection bias (biased allocation to interventions) due to inadequate concealment of allocations prior to assignment
  - **Low** – Intervention allocations likely could not have been foreseen in before or during enrollment
  - **Unclear** – Not described in sufficient detail to permit judgement

- **Performance Bias: Blinding (participants & personnel)**
  - **High** – Performance bias due to knowledge of the allocated interventions by participants and personnel during the study
  - **Low** – Blinding was likely effective
  - **Unclear** – Not described in sufficient detail to permit judgement

- **Detection Bias: Blinding (outcome assessment)**
  - **High** – Detection bias due to knowledge of the allocated interventions by outcome assessors
  - **Low** – Blinding was likely effective
  - **Unclear** – Not described in sufficient detail to permit judgement

- **Attrition Bias: Incomplete outcome data**
  - **High** – Attrition bias due to amount, nature or handling of incomplete outcome data
  - **Low** – Handling of incomplete outcome data was complete and unlikely to have produced bias
  - **Unclear** – Insufficient reporting of attrition/exclusions to permit judgment (e.g., number randomized not stated, no reasons for missing data provided)

- **Reporting Bias: Selective reporting**
  - **High** – Reporting bias due to selective outcome reporting
  - **Low** – Selective reporting bias not detected
  - **Unclear** – Insufficient information to permit judgment

- **Other sources of bias**
  - **High** – Bias due to problems not covered elsewhere in the criteria
  - **Low** – No other bias detected
  - **Unclear** – There may be a risk of bias, but there is insufficient information to assess whether an important risk of bias exists or insufficient rationale or evidence that an identified problem will introduce bias

- **Quality Comments: Justify 'high-risk' & 'unclear' decisions**
  - Please note pertinent details

JADAD Score

- **Randomization Score:**
  - 1 point if randomization is mentioned
  - 1 additional point if the method of randomization is appropriate
  - Deduct 1 point if the method of randomization is inappropriate (minimum 0)

- **Blinding Score:**
  - 1 point if blinding is mentioned
  - 1 additional point if the method of blinding is appropriate
  - Deduct 1 point if the method of blinding is inappropriate (minimum 0)

- **Account of All Patient Score:**
  - 1 point if the fate of all patients in the trial is known. If there are no data the reason is stated.

Supplementary Table 1: List of Excluded Exercise Records

Supplementary Table 1: List of Excluded Exercise Records

Author	Year	Title	Primary Exclusion Criteria
Cumming et al.	2008	Cluster randomised trial of a targeted multifactorial intervention to prevent falls among older people in hospital	Not exercise-based
Dixon et al.	2008	Adjustable gastric banding and conventional therapy for type 2 diabetes: a randomized controlled trial	Not exercise-based
Hollinghurst et al.	2008	Randomised controlled trial of Alexander technique lessons, exercise, and massage (ATEAM) for chronic and recurrent back pain: economic evaluation	Not exercise-based
Kerse et al.	2008	Does a functional activity programme improve function, quality of life, and falls for residents in long term care? Cluster randomised controlled trial	Exercise session duration too short
Kinmonth et al.	2008	Efficacy of a theory-based behavioural intervention to increase physical activity in an at-risk group in primary care (ProActive UK): a randomised trial	Not exercise-based
Lautenschlager et al.	2008	Effect of physical activity on cognitive function in older adults at risk for Alzheimer disease: a randomized trial	Not exercise-based
Li et al.	2008	The long-term effect of lifestyle interventions to prevent diabetes in the China Da Qing Diabetes Prevention Study: a 20-year follow-up study	Secondary analysis
Little et al.	2008	Randomised controlled trial of Alexander technique lessons, exercise, and massage (ATEAM) for chronic and recurrent back pain	Not exercise-based
Lloyd & Barnett	2008	Physical activity and risk of diabetes	Not a RCT
Lloyd et al.	2008	Physical activity and risk of diabetes	R/C paper
Mitka, M.	2008	Therapies aim to boost "good" cholesterol	R/C paper
NA	2008	Summaries for patients. A combination treatment for pulmonary hypertension	Not a RCT
Pasanen et al.	2008	Neuromuscular training and the risk of leg injuries in female floorball players: cluster randomised controlled study	Exercise session duration too short
Barton et al.	2009	Lifestyle interventions for knee pain in overweight and obese adults aged ≥45: Economic evaluation of randomised controlled trial	Secondary analysis
Boysen et al.	2009	ExStroke Pilot Trial of the effect of repeated instructions to improve physical activity after ischaemic stroke: A multinational randomised controlled clinical trial	Not exercise-based
Engebretsen et al.	2009	Radial extracorporeal shockwave treatment compared with supervised exercises in patients with subacromial pain syndrome: Single blind randomised study	Not exercise-based
Flynn et al.	2009	Effects of exercise training on health status in patients with chronic heart failure: HF-action randomized controlled trial	Secondary analysis
Flynn et al.	2009	Effects of exercise training on health status in patients with chronic heart failure: HF-ACTION randomized controlled trial	Duplicate
Flynn et al.	2009	Effects of exercise training on health status in patients with chronic heart failure: HF-ACTION randomized controlled trial	Secondary analysis
Flynn et al.	2009	Effects of exercise training on health status in patients with chronic heart failure: HF-action randomized controlled trial.	Secondary analysis
Hupperets et al.	2009	Effect of unsupervised home based proprioceptive training on recurrences of ankle sprain: Randomised controlled trial	Not exercise-based
Jafar et al.	2009	Community-based interventions to promote blood pressure control in a developing country: A cluster randomized trial	Not exercise-based
Jarvik et al.	2009	Surgery versus non-surgical therapy for carpal tunnel syndrome: a randomised parallel-group trial	Not exercise-based
Jenkinson et al.	2009	Effects of dietary intervention and quadriceps strengthening exercises on pain and function in overweight people with knee pain: Randomised controlled trial	Not exercise-based
Karthikeyan et al.	2009	Treatment of intermittent claudication	R/C paper
Khattri, S.	2009	Treadmill exercise or resistance training in patients with peripheral arterial disease	R/C paper
Khattri, S.	2009	Treadmill exercise or resistance training in patients with peripheral arterial disease	Not a RCT
Kuijper et al.	2009	Cervical collar or physiotherapy versus wait and see policy for recent onset cervical radiculopathy: Randomised trial	Not exercise-based
Lautenschlager et al.	2009	Effect of physical activity on cognitive function in older adults at risk for Alzheimer disease: A randomized trial	Duplicate
Lautenschlager et al.	2009	Effect of physical activity on cognitive function in older adults at risk for Alzheimer disease: A randomized trial.	Not exercise-based

Supplementary Table 1: List of Excluded Exercise Records

Author	Year	Title	Primary Exclusion Criteria
Lawton et al.	2009	Exercise on prescription for women aged 40-74 recruited through primary care: Two year randomised controlled trial	Not exercise-based
Marshall et al.	2009	Losing weight in moderate to severe obstructive sleep apnoea	R/C paper
McDermott et al.	2009	Treadmill exercise and resistance training in patients with peripheral arterial disease with and without intermittent claudication: a randomized controlled trial	Duplicate
Mead, G.	2009	Exercise after stroke Is beneficial but how best to increase physical activity is unknown	R/C paper
Misra, A.	2009	Prevention of type 2 diabetes: the long and winding road	R/C paper
Morey et al.	2009	Effects of home-based diet and exercise on functional outcomes among older, overweight long-term cancer survivors: RENEW: a randomized controlled trial	Not exercise-based
O'Connor et al.	2009	Efficacy and safety of exercise training in patients with chronic heart failure: HF-ACTION randomized controlled trial	Duplicate
Patwala et al.	2009	Maximizing Patient Benefit From Cardiac Resynchronization Therapy With the Addition of Structured Exercise Training. A Randomized Controlled Study	Duplicate
Ravaud et al.	2009	ARTIST (osteoarthritis intervention standardized) study of standardised consultation versus usual care for patients with osteoarthritis of the knee in primary care in France: Pragmatic randomised controlled trial	Not exercise-based
Sackley et al.	2009	Effects of a physiotherapy and occupational therapy intervention on mobility and activity in care home residents: A cluster randomised controlled trial	Not exercise-based
Schmitz et al.	2009	Weight lifting in women with breast-cancer-related lymphedema	Duplicate
Schweickert et al..	2009	Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomised controlled trial	Not exercise-based
Soligard et al.	2009	Comprehensive warm-up programme to prevent injuries in young female footballers: Cluster randomised controlled trial	Not studying adults
Subak et al.	2009	Weight loss to treat urinary incontinence in overweight and obese women	Not exercise-based
Van Linschoten et al.	2009	Supervised exercise therapy versus usual care for patellofemoral pain syndrome: An open label randomised controlled trial	Not exercise-based
Bennell et al.	2010	Efficacy of standardised manual therapy and home exercise programme for chronic rotator cuff disease: Randomised placebo controlled trial	Not exercise-based
Bleakley et al.	2010	Effect of accelerated rehabilitation on function after ankle sprain: Randomised controlled trial	Not exercise-based
Crawshaw et al.	2010	Exercise therapy after corticosteroid injection for moderate to severe shoulder pain: Large pragmatic randomised trial	Not exercise-based
Frobell et al.	2010	A randomized trial of treatment for acute anterior cruciate ligament tears	Not exercise-based
Goodpaster et al.	2010	Effects of diet and physical activity interventions on weight loss and cardiometabolic risk factors in severely obese adults: a randomized trial	Not exercise-based
Lacomba et al.	2010	Effectiveness of early physiotherapy to prevent lymphoedema after surgery for breast cancer: Randomised, single blinded, clinical trial	Not exercise-based
Lo et al.	2010	Robot-assisted therapy for long-term upper-limb impairment after stroke	Not exercise-based
Logan et al.	2010	Community falls prevention for people who call an emergency ambulance after a fall: randomised controlled trial	Not exercise-based
Lombard et al.	2010	A low intensity, community based lifestyle programme to prevent weight gain in women with young children: Cluster randomised controlled trial	Not exercise-based
Rock et al.	2010	Effect of a free prepared meal and incentivized weight loss program on weight loss and weight loss maintenance in obese and overweight women: a randomized controlled trial	Not exercise-based
Schmitz et al.	2010	Weight lifting for women at risk for breast cancer-related lymphedema: a randomized trial	Duplicate
Sixt et al.	2010	Long- but not short-term multifactorial intervention with focus on exercise training improves coronary endothelial dysfunction in diabetes mellitus type 2 and coronary artery disease	Not exercise-based
van Eijk-Hustings et al.	2010	A randomized trial of tai chi for fibromyalgia	R/C paper
Van Gelder et al.	2010	Lenient versus strict rate control in patients with atrial fibrillation	Not exercise-based
Wang et al.	2010	A randomized trial of tai chi for fibromyalgia	Not exercise-based
Wearden et al.	2010	Nurse led, home based self help treatment for patients in primary care with chronic fatigue syndrome: randomised controlled trial	Not exercise-based
Zhan & Wu	2010	A randomized trial of tai chi for fibromyalgia	Duplicate
Zhou et al.	2010	A randomized trial of tai chi for fibromyalgia	Duplicate

Supplementary Table 1: List of Excluded Exercise Records

Author	Year	Title	Primary Exclusion Criteria
Andrews et al.	2011	Diet or diet plus physical activity versus usual care in patients with newly diagnosed type 2 diabetes: the Early ACTID randomised controlled trial	Not exercise-based
Bleijenberg & Knoop	2011	Chronic fatigue syndrome: Where to PACE from here?	Not a RCT
Church et al.	2011	Effects of aerobic and resistance training on hemoglobin A1c levels in patients with type 2 diabetes: A randomized controlled trial	Duplicate
Church et al.	2011	Effects of aerobic and resistance training on hemoglobin A1c levels in patients with type 2 diabetes: A randomized controlled trial	Duplicate
Devoogdt et al.	2011	Effect of manual lymph drainage in addition to guidelines and exercise therapy on arm lymphoedema related to breast cancer: Randomised controlled trial	Not exercise-based
Dubowitz et al.	2011	Exercise interventions and glycemic control in patients with diabetes	R/C paper
Dubowitz et al.	2011	Exercise interventions and glycemic control in patients with diabetes	Not a RCT
Duncan et al.	2011	Body-weight-supported treadmill rehabilitation after stroke	R/C paper
Duncan et al.	2011	Body-weight-supported treadmill rehabilitation after stroke	Not a RCT
Edelmann et al.	2011	Exercise Training Improves Exercise Capacity and Diastolic Function in Patients With Heart Failure With Preserved Ejection Fraction Results of the Ex-DHF (Exercise training in Diastolic Heart Failure) Pilot Study	Duplicate
Engel, C	2011	Tailored cognitive-behavioral therapy plus exercise training improved clinical and functional outcomes in fibromyalgia	R/C paper
Giakoumakis, J.	2011	The PACE trial in chronic fatigue syndrome	Not a RCT
Glazener et al.	2011	Urinary incontinence in men after formal one-to-one pelvic-floor muscle training following radical prostatectomy or transurethral resection of the prostate (MAPS): two parallel randomised controlled trials	Not exercise-based
Gondoni & Liuzzi	2011	Diet and physical activity interventions in severely obese adults	R/C paper
Gondoni & Liuzzi	2011	Diet and physical activity interventions in severely obese adults	Not a RCT
Hemmingsson et al.	2011	Diet and physical activity interventions in severely obese adults	Duplicate
Hemmingsson et al.	2011	Diet and physical activity interventions in severely obese adults	Not a RCT
Hu, F.	2011	Diet and exercise for new-onset type 2 diabetes?	R/C paper
Jebb et al.	2011	Primary care referral to a commercial provider for weight loss treatment versus standard care: a randomised controlled trial	Not exercise-based
Jolly et al.	2011	Comparison of range of commercial or primary care led weight reduction programmes with minimal intervention control for weight loss in obesity: Lighten Up randomised controlled trial	Not exercise-based
Kewley, A.	2011	The PACE trial in chronic fatigue syndrome	Not a RCT
Khan et al.	2011	Prescribing exercise in primary care	R/C paper
Kindlon, T.	2011	The PACE trial in chronic fatigue syndrome	Not a RCT
Langhorne et al.	2011	Stroke rehabilitation	R/C paper
McArthur et al.	2011	Post-acute care and secondary prevention after ischaemic stroke	R/C paper
Mitchell, J.	2011	The PACE trial in chronic fatigue syndrome	Not a RCT
Pearse et al.	2011	Managing perioperative risk in patients undergoing elective non-cardiac surgery	R/C paper
Rice, K.	2011	A COPD disease management program reduced a composite of hospitalizations or emergency department visits	wrong journal
Rolla & Bucca	2011	Placebo and other interventions in asthma	Not a RCT
Shinohara, M.	2011	The PACE trial in chronic fatigue syndrome	Not a RCT
Spink et al.	2011	Effectiveness of a multifaceted podiatry intervention to prevent falls in community dwelling older people with disabling foot pain: randomised controlled trial	Not exercise-based
Stouten et al.	2011	The PACE trial in chronic fatigue syndrome	Not a RCT
Tilbrook et al.	2011	Yoga for chronic low back pain: A randomized trial	Not exercise-based
Villareal et al.	2011	Weight loss, exercise, or both and physical function in obese older adults	Duplicate
Vlaeyen et al.	2011	The PACE trial in chronic fatigue syndrome	Not a RCT
White et al.	2011	Comparison of adaptive pacing therapy, cognitive behaviour therapy, graded exercise therapy, and specialist medical care for chronic fatigue syndrome (PACE): a randomised trial	Duplicate

Supplementary Table 1: List of Excluded Exercise Records

Author	Year	Title	Primary Exclusion Criteria
Bennell et al.	2012	Management of osteoarthritis of the knee	R/C paper
Blumenthal et al.	2012	Effects of exercise training on depressive symptoms in patients with chronic heart failure: The HF-ACTION randomized trial.	Duplicate
Blumenthal et al.	2012	Effects of exercise training on depressive symptoms in patients with chronic heart failure: the HF-ACTION randomized trial	Secondary analysis
Blumenthal et al.	2012	Exercise and pharmacological treatment of depressive symptoms in patients with coronary heart disease: results from the UPBEAT (Understanding the Prognostic Benefits of Exercise and Antidepressant Therapy) study	Secondary analysis
Bronfort et al.	2012	Spinal manipulation, medication, or home exercise with advice for acute and subacute neck pain: a randomized trial	Not exercise-based
Chalder et al.	2012	Facilitated physical activity as a treatment for depressed adults: Randomised controlled trial	Not exercise-based
Clemson et al.	2012	Integration of balance and strength training into daily life activity to reduce rate of falls in older people (the LiFE study): Randomised parallel trial	Not exercise-based
Ernst, E.	2012	Acute and subacute neck pain	R/C paper
Franklin, B.	2012	Multifactorial cardiac rehabilitation did not reduce mortality or morbidity after acute myocardial infarction	R/C paper
Holmgren et al.	2012	Effect of specific exercise strategy on need for surgery in patients with subacromial impingement syndrome: Randomised controlled study	Not exercise-based
Jakicic et al.	2012	Effect of a stepped-care intervention approach on weight loss in adults: a randomized clinical trial	Not exercise-based
Layden et al.	2012	Diagnosis and management of lower limb peripheral arterial disease: Summary of NICE guidance	R/C paper
Lazzeri et al.	2012	Pelvic floor muscle training after prostate surgery	R/C paper
Li et al.	2012	Tai chi and postural stability in patients with Parkinson's disease	Not exercise-based
Li et al.	2012	Tai chi and postural stability in patients with Parkinson's disease	Not exercise-based
McDermott et al.	2012	Treadmill exercise and resistance training in patients with peripheral arterial disease with and without intermittent claudication: A randomized trial.	Duplicate
McDermott et al.	2012	Treadmill exercise and resistance training in patients with peripheral arterial disease with and without intermittent claudication: A randomized trial.	Duplicate
Morris, M.	2012	Preventing falls in older people	R/C paper
O'Connor & Ahmad	2012	Can We Prevent Heart Failure with Exercise?	Not a RCT
Rejeski et al.	2012	Lifestyle change and mobility in obese adults with type 2 diabetes	Not exercise-based
Sossai & Sponga	2012	Physical activity to combat depression in chronic heart failure	R/C paper
Van De Port et al.	2012	Effects of circuit training as alternative to usual physiotherapy after stroke: Randomised controlled trial	Not exercise-based
Waldén et al.	2012	Prevention of acute knee injuries in adolescent female football players: Cluster randomised controlled trial	Not studying adults
Belardinelli et al.	2013	A 10-year exercise program improved oxygen consumption and quality of life in stable chronic heart failure	R/C paper
Katz, J.	2013	Surgery and physical therapy did not differ for function in meniscal tears with knee osteoarthritis	Not exercise-based
Labrie et al.	2013	Surgery versus physiotherapy for stress urinary incontinence	Not exercise-based
Lamb et al.	2013	Emergency department treatments and physiotherapy for acute whiplash: a pragmatic, two-step, randomised controlled trial	Not exercise-based
Mascitelli & Goldstein	2013	Statin and exercise prescription	R/C paper
Mascitelli & Goldstein	2013	Statin and exercise prescription	Not a RCT
McDermott et al.	2013	Home-based walking exercise intervention in peripheral artery disease: a randomized clinical trial	Not exercise-based
Messier et al.	2013	Effects of intensive diet and exercise on knee joint loads, inflammation, and clinical outcomes among overweight and obese adults with knee osteoarthritis: the IDEA randomized clinical trial	Not exercise-based
Solomon et al.	2013	The influence of hyperglycemia on the therapeutic effect of exercise on glycemic control in patients with type 2 diabetes mellitus	Not a RCT
Underwood et al.	2013	Exercise for depression in elderly residents of care homes: a cluster-randomised controlled trial	Duplicate
Van Nimwegen, et al.	2013	Promotion of physical activity and fitness in sedentary patients with Parkinson's disease: Randomised controlled trial	Not exercise-based
Wing et al.	2013	Cardiovascular effects of intensive lifestyle intervention in type 2 diabetes	Secondary analysis

Supplementary Table 1: List of Excluded Exercise Records

Author	Year	Title	Primary Exclusion Criteria
Wing, R.	2013	A lifestyle intervention did not reduce cardiovascular outcomes in overweight or obese patients with type 2 diabetes	R/C paper
Bennell et al.	2014	Effect of physical therapy on pain and function in patients with hip osteoarthritis: a randomized clinical trial	Not exercise-based
Bronfort et al.	2014	Spinal manipulation and home exercise with advice for subacute and chronic back-related leg pain: a trial with adaptive allocation	Not exercise-based
Cooney et al.	2014	Exercise for depression	R/C paper
Goonewardene et al.	2014	Letter to the Editor: Re: Bourke et al., Lifestyle changes for improving disease-specific quality of life in sedentary men on long-term androgen-deprivation therapy for advanced prostate cancer: a randomised controlled trial. Eur Urol 2014;65:865-72; Re: Galvão et al., A multicentre year-long randomised controlled trial of exercise training targeting physical functioning in men with prostate cancer previously treated with androgen suppression and radiation from TROG 03.04 RADAR. Eur Urol 2014;65:856-64; Re: Keating et al., Androgen-deprivation therapy and diabetes control among diabetic men with prostate cancer. Eur Urol 2014;65:816-24; Re: Jespersen et al., Androgen-deprivation therapy in treatment of prostate cancer and risk of myocardial infarction and stroke: a nationwide Danish population-based cohort study. Eur Urol 2014;65:704-9	Not a RCT
Hunt et al.	2014	A gender-sensitised weight loss and healthy living programme for overweight and obese men delivered by Scottish Premier League football clubs (FFIT): a pragmatic randomised controlled trial	Not exercise-based
Latham et al.	2014	Effect of a home-based exercise program on functional recovery following rehabilitation after hip fracture: a randomized clinical trial	Not exercise-based
Li et al.	2014	Cardiovascular mortality, all-cause mortality, and diabetes incidence after lifestyle intervention for people with impaired glucose tolerance in the Da Qing Diabetes Prevention Study: a 23-year follow-up study	Secondary analysis
Michaleff et al.	2014	Comprehensive physiotherapy exercise programme or advice for chronic whiplash (PROMISE): a pragmatic randomised controlled trial	Not exercise-based
Michaleff et al.	2014	Comprehensive physiotherapy exercise programme or advice for chronic whiplash (PROMISE): a pragmatic randomised controlled trial	Not exercise-based
Pahor et al.	2014	Effect of structured physical activity on prevention of major mobility disability in older adults: the LIFE study randomized clinical trial	Not exercise-based
Pugliese & Balducci	2014	NAVIGATOR: Physical activity for cardiovascular health?	R/C paper
Rhon et al.	2014	One-year outcome of subacromial corticosteroid injection compared with manual physical therapy for the management of the unilateral shoulder impingement syndrome: A pragmatic randomized trial	Not exercise-based
Sanders & Wyse	2014	In overweight or obese patients with atrial fibrillation, a weight reduction program reduced symptoms	R/C paper
Westman, E.	2014	In overweight or obese patients with diabetes, a lifestyle intervention increased weight loss at 8 years	R/C paper
El-Khoury et al.	2015	Effectiveness of two year balance training programme on prevention of fall induced injuries in at risk women aged 75-85 living in community: Ossébo randomised controlled trial	Not exercise-based
Fakhry et al.	2015	Endovascular Revascularization and Supervised Exercise for Peripheral Artery Disease and Intermittent Claudication: A Randomized Clinical Trial	Duplicate
Fritz et al.	2015	Early Physical Therapy vs Usual Care in Patients With Recent-Onset Low Back Pain: A Randomized Clinical Trial	Not exercise-based
Lamb et al.	2015	Exercises to improve function of the rheumatoid hand (SARAH): a randomised controlled trial	Not exercise-based
Lamb et al.	2015	Exercises to improve function of the rheumatoid hand (SARAH): a randomised controlled trial	Not exercise-based
Lipscombe, L.	2015	In high-risk pregnant women, an individualized lifestyle intervention reduced gestational diabetes mellitus	R/C paper
March, L.	2015	An exercise program for hands and arms improved hand function in RA controlled with medication	R/C paper
McDermott, M.	2015	Erasing disability in peripheral artery disease: The role of endovascular procedures and supervised exercise	R/C paper
McDermott, M.	2015	Erasing disability in peripheral artery disease: The role of endovascular procedures and supervised exercise	Not a RCT
Moseley et al.	2015	Rehabilitation After Immobilization for Ankle Fracture: The EXACT Randomized Clinical Trial	Not exercise-based

Supplementary Table 1: List of Excluded Exercise Records

Author	Year	Title	Primary Exclusion Criteria
Moseley et al.	2015	Rehabilitation After Immobilization for Ankle Fracture: The EXACT Randomized Clinical Trial	Not exercise-based
Opava & Björk	2015	Towards evidence-based hand exercises in rheumatoid arthritis	R/C paper
Sink et al.	2015	Effect of a 24-Month Physical Activity Intervention vs Health Education on Cognitive Outcomes in Sedentary Older Adults: The LIFE Randomized Trial	Secondary analysis
Sink et al.	2015	Effect of a 24-Month Physical Activity Intervention vs Health Education on Cognitive Outcomes in Sedentary Older Adults: The LIFE Randomized Trial	Not exercise-based
Skou et al.	2015	A Randomized, Controlled Trial of Total Knee Replacement	Not exercise-based
Sussman et al.	2015	Improving diabetes prevention with benefit based tailored treatment: Risk based reanalysis of diabetes prevention program	Not exercise-based
Anokye et al.	2016	The short-term and long-term cost-effectiveness of a pedometer-based intervention in primary care: A within trial analysis and beyond-trial modelling	R/C paper
Charante et al.	2016	Effectiveness of a 6-year multidomain vascular care intervention to prevent dementia (preDIVA): a cluster-randomised controlled trial	Not exercise-based
Gill et al.	2016	Effect of Structured Physical Activity on Overall Burden and Transitions Between States of Major Mobility Disability in Older Persons: Secondary Analysis of a Randomized Trial	Secondary analysis
Gill et al.	2016	Effect of structured physical activity on prevention of serious fall injuries in adults aged 70-89: Randomized clinical trial (LIFE study)	Secondary analysis
Guralnik et al.	2016	Effect of a Structured Exercise Program on the Overall Burden of Major Mobility Disability Among Older Adults	R/C paper
Iwashyna et al.	2016	Early mobilisation in ICU is far more than just exercise	R/C paper
Jakicic et al.	2016	Effect of Wearable Technology Combined With a Lifestyle Intervention on Long-term Weight Loss: The IDEA Randomized Clinical Trial	Not exercise-based
Kise et al.	2016	Exercise therapy versus arthroscopic partial meniscectomy for degenerative meniscal tear in middle aged patients: Randomised controlled trial with two year follow-up	Not exercise-based
Kitzman et al.	2016	Effect of Caloric Restriction or Aerobic Exercise Training on Peak Oxygen Consumption and Quality of Life in Obese Older Patients With Heart Failure With Preserved Ejection Fraction: A Randomized Clinical Trial	Duplicate
Mirelman et al.	2016	Addition of a non-immersive virtual reality component to treadmill training to reduce fall risk in older adults (V-TIME): a randomised controlled trial	Not exercise-based
Mirelman et al.	2016	Addition of a non-immersive virtual reality component to treadmill training to reduce fall risk in older adults (V-TIME): a randomised controlled trial	Not exercise-based
Morris et al.	2016	Standardized Rehabilitation and Hospital Length of Stay Among Patients With Acute Respiratory Failure: A Randomized Clinical Trial	Not exercise-based
Mutsaerts et al.	2016	Randomized Trial of a Lifestyle Program in Obese Infertile Women	Not exercise-based
Patel et al.	2016	Framing Financial Incentives to Increase Physical Activity Among Overweight and Obese Adults: A Randomized, Controlled Trial	Not exercise-based
Prenner & Rinella	2016	Moderate exercise for nonalcoholic fatty liver disease	Not a RCT
Saposnik et al.	2016	Efficacy and safety of non-immersive virtual reality exercising in stroke rehabilitation (EVREST): a randomised, multicentre, single-blind, controlled trial	Not exercise-based
Sit et al.	2016	A smartphone-based exercise adherence intervention for people with metabolic syndrome: A feasibility pilot study	Abstract only
Skou et al.	2016	A Randomized, Controlled Trial of Total Knee Replacement	Duplicate
Teuscher et al.	2016	A Randomized, Controlled Trial of Total Knee Replacement	Duplicate
Wang et al.	2016	Effectiveness of a health promotion programme on self-efficacy and practice of exercise in Chinese metabolic syndrome population: A single-centre, open-label, randomised controlled trial	Abstract only
Winstein et al.	2016	Effect of a Task-Oriented Rehabilitation Program on Upper Extremity Recovery Following Motor Stroke: The ICARE Randomized Clinical Trial	Not exercise-based
Wise, J.	2016	Moderate physical activity in older adults is not associated with reduced cardiovascular events	R/C paper
Wise, J.	2016	Activity trackers, even with cash incentives, do not improve health	R/C paper
Allen et al.	2017	Patient, Provider, and Combined Interventions for Managing Osteoarthritis in Primary Care: A Cluster Randomized Trial	Not exercise-based
Bayer et al.	2017	Early versus delayed rehabilitation after acute muscle injury	R/C paper
Bennell et al.	2017	Effectiveness of an Internet-Delivered Exercise and Pain-Coping Skills Training Intervention for Persons With Chronic Knee Pain: A Randomized Trial	Not exercise-based

Supplementary Table 1: List of Excluded Exercise Records

Author	Year	Title	Primary Exclusion Criteria
Bennell et al.	2017	Internet-delivered exercise and pain-coping skills training for chronic knee pain	R/C paper
Brach et al.	2017	Effectiveness of a Timing and Coordination Group Exercise Program to Improve Mobility in Community-Dwelling Older Adults: A Randomized Clinical Trial	Not exercise-based
Brindal, E.	2017	Weight management programmes of extended duration	R/C paper
Buhagiar et al.	2017	Effect of Inpatient Rehabilitation vs a Monitored Home-Based Program on Mobility in Patients With Total Knee Arthroplasty: the HIHO Randomized Clinical Trial	Not exercise-based
Clark et al.	2017	Guided graded exercise self-help plus specialist medical care versus specialist medical care alone for chronic fatigue syndrome (GETSET): a pragmatic randomised controlled trial	Not exercise-based
Clauw, D.	2017	Guided graded exercise self-help as a treatment of fatigue in chronic fatigue syndrome	R/C paper
Dawes et al.	2017	Impact of volunteer-led running groups for women affected by homelessness: A qualitative study of the charity, A Mile in Her Shoes	Not a RCT
Fong et al.	2017	Novel aquatic physiotherapy programme for elderly Chinese adults with osteoarthritis of the knee: A randomised controlled trial	Abstract only
Juch et al.	2017	Effect of Radiofrequency Denervation on Pain Intensity Among Patients With Chronic Low Back Pain: The Mint Randomized Clinical Trials	Not exercise-based
Kwakkel & van Wegen	2017	Family-delivered rehabilitation services at home: is the glass empty?	Not a RCT
Liu et al.	2017	Effect of health literacy and exercise interventions on glycated haemoglobin levels in Chinese patients with type 2 diabetes: A cluster-randomised controlled trial	Abstract only
Mayor, S.	2017	Self help approach to graded exercise may help chronic fatigue syndrome	R/C paper
McDermott & Kibbe	2017	Improving lower extremity functioning in peripheral artery disease: Exercise, endovascular revascularization, or both?	R/C paper
Owens & Cappola	2017	Recreational exercise in hypertrophic cardiomyopathy	R/C paper
Saberi et al.	2017	Effect of Moderate-Intensity Exercise Training on Peak Oxygen Consumption in Patients With Hypertrophic Cardiomyopathy: A Randomized Clinical Trial	Duplicate
Saper et al.	2017	Yoga, physical therapy, or education for chronic low back pain: A randomized noninferiority trial	Not exercise-based
Villareal et al.	2017	Aerobic or Resistance Exercise, or Both, in Dieting Obese Older Adults	Duplicate
Wahlich et al.	2017	Primary care pedometer-based walking intervention: Mixed-methods results from 3 year follow-up of PACE-UP cluster-randomised controlled trial	Abstract only
Wanigatunga et al.	2017	Association Between Structured Physical Activity and Sedentary Time in Older Adults	R/C paper
Wanigatunga et al.	2017	Association Between Structured Physical Activity and Sedentary Time in Older Adults	Not a RCT
Crawford, J.	2018	Graded exercise self-help for chronic fatigue syndrome in GETSET	R/C paper
Trombetti et al.	2018	Effect of Physical Activity on Frailty: Secondary Analysis of a Randomized Controlled Trial	Secondary analysis

Notes: R/C, review or conference paper; RCT, randomized controlled trial

Supplementary Table 2: Exercise & Pharmacological RCT Matching

Supplementary Table 2: Exercise & Pharmacological RCT Matching

Exercise Studies	Journal	Population	Size	Sites	Pharmacological Studies	Journal	Population	Size	Sites	% Match
Beckers et al., (2008)[13]	Eur Heart J	Heart Failure	58	Single	Hoendermis et al., (2015)[77]	Eur Heart J	HFpEF	52	Single	100%
Beer et al., (2008)[14]	JACC	Dilated Cardiomyopathy	24	Single	Hamshere et al., (2015)[74]	Eur Heart J	Dilated Cardiomyopathy	60	Single	75%
Ligibel et al., (2008)[36]	JCO	Breast CA	82	Single	Schmid et al., (2016)[95]	JCO	Breast CA	75	Multiple	75%
Maltais et al. (2008)[37]	AIM	COPD	252	Multiple	Lapperre et al., (2009)[86]	AIM	COPD	114	Multiple	75%
Adamsen et al., (2009)[12]	BMJ	Mixed CA	269	Multiple	Rimawi et al., (2018)[93]	JCO	Breast CA	258	Multiple	100%
Courneya et al., (2009)[18]	JCO	Lymphoma	122	Single	Cortelazzo et al., (2016)[62]	JCO	Lymphoma	246	Multiple	50%
McDermott et al., (2009)[38]	JAMA	PAD	156	Single	Ford et al., (2014)[67]	JACC	PAD	171	Multiple	50%
Monninkhof et al., (2009)[42]	JCO	Postmenopausal women	189	Single	Loprinzi et al., (2010)[87]	JCO	Women with hot flashes	207	Multiple	75%
O'Connor et al., (2009)[44]	JAMA	Heart Failure	2331	Multiple	Gheorghiade et al., (2013)[70]	JAMA	Heart Failure	1639	Multiple	75%
Patwala et al., (2009)[46]	JACC	Cardiac Resynch	50	Single	Tsujita et al., (2015)[100]	JACC	Percutaneous Coronary Inter	246	Multiple	50%
Schmitz et al., (2009)[51]	NEJM	Breast CA	141	Single	Wapnir et al., (2018)[104]	Lancet	Breast CA	162	Multiple	50%
Segal et al., (2009)[53]	JCO	Prostate CA	121	Single	McKay et al., (2016)[88]	JCO	Prostate CA	102	Multiple	75%
Church et al., (2010)[17]	JAMA	T2DM	262	Single	Nissen et al., (2008)[89]	JAMA	T2DM & CAD	547	Multiple	50%
Friedenreich et al., (2010)[26]	JCO	Postmenopausal women	320	Multiple	Johnston et al., (2018)[80]	JCO	Postmenopausal Breast CA	355	Multiple	100%
Galvao et al., (2010)[28]	JCO	Prostate CA	57	Single	Taplin et al., (2014)[99]	JCO	Prostate CA	58	Single	100%
Schmitz et al., (2010)[52]	NEJM	Breast CA	154	Single	Hurvitz et al., (2013)[78]	JCO	Breast CA	137	Multiple	50%
Edelmann et al., (2011)[22]	JACC	HFpEF	64	Single	Kosmala et al., (2013)[83]	JACC	HFpEF	61	Single	100%

Supplementary Table 2: Exercise & Pharmacological RCT Matching

Exercise Studies	Journal	Population	Size	Sites	Pharmacological Studies	Journal	Population	Size	Sites	% Match
Hallsworth et al., (2011)[29]	Gut	NAFLD	19	Single	Ratziu et al., (2008)[92]	Gastroenterol	NASH	64	Single	75%
Villareal et al., (2011)[57]	NEJM	Obese	107	Single	Smith et al., (2010)[96]	NEJM	Obese	3182	Multiple	50%
Belardinelli et al., (2012)[15]	JACC	CHF	123	Single	Goebel et al., (2017)[71]	AIM	Complex Pain Syndrome	111	Multiple	50%
Campbell et al., (2012)[16]	JCO	Postmenopausal women	439	Single	Ellis et al., (2011)[66]	JCO	Postmenopausal Breast CA	377	Multiple	75%
Duijts et al., (2012)[21]	JCO	Breast CA	422	Multiple	Urruticoechea et al., (2017)[102]	JCO	Breast CA	452	Multiple	100%
Sandri et al., (2012)[50]	Eur Heart J	HFrEF	60	Single	Frustaci et al., (2009)[68]	Eur Heart J	CHF w Cardio-myopathy	85	Single	75%
Winter et al., (2012)[58]	Eur Heart J	Systemic Right Ventricle	54	Multiple	van der Bom et al., (2013)[103]	Circulation	Systemic Right Ventricle	88	Multiple	75%
Daumit et al., (2013)[19]	NEJM	Mental Illness	291	Multiple	Rosenheck et al., (2011)[94]	NEJM	Mental Illness	382	Multiple	75%
Kitzman et al., (2013)[35]	JACC	HFpEF	63	Single	Caminiti et al., (2009)[61]	JACC	CHF	70	Single	100%
Messier et al., (2013)[41]	JAMA	Overweight & Obese	454	Single	Spitzer et al., (2012)[98]	AIM	Obese w ED	140	Single	50%
Pitkala et al., (2013)[47]	JAMA Int Med	Alzheimer's Disease	210	Multiple	Cummings et al., (2015)[63]	JAMA	Alzheimer's Disease	220	Multiple	75%
Galvao et al., (2014)[27]	Eur Urol	Prostate CA	100	Multiple	Irani et al., (2008)[79]	Eur Urol	Prostate CA	138	Single	50%
Hollekim-Strand et al., (2014)[30]	JACC	T2DM & DD	47	Single	Han et al., (2014)[75]	JACC	T2DM & CKD	3082	Multiple	50%
Jones et al., (2014)[33]	Eur Urol	Prostate CA	50	Single	Yoshimura et al., (2016)[107]	Eur Urol	Prostate CA	73	Multiple	50%
Pahor et al., (2014)[45]	JAMA	Elderly	1635	Multiple	Devereux et al., (2018)[65]	JAMA	Elderly w COPD	1578	Multiple	100%
Fakhry et al., (2015)[24]	JAMA	PAD	212	Multiple	Poole et al., (2013)[90]	JAMA	PAD	159	Multiple	100%
Friedenreich et al., (2015)[25]	JAMA Oncol	Postmenopausal women	400	Multiple	Harman et al., (2014)[76]	JAMA Int Med	Postmenopausal women	727	Multiple	75%
Irwin et al., (2015)[31]	JCO	Breast CA	121	Single	Yardley et al., (2013)[106]	JCO	Breast CA	130	Multiple	75%

Supplementary Table 2: Exercise & Pharmacological RCT Matching

Exercise Studies	Journal	Population	Size	Sites	Pharmacological Studies	Journal	Population	Size	Sites	% Match
Murphy et al., (2015)[43]	JACC	PAD	111	Multiple	Krankenberg et al., (2015)[85]	Circulation	PAD	119	Multiple	100%
Ross et al., (2015)[48]	AIM	Obese	300	Single	Kim et al., (2018)[81]	JAMA	Acute Coronary Syndrome	300	Single	50%
van Waart et al., (2015)[55]	JCO	Mixed CA	230	Multiple	Soiffer et al., (2017)[97]	JCO	HSCT	260	Multiple	100%
Ehlken et al., (2016)[23]	Eur Heart J	Pulmonary HTN	87	Single	Ulrich et al., (2015)[101]	Eur Heart J	Pulmonary HTN	23	Single	75%
Kitzman et al., (2016)[34]	JAMA	HFpEF & Obese	100	Single	Gheorghiade et al., (2008)[69]	JACC	Heart Failure	120	Multiple	50%
Zhang et al., (2016)[59]	JAMA Int Med	NAFLD	220	Single	Cusi et al., (2016)[64]	AIM	NASH	101	Single	75%
Johansen et al., (2017)[32]	JAMA	T2DM	98	Single	Wysham et al., (2017)[105]	JAMA	T2DM	721	Multiple	50%
McDermott et al., (2017)[39]	JAMA	PAD	210	Single	Pradhan et al., (2009)[91]	JAMA	PAD	500	Multiple	50%
Saberi et al., (2017)[49]	JAMA	Hypertrophic Cardiomyopathy	136	Single	Kosmala et al., (2016)[84]	JACC	HFpEF	150	Single	75%
Taaffe et al., (2017)[54]	Eur Urol	Prostate CA	163	Multiple	Klotz et al., (2013)[82]	Eur Urol	Prostate CA	186	Multiple	100%
Villareal et al., (2017)[56]	NEJM	Obese	160	Single	Grudell et al., (2008)[73]	Gastroenterol	Overweight & Obese	181	Single	75%
Dieli-Conwright et al., (2018)[20]	JCO	Breast CA	100	Single	Greenspan et al., (2008)[72]	JCO	Breast CA	87	Single	100%
McDermott et al., (2018)[40]	JAMA	PAD	200	Single	Ahmed et al., (2008)[60]	JAMA	A-Fib w Cardiac Resynch	214	Multiple	50%

Notes: A-Fib, atrial fibrillation; AIM, Annals of Internal Medicine; BMJ, British Medical Journal; CA, cancer; CAD, coronary artery disease; CHF, chronic heart failure; CKD, chronic kidney disease; COPD, chronic obstructive pulmonary disorder; CVD, cardiovascular disease; DD, diastolic dysfunction; ED, erectile dysfunction; Eur Heart J, European Heart Journal; Eur Urol, European Urology; HCL, hypercholesterolemia; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; HSCT, hematopoietic stem cell transplantation; HTN, hypertension; Inter, intervention; JACC, Journal of the American College of Cardiology; JAMA, Journal of the American Medical Association; JAMA Int Med, JAMA Internal Medicine; JAMA Oncol, JAMA Oncology; JCO, Journal of Clinical Oncology; MDS, myelodisplastic syndrome; NEJM, New England Journal of Medicine; NAFLD, non-alcoholic fatty liver disease; NASH, non-alcoholic steatohepatitis; PAD, peripheral arterial disease; Resynch, resynchronization; T2DM, type 2 diabetes mellitus

Supplementary Table 4: Exercise RCT Characteristics

Supplementary Table 3: Pre vs. Post Author Contact

Outcomes		Exercise Studies (n=16)			Pharmacological Studies (n=7)		
		Pre	Post	Δ	Pre	Post	Δ
Study Reporting Score	Median	30.5	43.0	12.5	33.0	39.0	5.0
	IQR	27.8, 35.0	41.5, 45.8	10.0, 16.2	30.0, 37.0	35.5, 41.5	4.0, 6.5
CONSORT	Median	24.5	36.5	10.5	24.0	27.0	4.0
	IQR	24.0, 26.5	31.8, 38.2	8.8, 13.2	23.0, 27.5	27.0, 29.5	2.0, 4.0
CONSORT-Harms	Median	1.0	2.0	1.0	6.0	6.0	0.0
	IQR	0.0, 3.0	1.8, 5.0	0.0, 2.0	4.0, 6.5	4.0, 6.5	0.0, 0.0
TIDieR	Median	9.5	12.5	3.0	NA	NA	NA
	IQR	7.0, 10.2	10.0, 13.0	2.0, 4.0	NA	NA	NA

Notes: Δ, change; CONSORT, Consolidated Standards for Reporting Trials; CONSORT-Harms, CONSORT Extension for Harms Reporting; IQR, interquartile range; Pre, original score (prior to author contact); Post, updated score (following author contact); TIDieR, Template for Intervention Description and Replication

Supplementary Table 4: Exercise RCT Characteristics

Supplementary Table 4: Exercise RCT Characteristics

Study	Population	Participants [n]	Participants per Arm [n]	Age [mean]	Female Sex [n (%)]	CVD Comorbidity [Condition: n (%)]
Beckers et al., (2008)[14]	Heart Failure	58	AET1: 30; CET1: 30	NR	16 (28)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Beer et al., (2008)[15]	Dilated Cardiomyopathy	24	AET1: 12; UC: 12	56	NR	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Ligibel et al., (2008)[37]	Breast CA	101	CET1: 51; UC: 50	NR	101 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Maltais et al. (2008)[38]	COPD	252	CET1: 126; CET2: 126	66	112 (44)	HTN: 112 (44); HCL: NR (NR); T2DM: 30 (12)
Adamsen et al., (2009)[13]	Mixed CA	269	CET1: 135; UC: 134	47.2	196 (73)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Courneya et al., (2009)[19]	Lymphoma	122	AET1: 60; UC: 62	53	50 (41)	HTN: 35 (29); HCL: 36 (30); T2DM: NR (NR)
McDermott et al., (2009)[39]	PAD	156	AET1: 51; RET1: 52; UC: 53	73.7	81 (52)	HTN: NR (NR); HCL: NR (NR); T2DM: 69 (44)
Monninkhof et al., (2009)[43]	Postmenopausal Women	189	CET1: 96; UC: 93	NR	189 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NA (NA)
O'Connor et al., (2009)[45]	Heart Failure	2331	AET1: 1159; UC: 1172	59.2 MED	661 (28)	HTN: 1388 (60); HCL: NR (NR); T2DM: 748 (32)
Patwala et al., (2009)[47]	Congestive Heart Failure	50	AET1: 25; UC: 25	64	4 (8)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Schmitz et al., (2009)[52]	Breast CA	141	RET1: 71; UC: 70	NR	NR	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Segal et al., (2009)[54]	Prostate CA	121	AET1: 40; CET1: 40; UC: 41	66	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Church et al., (2010)[18]	T2DM	262	AET1: 72; RET1: 73; CET1: 76; UC: 41	56	165 (63)	HTN: 208 (79); HCL: 168 (64); T2DM: 262 (100)
Friedenreich et al., (2010)[27]	Postmenopausal Women	320	AET1: 160; UC: 160	61	320 (100)	HTN: NR (NR); HCL: NA (NA); T2DM: NR (NR)
Galvao et al., (2010)[29]	Prostate CA	57	CET1: 29; UC: 28	NR	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Schmitz et al., (2010)[53]	Breast CA	154	RET1: 71; UC: 77	NR	154 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Edelmann et al., (2011)[23]	Heart Failure	64	CET1: 46; UC: 21	65	36 (56)	HTN: 55 (86); HCL: 30 (47); T2DM: 9 (14)
Hallsworth et al., (2011)[30]	NAFLD	19	RET1: 11; UC: 10	NR	NR	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)

Supplementary Table 4: Exercise RCT Characteristics

Study	Population	Participants [n]	Participants per Arm [n]	Age [mean]	Female Sex [n (%)]	CVD Comorbidity [Condition: n (%)]
Villareal et al., (2011)[58]	Obese Elderly	107	AET1: 26; CET1: 26; CET2: 28; UC: 27	70	67 (63)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Belardinelli et al., (2012)[16]	Heart Failure	123	AET1: 63; UC: 60	59	27 (22)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Campbell et al., (2012)[17]	Postmenopausal Women	439	AET1: 117; AET2: 117; RET1: 118; UC: 87	58	439 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NA (NA)
Duijts et al., (2012)[22]	Breast CA	422	AET1: 104; AET2: 106; RET1: 109; UC: 103	48	422 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Sandri et al., (2012)[51]	HFrEF	120	AET1: 60; UC: 60	NR	23 (19)	HTN: 90 (75); HCL: 72 (60); T2DM: 35 (29)
Winter et al., (2012)[59]	Systemic Right Ventricle	46	AET1: 28; UC: 26	32	23 (50)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Daumit et al., (2013)[20]	Serious Mental Illness	291	AET1: 144; UC: 147	45	146 (50)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Kitzman et al., (2013)[36]	HFpEF	63	AET1: 32; UC: 31	70	48 (76)	HTN: 56 (89); HCL: NA (NA); T2DM: 15 (24)
Messier et al., (2013)[42]	Overweight & Obese w Osteoarthritis	454	AET1: 152; CET1: 150; CET2: 152	66	325 (72)	HTN: 273 (60); HCL: NR (NR); T2DM: 59 (13)
Pitkala et al., (2013)[48]	Alzheimer's Diesase	210	AET1: 70; CET1: 70; UC: 70	78	81 (39	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Galvao et al., (2014)[28]	Prostate CA	100	CET1: 50; UC: 50	NR	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Hollekim-Strand et al., (2014)[31]	T2DM w Diastolic Dysfunction	37	AET1: 23; AET2: 24	56	17 (46)	HTN: NR (NR); HCL: NR (NR); T2DM: NA (NA)
Jones et al., (2014)[34]	Prostate CA	50	AET1: 25; UC: 25	59	NA	HTN: 27 (54); HCL: 30 (60); T2DM: 8 (16)
Pahor et al., (2014)[46]	Elderly	1635	CET1: 818; UC: 817	79	1098 (67)	HTN: 1151 (70); HCL: NR (NR); T2DM: 412 (25)
Fakhry et al., (2015)[25]	PAD	212	AET1: 106; AET2: 106	65	80 (38)	HTN: 128 (60); HCL: 91 (43); T2DM: 44 (21)
Friedenreich et al., (2015)[26]	Postmenopausal Women	400	AET1: 200; AET2: 200	59	400 (100)	HTN: NR (NR); HCL: NA (NA); T2DM: NA (NA)
Irwin et al., (2015)[32]	Breast CA	121	CET1: 61; UC: 60	61	121 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Murphy et al., (2015)[44]	PAD	111	AET1: 43; Stent: 46; UC: 22	64	42 (38)	HTN: 94 (85); HCL: 89 (80); T2DM: 26 (24)
Ross et al., (2015)[49]	Obese	300	AET1: 73; AET2: 76; CET1: 76; UC: 75	51	196 (65)	HTN: NR (NR); HCL: NR (NR); T2DM: NA (NA)

Supplementary Table 4: Exercise RCT Characteristics

Study	Population	Participants [n]	Participants per Arm [n]	Age [mean]	Female Sex [n (%)]	CVD Comorbidity [Condition: n (%)]
van Waart et al., (2015)[56]	Breast CA	230	AET1: 77; CET1: 76; UC: 77	51	228 (99)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Ehlken et al., (2016)[24]	Pulmonary Artery HTN	87	CET1: 46; UC: 41	56	47 (54)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Kitzman et al., (2016)[35]	HFpEF	100	AET1: 26; AET2: 25; RET1: 24; UC: 25	67	81 (81)	HTN: 95 (95); HCL: NR (NR); T2DM: 32 (32)
Zhang et al., (2016)[60]	NAFLD	220	AET1: 73; AET2: 73; UC: 74	54	149 (68)	HTN: NA (NA); HCL: NR (NR); T2DM: NA (NA)
Johansen et al., (2017)[33]	T2DM	98	CET1: 64; UC: 34	55	47 (48)	HTN: NR (NR); HCL: NR (NR); T2DM: NA (NA)
McDermott et al., (2017)[40]	PAD	210	AET1: 53; AET2: 53; RET1: 53; UC: 51	67	82 (39)	HTN: 175 (83); HCL: NR (NR); T2DM: 80 (38)
Saberi et al., (2017)[50]	Hypertrophic Cardiomyopathy	136	AET1: 67; UC: 69	50	57 (42)	HTN: 30 (22); HCL: NR (NR); T2DM: 9 (7)
Taaffe et al., (2017)[55]	Prostate CA	163	AET1: 51; RET1: 58; CET1: 54	NR	NA	HTN: 58 (36); HCL: 35 (21); T2DM: 20 (12)
Villareal et al., (2017)[57]	Obese Elderly	160	AET1: 40; RET1: 40; CET1: 40; UC: 40	70	103 (64)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Dieli-Conwright et al., (2018)[21]	Overweight & Obese Breast CA	100	CET1: 50; UC: 50	54	100 (100)	HTN: NA (NA); HCL: NR (NR); T2DM: NA (NA)
McDermott et al., (2018)[41]	PAD	200	AET1: 99; UC: 101	70	105 (53)	HTN: NR (NR); HCL: NR (NR); T2DM: 67 (34)

Notes: AET1, aerobic exercise training (group 1); AET2, aerobic exercise training (group 2); CA, cancer; CET1, combined aerobic and resistance exercise training (group 1); CET2, combined aerobic and resistance exercise training (group 2); COPD, chronic obstructive pulmonary disorder; CVD, cardiovascular disease; HCL, hypercholesterolemia; HFpEF, heart failure with preserved ejection fraction; HTN, hypertension; LTF, loss-to-follow up; PAD, peripheral arterial disease; n, number; NA, not applicable; NAFLD, non-alcoholic fatty liver disease; NR, not reported; RET1, resistance exercise training (group 1); RET2, resistance exercise training (group 2); T2DM, type 2 diabetes mellitus; UC, usual care

Supplementary Table 5: Pharmacological RCT Characteristics

Supplementary Table 5: Pharmacological RCT Characteristics

Study	Population	Participants [n]	Participants per Arm [n]	Age [mean]	Female Sex [n (%)]	CVD Comorbidity [Condition: n (%)]
Ahmed et al. (2008)[61]	Atrial Fibrillation	214	Grp1: 106; Grp2: 108	NR	73 (34.11)	HTN: 84 (39); HCL: NR (NR); T2DM: 21 (10)
Gheorghiade et al. (2008)[70]	Heart Failure	120	Grp1: 29; Grp2: 30; Grp3: 30; UC: 31	55	15 (12.5)	HTN: NA (NA); HCL: NR (NR); T2DM: 21 (18)
Greenspan et al. (2008)[73]	Breast CA	87	Grp1: 43; UC: 44	NR	87 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Grudell et al. (2008)[74]	Obese & Overweight	181	Grp1: 58; Grp2: 61; UC: 62	NR	161 (88.95)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Irani et al. (2008)[80]	Prostate CA	129	Grp1: 62; Grp2: 67	73	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Nissen et al. (2008)[90]	T2DM	547	Grp1: 273; Grp2: 274	60	181 (33.09)	HTN: 475 (87); HCL: NR (NR); T2DM: NA (NA)
Ratziu et al. (2008)[93]	NASH	64	Grp1: 32; UC: 32	54	26 (40.63)	HTN: 22 (35); HCL: NR (NR); T2DM: 20 (32)
Caminiti et al. (2009)[62]	Heart Failure	70	Grp1: 35; UC: 35	70 MED	NA	HTN: 25 (36); HCL: 39 (56); T2DM: 20 (29)
Frustaci et al. (2009)[69]	Cardiomyopathy	85	Grp1: 43; UC: 42	NR	34 (40)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Lapperre et al. (2009)[87]	COPD	114	Grp1: 26; Grp2: 31; Grp3: 28; UC: 29	NR	27 (23.68)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Pradhan et al. (2009)[92]	T2DM	500	Grp1: 126; Grp2: 126; Grp3: 124; UC: 124	54	281 (56.2)	HTN: 341 (68); HCL: 299 (60); T2DM: 500 (100)
Loprinzi et al. (2010)[88]	Women with Hot Flashes	207	Grp1: 69; Grp2: 69; UC: 69	NR	207 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Smith et al. (2010)[97]	Overweight & Obese	3182	Grp1: 1595; UC: 1587	44	2652 (83.34)	HTN: NA (NA); HCL: NR (NR); T2DM: NA (NA)
Ellis et al. (2011)[67]	Breast CA	377	Grp1: 124; Grp2: 128; Grp3: 125	NR	377 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Rosenheck et al. (2011)[95]	Schizophrenia	382	Grp1: 190; UC: 192	51	32 (8.38)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Spitzer et al. (2012)[99]	Erectile Dysfunction	140	Grp1: 70; Grp2: 70	55	NA	HTN: 56 (40); HCL: NR (NR); T2DM: 27 (19)
Gheorghiade et al. (2013)[71]	Heart Failure	1639	Grp1: 821; UC: 818	65	368 (22.45)	HTN: 1225 (76); HCL: NR (NR); T2DM: 662 (41)

Supplementary Table 5: Pharmacological RCT Characteristics

Study	Population	Participants [n]	Participants per Arm [n]	Age [mean]	Female Sex [n (%)]	CVD Comorbidity [Condition: n (%)]
Hurvitz et al. (2013)[79]	Breast CA	137	Grp1: 67; Grp2: 70	NR	NR	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Klotz et al. (2013)[83]	Prostate CA	186	Grp1: 84; Grp2: 102	NR	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Kosmala et al. (2013)[84]	HFpEF	61	Grp1: 30; UC: 31	67	50 (81.97)	HTN: 51 (84); HCL: NR (NR); T2DM: 22 (36)
Poole et al. (2013)[91]	PAD	159	Grp1: 80; UC: 79	64	20 (12.58)	HTN: 153 (96); HCL: 134 (87); T2DM: 58 (37)
van der Bom et al. (2013)[104]	Systemic Right Ventricle	88	Grp1: 44; UC: 44	33	31 (35.23)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Yardley et al. (2013)[107]	Breast CA	130	Grp1: 64; Grp2: 66	NR	130 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Ford et al. (2014)[68]	Cardiovascular Disease	171	Grp1: 86; UC: 85	65	26 (15.2)	HTN: 52 (30); HCL: NR (NR); T2DM: 14 (9)
Han et al. (2014)[76]	T2DM & Chronic Kidney Disease	3082	Grp1: 1543; UC: 1539	61	1044 (33.87)	HTN: 2156 (70); HCL: 256 (8); T2DM: 3082 (100)
Harman et al. (2014)[77]	Menopausal	727	Grp1: 230; Grp2: 222; UC: 275	53	727 (100)	HTN: NA (NA); HCL: NA (NA); T2DM: NA (NA)
Taplin et al. (2014)[100]	Prostate CA	58	Grp1: 28; Grp2: 30	58 MED	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Cummings et al. (2015)[64]	Alzheimer's	220	Grp1: 93; UC: 127	78	126 (57.27)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Hamshere et al. (2015)[75]	Dilated Cardiomyopathy	60	Grp1: 15; Grp2: 15; Grp3: 15; UC: 15	55	17 (28.33)	HTN: 6 (10); HCL: 6 (10); T2DM: 6 (10)
Hoendermis et al. (2015)[78]	HFpEF	52	Grp1: 26; UC: 26	74	37 (71.15)	HTN: 47 (90); HCL: 27 (52); T2DM: 18 (35)
Krankenberg et al. (2015)[86]	PAD	119	Grp1: 62; Grp2: 57	NR	37 (31.09)	HTN: 105 (88); HCL: 93 (78); T2DM: 45 (38)
Tsujita et al. (2015)[101]	Coronary Artery Disease	246	Grp1: 122; Grp2: 124	NR	44 (17.89)	HTN: 142 (58); HCL: 142 (58); T2DM: 60 (24)
Ulrich et al. (2015)[102]	Pulmonary Artery HTN	23	Grp1: 23; Grp2: 23; UC: 23	66	15 (65.22)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Cortelazzo et al. (2016)[63]	Lymphoma	246	Grp1: 126; Grp2: 120	51 MED	99 (40.24)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Cusi et al. (2016)[65]	NASH & Prediabetes or T2DM	101	Grp1: 50; UC: 51	NR	30 (29.7)	HTN: NR (NR); HCL: NR (NR); T2DM: 52 (52)
Kosmala et al. (2016)[85]	HFpEF	150	Grp1: 75; UC: 75	67	110 (73.33)	HTN: 120 (80); HCL: NR (NR); T2DM: 52 (35)

Supplementary Table 5: Pharmacological RCT Characteristics

Study	Population	Participants [n]	Participants per Arm [n]	Age [mean]	Female Sex [n (%)]	CVD Comorbidity [Condition: n (%)]
McKay et al. (2016)[89]	Prostate CA	102	Grp1: 66; Grp2: 36; UC: NA	65 MED	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Schmid et al. (2016)[96]	Breast CA	75	Grp1: 26; Grp2: 49	NR	75 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NA (NA)
Yoshimura et al. (2016)[108]	Prostate CA	73	Grp1: 36; Grp2: 37	NR	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Goebel et al. (2017)[72]	Complex Regional Pain Syndrome	111	Grp1: 55; UC: 56	NR	75 (67.57)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Soiffer et al. (2017)[98]	Acute Leukemia or MDS w HSCT	260	Grp1: 128; UC: 132	NR	115 (44.23)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Urruticoechea et al. (2017)[103]	Breast CA	452	Grp1: 224; Grp2: 228	NR	452 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NA (NA)
Wysham et al. (2017)[106]	T2DM	721	Grp1: 361; Grp2: 360	61	338 (46.88)	HTN: NR (NR); HCL: NR (NR); T2DM: 721 (100)
Devereux et al. (2018)[66]	COPD	1578	Grp1: 791; UC: 787	68	724 (45.88)	HTN: 594 (38); HCL: NR (NR); T2DM: 176 (11)
Johnson et al. (2018)[81]	Breast CA	355	Grp1: 120; Grp2: 117; Grp3: 118	NR	355 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Kim et al. (2018)[82]	Depression & Acute Coronary Syndrome	300	Grp1: 149; UC: 151	60	119 (39.67)	HTN: 184 (61); HCL: 144 (48); T2DM: 85 (28)
Rimawi et al. (2018)[94]	Breast CA	258	Grp1: 129; Grp2: 129	60	258 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Wapnir et al. (2018)[105]	Breast CA	162	Grp1: 85; UC: 77	56 MED	162 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)

Notes: CA, cancer; CAD, coronary artery disease; COPD, chronic obstructive pulmonary disease; CVD, cardiovascular disease; Grp, group; HCL, hypercholesterolemia; HFpEF, heart failure with preserved ejection fraction; HSCT, hematopoietic stem cell transplantation; HTN, hypertension; kg, kilogram; LTF, loss to follow up; MDS, myelodisplastic syndrome; MED, median; PAD, peripheral arterial disease; n, number; NA, not applicable; NASH, non-alcoholic steatohepatitis; NR, not reported; T2DM, type 2 diabetes mellitus; UC, usual care

Supplementary Table 6: Exercise Intervention Characteristics

Supplementary Table 6: Exercise Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Exercise Dose			Co-intervention [Group: Details]
				Frequency [days / week]	Duration [Grp: mins]	Intensity [AET Grp: % tested value] [RET Grp: % tested value; reps, sets]	
Beckers et al., (2008)[13]	MC	Total (single-phase): 26 wks	AET1: CE, TM CAET1: NR CRET1: MW	AET1: 3 CAET1: 3 CRET1: 3	AET1: 40-45 CAET1: 10-45 CRET1: 10-40	AET1: 90% HR at AT CAET1: 90% HR at AT CRET1: 50-60% 1RM; 10-15 reps, 1-2 sets	NA
Beer et al., (2008)[14]	NR	Total (single-phase): 36 wks	AET1: CE, NR	AET1: 5	AET1: 45	AET1: 60-80% VO_2^{max}; 13-15 RPE	NA
Ligibel et al., (2008)[36]	PG, HM	Total (single-phase): 16 wks	CAET1: NR CRET1: MW, BW	CAET1: NR CRET1: 2	CAET1: NR CRET1: 35	CAET1: 55-80% HR^{max} CRET1: 80% 1RM; 10 reps, 4 sets	NA
Maltais et al. (2008)[37]	MC, HM, Other	Total: 52 wks Lead-in: 4 wks Phase 1: 8 wks	Lead-in: NA Phase 1 CAET1: CE CRET1: RB, BW, NR CAET2: CE CRET2: RB, BW, NR	Lead-in: NA Phase 1 CAET1: 3 CRET1: 3 CAET2: 3 CRET2: 3	Lead-in: NA Phase 1 CAET1: 25-30 CRET1: 30 CAET2: 40 CRET2: 30	Lead-in: NA Phase 1 CAET1: 80% peak work CRET1: NR; 10 reps, 1-3 sets CAET2: 60% maximum work capacity CRET2: NR; 10 reps, 1-3 sets	Lead-in: 4 wk education program
		Phase 2: 40 wks	Phase 2 CRET1: NR CAET1: NR CAET2: NR CRET2: NR	Phase 2 CAET1: 3 CRET1: 3 CAET2: 3 CRET2: 3	Phase 2 CAET1: NR CRET1: NR CAET2: NR CRET2: NR	Phase 2 CAET1: NR (NR) CRET1: NR (NR) CAET2: NR (NR) CRET2: NR (NR)	
Adamsen et al., (2009)[12]	MC	Total (single-phase): 6 wks	CAET1: CE CRET1: MW	CAET1: 3 CRET1: 3	CAET1: 15 CRET1: 45	CAET1: 85-95% HR^{max} CRET1: 70-100% 1RM; 5-8 reps, 3 sets	Body awareness & restoration; relax-ation; massage
Courneya et al., (2009)[18]	NR	Total (single-phase): 12 wks	AET1: CE	AET1: 3	AET1: 15-45	AET1: 60-75% PPO at VO_2^{peak}	NA
McDermott et al., (2009)[38]	UNI, Other	Total (single-phase): 24 wks	AET1: TM RET1: MW, BW	AET1: 3 RET1: 3	AET1: 15-40 RET1: NR	AET1: 12-14 RPE RET1: 50-80% 1RM, 12-14 RPE; 8 reps, 3 sets	NA
Monninkhof et al., (2009)[42]	PG, HM	Total (single-phase): 52 wks	CAET1: CE, WK, NR CRET1: NR	CAET1: 3 CRET1: 2	CAET1: 20-30 CRET1: 25	CAET1: 60-85% HR^{max} CRET1: NR; NR; NR	NA

Supplementary Table 6: Exercise Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Exercise Dose			Co-intervention [Group: Details]
				Frequency [days / week]	Duration [Grp: mins]	Intensity [AET Grp: % tested value] [RET Grp: % tested value; reps, sets]	
O'Connor et al., (2009)[44]	Other	Total: 130 wks [MED] Phase 1: 12 wks Phase 2: 118 wks[MED]	Phase 1 AET1: CE, TM, WK Phase 2 AET1: CE, TM, WK	Phase 1 AET1: 3 Phase 2 AET1: 5	Phase 1 AET1: 15-35 Phase 2 AET1: 40	Phase 1 AET1: 60-70% HRR Phase 2 AET1: 60-70% HRR	NA
Patwala et al., (2009)[46]	UNI	Total (single-phase): 12 wks	AET1: CE, TM	AET1: 3	AET1: 30	AET1: 80-90% HR^{peak}	NA
Schmitz et al., (2009)[51]	PG	Total: 52 wks Phase 1: 13 wks Phase 2: 39 wks	Phase 1 RET1: MW, FW Phase 2 RET1: NR	Phase 1 RET1: 2 Phase 2 RET1: 2	Phase 1 RET1: 90 Phase 2 RET1: NR	Phase 1 RET: NR; 10 reps, 2-3 sets Phase 2 RET1: NR; NR, NR	NA
Segal et al., (2009)[53]	RC	Total (single-phase): 24 wks	AET1: CE, TM, EE RET1: MW, FW	AET1: 3 RET1: 3	AET1: 15-45 RET1: NR	AET1: 50-75% VO_2^{peak} RET1: 60-70% 1RM; 8-12 reps, 2 sets	NA
Church et al., (2010)[17]	MC	Total (single-phase): 40 wks	AET1: NR RET1: MW, BW CAET1: NR CRET1: MW, BW	AET1: NR RET1: 3 CAET1: NR CRET1: 2	AET1: NR RET1: NR CAET1: NR CRET1: NR	AET1: 50-80% VO_2^{peak} RET1: NR; 10-12 reps, 2-3 sets CAET1: 50-80% VO_2^{peak} CRET1: NR, 10-12 reps, 1 set	NA
Friedenreich et al., (2010)[26]	UNI, PG, HM	Total (single-phase): 52 wks	AET1: NR	AET1: 3-5	AET1: 15-45	AET1: 50- 80% HRR	NA
Galvao et al., (2010)[28]	RC, HM	Total (single-phase): 12 wks	CAET1: CE, WK, JG CRET1: MW, FW	CAET1: 2 CRET1: 2	CAET1: 15-20 CRET1: NR	CAET1: 65-80% HR^{max}; 11-13 RPE CRET1: 6-12 RM; NR, 2-4 sets	NA
Schmitz et al., (2010)[52]	PG	Total: 52 wks Phase 1: 13 wks Phase 2: 39 wks	Phase 1 RET1: MW, FW Phase 2 RET1: MW, FW	Phase 1 RET1: 2 Phase 2 RET1: 2	Phase 1 RET1: 60-90 Phase 2 RET1: NR	Phase 1 RET1: NR; 10 reps, 3 sets Phase 2 RET1: NR; NR, NR	NA
Edelmann et al., (2011)[22]	Other (Facility Based)	Total: 12 wks Phase 1: 4 wks	Phase 1 CAET1: CE CRET1: NR	Phase 1 CAET1: 2 CRET1: NR	Phase 1 CAET1: 20-40 CRET1: NR	Phase 1 CAET1: 50-60% VO_2^{peak} CRET1: NR	NA

Supplementary Table 6: Exercise Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Exercise Dose			Co-intervention [Group: Details]
				Frequency [days / week]	Duration [Grp: mins]	Intensity [AET Grp: % tested value] [RET Grp: % tested value; reps, sets]	
Edelmann cont'd		Phase 2: 8 wks	Phase 2 CAET1: CE CRET1: MW	Phase 2 CAET1: 3 CRET1: 2	Phase 2 CAET1: NR CRET1: NR	Phase 2 CAET1: 70% VO_2^{peak} CRET1: 60-65% 1RM; 15 reps, NR	
Hallsworth et al., (2011)[29]	NR	Total (single-phase): 8 wks	RET1: MW	RET1: 3	RET1: 25-40	RET1: 50% 1RM; 8-12 reps, 2-4 sets	NA
Villareal et al., (2011)[57]	UNI	Total (single-phase): 52 wks	CAET1: CE, TM, SC CRET1: MW, FW CAET2: CE, TM CRET2: MW, FW	CAET1: 3 CRET1: 3 CAET2: 3 CRET2: 3	CAET1: 30 CRET1: 30 CAET2: 30 CRET2: 30	CAET1: 65-85% VO_2^{peak} CRET1: 65-85% 1RM; 6-12 reps, 1-3 sets CAET2: 65-85% VO_2^{peak} CRET2: 65-85% 1RM; 6-12 reps, 1-3 sets	CET1: Diet CET2: NA
Belardinelli et al., (2012)[15]	MC	Total: 120 mo Phase 1: 8 wks Phase 2: 118 mo	Phase 1 AET1: CE, TM Phase 2 AET1: CE, TM	Phase 1 AET1: 3 Phase 2 AET1: 3	Phase 1 AET1: 40 Phase 2 AET1: 40	Phase 1 AET1: 60% VO_2^{peak} Phase 2 AET1: 70% VO2 peak	Phase 1 & Phase 2 Counselling (smoking, stress, & diet)
Campbell et al., (2012)[16]	MC, HM	Total (single-phase): 52 wks	AET1: WK AET2: WK	AET1: 5 AET2: 5	AET1: 45 AET2: 45	AET1: 70-85% HR^{max} AET2: 70-85% HR^{max}	AET1 & AET2: Diet
Duijts et al., (2012)[21]	HM	Total (single-phase): 12 wks	AET1: NR AET2: NR	AET1: NR AET2: NR	AET1: NR AET2: NR	AET1: 60-80% HR - Karvonen AET2: 60-80% HR - Karvonen	AET1 & AET 2: CBT
Sandri et al., (2012)[50]	NR	Total (single-phase): 4 days	AET1: NR CAET1: CE, WK CRET1: BW	AET1: NR CAET1: 5 CRET1: 1	AET1: NR CAET1: CE: 20 4x/day; WK: NR CRET1: NR	AET1: NR CAET1: 70% VO_2^{max} CRET1: NR; NR, NR	NA
Winter et al., (2012)[58]	HM	Total (single-phase): 10 wks	AET11: NR	AET1: 3	AET1: 32	AET1: 60-90% HR^{max}	NA
Daumit et al., (2013)[19]	HM	Total: 78 wks Phase 1: 26 wks Phase 2: 52 wks	Phase 1 AET1: WK Phase 2 AET1: WK	Phase 1 AET1: 3 Phase 2 AET1: 3	Phase 1 AET1: 10-30 Phase 2 AET1: NR	Phase 1 AET1: 50-69% HR^{max} Phase 2 AET1: NR	Phase 1 & Phase 2 AET1: Ind & grp weight manage-ment

Supplementary Table 6: Exercise Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Exercise Dose			Co-intervention [Group: Details]
				Frequency [days / week]	Duration [Grp: mins]	Intensity [AET Grp: % tested value] [RET Grp: % tested value; reps, sets]	
Kitzman et al., (2013)[35]	NR	Total (single-phase): 16 wks	AET1: CE, WK	AET1: 3	AET1: 10-40	AET1: 40-70% HRR	NA
Messier et al., (2013)[41]	MC, UNI	Total: 78 wks Phase 1: 26 wks	Phase 1 CAET1: CE, WK CRET1: MW CAET2: CE, WK CRET2: MW	Phase 1 CAET1: 3 CRET1: 3 CAET2: 3 CRET2: 3	Phase 1 CAET1: 30 CRET1: 20 CAET2: 30 CRET2: 20	Phase 1 CAET1: 50-75% HRR CRET1: NR; 10-12 reps, 1-2 sets CAET2: 50-75% HRR CRET2: NR; 10-12 reps, 1-2 sets	Phase 1 & Phase 2 CET1: Diet CET2: NA
		Phase 2: 52 wks	Phase 2 CAET1: CE, WK CRET1: MW, RB CAET2: CE, WK, NR CRET2: MW, RB	Phase 2 CAET1: 3 CRET1: 3 CAET2: 3 CRET2: 3	Phase 2 CAET1: 30 CRET1: 20 CAET2: 30 CRET2: 20	Phase 2 CAET1: 50-75% HRR CRET1: NR; 10-12 reps, 1-2 sets CAET2: 50-75% HRR CRET2: NR; 10-12 reps, 1-2 sets	
Pitkala et al., (2013)[47]	RC, HM	Total (single-phase): 52 wks	AET1: NR CAET1: CE CRET1: MW	AET1: 2 CAET1: 2 CRET1: 2	AET1: 60 CAET1: NR CRET1: NR	AET1: NR CAET1: NR CRET1: NR; NR, NR	NA
Galvao et al., (2014)[27]	NR	Total: 52 wks Phase 1: 26 wks	Phase 1 CAET1: CE, WK/JG CRET1: MW, FW, BW	Phase 1 CAET1: 4 CRET1: 2	Phase 1 CAET1: 20-30 CRET1: NR	Phase 1 CAET1: 70-85% HR^{max}, 11-13 RPE CRET1: 6-12RM; NR, 2-4 sets	NA
		Phase 2: 26 wks	Phase 2 CAET1: NR CRET1: NR	Phase 2 CAET1: NR CRET1: NR	Phase 2 CAET1: NR CRET1: NR	Phase 2 CAET1: NR CRET1: NR; NR, NR	
Hollekim-Strand et al., (2014)[30]	HM, Other	Total: 52 wks Phase 1: 12 wks Phase 2: 40 wks	Phase 1 AET1: CE, WK, SW AET2: TM Phase 2 AET1: CE, WK, SW AET2: TM, CE, SW	Phase 1 AET1: NR AET2: 3 Phase 2 AET1: NR AET2: NR	Phase 1 AET1: 10-NR AET2: 40 Phase 2 AET1: NR AET2: NR	Phase 1 AET1: 70% HR^{max} AET2: 90-95% HR^{max} Phase 2 AET1: NR AET2: NR	NA
Jones et al., (2014)[33]	HM, Other	Total (single-phase): 26 wks	AET1: TM	AET1: 5	AET1: 30-45	AET1: 55-100% VO_2^{peak}	NA
Pahor et al., (2014)[45]	MC	Total: 135 wks Phase 1: 52 wks	Phase 1 CAET1: WK CRET1: FW	Phase 1 CAET1: 3-6 CRET1: 3	Phase 1 CAET1: NR CRET1: 10	Phase 1 CAET1: 13 RPE (Borg) CRET1: 15-16 RPE (Borg); 10 reps, 2 sets	NA

Supplementary Table 6: Exercise Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Exercise Dose			Co-intervention [Group: Details]
				Frequency [days / week]	Duration [Grp: mins]	Intensity [AET Grp: % tested value] [RET Grp: % tested value; reps, sets]	
		Phase 2: 83 wks	Phase 2 CAET1: WK CRET1: FW	Phase 2 CAET1: 5-6 CRET1: 3	Phase 2 CAET1: NR CRET1: 10	Phase 2 CAET1: 13 RPE (Borg) CRET1: 15-16 RPE (Borg); 10 reps, 2 sets	
Fakhry et al., (2015)[24]	RC	Total: 52 wks Phase 1: 26 wks	Phase 1 AET1: TM AET2: TM	Phase 1 AET1: 2-3 AET2: 2-3	Phase 1 AET1: 30-45 AET2: 30-45	Phase 1 AET1: NR AET2: NR	Phase 1 & Phase 2 AET1: NA AET2: Endovasc. revascularization
		Phase 2: 26 wks	Phase 2 AET1: TM AET2: TM	Phase 2 AET1: 1 AET2: 1	Phase 2 AET1: 30-45 AET2: 30-45	Phase 2 AET1: NR AET2: NR	
Friedenreich et al., (2015)[25]	PG, HM	Total: 52 wks Phase 1: 12 wks	Phase 1 AET1: NR AET2: NR	Phase 1 AET1: 3-5 AET2: 3-5	Phase 1 AET1: 15-60 AET2: 10-30	Phase 1 AET1: 50-75% HRR AET2: 50-75% HRR	NA
		Phase 2: 40 wks	Phase 2 AET1: WK, EG, CE, RG, NR AET2: NR	Phase 2 AET1: 5 AET2: 5	Phase 2 AET1: 60 AET2: 30	Phase 2 AET1: 65-75% HRR AET2: 65-75% HRR	
Irwin et al., (2015)[31]	PG, HM	Total (single-phase): 52 wks	CAET1: CE, TM, WK, NR CRET1: MW	CAET1: NR CRET1: 2	CAET1: NR CRET1: NR	CAET1: 50-80% HR^{max} CRET1: NR; NR, NR	NA
Murphy et al., (2015)[43]	RC	Total: 78 wks Phase 1: 26 wks	Phase 1 AET1: TM	Phase 1 AET1: 5	Phase 1 AET1: 15-50	Phase 1 AET1: 2-4 claudication pain scale	Phase 1 Cilostazol, EX counselling
		Phase 2: 52 wks	Phase 2 AET1: NR	Phase 2 AET1: NR	Phase 2 AET1: NR	Phase 2 AET1: NR	Phase 2 EX counselling
Ross et al., (2015)[48]	NR	Total (single-phase): 24 wks	AET1: TM AET2: TM CAET1: TM	AET1: 5 AET2: 5 CAET1: 5	AET1: 31.2 AET2: 58.4 CAET1: 40	AET1: 50% VO_2^{peak} AET2: 50% VO_2^{peak} CAET1: 75% VO_2^{peak}	NA
van Waart et al., (2015)[55]	RC, HM	Total (single-phase): NR	AET1: NR CAET1: NR CRET1: MW, FW, BW	AET1: 5 CAET1: 2 CRET1: 2	AET1: 30-NR CAET1: 30 CRET1: 20	AET1: 12-14 RPE CAET1: 50-80% workload max CRET1: 70-80% 1RM; 8-12 reps, NR	NA

Supplementary Table 6: Exercise Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Exercise Dose			Co-intervention [Group: Details]
				Frequency [days / week]	Duration [Grp: mins]	Intensity [AET Grp: % tested value] [RET Grp: % tested value; reps, sets]	
Ehlken et al., (2016)[23]	MC	Total: 15 wks Phase 1: 3 wks	Phase 1 CAET1: CE, WK CRET1: FW	Phase 1 CAET1: 7 CRET1: 5	Phase 1 CAET1: 70-85 CRET1: 30	Phase 1 CAET1: 60-80% HR at VO_2^{max} CRET: NR; NR, 1-3 sets	Phase 1 Respiratory & "mental" training
		Phase 2: 12 wks	Phase 2 CAET1: CE CRET1: FW	Phase 2 CAET1: 5 CRET1: 3-4	Phase 2 CAET1: 15-30 CRET1: 15-30	Phase 2 CAET1: NR CRET1: NR; NR, 1-2 sets	Phase 2 Respiratory training
Kitzman et al., (2016)[34]	MC	Total (single-phase): 20 wks	AET1: WK AET2: WK	AET1: 3 AET2: 3	AET1: 18-48 AET2: 19-50	AET1: HRR (NR) AET2: HRR (NR)	AET1 & AET2: Diet
Zhang et al., (2016)[59]	PG, HM	Total: 52 wks Phase 1: 26 wks	Phase 1 AET1: TM AET2: WK	Phase 1 AET1: 5 AET2: 5	Phase 1 AET1: 15-30 AET2: 30	Phase 1 AET1: 45-50%; 65-80% HR^{max} AET2: 45-55% HR^{max}	Phase 1 & Phase 2 AET1 & AET2: Health education
		Phase 2: 26 wks	Phase 2 AET1: WK AET2: WK	Phase 2 AET1: 5 AET2: 5	Phase 2 AET1: 30 AET2: 30	Phase 2 AET1: 45-55% HR^{max} AET2: 45-55% HR^{max}	w EX behavioral support
Johansen et al., (2017)[32]	REC, Other	Total: 52 wks Phase 1: 16 wks	Phase 1 CAET1: NR CRET1: NR	Phase 1 CAET1: 6 CRET1: 2	Phase 1 CAET1: 30-60 CRET1: 30	Phase 1 CAET1: 62-80% HRR CRET1: NR; NR, NR	Phase 1 & Phase 2 Diet & sleep
		Phase 2: 36 wks	Phase 2 CAET1: NR CRET1: NR	Phase 2 CAET1: NR CRET1: NR	Phase 2 CAET1: 45-60 CRET1: 30	Phase 2 CAET1: 68-88% HRR CRET1: NR; NR, NR	
McDermott et al., (2017)[39]	MC	Total (single-phase): 26 wks	AET1: TM AET2: TM	AET1: 3 AET2: 3	AET1: 15-50 AET2: 15-50	AET1: 12-14 RPE AET2: 12-14 RPE	AET1: GM-CSF injections AET2: NA
Saberi et al., (2017)[49]	HM	Total (single-phase): 16 wks	AET1: EE, WK	AET1: 3-7	AET1: 20-60	AET1: 60-70% HRR, 11-14 RPE	NA
Taaffe et al., (2017)[54]	UNI	Total: 52 wks Phase 1: 26 wks	Phase 1 RET1: MW CAET1: CE, TM, RE; MW CRET1: MW	Phase 1 RET1: 2 CAET1: 2 CRET1: 2	Phase 1 RET1: NR CAET1: 20-30 CRET1: NR	Phase 1 RET1: 6-12 RM CAET1: 60-75% HR^{max} CRET1: 6-12 RM; NR, 2-4 sets	Phase 1 RET1: Impact-loading activities CET1: NA

Supplementary Table 6: Exercise Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Exercise Dose			Co-intervention [Group: Details]
				Frequency [days / week]	Duration [Grp: mins]	Intensity [AET Grp: % tested value] [RET Grp: % tested value; reps, sets]	
Taaffe cont'd		Phase 2: 26 wks	Phase 2 AET1: CE	Phase 2 AET1: 2	Phase 2 AET1: NR	Phase 2 AET1: 70% HR^{max}	Phase 2 AET1: NA
Villareal et al., (2017)[56]	MC	Total (single-phase): 26 wks	AET1: CE, TM RET1: MW, FW CAET1: CE, TM, SC CRET1: MW, FW	AET1: 3 RET1: 3 CAET1: 3 CRET1: 3	AET1: 40 RET1: 40 CAET1: 30-40 CRET1: 30-40	AET1: 65-85% VO_2^{max} RET1: 65-85% 1RM; 8-12 reps, 1-3 sets CAET1: 65-85% VO_2^{max} CRET1: 65-85% 1RM	AET1, RET1 & CET1: Diet & dietician support therapy
Dieli-Conwright et al., (2018)[20]	UNI	Total (single-phase): 16 wks	CAET1: CE, TM, WK, RE CRET1: MW	CAET1: 3 CRET1: 2	CAET1: 30-50 CRET1: NR	CAET1: 65-80% HR^{max} CRET1: 60% 1RM (upper); 10-15 reps, 3 sets; 80% 1RM (lower); 10-15 reps, 3 sets	NA
McDermott et al., (2018)[40]	HM	Total: 40 wks Phase 1: 4 wks Phase 2: 36 wks	Phase 1 AET1: WK Phase 2 AET1: WK	Phase 1 AET1: 1 Phase 2 AET1: 5	Phase 1 AET1: NR Phase 2 AET1: 10-50	Phase 1 AET1: NR Phase 2 AET1: 12-14 RPE	NA

Notes: AET1: aerobic exercise training (group 1); AET2: aerobic exercise training (group 2); AT: anaerobic threshold; BW: body weight; CAET1: aerobic component of combined aerobic and resistance exercise training (group 1); CAET2: aerobic component of combined aerobic and resistance exercise training (group 2); CE: cycle ergometer; CET1: combined aerobic and resistance exercise training (group 1); CET2: combined aerobic and resistance exercise training (group 2); CRET1: resistance component of combined aerobic and resistance exercise training (group 1); CRET2: resistance component of combined aerobic and resistance exercise training (group 2); d/wk: days per week; EE: elliptical ergometer; EX: exercise; FW: free weights; HM: home; HR: heart rate; HR^{max}: maximal heart rate; HR^{peak}: peak heart rate; HRR: heart rate reserve; JG: jogging; MC: medical center; min: minutes; MW: machine weights; NA: not applicable; n: number; NR: not reported; PG: public gym; RB: resistance bands; RC: rehabilitation center; RE: rowing ergometer; REC: recreational center; reps: repetitions; RET1: resistance exercise training (group 1); RET2: resistance exercise training (group 2); RM: repetition maximum; RPE: rate of perceived exertion; SC: stair climb; SW: swimming; TM: treadmill; UC: usual care; UNI: university; VO2max: maximal oxygen uptake; VO2peak: peak oxygen uptake; WK: walking; wk(s): week(s)

Supplementary Table 7: Pharmacological Intervention Characteristics

Supplementary Table 7: Pharmacological Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Pharmaceutical Dose		Co-intervention [Group: Details]
				Frequency [x/time]	Medication [Grp#: Med 1 dose; med 2 dose, etc.]	
Ahmed et al. (2008)[60]	NR	Total (single-phase): 109.2 wks	Grp1: NR Grp2: NR	Grp1: 1x/day Grp2: 1x/day	Grp1: Amiodarone 200mg, 600mg Grp2: Amiodarone 200mg	NA
Gheorghiade et al. (2008)[69]	HSP	Total (single-phase): 1 day	Grp1: IV Grp2: IN Grp3: IN	Grp1: 1x dose Grp2: 1x dose Grp3: 1x dose	Grp1: Istaroxime 0.5ug/kg/min Grp2: Istaroxime 1.0ug/kg/min Grp3: Istaroxime 1.5ug/kg/min	NA
Greenspan et al. (2008)[72]	NR	Total (single-phase): 104 wks	Grp1: PO	Grp1: 1x/wk	Grp1: Risendronate 35 mg	Calcium & Vitamin D as needed
Grudell et al. (2008)[73]	OMC	Total (single-phase): 12 wks	Grp1: NR Grp2: NR	Grp1: 1x/day Grp2: 1x/day	Grp1: Sibutramine 10mg Grp2: Sibutramine 15mg	Grp1 & Grp2: Written & psychologist-based weight management behavioral therapy
Irani et al. (2008)[79]	NR	Total (single-phase): 193.5 wks	Grp1: PO, IN Grp2: PO, IN	Grp1: 1x/3mo (Goserelin) Grp1: 3x/day (Flutamide) Grp2: 1x/3mo (Goserelin) Grp2: 3x/day (Flutamide) 6 mths, no drugs 6mths, repeat	Grp1: Goserelin 10.8mg Grp1: Flutamide 250mg Grp2: Goserelin 10.8mg Grp2: Flutamide 250mg	NA
Nissen et al. (2008)[89]	NR	Total (single-phase): 52 wks	Grp1: PO Grp2: PO	Grp1: 1x/day Grp2: 1x/day	Grp1: Glimepiride 2.9 mg (1-4mg) Grp2: Pioglitazone 37.4 mg (15-45mg)	Grp1 & Grp2: Insulin, Metformin, or both as needed
Ratziu et al. (2008)[92]	NR	Total: 51.3 wks Phase 1: 4 wks Phase 2: 47.3 wks	Phase 1 Grp1: NR Phase 2 Grp1: NR	Phase 1 Grp1: 1x/day Phase 2 Grp1: 1x/day	Phase 1 Grp1: Rosiglitazone 4mg Phase 2 Grp1: Rosiglitazone 8mg	NA
Caminiti et al. (2009)[61]	NR	Total (single-phase): 12 wks	Grp1: IN	Grp1: 1x/6wks	Grp1: Testosterone undecanoate 1000mg	NA
Frustaci et al. (2009)[68]	NR	Total (single-phase): 26 wks	Grp1: PO	Grp1: 2x/day	Grp1: Prednisone 0.33mg/kg/day, 1mg/kg/day Grp1: Azathioprine 2mg/kg/day	NA

Supplementary Table 7: Pharmacological Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Pharmaceutical Dose		Co-intervention [Group: Details]
				Frequency [x/time]	Medication [Grp#: Med 1 dose; med 2 dose, etc.]	
Lapperre et al. (2009)[86]	NR	Total: 130 wks Phase 1: 26 wks	Phase 1 Grp1: INH Grp2: INH Grp3: INH	Phase 1 Grp1: 2x/day Grp2: 2x/day Grp3: 2x/day	Phase 1 Grp1: Fluticasone propionate 500ug Grp2: Fluticasone propionate 500ug Grp3: Fluticasone propionate 500ug Grp3: Salmeterol 50ug	NA
		Phase 2: 104 wks	Phase 2 Grp1: INH Grp2: INH Grp3: INH	Phase 2 Grp1: 2x/day Grp2: 2x/day Grp3: 2x/day	Phase 2 Grp1: Fluticasone propionate 500ug Grp2: Placebo 0mg Grp3: Fluticasone propionate 500ug Grp3: Salmeterol 50ug	
Pradhan et al. (2009)[91]	HSP	Total (single-phase): 14 wks	Grp1: IN Grp2: PO Grp3: PO, IN	Grp1: 1x/day Grp2: 2x/day Grp3: 1x/day (Insulin) Grp3: 1-2x/day (Metformin)	Grp1: Insulin glargine 5U starting Grp2: Metformin 500mg, 1000mg Grp3: Insulin glargine 5U starting Grp3: Metformin 500mg, 1000mg	NA
Loprinzi et al. (2010)[87]	NR	Total (single-phase): 6 wks	Grp1: PO Grp2: PO	Grp1: 1x/day; 2x/day Grp2: 1x/day; 2x/day	Grp1: Pregabalin 50mg, 75mg Grp2: Pregabalin 50mg, 75mg, 150mg	NA
Smith et al. (2010)[96]	NR	Total (single-phase): 52 wks	Grp1: PO	Grp1: 2x/day	Grp1: Lorcaserin 10mg	NA
Ellis et al. (2011)[66]	NR	Total (single-phase): 3-4 wks	Grp1: PO Grp2: PO Grp3: PO	Grp1: 1x/day Grp2: 1x/day GrGrp3: 1x/day	Grp1: Exemestane 25mg Grp2: Letrozole 2.5mg Grp3: Anastrozole 1mg	NA
Rosenheck et al. (2011)[94]	HSP	Total (single-phase): 104 wks	Grp1: IN	Grp1: 1x/2wk	Grp1: Risperidone 25mg, 37.5mg, 50mg	NA
Spitzer et al. (2012)[98]	NR	Total (single-phase): 14 wks	Grp1: PO, TD Grp2: PO	Grp1: 2.7 x/wk (Sildenafil) Grp1: 3 x/day (Testosterone) Grp2: 2.7 x/wk (Sildenafil)	Grp1: Sildenafil 25mg, 50mg, 100mg Grp1: Testosterone 5g, 10g, 15g Grp2: Sildenafil 25mg, 50mg, 100mg	NA
Gheorghiade et al. (2013)[70]	NR	Total (single-phase): 48.6 wks^{MED}	Grp1: PO	Grp1: 1x/day	Grp1: Aliskiren 150mg or 300mg	NA
Hurvitz et al. (2013)[78]	NR	Total (single-phase): 43.9 wks^{MED}	Grp1: IV Grp2: Other, IV	Grp1: 1x/3wks Grp2: 1x/3wks	Grp1: Trastuzumab emtansine 3.6 mg/kg Grp2: Trastuzumab 8mg/kg load, 6mg/kg Grp2: Docetaxel 75mg/m^2 or 100mg/m^2	NA

Supplementary Table 7: Pharmacological Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Pharmaceutical Dose		Co-intervention [Group: Details]
				Frequency [x/time]	Medication [Grp#: Med 1 dose; med 2 dose, etc.]	
Klotz et al. (2013)[82]	NR	Total (single-phase): 52 wks	Grp1: PO, IN Grp2: PO, IN	Grp1: 1x/4mo (Leuoprolide) Grp1: 1x/wk (Alendonrate) Grp1: 1x/day (Calcium) Grp1: 1x/day (Vitamin D) Grp2: 1x/4mo (Leuoprolide) Grp2: 1x/day (Calcium) Grp2: 1x/day (Vitamin D)	Grp1: Leuoprolide 30mg Grp1: Alendonrate 70mg Grp1: Calcium 500mg Grp1: Vitamin D 500Iu Grp2: Leuoprolide 30mg Grp2: Calcium 500mg Grp2: Vitamin D 500Iu	NA
Kosmala et al. (2013)[83]	HSP	Total (single-phase): 1 wk	Grp1: PO	Grp1: 2x/day	Grp1: Ivabradine 5mg	NA
Poole et al. (2013)[90]	HSP	Total (single-phase): 4 wks	Grp1: IN	Grp1: 3x/wk	Grp1: Granulocyte-macrophage-colony stimulating factor 500ug	NA
van der Bom et al. (2013)[103]	NR	Total (single-phase): 166.4 wks	Grp1: PO	Grp1: 2x/day	Grp1: Valsartan 160mg	NA
Yardley et al. (2013)[106]	HSP	Total (single-phase): Grp1: 18.5 wks^{MED} Grp2: 9.89 wks^{MED}	Grp1: PO Grp2: PO	Grp1: 1x/day (Exemestane) Grp1: 1x/wk (Entinostat) Grp2: 1x/day	Grp1: Exemestane 25mg; Grp1: Entinostat 5mg Grp2: Exemestane 25mg	NA
Ford et al. (2014)[67]	NR	Total (single-phase): 30 days	Grp1: PO	Grp1: 1x/day	Grp1: Clopidogrel 75mg	NA
Han et al. (2014)[75]	NR	Total (single-phase): 5 days	Grp1: PO	Grp1: 1x/day	Grp1: Rosuvastatin 10mg	Isotonic saline (0.9 NaCl at 1ml/kg/h) as needed
Harman et al. (2014)[76]	NR	Total (single-phase): 208 wks	Grp1: PO Grp2: TD	Grp1: 1x/day Grp2: 1x/wk	Grp1: Equine estrogen 0.45mg Grp2: Transdermal 17B-estradiol 50ug/d	Grp1& Grp2: Progest-erone (200 mg/d; first 12 days / mth)
Taplin et al. (2014)[99]	NR	Total: 24 wks Phase 1: 12 wks	Phase 1 Grp1: IN Grp2: IN, NR	Phase 1 Grp1: 1x/4wk Grp2: 1x/4wk (LHRH agonist) Grp2: 1x/day (Abiraterone acetate) Grp2: 1x/day (Prednisone)	Phase 1 Grp1: Leuprolide acetate 7.5mg Grp2: LHRH agonist 7.5 mg Grp2: Abiraterone acetate 1000 mg Grp2: Prednisone 5 mg	Phase 1 & Phase 2: Radical prostatectomy at end of Phase 2

Supplementary Table 7: Pharmacological Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Pharmaceutical Dose		Co-intervention [Group: Details]
				Frequency [x/time]	Medication [Grp#: Med 1 dose; med 2 dose, etc.]	
Taplin cont'd		Phase 2: 12 wks	Phase 2 Grp1: IN, NR Grp2: IN, NR	Phase 2 Grp1: 1x/day (Abiraterone acetate) Grp1: 1x/4wk (Leuprolide acetate) Grp1: 1x/day (Prednisone) Grp2: 1x/day (Abiraterone acetate) Grp2: 1x/4wk (Leuprolide acetate) Grp2: 1x/day (Prednisone)	Phase 2 Grp1: Abiraterone acetate 1000mg Grp1: Leuprolide acetate 7.5mg Grp1: Prednisone 5mg Grp2: Abiraterone acetate 1000mg Grp2: Leuprolide acetate 7.5mg Grp2: Prednisone 5mg	
Cummings et al. (2015)[63]	HSP, OMC	Total (single-phase): 5 wks	Grp1: PO	Grp1: 1x/day (active drug) & 1x/day placebo (wk 1) Grp1: 2x/day active drug (wks 2-5)	Grp1: Dextromethorphan 20mg, 30mg Grp1: Quinidine 10mg	NA
Hamshere et al. (2015)[74]	HSP	Total (single-phase): 5 days	Grp1: IN Grp2: IN Grp3: IN	Grp1: 1x/day Grp2: 1x/day Grp3: 1x/day	Grp1: GCSF 10 ug/kg/day Grp2: GCSF 10 ug/kg/day Grp3: GCSF 10 ug/kg/day	Grp1: NA Grp2: BM harvest & intracoronary injection of bone marrow-derived cells. Grp3: BM harvest & intracoronary serum injection
Hoendermis et al. (2015)[77]	NR	Total (single-phase): 10 wks	Grp1: PO	Grp1: 3x/day	Grp1: Sildenafil 60 mg	NA
Krankenberg et al. (2015)[85]	OMC	Total (single-phase): 1 day	Grp1: Intra-lesion via coated balloon Grp2: NR	Grp1: 1x dose (Paclitaxel); Grp1: 1x/day (Aspirin); Grp1: 1x/day (Clopidogrel) Grp2: 1x/day (Aspirin); Grp2: 1x/day (Clopidogrel)	Grp1: Paclitaxel 3.5ug/mm^2 of balloon; Grp1: Aspirin 100mg; Grp1: Clopidogrel 75mg Grp2: Aspirin 100mg; Grp2: Clopidogrel 75mg	Grp1 & Grp2: Heparin (5,000 - 10,000U based on body weight during Sx)
Tsujita et al. (2015)[100]	NR	Total (single-phase): Grp1: 43.4 wks Grp2: 41.7 wks	Grp1: NR Grp2: NR	Grp1: 1x/day Grp2: NR	Grp1: Atorvastatin NR Grp1: Ezemtimibe 10mg Grp2: Atorvastatin NR	NA
Ulrich et al. (2015)[101]	HSP	Total (single-phase): 1 wk	Grp1: PO Grp2: PO	Grp1: 2x/day Grp2: 2x/day	Grp1: Acetazolamide 250mg Grp2: Placebo 0mg	Grp1: Sham nocturnal oxygen therapy Grp2: Real nocturnal oxygen therapy

Supplementary Table 7: Pharmacological Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Pharmaceutical Dose		Co-intervention [Group: Details]
				Frequency [x/time]	Medication [Grp#: Med 1 dose; med 2 dose, etc.]	
Cortelazzo et al. (2016)[62]	NR	Total: Grp1: 4 wks Grp2: 4.6 wks Phase 1: Grp1: 2 wks Grp2: 3 wks	Phase 1 Grp1: PO, IN, IV Grp2: PO, IN, IV	Phase 1 Grp1: 1x/2wk **RCHOP** (w 1x/d P; days 1-5 per cycle) Grp1: 1x/d Filgrastim; days 7-11 per cycle) Grp2: 1x/d **R**; days 52, 60, 78, 86 Grp2: 1x **C**; day 50 Grp2: 1x/2wk **H**; days 1, 15, 29 Grp2: 1x/2wk **O**; days 1, 15, 29 Grp2: 1x/d **P**; days 1-28 Grp2: 1x/d Filgrastim; days 51-60 Grp2: 2x/d Cytarabine; days 71-76	Phase 1 Grp1: **R** (375mg/m^2); **C** (750 mg/m^2); **H** (50mg/m^2); **O** (1.4 mg/m^2); **P** (100mg); Filgrastim (5ug/kg) Grp2: **R** (375mg/m^2); **C** (7g/m^2); **H** (50mg/m^2; 75mg/m^2); **O** (1.4 mg/m^2); **P** (40mg/m^2); Filgrastim (5ug/kg and 10ug/kg); Cytarabine (2g/m^2)	Phase 1 & Phase 2 Grp1: CNS prophylaxis (high risk patients) Grp1: PCP prophylaxis. Grp1: HSV prophylaxis. Grp2: Peripheral blood progenitor cell reinfusion (day 77) Grp2: CNS prophylaxis (high risk patients) Grp2: PCP prophylaxis Grp2: HSV prophylaxis
		Phase 2: Grp1: 2 wks Grp2: 1.6 wks	Phase 2 Grp1: PO, IN, IV Grp2: IV	Phase 2 Grp1: 1x/2wk **RCHOP** (w 1x/d P; days 1-5 per cycle) Grp1: 1x/d Filgrastim; days 7-11 per cycle) Grp2: 1x/d Etoposide; day 112 Grp2: 1x/d Cisplatin; day 113 Grp2: 1x/d Filgrastim; day 114 Conditional… Grp2: 1x/d Mitoxantrone; day 133 Grp2: 1x/day Melphalan; day 135 or 137 OR Grp2: 1x/d Carmustine; day 133 Grp2: 1x/d Etoposide; day 134-137 Grp2: 12hr Cytarabine; day 134-137 Grp2: 1x/d Melphalan; day 138	Phase 2 Grp1: **R** (375mg/m^2); **C** (750 mg/m^2); **H** (50mg/m^2); **O** (1.4 mg/m^2); **P** (100 mg/m^2); Filgrastim (5ug/kg) Grp2: Etoposide 2.4 g/ m^2 Grp2: Cisplatin 100mg/ m^2 Grp2: Filgrastim 5ug/kg Conditional… Grp2: Mitoxantrone 60mg/ m^2 Grp2: Melphalan 180mg/ m^2 OR Grp2: Carmustine 300mg/m^2 Grp2: Etoposide 200mg/m^2 Grp2: Cytarabine 200mg/m^2 Grp2: Melphalen 140mg/m^2	
Cusi et al. (2016)[64]	NR	Total: 77 wks Phase 1: 8 wks Phase 2: 69 wks	Phase 1 Grp1: PO Phase 2 Grp1: PO	Phase 1 Grp1: 1x/day Phase 2 Grp1: 1x/day	Phase 1 Grp1: Pioglitazone 30mg Phase 2 Grp1: Pioglitazone 45mg	Phase 1 & Phase 2 Hypocaloric diet

Supplementary Table 7: Pharmacological Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Pharmaceutical Dose		Co-intervention [Group: Details]
				Frequency [x/time]	Medication [Grp#: Med 1 dose; med 2 dose, etc.]	
Kosmala et al. (2016)[84]	NR	Total (single-phase): 26 wks	Grp1: PO	Grp1: 1x/day	Grp1: Spironolactone 25mg	NA
McKay et al. (2016)[88]	NR	Total (single-phase): 26 wks	Grp1: PO, IN, IV Grp2: PO, IN	Grp1: 1x/3mo (Leuprolide OR Goserelin); Grp1: 1x/day (Bicalutamide) Grp1: 1x/3wk (Bevacizumab) Grp2: 1x/3mo (Leuprolide OR Goserelin) Grp2: 1x/day (Bicalutamide)	Grp1: Leuprolide acetate 22.5mg or Goserelin acetate 10.8mg Grp1: Bicalutamide 10mg Grp1: Bevacizumab 15mg/kg Grp2: Leuprolide acetate 22.5mg or Goserelin acetate 10.8mg Grp2: Bicalutamide 50mg	NA
Schmid et al. (2016)[95]	NR	Total (single-phase): 2 wks	Grp1: PO Grp2: PO	Grp1: 1x/day Grp2: 1x/day	Grp1: Anastrazole 1mg Grp2: Anaztrazole 1mg Grp2: Pictilisib 260mg, 340mg	NA
Yoshimura et al. (2016)[107]	NR	Total (single-phase): Grp1: 30 wks^{MED} Grp2: 94.6 wks^{MED}	Grp1: NR Grp2: IN, NR	Grp1: 1x/day Grp2: 1x/day (Dexamethasone) Grp2: 1x/2wk (Peptide vaccine)	Grp1: Dexamethasone 1mg Grp2: Dexamethasone 1mg Grp2: Peptide vaccine 3mg	NA
Goebel et al. (2017)[71]	NR	Total (single-phase): 6 wks	Grp1: IV	Grp1: 2x/6wks	Grp1: Intratectivig 0.5g/kg	NA
Soiffer et al. (2017)[97]	NR	Total (single-phase): 3 days	Grp1: IV	Grp1: 1x/day Anti–T- lymphocyte globulin (3 days) Grp1: Antihistamine (NR) Grp1: 1x/day Methylprednisolone (3 days) Grp1: 1x/day Methotrexate (4 days)	Grp1: Anti–T- lymphocyte globulin Grp1: Antihistamine 20mg/kg Grp1: Methylprednisolone 2mg/kg, 1mg/kg Grp1: Methotrexate 10-15 mg/m^2	NA
Urruticoechea et al. (2017)[102]	NR	Total (single-phase): Grp1: 36 wks (Trastuzumab) 30 wks (Capecitabine) Grp2: 45 wks (Trastuzumab) 36 wks (Capecitabine) 45 wks (Pertuzumab)	Grp1: PO, IV Grp2: PO, IV	Grp1: 1x/3wk Trastuzumab Grp1: 2x/day Capecitabine (2 wks on / 1wk off) Grp2: 1x/3wk Pertuzumab Grp2: 1x/3wk Trastuzumab Grp2: 2x/day Capecitabine (2 wks on / 1wk off)	Grp1: Trastuzumab (8mg/kg loading; 6mg/kg maintenance) Grp1: Capecitabine 1250 mg/m^2 Grp2: Pertuzumab (840mg loading; 420mg maintenance) Grp2: Trastuzumab (8mg/kg loading; 6mg/kg maintenance) Grp2: Capecitabine 1000 mg/m^2	NA
Wysham et al. (2017)[105]	NR	Total: 64 wks Phase 1: 32 wks	Phase 1 Grp1: IN Grp2: IN	Phase 1 Grp1: 1x/day Grp2: 1x/day	Phase 1 Grp1: Insulin degludec 70U Grp2: Insulin glargine 74U	NA

Supplementary Table 7: Pharmacological Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Pharmaceutical Dose		Co-intervention [Group: Details]
				Frequency [x/time]	Medication [Grp#: Med 1 dose; med 2 dose, etc.]	
		Phase 2: 32 wks	Phase 2 Grp1: IN Grp2: IN	Phase 2 Grp1: 1x/day Grp2: 1x/day	Phase 2 Grp1: Insulin glargine 83U Grp2: Insulin degludec 83U	
Devereux et al. (2018)[65]	NR	Total (single-phase): 52 wks	Grp1: PO	Grp1: 1-2x/day	Grp1: Theophylline 200mg	NA
Johnson et al. (2018)[80]	NR	Total (single-phase): 53.6 wks	Grp1: PO, IV Grp2: IV Grp3: PO	Grp1: 1x/day (Lapatinib) Grp1: 1x/3wk (Trastuzumab) Grp2: 1x/3wk Trastuzumab GrGrp3: 1x/day Lapatinib	Grp1: Lapatinib 1000mg; Grp1: Trastuzumab (8mg/kg loading, 6mg/kg maintenance) Grp2: Trastuzumab (8mg/kg loading, 6mg/kg maintenance) Grp3: Lapatinib 1500 mg	Grp1, Grp2 & GrGrp3: Aromatase inhibitor (as needed): Letrozole 2.5mg/day, Anastrozole 1mg/day, or Exemestane 25mg/day.
Kim et al. (2018)[81]	NR	Total (single-phase): 24 wks	Grp1: PO	Grp1: 1x/day	Grp1: Escitalopram 7.6mg (5mg, 10mg, 15mg or 20mg)	NA
Rimawi et al. (2018)[93]	OMC	Total (single-phase): 52 wks	Grp1: PO, IV Grp2: PO, IN	Grp1: 1x/3wk (Pertuzumab or Trastuzumab); Grp1: 1x/day (Letrozole) Grp2: 1x/3wk (Trastuzumab); Grp2: 1x/day (Anastrozole or Letrozole)	Grp1: Pertuzumab (840mg loading, 420mg maintenance) Grp1: Trastuzumab (8mg/kg loading, 6mg/kg maintenance) Grp1: Anastrozole 1mg or Letrozole 2.5mg Grp2: Trastuzumab (8mg/kg loading, 6mg/kg maintenance) Grp2: Anastrozole 1mg or Letrozole 2.5mg	Grp1 & Grp2: Induction IV Docetaxel q3wk or Paclitaxel q1wk for 18-24wk as needed (decided prior to random assignment)
Wapnir et al. (2018)[104]	NR	Total (single-phase): 12-26 wks	Grp1: NR	Grp1: NR	Grp1: NR	Grp1: Radiotherapy & endocrine therapy as required by surgical margins & tumor hormone markers.

Notes: CAL, calcium; CAPE, capecitabine; GCSF, granulocyte-colony stimulating factor; HSP, hospital; IN, injection; INH, inhalant; IV, intravenous; kg, kilogram; LHRH, luteinizing hormone-releasing hormone; load, loading; m, meter; maint, maintenance; MET, metformin; mg, milligram; min, minutes; mm, millimetre; mo, month(s); NA, not applicable; NR, not reported; OMC, outpatient medical clinic; PERT, pertuzumab; PO, oral; PRED, prednisone; RCHOP, rituximab, cyclophosphamide, doxorubicin, vincristine, prednisone; TD, transdermal; TEST, testosterone; TRAZ, trastuzumab; U, units; ug, microgram; VIT, vitamin; wk(s), week

Supplementary Table 8: Exercise RCT CONSORT-NPT Data Extraction Summary

Supplementary Table 8: Exercise RCT CONSORT-NPT Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes			
		Yes No. (%)	Unclear No. (%)	No No. (%)	NA No. (%)
1a	Identification as a randomized trial in the title.	36 (75.0%)	0 (0.0%)	12 (25.0%)	0 (0.0%)
1b	Structured summary of trial design, methods, results, and conclusions.	46 (95.8%)	0 (0.0%)	2 (4.2%)	0 (0.0%)
2a	Scientific background and explanation of rationale.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
2b	Specific objectives or hypothesis.	44 (91.7%)	4 (8.3%)	0 (0.0%)	0 (0.0%)
3ai	Description of trial design (such as parallel, factorial) including allocation ratio.	13 (27.1%)	20 (41.7%)	15 (31.3%)	0 (0.0%)
3aii	When applicable, how care providers were allocated to each trial group.	0 (0.0%)	0 (0.0%)	46 (95.8%)	2 (4.2%)
3b	Important changes to methods after trial commencement (such as eligibility criteria), with reasons.	9 (18.8%)	0 (0.0%)	6 (12.5%)	33 (68.8%)
4ai	Eligibility criteria for participants.	38 (79.2%)	10 (20.8%)	0 (0.0%)	0 (0.0%)
4aii	When applicable, eligibility criteria for centers and for care providers.	3 (6.3%)	16 (33.3%)	29 (60.4%)	0 (0.0%)
4b	Settings and locations where the data were collected.	18 (37.5%)	3 (6.3%)	27 (56.3%)	0 (0.0%)
5i	The interventions for each group with sufficient details to allow replication, including how and when they were actually administered.	0 (0.0%)	0 (0.0%)	48 (100.0%)	0 (0.0%)
5ii	Precise details of both the experimental treatment and comparator.	47 (97.9%)	0 (0.0%)	1 (2.1%)	0 (0.0%)
5a	Description of the different components of the interventions and, when applicable, description of the procedure for tailoring the interventions to individual participants.	8 (16.7%)	16 (33.3%)	24 (50.0%)	0 (0.0%)
5b	Details of whether and how the interventions were standardized.	5 (10.4%)	2 (4.2%)	41 (85.4%)	0 (0.0%)
5c	Details of whether and how adherence of care providers to the protocol was assessed or enhanced.	2 (4.2%)	3 (6.3%)	43 (89.6%)	0 (0.0%)
5d	Details of whether and how adherence of participants to interventions was assessed or enhanced.	2 (4.2%)	3 (6.3%)	43 (89.6%)	0 (0.0%)
6a	Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed.	40 (83.3%)	2 (4.2%)	6 (12.5%)	0 (0.0%)
6b	Any changes to trial outcomes after the trial commenced, with reasons.	2 (4.2%)	0 (0.0%)	1 (2.1%)	45 (93.8%)
7ai	How sample size was determined.	42 (87.5%)	0 (0.0%)	6 (12.5%)	0 (0.0%)
7aii	When applicable, details of whether and how the clustering by care providers or centers was addressed.	0 (0.0%)	0 (0.0%)	30 (62.5%)	18 (37.5%)

Supplementary Table 8: Exercise RCT CONSORT-NPT Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes			
		Yes No. (%)	Unclear No. (%)	No No. (%)	NA No. (%)
7b	When applicable, explanation of any interim analyses and stopping guidelines.	5 (10.4%)	0 (0.0%)	0 (0.0%)	43 (89.6%)
8a	Method used to generate random allocation sequence.	33 (68.8%)	0 (0.0%)	15 (31.3%)	0 (0.0%)
8b	Type of randomization; details of any restriction (such as blocking and block size).	39 (81.3%)	0 (0.0%)	9 (18.8%)	0 (0.0%)
9	Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned.	15 (31.3%)	0 (0.0%)	33 (68.8%)	0 (0.0%)
10	Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions.	3 (6.3%)	7 (14.6%)	38 (79.2%)	0 (0.0%)
11a	If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how.	18 (37.5%)	0 (0.0%)	30 (62.5%)	0 (0.0%)
11b	If relevant, description of the similarity of interventions.	12 (25.0%)	0 (0.0%)	0 (0.0%)	36 (75.0%)
11c	If blinding was not possible, description of any attempts to limit bias.	12 (25.0%)	1 (2.1%)	22 (45.8%)	13 (27.1%)
12ai	Statistical methods used to compare groups for primary and secondary outcomes.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
12aii	When applicable, details of whether and how the clustering by care providers or centers was addressed.	5 (10.4%)	0 (0.0%)	21 (43.8%)	22 (45.8%)
12b	Methods for additional analyses, such as subgroup analyses and adjusted analyses.	27 (56.3%)	0 (0.0%)	0 (0.0%)	21 (43.8%)
13a	Participant flow diagram.	42 (87.5%)	0 (0.0%)	6 (12.5%)	0 (0.0%)
13ai	For each group, the numbers of participants who were randomly assigned, received intended treatment, and were analyzed for the primary outcome.	41 (85.4%)	0 (0.0%)	7 (14.6%)	0 (0.0%)
13aii	The number of care providers or centers performing the intervention in each group and the number of patients treated by each care provider or in each center.	7 (14.6%)	0 (0.0%)	41 (85.4%)	0 (0.0%)
13b	For each group, the delay between randomization and the initiation of the intervention.	43 (89.6%)	2 (4.2%)	3 (6.3%)	0 (0.0%)
13c	For each group, the delay between randomization and the initiation of the intervention.	1 (2.1%)	0 (0.0%)	47 (97.9%)	0 (0.0%)
13d	Details of the experimental treatment and comparator as they were implemented.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
14a	Dates defining the periods of recruitment and follow-up.	18 (37.5%)	22 (45.8%)	8 (16.7%)	0 (0.0%)
14b	Why the trial ended or was stopped.	7 (14.6%)	0 (0.0%)	3 (6.3%)	38 (79.2%)
15i	A table showing baseline demographic and clinical characteristics for each group.	45 (93.8%)	0 (0.0%)	3 (6.3%)	0 (0.0%)

Supplementary Table 8: Exercise RCT CONSORT-NPT Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes			
		Yes No. (%)	Unclear No. (%)	No No. (%)	NA No. (%)
15ii	When applicable, a description of care providers (case volume, qualification, expertise, etc.) and centers (volume) in each group.	13 (27.1%)	0 (0.0%)	35 (72.9%)	0 (0.0%)
16	For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups.	37 (77.1%)	9 (18.8%)	2 (4.2%)	0 (0.0%)
17a	For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval).	36 (75.0%)	0 (0.0%)	12 (25.0%)	0 (0.0%)
17b	For binary outcomes, presentation of both absolute and relative effect sizes is recommended.	13 (27.1%)	0 (0.0%)	3 (6.3%)	32 (66.7%)
18	Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory.	29 (60.4%)	0 (0.0%)	1 (2.1%)	18 (37.5%)
19	See CONSORT-Harms				
20i	Trial limitations, addressing sources of potential bias, imprecision, and, if relevant, multiplicity of analyses.	33 (68.8%)	8 (16.7%)	7 (14.6%)	0 (0.0%)
20ii	In addition, take into account the choice of the comparator, lack of or partial blinding, and unequal expertise of care providers or centers in each group.	9 (18.8%)	7 (14.6%)	32 (66.7%)	0 (0.0%)
21	Generalizability (external validity) of the trial findings according to the intervention, comparators, patients, and care providers and centers involved in the trial.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
22	Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
23	Registration number and name of trial registry.	39 (81.3%)	0 (0.0%)	9 (18.8%)	0 (0.0%)
24	Where the full trial protocol can be accessed, if available.	10 (20.8%)	0 (0.0%)	38 (79.2%)	0 (0.0%)
25	Sources of funding and other support (such as supply of drugs), role of funders.	24 (50.0%)	20 (41.7%)	4 (8.3%)	0 (0.0%)

Notes: NA, not applicable; No., number

Supplementary Table 9: Pharmacological RCT CONSORT Data Extraction Summary

Supplementary Table 9: Pharmacological RCT CONSORT Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes			
		Yes No. (%)	Unclear No. (%)	No No. (%)	NA No. (%)
1a	Identification as a randomized trial in the title.	43 (89.6%)	0 (0.0%)	5 (10.4%)	0 (0.0%)
1b	Structured summary of trial design, methods, results, and conclusions.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
2a	Scientific background and explanation of rationale.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
2b	Specific objectives or hypothesis.	37 (77.1%)	11 (22.9%)	0 (0.0%)	0 (0.0%)
3a	Description of trial design (such as parallel, factorial) including allocation ratio.	30 (62.5%)	9 (18.8%)	9 (18.8%)	0 (0.0%)
3b	Important changes to methods after trial commencement (such as eligibility criteria), with reasons.	10 (20.8%)	0 (0.0%)	5 (10.4%)	33 (68.8%)
4a	Eligibility criteria for participants.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
4b	Settings and locations where the data were collected.	10 (20.8%)	7 (14.6%)	31 (64.6%)	0 (0.0%)
5	The interventions for each group with sufficient details to allow replication, including how and when they were actually administered.	32 (66.7%)	0 (0.0%)	16 (33.3%)	0 (0.0%)
6a	Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed.	42 (87.5%)	5 (10.4%)	1 (2.1%)	0 (0.0%)
6b	Any changes to trial outcomes after the trial commenced, with reasons.	1 (2.1%)	0 (0.0%)	0 (0.0%)	47 (97.9%)
7a	How sample size was determined.	46 (95.8%)	0 (0.0%)	2 (4.2%)	0 (0.0%)
7b	When applicable, explanation of any interim analyses and stopping guidelines.	10 (20.8%)	0 (0.0%)	1 (2.1%)	37 (77.1%)
8a	Method used to generate random allocation sequence.	26 (54.2%)	0 (0.0%)	22 (45.8%)	0 (0.0%)
8b	Type of randomization; details of any restriction (such as blocking and block size).	38 (79.2%)	0 (0.0%)	10 (20.8%)	0 (0.0%)
9	Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned.	21 (43.8%)	0 (0.0%)	27 (56.3%)	0 (0.0%)
10	Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions.	4 (8.3%)	10 (20.8%)	34 (70.8%)	0 (0.0%)
11a	If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how.	47 (97.9%)	0 (0.0%)	1 (2.1%)	0 (0.0%)
11b	If relevant, description of the similarity of interventions.	22 (45.8%)	0 (0.0%)	0 (0.0%)	26 (54.2%)

Supplementary Table 9: Pharmacological RCT CONSORT Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes			
		Yes No. (%)	Unclear No. (%)	No No. (%)	NA No. (%)
12a	Statistical methods used to compare groups for primary and secondary outcomes.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
12b	Methods for additional analyses, such as subgroup analyses and adjusted analyses.	30 (62.5%)	0 (0.0%)	11 (22.9%)	7 (14.6%)
13	Participant flow diagram.	43 (89.6%)	0 (0.0%)	5 (10.4%)	0 (0.0%)
13a	For each group, the numbers of participants who were randomly assigned, received intended treatment, and were analyzed for the primary outcome.	46 (95.8%)	0 (0.0%)	2 (4.2%)	0 (0.0%)
13b	For each group, the delay between randomization and the initiation of the intervention.	39 (81.3%)	6 (12.5%)	1 (2.1%)	2 (4.2%)
14a	Dates defining the periods of recruitment and follow-up.	32 (66.7%)	14 (29.2%)	2 (4.2%)	0 (0.0%)
14b	Why the trial ended or was stopped.	7 (14.6%)	0 (0.0%)	6 (12.5%)	35 (72.9%)
15	A table showing baseline demographic and clinical characteristics for each group.	47 (97.9%)	0 (0.0%)	1 (2.1%)	0 (0.0%)
16	For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups.	36 (75.0%)	11 (22.9%)	1 (2.1%)	0 (0.0%)
17a	For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval).	39 (81.3%)	0 (0.0%)	9 (18.8%)	0 (0.0%)
17b	For binary outcomes, presentation of both absolute and relative effect sizes is recommended.	34 (70.8%)	0 (0.0%)	3 (6.3%)	11 (22.9%)
18	Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory.	41 (85.4%)	0 (0.0%)	1 (2.1%)	6 (12.5%)
19	See CONSORT-Harms				
20	Trial limitations, addressing sources of potential bias, imprecision, and, if relevant, multiplicity of analyses.	29 (60.4%)	9 (18.8%)	10 (20.8%)	0 (0.0%)
21	Generalizability (external validity) of the trial findings.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
22	Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
23	Registration number and name of trial registry.	40 (83.3%)	0 (0.0%)	8 (16.7%)	0 (0.0%)
24	Where the full trial protocol can be accessed, if available.	12 (25.0%)	0 (0.0%)	36 (75.0%)	0 (0.0%)
25	Sources of funding and other support (such as supply of drugs), role of funders.	23 (47.9%)	23 (47.9%)	2 (4.2%)	0 (0.0%)

Notes: NA, not applicable; No., number

Supplementary Table 10: Exercise & Pharmacological RCT CONSORT-Harms Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes	Exercise No. (%)	Pharma No. (%)
1	If the study collected data on harms and benefits, the title or abstract should so state.	Yes	17 (35.4%)	34 (70.8%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	31 (64.6%)	14 (29.2%)
		NA	0 (0.0%)	0 (0.0%)
2	If the trial addresses both harms and benefits, the introduction should so state.	Yes	10 (20.8%)	16 (33.3%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	38 (79.2%)	32 (66.7%)
		NA	0 (0.0%)	0 (0.0%)
3	List addressed adverse events with definitions for each (with attention, when relevant, to grading, expected vs. unexpected events, reference to standardized and validated definitions, and description of new definitions).	Yes	31 (64.6%)	41 (85.4%)
		Unclear	1 (2.1%)	3 (6.3%)
		No	16 (33.3%)	4 (8.3%)
		NA	0 (0.0%)	0 (0.0%)
4	Clarify how harms-related information was collected (mode of data collection, timing, attribution methods, intensity of ascertainment, and harms-related monitoring and stopping rules, if pertinent).	Yes	12 (25.0%)	17 (35.4%)
		Unclear	5 (10.4%)	12 (25.0%)
		No	31 (64.6%)	19 (39.6%)
		NA	0 (0.0%)	0 (0.0%)
5	Describe plans for presenting and analyzing information on harms (including coding, handling of recurrent events, specification of timing issues, handling of continuous measures, and any statistical analyses).	Yes	8 (16.7%)	27 (56.3%)
		Unclear	0 (0.0%)	1 (2.1%)
		No	39 (81.3%)	20 (41.7%)
		NA	1 (2.1%)	0 (0.0%)
6	Describe for each arm the participant withdrawals that are due to harms and their experiences with the allocated treatment.	Yes	26 (54.2%)	31 (64.6%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	16 (33.3%)	12 (25.0%)
		NA	6 (12.5%)	5 (10.4%)
7	Provide the denominators for analyses on harms.	Yes	22 (45.8%)	39 (81.3%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	18 (37.5%)	8 (16.7%)
		NA	8 (16.7%)	1 (2.1%)
8	Present the absolute risk per arm and per adverse event type, grade, and seriousness, and present appropriate metrics for recurrent events, continuous variables, and scale variables, whenever pertinent.	Yes	13 (27.1%)	33 (68.8%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	29 (60.4%)	14 (29.2%)
		NA	6 (12.5%)	1 (2.1%)
9	Describe any subgroup analyses and exploratory analyses for harms.	Yes	3 (6.3%)	3 (6.3%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	24 (50.0%)	44 (91.7%)
		NA	21 (43.8%)	1 (2.1%)
10	Provide a balanced discussion of benefits and harms with emphasis on study limitations, generalizability, and other sources of information on harms.	Yes	15 (31.3%)	31 (64.6%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	25 (52.1%)	16 (33.3%)
		NA	8 (16.7%)	1 (2.1%)

Notes: NA, not applicable; No., number

Supplementary Table 11: Exercise & Pharmacological Intervention Data Extraction Summary

Supplementary Table 11: Exercise & Pharmacological Intervention Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes	Exercise No. (%)	Pharma No. (%)
1	Intervention Modality	Yes	22 (45.8%)	40 (83.3%)
		Unclear	17 (35.4%)	0 (0.0%)
		No	9 (18.8%)	8 (16.7%)
		NA	0 (0.0%)	0 (0.0%)
2	Intervention Setting	Yes	36 (75.0%)	10 (20.8%)
		Unclear	5 (10.4%)	2 (4.2%)
		No	7 (14.6%)	36 (75.0%)
		NA	0 (0.0%)	0 (0.0%)
3	Intervention Frequency	Yes	40 (83.3%)	46 (95.8%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	8 (16.7%)	2 (4.2%)
		NA	0 (0.0%)	0 (0.0%)
4	Total Intervention Time	Yes	48 (100.0%)	47 (97.9%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	0 (0.0%)	1 (2.1%)
		NA	0 (0.0%)	0 (0.0%)
5	Intervention Dose*	Yes	22 (45.8%)	46 (95.8%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	26 (54.2%)	2 (4.2%)
		NA	0 (0.0%)	0 (0.0%)
6	Intervention Compliance & Adherence	Yes	2 (4.2%)	8 (16.7%)
		Unclear	3 (6.3%)	0 (0.0%)
		No	43 (89.6%)	40 (83.3%)
		NA	0 (0.0%)	0 (0.0%)

Notes: NA, not applicable; No., number

*Complete reporting of exercise therapy dose required complete reporting of:

- Exercise session intensity (aerobic and resistance training interventions)
- Exercise session duration (aerobic and resistance training interventions)
- Number of sets (resistance training interventions only)
- Number of repetitions (resistance training interventions only)

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Comparing the reporting and conduct quality of exercise and pharmacological randomized controlled trials: A systematic review

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Running Head: Exercise RCT reporting and conduct quality

Comparing the reporting and conduct quality of exercise and pharmacological randomized controlled trials: A systematic review

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ABSTRACT

Objective. Evaluate the quality of exercise randomized controlled trial (RCT) reporting and conduct in clinical populations (*i.e.*, adults with or at-risk of chronic conditions) and compare with matched pharmacological RCTs.

Design. Systematic review.

Data Sources. Embase (Elsevier), PubMed (NLM), and CINAHL (EBSCO)

Study Selection. RCTs of exercise in clinical populations with matching pharmacological RCTs published in leading clinical, medical and specialist journals with impact factors ≥15.

Review Methods. Overall RCT quality was evaluated by two independent reviewers using three research reporting guidelines (*i.e.*, Consolidated Standards of Reporting Trials (CONSORT; pharmacological RCTs) / CONSORT-Non-pharmacological trial (CONSORT-NPT; exercise RCTs), CONSORT-Harms, Template for Intervention Description and Replication (TIDieR)) and two risk of bias assessment (research conduct) tools (*i.e.*, Cochrane Risk of Bias, Jadad Scale). We compared research reporting and conduct quality within exercise RCTs with matched pharmacological RCTs, and examined factors associated with quality in exercise and pharmacological RCTs, separately.

Findings. Forty-eight exercise RCTs (11,658 patients; median sample n=138) and 48 matched pharmacological RCTs were evaluated (18,501 patients; median sample n=160). RCTs were conducted primarily in cardiovascular medicine (43%) or oncology (31%). Overall quality score (composite of all research reporting and conduct quality scores; primary endpoint) for exercise RCTs was 58% (median score 46/80; interquartile range: 39-51) compared with 77% (53/68; interquartile range: 47-58) in the matched pharmacological RCTs ($p \leq 0.001$). Individual quality scores for trial reporting and conduct were lower in exercise RCTs compared with matched pharmacological RCTs ($p \leq 0.03$). Factors associated with higher overall quality scores for exercise RCTs were journal impact factor (≥25), sample size (≥152) and publication year (≥2013).

Conclusions and Relevance. Research reporting and conduct quality within exercise RCTs is inferior to matched pharmacological RCTs. Suboptimal RCT reporting and conduct impact the fidelity,

interpretation, and reproducibility of exercise trials and, ultimately, implementation of exercise in clinical populations.

Registration. CRD42018095033

STRENGTHS AND LIMITATIONS OF THIS STUDY

- A total of n=30,159 participants from ninety-six randomized controlled trials (RCTs) of exercise and pharmacological therapies published in high-impact journals were included.
- We used a combination of five established and one investigator developed inventories to comprehensively evaluate and compare the quality of research reporting and conduct of exercise and pharmacological RCTs.
- Main limitations of the study include the restriction to journals with impact factors ≥15 and the lack of broadly applicable or unified guidelines to compare across exercise and pharmacological therapy RCTs.

INTRODUCTION

Reports from epidemiological studies and randomized controlled trials (RCTs) indicate that exercise therapy is safe and well-tolerated, and associated with broad health benefits in adults.[1] Accordingly, exercise is considered standard of care therapy for many clinical populations (ie, adults with or at risk of chronic conditions), with established guidelines from numerous international agencies.[2-4]

Clinical recommendation of exercise for a particular clinical indication is predicated on evidence from RCTs.[5] Optimal reporting of RCTs evaluating pharmacological and non-pharmacological therapies is facilitated by multiple standardized guidelines [eg, Consolidated Standards of Reporting Trials (CONSORT),[6,7] Template for Intervention Description and Replication (TIDieR)[8]]. Reports of RCTs are required to conform to at least one of these guidelines when submitting to scientific journals across all areas of medicine. Relatedly, risk of bias (ROB) tools (eg, Cochrane ROB,[9] Jadad Scale[10]) evaluate RCT research conduct. Numerous reviews have evaluated reporting quality and conduct of medical (eg, surgical,[11] medical device[12] and pharmacological[13] interventions) RCTs. Only a few previous systematic reviews have assessed the quality of exercise RCT reporting and conduct.[14-18] However, these reviews were limited in scope (eg, did not use comprehensive guidelines like CONSORT and Cochrane ROB; included a small number of trials) and incompletely reported key aspects of study methods (eg, item rating criteria, reviewer training). To our knowledge, no exercise reviews have contextualized their findings via direct comparison with trials in other research disciplines.

Therefore, our primary objective was to comprehensively evaluate the overall quality of exercise RCT reporting and conduct in clinical populations. The primary outcome was overall quality score (ie, the combined quality scores from three research reporting and two research conduct inventories). We also compared the quality of research reporting and conduct from exercise RCTs to matched RCTs of pharmacological therapies (a well-established field of biomedical research with a long history of adopting RCT methods[19]) using (1) the complete guidelines and (2) only key items from the guidelines (ie, those generally applicable to both intervention types) to provide context for our findings. Secondary

objectives were to compare individual items within the research reporting and conduct inventories as well as to examine factors associated with overall quality score.

METHODS

Search Strategy

This review was conducted in accordance with the PRISMA[20] and AMSTAR 2[21] guidelines (PROSPERO identifier CRD42018095033; supplementary Methods 1 and 2). Full study methods are provided within Supplementary Methods 3-7 and Supplementary Table 1. Briefly, a Research Informationist (KM) conducted two sequential literature searches for exercise (first search) and pharmacological (second search) RCTs within the Embase (Elsevier), PubMed (NLM), and CINAHL (EBSCO) databases (fig 1). The search for exercise RCTs was conducted using a combination of relevant keywords and controlled vocabulary: (1) exercise training intervention and (2) RCTs. The search was restricted to trials published between January 1st 2008 (the year the CONSORT extension for Non-Pharmacologic Treatments (CONSORT-NPT) was first published[22]) and the search date (March 8th, 2018). Meta-data (ie, journal, cohort / population, sample size, and number of study sites) was extracted for eligible exercise RCTs and used to define the matching criteria for pharmacological RCTs. The pharmacological RCT search was conducted on November 20th, 2018. The search was similarly restricted by date (January 1st, 2008 to November 20th, 2018) and used a combination of relevant search terms and matching criteria for: (1) pharmaceutical intervention, (2) RCTs, (3) journal, (4) cohort / population, and (5) number of study sites (single or multi-center). We purposefully restricted our search to medical journals with impact factors ≥15 because journals with higher impact factors are more likely to endorse and enforce reporting quality guidelines[23-25] and publish both exercise and pharmacological RCTs – leading to a more balanced foundation for comparison between study types.

Study Eligibility Criteria

Exercise RCTs involving adults (≥18 years of age) with chronic conditions, written in English, and published in journals with impact factors ≥15 according to the 2016 Journal Citation Reports (Clarivate

Analytics) between January 1st, 2008 and the search date (March 8th, 2018) were eligible. Exercise therapy interventions were defined as those involving chronic (>3 weeks), repeated sessions of supervised (in person, with or without a distance-based component) aerobic training (ie, endurance activity, ≥15 minutes/session), resistance training (ie, multiple large muscle group exercises involving repeated voluntary muscle contractions against a resistance greater than those normally encountered in activities of daily living), or the combination, with the objective of improving health-related outcomes.[26,27] Pharmacological interventions were defined as studies involving the administration of established or experimental pharmacological agents with the objective of improving health.

Study Selection, Matching, Data Extraction and Additional Sources

Trained study reviewers (JM and KS; see supplementary Methods 3 for training description) independently screened and evaluated identified article titles and abstracts in the DistillerSR web platform (Evidence Partners, Ottawa, Canada; fig 1). Next, full manuscripts of potentially eligible articles were independently reviewed using DistillerSR. Excluded exercise records are listed in supplementary Table 1.[28] Matching criteria for exercise and pharmacological therapy RCTs included: (1) publishing journal (±5 impact factor points according to the 2016 Journal Citation Reports [Clarivate Analytics, formerly ISI Web of Knowledge]), (2) study population (sharing similar disease characteristics), (3) study sample size (±30% difference in study sample size), and (4) number of study sites (single vs. multi-site). These specific matching criteria were selected to establish impartial comparison between exercise and pharmacological RCTs. The 'publishing journal' criteria was selected because studies published within the same journal should, in theory, be held to similar reporting standards. If no direct match could be identified within the same journal, we used an investigator-defined cut-off of ±5 impact factor points to find alternate matches because impact factor has been shown to be associated with RCT reporting and methodological quality.[29,30] The 'study population' criteria was chosen to account for differences in the research methods and standards across specific clinical populations and specialties. If no direct population match could be identified, we considered closely related populations. For example, for trials among patients with cardiac diseases, cardiomyopathy or heart failure were

considered surrogates. We selected the 'study sample size' and 'number of study sites' as criterion to control for differences in the methods (eg, human and physical resources, infrastructure) used to conduct smaller versus larger trials. To this end, an investigator-defined cut-point of a 30% difference in sample size was used to match RCTs of similar scale and logistical complexity. Exercise and pharmacological therapy RCTs had to be matched on a minimum of two of the four matching criteria to be eligible. The pharmacological therapy RCT with values closest to the target exercise RCT was used if more than one potential match was identified. Full data was extracted for all eligible RCTs from the primary article and all other publicly available supplemental data sources using DistillerSR and Reference Guides. Disagreements concerning eligibility, data extractions, and ROB assessments were resolved by consensus (JM and KS) and adjudicated by a third party (SCA) when consensus could not be obtained. The corresponding author for each article was contacted by investigators (SCA, JMS, LWJ) to request information on incomplete and missing items. After four weeks, non-responding authors were re-contacted and provided an additional ~four weeks to respond. Reporting totals were revised after the close of data collection (ie, final author contact (September 1st, 2019)).

Evaluation measures

Each trial was evaluated on two sets of criteria: (1) quality of research reporting and (2) quality of research conduct using complete standardized inventories and/or key items from these inventories, as needed. Exercise RCTs were evaluated on a maximum of 78 potential items and pharmacological RCTs were evaluated on a maximum of 63 potential items. The quality of exercise research reporting was first assessed using CONSORT-Nonpharmacologic Treatments (NPT) [52 items],[6] CONSORT-Harms [10 items],[31] and TIDieR [16 items].[32] The quality of pharmacological research reporting was assessed using CONSORT [37 items][7] and CONSORT-Harms [10 items]. However, there are no TIDieR-equivalent guidelines available to assess pharmacological intervention reporting. Therefore, intervention reporting for pharmacological interventions was assessed using six key items from TIDieR (including intervention length, modality, location, frequency, dose, and adherence). Exercise dose consisted of session intensity and duration (aerobic and resistance interventions) as well as the number

of sets and repetitions (resistance interventions only). Exercise RCT reporting was also re-evaluated using just the 37 items from the CONSORT guidelines that are common to both intervention types.[7] Notably, there were items within the CONSORT-based reporting quality guidelines (and TIDieR guidelines for exercise RCTs) that were not applicable (NA) based on the unique aspects of individual exercise and pharmacological RCTs. Items rated as NA were excluded from the calculation of primary and secondary outcomes for each study (see *End Points* and *Data Analysis*). All research reporting quality items were rated (with equal weighting and maximum score of 1 point per item) as: 1 = 'properly reported'; or, 0 = 'unclear' (incompletely reported) or 'not reported' (missing); NA = 'not applicable.'

The quality of research conduct was assessed using the Cochrane ROB inventory [7 items][9] and the Jadad scale [3 items].[10] Cochrane ROB was items were rated (with equal weighting) as: 2 = 'low risk of bias'; 1 = 'unclear risk of bias'; or, 0 = 'high risk of bias'. The first two items in the Jadad scale were scored as 2 = 'low risk of bias' or 0 = 'high risk of bias' and the third item was scored as 1 = 'low risk of bias' or 0 = 'high risk of bias.'

End Points

The primary end point was overall quality score defined as the sum of numerical quality scores from all research reporting and conduct inventories relative to the total number of applicable items. Secondary end points were defined as the numerical quality scores for each research reporting guideline and conduct inventory relative to the total number of applicable items for the study.

Data Analysis

Characteristics of RCTs were summarized using descriptive statistics. Quality scores were calculated and reported in numerical and percentage score formats. Percentage quality scores were calculated for the primary end point (overall quality score) and secondary endpoints (individual scores for the quality of reporting guidelines and quality of conduct inventories) as the achieved score relative to the total number of applicable items per RCT. All items from the two research conduct inventories were applicable for every study and scored with values of 0,1 or 2 resulting in total quality score for research conduct-related items of 19 per study. The variation in the total number of applicable items per

study was caused by different numbers of reporting quality guideline items being rated as 'Not Applicable', resulting in median numbers of eligible items (ie, denominators for percentage score calculations) of 80 for exercise RCTs and 68 for pharmacological RCTs. Generalized linear models (GLMs) were specified with a binomial family and logit link to compare the scores of exercise and pharmacological RCTs. For the quality of research conduct scales (Cochrane ROB, Jadad), item ratings were analyzed as low or unknown risk of bias versus high risk of bias. The model accounts for differences in the number of eligible items and the matching between the exercise and pharmacological RCTs. GLMs were also used to evaluate factors associated with overall quality scores for exercise and pharmacological therapy RCTs separately. Potential factors included journal impact factor (<25 vs. ≥25), RCT sample size (<152 vs. ≥152 participants), number of study sites (single vs. multiple sites), and year of publication (<2013 vs. ≥2013). Cut offs for impact factor, sample size, and year of publication were based on the medians. Exploratory one-way ANOVAs were used to assess whether reporting quality varied across studies matched on 50%, 75%, and 100% of matching criteria. For comparisons of the individual components of the composite scores, *p*-values were adjusted for multiple comparisons within research reporting and conduct inventories using a Bonferroni correction. Data are presented as median (Interquartile Range (IQR)) and odds ratios (OR; 95% confidence intervals (CI)). Inter-rater reliability was evaluated using intraclass correlation coefficient (ICC) calculated via one-way ANOVA.[33] Analyses were performed using R version 4.0.2.[34]

Patient and Public Involvement

Patients were not included in the design and conduct of this review. However, optimizing patient safety and benefit is the fundamental purpose of this review. Specifically, the proximal objective of the review is to identify opportunities to improve the rigour and reproducibility of exercise research that, in turn, will facilitate the delivery of robust evidence-based exercise interventions across diverse clinical populations and settings.

RESULTS

See Supplementary Tables 2-12 for full study characteristics and results. A total of 2836 potential exercise records were identified with 866 duplicate records removed using Endnote citation management software (Clarivate Analytics). A total of 1970 records underwent title and abstract screening (fig 1). Of these, 264 records underwent full review with 48 exercise RCTs meeting eligibility criteria.[35-82] The 48 primary searches for pharmacological therapy trials produced 2815 records. The median number of records returned per search was 15 (range: 0-853). Review of the primary search results produced 19 matched pharmacological RCTs; the remaining 29 were pharmacological RCTs were identified via review of modified secondary searches.[83-130] Overall, 13 pairs of exercise and pharmacological RCTs were matched on 100% of our four matching criteria, 18 pairs of RCTs were matched on 75%, and 17 pairs of RCTs were matched on 50%. On average, exercise and pharmacological therapy RCTs were matched on 3 of 4 criteria. The results of agreement for the two raters' assessments for the exercise and pharmaceutical studies publication scores were: overall quality score: ICC = 0.85 (95% CI: 0.78 to 0.89); quality of research reporting guidelines: ICC = 0.83 (95% CI: 0.75 to 0.88); and quality of research conduct inventories: ICC = 0.73 (95% CI: 0.62 to 0.81).

Missing Information (Author Contact)

Each RCT had missing information. The median number of eligible reporting quality items for exercise RCTs was 61 (IQR 59, 62) and pharmacological RCTs was 49 (IQR 48, 50). The median percentage (numerical; numerical range) of missing or indeterminate reporting quality items in exercise RCTs was 46% (28/61 items; 13-49) compared to 27% (13/49 items; 5-26) in pharmacological RCTs. Sixteen (33%) and 7 (15%) corresponding authors of the exercise and pharmacological RCTs responded with a median of 12.5 (IQR: 10.0, 16.2) and 5.0 (IQR: 4.0, 6.5) additional items.

RCT Characteristics

RCT characteristics are summarized in Table 1. Exercise therapy RCTs included a total of 11,658 participants (7,411 (64%) were allocated to experimental arms; including studies with 1-3 intervention arms) compared with 18,501 participants (11,909 (64%) allocated to experimental arms) in the pharmacological therapy RCTs. The median sample size of exercise RCTs was 138 (IQR: 100, 236)

and 160 (IQR: 98, 314) for pharmacological RCTs. Overall, 34 of 48 exercise RCTs (71%) and 31 of 48 pharmacological RCTs (65%) reported positive primary outcomes.

Primary and Secondary End Points

The median overall quality score for RCTs of exercise therapy was 58% (46/80; IQR: 49, 65) compared to 77% (53/68; IQR: 71, 84; $p \leq 0.001$) for pharmacological therapy RCTs (Table 2). For secondary end points, median research reporting quality scores across all complete guidelines were significantly lower in exercise RCTs in comparison with pharmacological RCTs (Table 2). The lowest scoring research reporting quality guideline was CONSORT-Harms for both exercise and pharmaceutical studies. In exercise RCTs, median CONSORT-Harms score was 32% (3/9; IQR: 11, 51) compared with 67% (6/10; IQR: 40, 73) in pharmacological RCTs ($p \leq 0.001$; Table 2). Harms reporting was missing entirely from 19% (9/48) of exercise RCTs and 4% (2/48) of pharmacological RCTs. Exercise RCTs reported 57% (8/15; IQR: 7, 10) of TIDieR items (Table 2). Over 75% of exercise RCTs were missing details related to intervention personnel, progression, and participant adherence (Table 3).

In exercise RCTs, median Cochrane ROB score was 71% (10/14; IQR: 64, 79) compared with 93% (13/14; IQR: 86, 93) in pharmacological RCTs ($p \leq 0.001$; Table 2). A summary of Cochrane ROB assessments for individual exercise and pharmacological therapy RCTs is provided in Table 4. Exploratory one-way ANOVAs did not indicate a difference in reporting quality outcomes between exercise and pharmacological RCTs matched on 50%, 75%, or 100% of the matching criteria.

Comparison of Key Items

Thirty-seven of 52 CONSORT items, all ten CONSORT-Harms items, and six of 16 TIDieR items were considered key items. Median reporting scores for the key items from CONSORT and TIDieR were not significantly different between exercise and pharmacological RCTs; whereas, reporting scores for CONSORT-Harms was significantly lower for exercise RCTs (Table 2). Compared to pharmacological RCTs, exercise RCTs had lower reporting of key study methods (e.g. blinding after group assignment [60% vs. 98%], balanced discussion of harms vs. benefits [39% vs. 66%],

intervention modality [39% vs. 66%], intervention dose [50% vs. 98%], and complete intervention descriptions [0% vs. 67%]).

Factors Associated with Reporting Quality

Journal impact factor ≥25 (OR: 1.36; 95% CI: 1.18 to 1.57), larger sample size ≥152 (OR: 1.29; 95% CI: 1.11 to 1.51), and more recent publication year ≥2013 (OR: 1.18; 95% CI: 1.03 to 1.34) were associated with higher overall quality scores in exercise RCTs (Table 5). The only factor associated with greater overall quality scores in pharmacological RCTs was more recent publication year ≥2013 (OR: 1.35; 95% CI: 1.14 to 1.60; p<0.001).

DISCUSSION

We evaluated the quality of research reporting and conduct within exercise therapy RCTs in clinical populations, then compared with the quality of reporting and conduct in matched pharmacological therapy RCTs. Our findings demonstrate that the quality of exercise therapy RCT reporting and conduct is suboptimal according to all complete guidelines and inventories used in this study and is inferior to RCTs of pharmacological therapy. However, the mean overall reporting quality for RCT methods and interventions, but not harms, was similar between intervention types when considering key items within the respective guidelines.

To our knowledge, five systematic reviews[14-18] have evaluated the overall quality of research reporting and conduct within exercise RCTs in clinical populations. Our findings corroborate the findings of these systematic reviews demonstrating the overall quality of exercise RCT reporting and conduct is suboptimal. For instance, in 27 exercise RCTs involving 1,467 patients with metabolic syndrome, Ostman et al.[17] reported a median overall quality of 60% (range: 33-87%) using the TESTEX (Tool for the assEssment of Study qualiTy and reporting in EXercise[131]) guideline. Similarly, Borror and colleagues[14] evaluated 12 exercise RCTs (representing 135 patients) with type 2 diabetes using a combination of 16 items from CONSORT, Jadad, PEDro (Physiotherapy Evidence Database) guidelines,[132] and the Delphi list.[133] The combined trial reporting and conduct quality score was 49% (range: 38%-58%). Nevertheless, prior reviews have several important limitations. For instance, these

reviews[14-18] did not use the complete versions of comprehensive and widely accepted guidelines (*e.g.*, CONSORT, Cochrane ROB) and, thus, did not rigorously evaluate the quality of all salient aspects of trial reporting and conduct. In addition, the number of exercise trials evaluated were small, comparisons of reporting with matched pharmacological trials were not performed, and no data extraction training or standardization were described within these studies. Thus, our review that was conducted by well-trained independent reviewers using specialized reference guides to facilitate standardized data extraction according to five distinct but complementary established guidelines / tools to assess and compare a large number of exercise trials and matched pharmacological trials provides the most rigorous evaluation of exercise research quality to date.

Although overall quality scores were poor in RCTs of exercise therapy, these findings were generally driven by poor research reporting quality scores across select individual guidelines rather than suboptimal RCT conduct per se. Foremost among these, the finding that harms were the most poorly reported aspects of exercise RCTs is concerning. Previous reviews in patients with cancer,[134] chronic fatigue,[135] and multiple sclerosis[136] have specifically focused on evaluating the reporting of adverse event frequency and descriptions; this information was completely missing within 23-88% of included exercise trials.[134-136] Our study extends these findings by demonstrating that harms-related monitoring and reporting were missing or incompletely reported in ≥75% of exercise RCTs; and, relatedly, >50% of articles failed to provide a balanced discussion of risks to benefits for the tested interventions. In contrast, a related assessment of 325 chemotherapy trials reported a mean CONSORT-Harms score of 63%,[137] compared to mean harms scores of 36% (exercise RCTs) and 57% (pharmacological RCTs) in our study. Based on our findings, we cannot support or refute the prevailing dogma that exercise is a safe and tolerable intervention strategy in most areas of clinical medicine.[1] However, it is not possible to fully evaluate the harms to benefit ratio of exercise without accurate monitoring and reporting of adverse events within exercise RCTs - a critical consideration in the clinical recommendation of any medical intervention.

Reporting of intervention methods is the most commonly assessed quality metric in exercise RCTs to date. Our findings support previous reviews of exercise interventions in patients with peripheral arterial disease,[138] cancer,[139] hypertension,[140] and recovering from stroke[141] demonstrating essential elements, including details on the exercise prescription regimen itself, are incompletely reported. For example, Hacke et al. used TIDieR to assess intervention reporting quality in 24 exercise RCTs involving 1,195 patients with hypertension and reported that 91% of exercise intervention studies in were missing information about intervention supervisors and 52% were missing details of intervention adherence.[140] Relatedly, Tew et al. also used TIDieR and reported that 20-26% of reports failed to describe several of the most fundamental exercise intervention elements (*i.e.*, exercise mode, intensity, tailoring, and progression) in 58 exercise RCTs in patients with peripheral arterial disease.[138] In our study, information on patient compliance to the planned exercise regimen as well as the expertise of the individuals implementing the intervention was missing or incomplete in >90% of trials; fundamental details pertaining to dose of prescribed exercise were also missing in 50% trials. By contrast, pharmacological intervention compliance was similarly missing in ~80% of trials; however, prescribed pharmacotherapy dose was only missing in 2% of studies. Incomplete intervention description not only hinders study reproducibility and cross-study integration (for meta-analyses) but also precludes quantification of exercise and pharmacotherapy therapy dose – a key metric for elucidation of dose/exposure-response relationships and translation into clinical practice.[142]

A major strength of this review is that, to our knowledge, it is the first to compare the quality of research reporting and conduct within exercise and pharmacological therapy RCTs. We used rigorous data extraction and evaluation processes to provide the first direct evidence that the quality of research reporting and conduct within exercise RCTs is inferior to similar pharmacological RCTs using the complete reporting guidelines (CONSORT and CONSORT-NPT). For context, the reporting quality of pharmacological RCTs in our review is comparable with previous reviews. For example, using CONSORT, Peron and colleagues[143] found that reporting quality of pharmacological RCTs in oncology ranged from 72% to 74%. A similar review conducted by Ritchie et al. reported a CONSORT score of

72% in 57 pharmacological RCTs (33% of studies involved patients with metabolic and cardiorespiratory diseases).[13] Our findings are consistent with these studies and suggest that comparable research reporting quality scores for exercise RCTs are, on average, 15%-20% lower. There were no differences observed in mean overall reporting quality when comparing exercise and pharmacological RCTs according to key items from the CONSORT guidelines; however, the reporting of several critical individual items was suboptimal within exercise RCTs (e.g. complete intervention descriptions, intervention dose, blinding status). Our findings provide important direction to improve the completeness and rigor of exercise trial reporting.

Several factors may contribute to the lower quality scores for research reporting and conduct within exercise trials. For instance, CONSORT was developed primarily to support the reporting of pharmacological trials and may not adequately capture aspects unique to the conduct of non-pharmacological trials such as exercise.[144] This issue should have been addressed, in theory, with publication of the CONSORT-NPT extension in 2008.[6,22] Indeed, this extension was developed to facilitate complete reporting across the fundamental aspects of RCTs applicable to all non-pharmacologic trials, including exercise. Reporting quality of traditional biomedical therapy RCTs (*e.g.*, surgical, pharmaceutical) has improved since the publication of the CONSORT guidelines and superior in journals adopting these guidelines.[145-147] We similarly found that exercise RCTs published more recently (>2013) had higher overall quality scores. These findings are encouraging and suggest that the awareness and use of established guidelines and inventories to support research reporting and conduct may be increasing, although there remains marked room for improvement. Continued improvement in this context will require continued education of exercise investigators to conform with such guidelines and journals / reviewers hold authors accountable to use of such guidelines. Stricter adherence to CONSORT-NPT, for example, would improve the reporting quality of most fundamental trial aspects; however, this tool may still be too generic to support the comprehensive reporting of features unique to exercise trials, especially intervention description. To this end, adoption of TIDieR, or the more recent

exercise-specific CERT (*i.e.*, Consensus on Exercise Reporting Template) guidelines,[148] is warranted to improve the reporting and reproducibility of exercise interventions within exercise RCTs.

Our study has several limitations. First, the restriction to journals with impact factors ≥15 may overestimate the quality of research reporting and conduct within the included exercise and pharmacological therapy RCTs. Relatedly, the exclusion of exercise RCTs published within sports science journals may underestimate the quality of exercise studies. Nevertheless, we felt it was necessary to selectively draw from this subset of journals given they are most likely to publish RCTs of both intervention types and endorse and enforce reporting quality guidelines[23-25] to impartially compare and contextualize our findings. Second, the lack of broadly applicable or unified guidelines to compare across exercise and pharmacological therapy RCTs also merits consideration. Guidelines used to evaluate the quality of RCT reporting were either different between study types (*i.e.*, CONSORT-NPT[6] vs. CONSORT[7]), developed specifically for harms reporting in pharmacological trials,[31] or investigator-derived given that there are formal standards for non-pharmacological (*i.e.*, TIDieR[32]), but not pharmacological, intervention reporting. We controlled for differences in the numbers of evaluable and applicable items across the reporting quality guidelines and used four matching criteria to control the influence of differences in (1) journal editorial standards and policies, (2) population-specific research methods and standards, and (3) the methods, resources, and infrastructure required to conduct smaller vs. larger trials. Future research could be strengthened by the establishment of standardized matching criteria to facilitate comparisons between branches of biomedical research. Third, we did not update the search following the extraction of the 96 included studies published from 2008-2018, which may have introduced bias related to search recency. However, the association between year of publication and reporting quality was evaluated and discussed as herein. Finally, we acknowledge that using non-specific assessment tools (e.g., using CONSORT-NPT to evaluate exercise trials or TIDieR to evaluate pharmacological interventions) potentially introduces measurement bias. We limited our evaluations and comparisons to include only reporting and conduct quality items that were applicable to the type of intervention to address this concern and selected six of TIDieR's 16 items to facilitate comparisons of

intervention reporting quality between exercise and pharmacological RCTs. Development of discipline-specific measurement tools such as CONSORT extensions for acupuncture interventions[149] and patient-reported outcomes[150] may be needed to improve reporting of exercise trials.

In summary, the overall quality of research reporting and conduct within exercise RCTs is suboptimal and inferior to pharmacological RCTs. Stricter adherence to established guidelines and inventories is warranted to facilitate the generation of high-quality evidence needed to optimize the safety, efficacy, and implementation of exercise therapy in clinical populations.

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Table 1. Characteristics of exercise and pharmacological therapy RCTs

Characteristic	Exercise Therapy RCTs[1] No. (%)	Pharmacological Therapy RCTs[2] No. (%)
Journal (*Impact Factors*[3])		
Annals of Internal Medicine (*19.315*)	2 (4.2%)	4 (8.3%)
British Medical Journal (*27.604*)	1 (2.1%)	0 (0%)
Circulation (*23.054*)	0 (0%)	2 (4.2%)
European Heart Journal (*24.889*)	4 (8.3%)	4 (8.3%)
European Urology (*17.298*)	3 (6.2%)	3 (6.2%)
Gastroenterology (*19.809*)	0 (0%)	2 (4.2%)
Gut (*17.943*)	1 (2.1%)	0 (0%)
Journal of the American College of Cardiology (*18.639*)	7 (15%)	7 (15%)
Journal of the American Medical Association (JAMA; *51.273*)	12 (25%)	9 (19%)
JAMA Internal Medicine (*20.768*)	2 (4.2%)	1 (2.1%)
JAMA Oncology (*22.416*)	1 (2.1%)	0 (0%)
Journal of Clinical Oncology (*28.349*)	11 (23%)	13 (27%)
Lancet (*59.102*)	0 (0%)	1 (2.1%)
New England Journal of Medicine (*70.670*)	4 (8.3%)	2 (4.2%)
Journal impact factor		
Overall (median [IQR])	28 (19, 51)	28 (19, 34)
Number of sites		
Single	33 (69%)	15 (31%)
Multi-center	15 (31%)	33 (69%)
Sample size		
Overall (median [IQR])	138 (100, 236)	160 (98, 314)
Year of publication		
<2013	24 (50%)	17 (35%)
≥2013	24 (50%)	31 (65%)
Author response	16 (33%)	7 (15%)

Notes: %, percent; IQR, interquartile range; No., number; RCTs, randomized controlled trials
[1] n=48 exercise therapy RCTs; [2] n=48 pharmacological therapy RCTs; [3] Clarivate (2018)

Table 2. Quality of exercise and pharmacological therapy RCT reporting and conduct

Outcomes	Exercise RCTs[1]		Pharmacological RCTs[2]		p-values*
	Median	IQR	Median	IQR	
Primary Outcome					
Overall Quality Score	45.5	38.8, 51.2	52.5	46.8, 58.0	<0.001
Eligible score [3a,b]	80.0	78.0, 81.0	68.0	67.0, 69.0	
Percent	58.2	48.6, 64.5	77.1	70.5, 83.9	
Secondary Outcomes					
Research Reporting: Complete Guidelines					
CONSORT Score	25.0	23.0, 28.0	25.0	22.0, 28.0	<0.001
Eligible score [4a,b]	45.0	44.0, 47.0	33.0	32.0, 34.0	
Percent	56.8	50.0, 62.8	75.4	69.7, 84.7	
CONSORT-Harms Score	3.0	1.0, 5.0	6.0	4.0, 7.2	<0.001
Eligible score [5]	9.0	9.0, 10.0	10.0	10.0, 10.0	
Percent	31.7	11.1, 51.4	66.7	40.0, 72.5	
TIDieR Score	8.0	7.0, 10.0	-	-	-
Eligible score [7]	15.0	14.0, 15.0	-	-	
Percent	57.4	49.2, 67.9	-	-	
Research Reporting: Key Items					0.68
CONSORT Score	24.0	21.0, 27.0	26.5	22.8, 28.0	
Eligible score	31.0	30.0, 32.0	33.0	32.0, 34.0	
Percent	75.4	68.0, 84.8	79.4	70.7, 85.7	
Intervention Score	4.0	3.0, 4.0	4.0	4.0, 4.2	0.03
Eligible score [6]	6.0	-	6.0	-	
Percent	66.7	50, 66.7	66.7	66.7, 70.8	
Research Conduct Inventories					
Cochrane ROB Score	10.0	9.0, 11.0	13.0	12.0, 13.0	<0.001
Eligible score [8]	14.0	-	14.0	-	
Percent	71.4	64.3, 78.6	92.9	85.7, 92.9	
Jadad Score	3.0	2.8, 5.0	5.0	4.0, 5.0	<0.001
Eligible score [9]	5.0	-	5.0	-	
Percent	60.0	55.0, 100.0	100.0	80.0, 100.0	

Notes: %, percent; IQR, interquartile range; RCTs, randomized controlled trials

[1] n=48 exercise therapy RCTs; [2] n=48 pharmacological therapy RCTs

* p-values were adjusted for multiple comparisons within Research Reporting and within Research Conduct Inventories using a Bonferroni correction.

Maximum possible quality scores:

[3a,b] Overall quality for exercise therapy RCTs = 87[3a] and pharmacological therapy RCTs = 72[3b]

[4a,b] CONSORT-NPT for exercise therapy RCTs = 52[4a]; CONSORT for pharmacological therapy RCTs = 37[4b]

[5] CONSORT-Harms for all RCTs = 10

[6] Intervention for all RCTs = 6

[7] TIDieR for exercise RCTs = 16

[8] Cochrane ROB for all RCTs = 14

[9] Jadad scale for all RCTs = 5

Table 3: Individual TIDieR item reporting summary for exercise therapy RCTs

Item No.	Expanded TIDieR Criteria	Evaluation Outcomes			
		Yes No. (%)	Unclear No. (%)	No No. (%)	NA No. (%)
1	Provide the name or a phrase that describes the intervention.	48 (100%)	0 (0%)	0 (0%)	0 (0%)
2	Describe any rationale, theory, or goal of the elements essential to the intervention.	48 (100%)	0 (0%)	0 (0%)	0 (0%)
3	Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of providers.	20 (42%)	5 (10%)	0 (0%)	23 (48%)
4	Describe each of the procedures, activities, & / or processes used in the intervention, including any enabling or support activities.	33 (69%)	5 (10%)	10 (21%)	0 (0%)
5	For each category of intervention provider, describe their expertise, background & any specific training given.	7 (15%)	4 (8%)	37 (77%)	0 (0%)
6	Describe the modes of delivery of the intervention & whether it was provided individually or in a group.	17 (35%)	3 (6%)	28 (58%)	0 (0%)
7	Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features.	36 (75%)	5 (10%)	7 (15%)	0 (0%)
8a	Describe the intensity of intervention sessions.	31 (65%)	0 (0%)	17 (35%)	0 (0%)
8b	Describe the frequency of intervention sessions.	40 (83%)	0 (0%)	8 (17%)	0 (0%)
8c	Describe the duration of intervention sessions.	28 (58%)	0 (0%)	20 (42%)	0 (0%)
8d	Describe the total length of the intervention period.	48 (100%)	0 (0%)	0 (0%)	0 (0%)
9i	If the intervention was planned to be personalized, then describe when & how.	19 (40%)	9 (19%)	20 (42%)	0 (0%)
9ii	If the intervention was planned to be progressed, then describe when & how.	3 (6%)	6 (13%)	39 (81%)	0 (0%)
10	If the intervention was modified during the course of the study, describe the changes (what, why, when, & how).	1 (2%)	0 (0%)	0 (0%)	47 (98%)
11	If intervention adherence or fidelity was assessed, describe how and by whom, & if any strategies were used to maintain or improve fidelity, describe them.	16 (33%)	10 (21%)	22 (46%)	0 (0%)
12	If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned.	2 (4%)	3 (6%)	43 (90%)	0 (0%)

Notes: %, percent; NA, not applicable; No., number

Table 4. Cochrane ROB ratings for individual exercise and pharmacological therapy RCTs

Exercise RCTs	Sequence Generation	Allocation Concealment	Participant Blinding	Assessment Blinding	Attrition Bias	Selective Reporting	Other Sources	Pharmacological RCTs	Sequence Generation	Allocation Concealment	Participant Blinding	Assessment Blinding	Attrition Bias	Selective Reporting	Other Sources
Beckers et al. (2008)	−	?	−	?	+	+	+	Ahmed et al. (2008)	?	?	+	+	+	+	+
Beer et al. (2008)	?	?	−	?	+	+	−	Gheorghiade et al. (2008)	?	?	+	+	+	+	+
Ligibel et al. (2008)	?	?	−	?	+	+	+	Greenspan et al. (2008)	+	+	+	+	?	+	+
Maltais et al. (2008)	+	+	−	?	+	+	+	Grudell et al. (2008)	?	?	+	+	+	+	+
Adamsen et al. (2009)	+	+	−	?	+	?	+	Irani et al. (2008)	?	?	−	?	+	+	+
Courneya et al. (2009)	+	+	−	?	+	+	+	Nissen et al. (2008)	?	+	+	+	?	+	+
McDermott et al. (2009)	+	?	−	+	?	?	+	Ratziu et al. (2008)	?	+	+	+	+	+	+
Monninkhof et al. (2009)	+	?	−	?	+	?	+	Caminiti et al. (2009)	?	?	+	?	+	+	+
O'Connor et al. (2009)	+	+	−	+	+	+	+	Frustaci et al. (2009)	+	+	+	+	+	+	+
Patwala et al. (2009)	+	+	−	?	?	+	+	Lapperre et al. (2009)	+	?	+	+	−	+	+
Schmitz et al. (2009)	+	?	−	?	+	?	+	Pradhan et al. (2009)	+	+	+	+	+	+	+
Segal et al. (2009)	+	+	−	−	+	+	?	Loprinzi et al. (2010)	+	?	+	+	?	+	+
Church et al. (2010)	+	+	−	+	+	+	+	Smith et al. (2010)	+	+	+	+	?	+	+
Friedenreich et al. (2010)	+	+	−	+	+	?	+	Ellis et al. (2011)	+	?	+	?	+	+	+
Galvao et al. (2010)	+	+	−	−	+	+	+	Rosenheck et al. (2011)	+	+	?	?	+	+	−
Schmitz et al. (2010)	+	+	−	+	+	+	+	Spitzer et al. (2012)	+	+	+	+	+	+	+
Edelmann et al. (2011)	+	+	−	+	+	+	+	Gheorghiade et al. (2013)	?	?	+	+	+	+	+
Hallsworth et al. (2011)	?	?	?	?	+	?	+	Hurvitz et al. (2013)	+	?	−	−	+	+	+
Villareal et al. (2011)	+	?	−	?	+	+	+	Klotz et al. (2013)	+	?	+	?	?	+	+
Belardinelli et al. (2012)	?	?	−	+	?	+	+	Kosmala et al. (2013)	+	+	+	?	+	+	+
Campbell et al. (2012)	+	?	−	+	+	+	+	Poole et al. (2013)	+	?	+	+	+	+	+
Duijts et al. (2012)	+	+	−	?	?	+	+	van der Bom et al. (2013)	+	+	+	+	+	+	+
Sandri et al. (2012)	+	+	−	?	?	+	+	Yardley et al. (2013)	+	?	+	+	+	+	+
Winter et al. (2012)	+	+	−	?	?	+	+	Ford et al. (2014)	+	?	+	+	+	+	+

Exercise RCTs	Sequence Generation	Allocation Concealment	Participant Blinding	Assessment Blinding	Attrition Bias	Selective Reporting	Other Sources	Pharmacological RCTs	Sequence Generation	Allocation Concealment	Participant Blinding	Assessment Blinding	Attrition Bias	Selective Reporting	Other Sources
Daumit et al. (2013)	+	+	−	+	+	+	+	Han et al. (2014)	+	+	+	+	+	+	+
Kitzman et al. (2013)	?	?	−	+	+	+	+	Harman et al. (2014)	+	+	+	+	+	+	+
Messier et al. (2013)	?	?	−	+	+	+	+	Taplin et al. (2014)	?	?	+	+	+	+	+
Pitkala et al. (2013)	+	+	−	?	+	+	+	Cummings et al. (2015)	?	+	+	+	+	+	+
Galvao et al. (2014)	+	+	−	−	+	+	+	Hamshere et al. (2015)	+	?	+	+	+	+	+
Hollekim-Strand et al. (2014)	?	?	−	?	?	+	+	Hoendermis et al. (2015)	+	?	+	+	+	+	+
Jones et al. (2014)	?	?	−	?	+	+	+	Krankenberg et al. (2015)	?	+	+	+	?	+	+
Pahor et al. (2014)	+	?	−	+	+	?	+	Tsujita et al. (2015)	+	?	+	+	?	+	+
Fakhry et al. (2015)	+	+	−	+	+	+	+	Ulrich et al. (2015)	+	?	+	+	+	+	+
Friedenreich et al. (2015)	+	+	−	+	+	+	+	Cortelazzo et al. (2016)	+	+	+	?	+	+	+
Irwin et al. (2015)	?	?	−	?	?	+	+	Cusi et al. (2016)	+	+	+	+	+	+	+
Murphy et al. (2015)	+	?	−	+	−	+	?	Kosmala et al. (2016)	?	+	+	+	+	+	+
Ross et al. (2015)	+	+	−	+	+	+	?	McKay et al. (2016)	?	?	+	?	+	+	+
van Waart et al. (2015)	+	?	−	?	−	−	+	Schmid et al. (2016)	+	?	+	+	+	+	+
Ehlken et al. (2016)	?	?	−	+	+	+	+	Yoshimura et al. (2016)	?	+	+	?	+	+	+
Kitzman et al. (2016)	+	?	−	?	+	+	+	Goebel et al. (2017)	+	+	+	+	+	+	+
Zhang et al. (2016)	+	+	−	+	+	+	+	Soiffer et al. (2017)	+	?	+	?	−	+	+
Johansen et al. (2017)	+	+	−	+	+	+	+	Urruticoechea et al. (2017)	+	+	+	?	+	+	+
McDermott et al. (2017)	+	?	−	+	+	+	+	Wysham et al. (2017)	?	+	+	+	+	+	+
Saberi et al. (2017)	+	?	−	+	+	+	+	Devereux et al. (2018)	+	+	+	?	+	+	+
Taaffe et al. (2017)	+	?	−	?	+	+	?	Johnson et al. (2018)	+	+	+	?	+	+	+
Villareal et al. (2017)	+	?	−	+	+	+	+	Kim et al. (2018)	+	?	+	+	+	+	+
Dieli-Conwright et al. (2018)	+	+	−	?	+	+	+	Rimawi et al. (2018)	+	+	+	?	+	+	+
McDermott et al. (2018)	+	?	−	?	+	+	+	Wapnir et al. (2018)	+	+	+	?	+	+	+

Table 5. Factors associated with overall quality score, stratified by study type

Outcome	Study Characteristics	Analysis Dichotomy	Exercise Therapy RCTs[1]			Pharmacological Therapy RCTs[2]		
			OR	95% CI	*p*-value	OR	95% CI	*p*-value
Overall quality score	Impact factor	≥25 vs <25	1.36	1.18, 1.57	<0.001	1.02	0.84, 1.24	0.80
	Sample size	≥152 vs <152	1.29	1.11, 1.51	0.001	1.20	0.97, 1.47	0.089
	Number of sites	Multi- vs Single Centre	1.08	0.92, 1.27	0.30	1.21	0.98, 1.49	0.078
	Publication year	≥2013 vs <2013	1.18	1.03, 1.34	0.015	1.35	1.14, 1.60	<0.001

Notes: CI, confidence interval; OR, odds ratio; RCTs, randomized controlled trials

[1] n=48 exercise therapy RCTs; [2] n=48 pharmacological therapy RCTs

Figure Caption

Fig 1. PRISMA Flow Diagram

Notes: RCT, randomized controlled trial

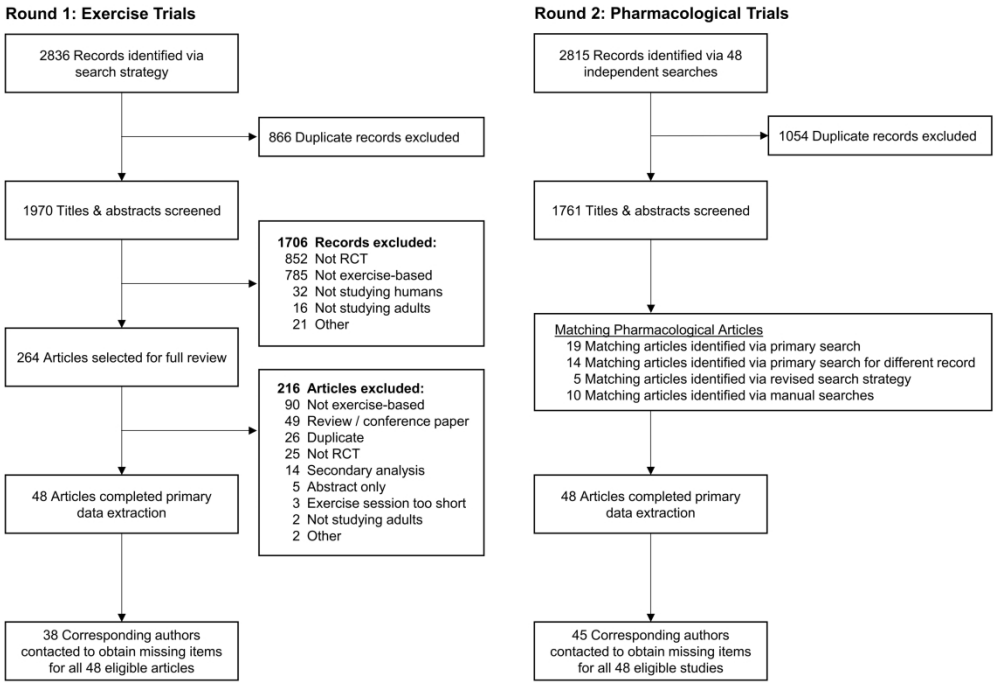

Fig 1. PRISMA Flow Diagram

Notes: RCT, randomized controlled trial

Online Supplement

Comparing the quality of reporting and conduct of exercise therapy and pharmacological randomized controlled trials: A systematic review

Table of Contents

Supplementary Methods 1: PRISMA Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	5
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	5
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	6
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	6
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	6, eMethods
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	eMethods
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	6,7, eMethods
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	6,7, eMethods
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	7,8
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	7,8
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	8
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	8

Supplementary Methods 1: PRISMA Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	7,8
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	8,9
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	10, eMethods, Fig 1
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	eResults
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	eResults
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	eResults
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	NA
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	10, Table 2, eResults
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	11, Table 3, eResults
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	12-14
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	14-15
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	15
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	1

Supplementary Methods 2: AMSTAR 2 Checklist

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

1. Did the research questions and inclusion criteria for the review include the components of PICO?

For Yes:	Optional (recommended)	
☒ Population	☐ Timeframe for follow-up	☒ Yes
☒ Intervention		☐ No
☒ Comparator group		
☒ Outcome		

2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?

For Partial Yes: The authors state that they had a written protocol or guide that included ALL the following:	For Yes: As for partial yes, plus the protocol should be registered and should also have specified:	
☐ review question(s)	☐ a meta-analysis/synthesis plan, if appropriate, *and*	☒ Yes
☐ a search strategy	☐ a plan for investigating causes of heterogeneity	☐ Partial Yes
☐ inclusion/exclusion criteria	☐ justification for any deviations from the protocol	☐ No
☐ a risk of bias assessment		

3. Did the review authors explain their selection of the study designs for inclusion in the review?

For Yes, the review should satisfy ONE of the following:	
☒ *Explanation for* including only RCTs	☒ Yes
☐ OR *Explanation for* including only NRSI	☐ No
☐ OR *Explanation for* including both RCTs and NRSI	

4. Did the review authors use a comprehensive literature search strategy?

For Partial Yes (all the following):	For Yes, should also have (all the following):	
☐ searched at least 2 databases (relevant to research question)	☒ searched the reference lists / bibliographies of included studies	☒ Yes
☐ provided key word and/or search strategy	☒ searched trial/study registries	☐ Partial Yes
☐ justified publication restrictions (e.g. language)	☒ included/consulted content experts in the field	☐ No
	☒ where relevant, searched for grey literature	
	☒ conducted search within 24 months of completion of the review	

5. Did the review authors perform study selection in duplicate?

For Yes, either ONE of the following:	
☒ at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include	☒ Yes
☐ OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer.	☐ No

Supplementary Methods 2: AMSTAR 2 Checklist

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

6. Did the review authors perform data extraction in duplicate?

For Yes, either ONE of the following:
- ☒ at least two reviewers achieved consensus on which data to extract from included studies
- ☐ OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer.

☒ Yes ☐ No

7. Did the review authors provide a list of excluded studies and justify the exclusions?

For Partial Yes:
- ☐ provided a list of all potentially relevant studies that were read in full-text form but excluded from the review

For Yes, must also have:
- ☒ Justified the exclusion from the review of each potentially relevant study

☒ Yes ☐ Partial Yes ☐ No

8. Did the review authors describe the included studies in adequate detail?

For Partial Yes (ALL the following):
- ☐ described populations
- ☐ described interventions
- ☐ described comparators
- ☐ described outcomes
- ☐ described research designs

For Yes, should also have ALL the following:
- ☒ described population in detail
- ☒ described intervention in detail (including doses where relevant)
- ☒ described comparator in detail (including doses where relevant)
- ☒ described study's setting
- ☒ timeframe for follow-up

☒ Yes ☐ Partial Yes ☐ No

9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?

RCTs

For Partial Yes, must have assessed RoB from
- ☐ unconcealed allocation, *and*
- ☐ lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality)

For Yes, must also have assessed RoB from:
- ☒ allocation sequence that was not truly random, *and*
- ☒ selection of the reported result from among multiple measurements or analyses of a specified outcome

☒ Yes ☐ Partial Yes ☐ No ☐ Includes only NRSI

NRSI

For Partial Yes, must have assessed RoB:
- ☐ from confounding, *and*
- ☐ from selection bias

For Yes, must also have assessed RoB:
- ☐ methods used to ascertain exposures and outcomes, *and*
- ☐ selection of the reported result from among multiple measurements or analyses of a specified outcome

☐ Yes ☐ Partial Yes ☐ No ☒ Includes only RCTs

10. Did the review authors report on the sources of funding for the studies included in the review?

For Yes
- ☒ Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies

☒ Yes ☐ No

Supplementary Methods 2: AMSTAR 2 Checklist

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?

RCTs

For Yes:

- ☐ The authors justified combining the data in a meta-analysis
  - ☐ AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present.
  - ☐ AND investigated the causes of any heterogeneity

☐ Yes
☐ No
☒ No meta-analysis conducted

For NRSI

For Yes:

- ☐ The authors justified combining the data in a meta-analysis
  - ☐ AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present
  - ☐ AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available
  - ☐ AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review

☐ Yes
☐ No
☒ No meta-analysis conducted

12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?

For Yes:

- ☐ included only low risk of bias RCTs
- ☐ OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect.

☐ Yes
☐ No
☒ No meta-analysis conducted

13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review?

For Yes:

- ☐ included only low risk of bias RCTs
- ☒ OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results

☒ Yes
☐ No

14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?

For Yes:

- ☐ There was no significant heterogeneity in the results
- ☒ OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review

☒ Yes
☐ No

15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?

For Yes:

- ☐ performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias

☐ Yes
☐ No
☒ No meta-analysis conducted

Supplementary Methods 2: AMSTAR 2 Checklist

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?	
For Yes:	
☒ The authors reported no competing interests OR	☒ Yes
☐ The authors described their funding sources and how they managed potential conflicts of interest	☐ No

To cite this tool: Shea BJ, Reeves BC, Wells G, Thuku M, Hamel C, Moran J, Moher D, Tugwell P, Welch V, Kristjansson E, Henry DA. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. BMJ. 2017 Sep 21;358:j4008.

Supplementary Methods 3: Study Search, Selection & Data Extraction Methods

This review was conducted in accordance with the PRISMA[1] and AMSTAR 2[2] guidelines (PROSPERO identifier CRD42018095033) (**eMethods 1** and **2**).

Data Sources and Searches

A Research Informationist (KM) conducted two sequential literature searches for articles from RCTs of exercise (first search) and pharmacological (second search) therapies within the Cochrane Central Register of Controlled Trials (Wiley), Embase (Elsevier), PubMed (NLM), and CINAHL (EBSCO) databases (eFigure 1). The exercise literature search was conducted on March 8th, 2018 and consisted of two component concepts using a combination of relevant keywords and controlled vocabulary: (1) exercise training intervention and (2) RCTs (**eMethods 4**). The Round 1 search was limited to trials published between January 1st 2008 (the year the CONSORT extension for Non-Pharmacologic Treatments was first published[3]) and the search date (March 8th, 2018). The searches were also limited to publications within leading clinical, general medicine and specialist medical journals based on having impact factors ≥15 according to the 2016 Journal Citation Reports (Clarivate Analytics, formerly ISI Web of Knowledge). We purposefully restricted our search to medical journals with impact factors ≥15 because journals with higher impact factors are more likely to endorse and enforce reporting quality guidelines[4-6] and publish both exercise and pharmacological RCTs – leading to a more balanced foundation for comparison between study types. This impact factor-based restriction is also consistent with the methods from similar reviews of medical, psychosocial, and behavioural RCTs.[7-13]

Trial meta-data (i.e., publishing journal, cohort / population, sample size, and number of study sites) was extracted from eligible exercise studies and used as 'matching criteria' to define search parameters for the pharmacological trial searches. See RCT matching criteria below. In Round 2, 48 independent searches were initially conducted to identify pharmacological trials to match each of the 48 eligible exercise RCTs identified in Round 1. The initial Round 2 searches were conducted on November 20th, 2018. Each search consisted of five component concepts using a combination of relevant search terms and 'matching criteria' for: 1) pharmacological intervention, 2) RCTs, 3) publishing journal, 4) population, and 5) number of study sites (single- vs. multi-site studies). The Round 2 searches were similarly limited to trials published between January 1st 2008 and the search date within leading clinical, general medicine and specialist medical journals based on having impact factors ≥15 according to the 2016 Journal Citation Reports (**eMethods 4**). Per Round, search strategy components were first searched

individually (combining synonyms describing that concept with the Boolean operator OR), followed by the individual component search sets combined together using the Boolean operator AND.

Study Eligibility

Published RCTs of exercise and pharmacological interventions involving human adults (≥18 years of age), written in English, published after January 1st 2008, and published in leading clinical, general medicine and specialist medical journals were eligible (**eMethods 4** and **5**). Exercise therapy interventions were defined as those involving chronic (>3 weeks), repeated sessions of supervised (in person, with or without a distance-based component) aerobic training (i.e., endurance activity, ≥15 minutes/session), resistance training (i.e., multiple large muscle group exercises involving repeated voluntary muscle contractions against a resistance greater than those normally encountered in activities of daily living), or the combination, with the objective of improving health-related outcomes.[14,15] Pharmacological interventions were defined as studies involving the administration of established or experimental pharmacological agents with the objective of improving health.

Data Extractor Training

Study reviewers (JM and KS) were trained in eligibility screening and data extraction over the course of eight weeks (>25 hours of group training), consisting of: (1) independent screening and data extraction from 12 "training" articles of both exercise and pharmacological RCTs using custom study Data Extraction Reference Guides (**eMethods 6** and **7**), and (2) regular investigator-led (SCA) review sessions to evaluate extraction completeness.

RCT Matching

The **specific matching criteria** used included: (1) **publishing journal** (±5 impact factor points according to the 2016 Journal Citation Reports (Clarivate Analytics, formerly ISI Web of Knowledge)), (2) **study population** (sharing similar disease characteristics), (3) **study sample size** (±30% difference in study samples), and (4) **number of study sites** (single vs multi-site). These specific matching criteria were selected to establish impartial comparison between exercise and pharmacological RCTs. The 'publishing journal' criteria was selected because studies published within the same journal should, in theory, be held to similar reporting standards. If no direct match could be identified within the same journal, we used an investigator-defined cut-off of ±5 impact factor points to find alternate matches because impact factor has been shown to be associated with RCT reporting and methodological quality.[16,17] The 'study population' criteria was chosen to account for differences in the

research methods and standards across specific clinical populations and specialties. If no direct population match could be identified, we considered closely related populations. For example, for trials among patients with cardiac diseases, cardiomyopathy or heart failure were considered surrogates. We selected the 'study sample size' and 'number of study sites' as criterion to control for differences in the methods (eg, human and physical resources, infrastructure) used to conduct smaller versus larger trials. To this end, an investigator-defined cut-point of a 30% difference in sample size was used to match RCTs of similar scale and logistical complexity. Exercise and pharmacological therapy RCTs had to be matched on a minimum of two of the four matching criteria to be eligible. The pharmacological therapy RCT with values closest to the target exercise RCT was used if more than one potential match was identified.

Study Selection, Data Extraction and Additional Sources

Article screening and data extraction for all trials was conducted sequentially following each round of literature searches (fig 1). First, two trained reviewers (JM and KS) independently screened and evaluated exercise article titles and abstracts (n=1,970) against review eligibility criteria using DistillerSR (Evidence Partners, Ottawa, Canada). Second, full manuscripts (n=264) of potentially eligible exercise articles were independently reviewed (JM and KS) using DistillerSR. Third, meta-data from each eligible exercise RCT (n=48) was extracted and used to develop the targeted systematic search strategies for Round 2 (i.e., pharmacological trial search). Fourth, detailed data from all studies (e.g., study design and methods, patient characteristics and flow, intervention descriptions) were extracted for each eligible exercise RCT from the primary manuscript and all data sources that were publicly available at the time the primary manuscript was published, including online supplements, clinical trial registries, and related publications as appropriate using DistillerSR and a custom Exercise Therapy RCT Data Extraction Reference Guide (**eMethods 6**). Fourth, "incomplete" and "missing" items were compiled, and corresponding authors were emailed (from SCA, JMS, LWJ) with a request to provide missing items within ~4 weeks. Non-responding authors were sent a reminder email within 3 weeks providing up to an additional ~4 weeks to respond.

The Round 2 pharmacological therapy RCT searches were conducted (KM, SCA) concurrently with the author contact step from round 1. Titles, abstracts, and full texts (n=1,761) were screened (SCA) to identify pharmacological therapy RCTs that were best matched to the n=48 eligible exercise therapy RCTs according to our matching criteria. Nineteen of the initial 48 searches (40%) successfully identified 'matching' pharmacological trials, leaving 29 exercise trials unmatched. Matching pharmacological trials were found for the remaining 29 exercise trials within the search results for different records (n=14 (29%); SCA), by running revised searches (n=5 (10%); KM), and by manual searches of journal databases (n=10 (21%); SCA).

Supplementary Methods 3: Study Search, Selection & Data Extraction Methods

Once all exercise trials had been matched, the team (JM and KS) independently extracted data from the primary manuscript and all data sources that were publicly available at the time the primary manuscript was published, including online supplements, clinical trial registries, and related publications as appropriate using DistillerSR and a custom Pharmacological Therapy RCT Data Extraction Reference Guide (**eMethods 7**). Finally, "incomplete" and "missing" items were compiled, and corresponding authors were emailed (from SCA, JMS, LWJ) with a request to provide missing items within ~4 weeks. Non-responding authors were sent a reminder email within 3-4 weeks providing up to an additional ~4 weeks to respond. Disagreements concerning eligibility, data extractions, and risk of bias assessments were resolved by consensus (JM and KS). Disagreements were adjudicated by a third party (SCA) when a consensus could not be reached.

Supplementary Methods 4: Exercise RCT Search Strategies

Exercise Search Strategies

Comprehensive searches were conducted (March 8th, 2018) in three electronic databases:

1) PubMed/Medline (NLM)
2) EMBASE (Elsevier)
3) CINAHL (EBSCO)

The literature search strategy was developed first in PubMed and then translated to the other databases. A combination of relevant keywords and controlled vocabulary (MeSH - Medical Subject Headings in PubMed and Emtree in EMBASE) were used in the PubMed and EMBASE searches. Comparable keyword search strategies were used in CINAHL. A "Last 10 years" (2008-2018) date range was applied. No language restrictions were applied.

Two component parts made up the search strategy:

1) Exercise training intervention
2) RCTs

Date range limit: Last 10 years
Publications limit: 45 target journals

Search filters were used for finding RCTs in PubMed and EMBASE. Available database limiters were used in CINAHL (Publication Type: Clinical Trial, Randomized Controlled Trial).

For the RCT search set, we used Cochrane Handbook recommended search filters for finding RCTs:
http://work.cochrane.org/pubmed

sensitivity- and precision-maximizing version (2008 revision); PubMed format[1]

(randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti] NOT (animals[mh] NOT humans [mh]))
http://work.cochrane.org/embase

Embase search strategy for finding RCTs in Embase[1]

('crossover procedure':de OR 'double-blind procedure':de OR 'randomized controlled trial':de OR 'single-blind procedure':de OR (random* OR factorial* OR crossover* OR cross NEXT/1 over* OR placebo* OR doubl* NEAR/1 blind* OR singl* NEAR/1 blind* OR assign* OR allocat* OR volunteer*):de,ab,ti)

1. Lefebvre C, Manheimer E, Glanville J. Chapter 6: Searching for studies. In: Higgins J, Green S (editors). Cochrane Handbook for Systematic Reviews of Interventions. Version 5.1.0 (updated March 2011). The Cochrane Collaboration, 2011. Available from **www.cochrane-handbook.org**

Each of the two components of the search strategy was first searched upon individually, combining synonyms describing that concept with the Boolean operator OR. The three individual component search sets were then combined together using the Boolean operator AND. Resulting citations were managed and duplicates removed using the Endnote citation management software program (Clarivate Analytics).

Supplementary Methods 4: Exercise RCT Search Strategies

PubMed/MEDLINE Search Strategy	
1	("Exercise"[Mesh] OR "exercise" OR "exercises" OR "Exercise Therapy"[Mesh] OR "exercise therapy" OR "exercise therapies" OR "exercise prescription" OR "training program" OR "exercise program" OR "Physical Conditioning, Human"[Mesh] OR "physical conditioning" OR "physical activity" OR "physical activities" OR "Motor Activity"[Mesh] OR "motor activity" OR "motor activities" OR "Muscle Contraction"[Mesh] OR "muscle contraction" OR "Resistance Training"[Mesh] OR "resistance training" OR "Circuit-Based Exercise"[Mesh] OR "circuit-based exercise" OR "circuit training" OR "Muscle Stretching Exercises"[Mesh] OR "muscle stretching exercises" OR "aerobic exercise" OR "anaerobic exercise" OR "Locomotion"[Mesh] OR "locomotion" OR "Running"[Mesh] OR "running" OR "Jogging"[Mesh] OR "jogging" OR "Swimming"[Mesh] OR "swimming" OR "Walking"[Mesh] OR "walking" OR "Sports"[Mesh] OR "sports") **AND** ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) **AND** ("CA Cancer J Clin"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal] OR "JAMA"[Journal] OR "Nat Biotechnol"[Journal] OR "Nature"[Journal] OR "Science"[Journal] OR "Lancet Oncol"[Journal] OR "Cell"[Journal] OR "Nat Med"[Journal] OR "Nat Genet"[Journal] OR "Cancer Cell"[Journal] OR "World Psychiatry"[Journal] OR "Lancet Neurol"[Journal] OR "Nat Chem"[Journal] OR "J Clin Oncol"[Journal] OR "Cell Stem Cell"[Journal] OR "Immunity"[Journal] OR "Nat Immunol"[Journal] OR "BMJ"[Journal] OR "Eur Heart J"[Journal] OR "Nat Cell Biol"[Journal] OR "Cancer Discov"[Journal] OR "J Am Coll Cardiol"[Journal] OR "Lancet Infect Dis"[Journal] OR "Lancet Diabetes Endocrinol"[Journal] OR "Circulation"[Journal] OR "Lancet Respir Med"[Journal] OR "Gastroenterology"[Journal] OR "Cell Metab"[Journal] OR "Nat Neurosci"[Journal] OR "Lancet Glob Health"[Journal] OR "Ann Intern Med"[Journal] OR "Psychol Bull"[Journal] OR "Sci Transl Med"[Journal] OR "Gut"[Journal] OR "Trends Biochem Sci"[Journal] OR "JAMA Oncol"[Journal] OR "JAMA Intern Med"[Journal] OR "Psychol Inq"[Journal] OR "Eur Urol"[Journal] OR "Cell Res"[Journal] OR "Trends Cogn Sci"[Journal] OR "JAMA Psychiatry"[Journal] OR "Nat Chem Biol"[Journal]) **AND** ("2008/01/01"[PDAT] : "2018/12/31"[PDAT])

Abbreviations: Mesh = Medical Subject Heading, pt = Publication Type, tiab = Title/Abstract, ti = Title, mh = MeSH Terms

EMBASE Search Strategy	
1	('exercise'/exp OR 'exercise' OR 'exercises' OR 'kinesiotherapy'/exp OR 'exercise therapy' OR 'exercise therapies' OR 'exercise prescription' OR 'training program' OR 'exercise program' OR 'physical conditioning' OR 'physical activity' OR 'physical activities' OR 'motor activity'/exp OR 'motor activity' OR 'motor activities' OR 'muscle contraction'/exp OR 'muscle contraction' OR 'resistance training'/exp OR 'resistance training' OR 'circuit training'/exp OR 'circuit-based exercise' OR 'circuit training' OR 'stretching exercise'/exp OR 'muscle stretching exercises' OR 'aerobic exercise' OR 'anaerobic exercise' OR 'locomotion' OR 'running'/exp OR 'running' OR 'jogging'/exp OR 'jogging' OR 'swimming'/exp OR 'swimming' OR 'walking'/exp OR 'walking' OR 'sport'/exp OR 'sports') AND (('crossover procedure':de OR 'double-blind procedure':de OR 'randomized controlled trial':de OR 'single-blind procedure':de OR random*:de,ab,ti OR factorial*:de,ab,ti OR crossover*:de,ab,ti OR (cross NEXT/1 over*):de,ab,ti OR placebo*:de,ab,ti OR (doubl* NEAR/1 blind*):de,ab,ti OR (singl* NEAR/1 blind*):de,ab,ti OR assign*:de,ab,ti OR allocat*:de,ab,ti OR volunteer*:de,ab,ti)) AND (('15424863':is OR 'CA Cancer Journal for Clinicians'/jt) OR ('15334406':is OR 'New England Journal of Medicine'/jt) OR ('1474547X':is OR 'The Lancet'/jt) OR ('15383598':is OR 'JAMA - Journal of the American Medical Association'/jt) OR ('15461696':is OR 'Nature Biotechnology'/jt) OR ('14764687':is OR 'Nature'/jt) OR ('10959203':is OR 'Science'/jt) OR ('14745488':is OR 'The Lancet Oncology'/jt) OR ('10974172':is OR 'Cell'/jt) OR ('1546170X':is OR 'Nature Medicine'/jt) OR ('15461718':is OR 'Nature Genetics'/jt) OR ('18783686':is OR 'Cancer Cell'/jt) OR ('20515545':is OR 'World Psychiatry'/jt) OR ('14744465':is OR 'The Lancet Neurology'/jt) OR ('15277755':is OR 'Journal of Clinical Oncology'/jt) OR ('18759777':is OR 'Cell Stem Cell'/jt) OR ('10974180':is OR 'Immunity'/jt) OR ('17561833':is OR 'BMJ (Online)'/jt) OR ('15229645':is OR 'European Heart Journal'/jt) OR ('14764679':is OR 'Nature Cell Biology'/jt) OR ('21598290':is OR 'Cancer Discovery'/jt) OR ('15583597':is OR 'Journal of the American College of Cardiology'/jt) OR ('14744457':is OR 'The Lancet Infectious Diseases'/jt) OR ('22138595':is OR 'The Lancet Diabetes and Endocrinology'/jt) OR ('15244539':is OR 'Circulation'/jt) OR ('22132619':is OR 'The Lancet Respiratory Medicine'/jt) OR ('15280012':is OR 'Gastroenterology'/jt) OR ('19327420':is OR 'Cell Metabolism'/jt) OR ('15461726':is OR 'Nature Neuroscience'/jt) OR ('2214109X':is OR 'The Lancet Global Health'/jt) OR ('15393704':is OR 'Annals of Internal Medicine'/jt) OR ('19466242':is OR 'Science Translational Medicine'/jt) OR ('14683288':is OR 'Gut'/jt) OR ('13624326':is OR 'Trends in Biochemical Sciences'/jt) OR ('21686106':is OR 'JAMA Internal Medicine'/jt) OR ('18737560':is OR 'European Urology'/jt) OR ('1879307X':is OR 'Trends in Cognitive Sciences'/jt) OR ('2168622X':is OR 'JAMA Psychiatry'/jt) OR ('15524469':is OR 'Nature Chemical Biology'/jt)) AND (2008:py OR 2009:py OR 2010:py OR 2011:py OR 2012:py OR 2013:py OR 2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py) NOT 'conference abstract'/it
2	(('15424863':is OR 'CA Cancer Journal for Clinicians'/jt) OR ('15334406':is OR 'New England Journal of Medicine'/jt) OR ('1474547X':is OR 'The Lancet'/jt) OR ('15383598':is OR 'JAMA - Journal of the American Medical Association'/jt) OR ('15461696':is OR 'Nature Biotechnology'/jt) OR ('14764687':is OR 'Nature'/jt) OR ('10959203':is OR 'Science'/jt) OR ('14745488':is OR 'The Lancet Oncology'/jt) OR ('10974172':is OR 'Cell'/jt) OR ('1546170X':is OR 'Nature Medicine'/jt) OR ('15461718':is OR 'Nature Genetics'/jt) OR ('18783686':is OR 'Cancer Cell'/jt) OR ('20515545':is OR 'World Psychiatry'/jt) OR ('14744465':is OR 'The Lancet Neurology'/jt) OR ('15277755':is OR 'Journal of Clinical Oncology'/jt) OR ('18759777':is OR 'Cell Stem Cell'/jt) OR ('10974180':is OR 'Immunity'/jt) OR ('17561833':is OR 'BMJ (Online)'/jt) OR ('15229645':is OR 'European Heart Journal'/jt) OR ('14764679':is OR 'Nature Cell Biology'/jt) OR ('21598290':is OR 'Cancer Discovery'/jt) OR ('15583597':is OR 'Journal of the American College of Cardiology'/jt) OR ('14744457':is OR 'The Lancet Infectious Diseases'/jt) OR ('22138595':is OR 'The Lancet Diabetes and Endocrinology'/jt) OR ('15244539':is OR 'Circulation'/jt) OR ('22132619':is OR 'The Lancet Respiratory Medicine'/jt) OR ('15280012':is OR 'Gastroenterology'/jt) OR ('19327420':is OR 'Cell Metabolism'/jt) OR ('15461726':is OR 'Nature Neuroscience'/jt) OR ('2214109X':is OR 'The Lancet Global Health'/jt) OR ('15393704':is OR 'Annals of Internal Medicine'/jt) OR ('19466242':is OR 'Science Translational Medicine'/jt) OR ('14683288':is OR 'Gut'/jt) OR ('13624326':is OR 'Trends in Biochemical Sciences'/jt) OR ('21686106':is OR 'JAMA Internal Medicine'/jt) OR ('18737560':is OR 'European Urology'/jt) OR ('1879307X':is OR 'Trends in Cognitive Sciences'/jt) OR ('2168622X':is OR 'JAMA Psychiatry'/jt) OR ('15524469':is OR 'Nature Chemical Biology'/jt)) **Note: EMBASE does not index the following 6 titles so they were not included in the search string: -Nature Chemistry -Nature Immunology -Psychological Bulletin -JAMA Oncology -Psychological Inquiry -Cell Research

Supplementary Methods 4: Exercise RCT Search Strategies

	CINAHL Search Strategy
1	("exercise" OR "exercises" OR "exercise therapy" OR "exercise therapies" OR "exercise prescription" OR "training program" OR "exercise program" OR "physical conditioning" OR "physical activity" OR "physical activities" OR "motor activity" OR "motor activities" OR "muscle contraction" OR "resistance training" OR "circuit-based exercise" OR "circuit training" OR "muscle stretching exercises" OR "aerobic exercise" OR "anaerobic exercise" OR "locomotion" OR "running" OR "jogging" OR "swimming" OR "walking" OR "sports") AND Limiters - Publication Type: Clinical Trial, Randomized Controlled Trial
2	(((ZJ "new england journal of medicine")) or ((ZJ "lancet")) or ((ZJ "jama journal of the american medical association")) or ((ZJ "lancet oncology")) or ((ZJ "journal of clinical oncology")) or ((ZJ "bmj british medical journal international edition")) or ((ZJ "journal of the american college of cardiology jacc"))) or ((ZJ "circulation"))) or ((ZJ "annals of internal medicine")) or ((ZJ "jama internal medicine"))) AND Limiters - Published Date: 20080101-20181231

Supplementary Methods 5: Pharmacological RCT Search Strategies & Matches

Summary:

Database: PubMed (searched run on November 20th, 2018)

Total (including duplicates): 2815 records

Duplicates: 1054 records

Total (without duplicates): 1761 records to be reviewed

PubMed search strategies for each identified Population from the 48 included EXERCISE papers

1) Exercise trial matching search: ID 33
("Pulmonary Disease, Chronic Obstructive"[Mesh] OR COPD OR "Chronic Obstructive Pulmonary Disease" OR COAD OR "Chronic Obstructive Airway Disease" OR "Chronic Obstructive Lung Disease" OR "Chronic Airflow Obstructions" OR "Chronic Airflow Obstruction" OR ("chronic" AND "obstructive" AND "pulmonary" AND "disease")) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("Ann Intern Med"[Journal]) **Results:** 3 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000073/public/ **Pharma trial match:** Found in original search – Lapperre et al. (2009)
2) Exercise trial matching search: ID 51
(cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant OR "hematooncological" OR "hemato oncological" OR "hemato-oncological" OR hematologic neoplasms OR hematolo*) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("BMJ"[Journal]) **Results:** 14 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000123/public/ **Pharma trial match:** Found in original search from an alternate record (#36) – Rimawi et al. (2018)
3) Exercise trial matching search: ID 96
(("peripheral arterial disease"[MeSH Terms] OR ("peripheral" AND ("arterial" OR "artery" OR "arteries") AND "disease") OR "peripheral arterial disease") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal]) **Results:** 3 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000170/public/ **Pharma trial match:** Found in original search from an alternate record (#31) – Ford et al. (2014)
4) Exercise trial matching search: ID 103
("Heart Failure"[Mesh] OR "heart failure" OR "Cardiac Failure" OR "Heart Decompensation" OR (("heart" OR "cardiac") AND ("failure" OR "decompensation"))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR

Supplementary Methods 5: Pharmacological RCT Search Strategies & Matches

"pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal]) **Results:** 29 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000252/public/ **Pharma trial match:** Found in original search – Gheorghiade et al. (2013)
5) Exercise trial matching search: ID 107
(("Breast Cancer Lymphedema"[Mesh] OR (("lymphedema" OR "lymphedemas") AND ("Breast Neoplasms"[Mesh] OR (("breast" OR "breasts" OR "mammary") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("N Engl J Med"[Journal]) **Results:** NONE – check how match found **Pharma trial match:** Found in original search from an alternate record (#35) – Wapnir et al. (2018)
6) Exercise trial matching search: ID 133
(("Diabetes Mellitus, Type 2"[Mesh] OR "NIDDM" OR "type 2 diabetes mellitus" OR "diabetes mellitus type 2") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal]) **Results:** 18 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000319/public/ **Pharma trial match:** Found in manual search – Nissen et al. (2008)
7) Exercise trial matching search: ID 180
("Breast Neoplasms"[Mesh] OR (("breast" OR "breasts" OR "mammary") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant)) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("N Engl J Med"[Journal]) **Results:** 6 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000333/public/ **Pharma trial match:** Found in original search from an alternate record (#35) – Hurvitz et al. (2013)
8) Exercise trial matching search: ID 282
(("Obesity"[Mesh]OR "obesity" OR "obese") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("N Engl J Med"[Journal]) **Results:** 14 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000364/public/ **Pharma trial match:** Found in manual search – Smith et al. (2010)
9) Exercise trial matching search: ID 394

Supplementary Methods 5: Pharmacological RCT Search Strategies & Matches

("Mental Disorders"[Mesh] OR ((mental* OR psycholog* OR brain OR mind) AND ("disorder" OR "disorders" OR "illness" OR "ill" OR "disease" OR "diseases"))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("N Engl J Med"[Journal])

Results: 79 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000661/public/

Pharma trial match: Found in original search – Rosenheck et al. (2011)

10) Exercise trial matching search: ID 431

(((((((("Obesity"[Mesh] OR "obesity" OR "obese" OR "Overweight"[Mesh] OR "overweight" OR "Weight Loss"[MeSH Terms] OR "Body Mass Index"[MeSH Terms])))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre"))) AND (("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))))) AND (((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh]))))) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]))) AND ("CA Cancer J Clin"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal] OR "JAMA"[Journal] OR "Nat Biotechnol"[Journal] OR "Nature"[Journal] OR "Science"[Journal] OR "Lancet Oncol"[Journal] OR "Cell"[Journal] OR "Nat Med"[Journal] OR "Nat Genet"[Journal] OR "Cancer Cell"[Journal] OR "World Psychiatry"[Journal] OR "Lancet Neurol"[Journal] OR "Nat Chem"[Journal] OR "J Clin Oncol"[Journal] OR "Cell Stem Cell"[Journal] OR "Immunity"[Journal] OR "Nat Immunol"[Journal] OR "BMJ"[Journal] OR "Eur Heart J"[Journal] OR "Nat Cell Biol"[Journal] OR "Cancer Discov"[Journal] OR "J Am Coll Cardiol"[Journal] OR "Lancet Infect Dis"[Journal] OR "Lancet Diabetes Endocrinol"[Journal] OR "Circulation"[Journal] OR "Lancet Respir Med"[Journal] OR "Gastroenterology"[Journal] OR "Cell Metab"[Journal] OR "Nat Neurosci"[Journal] OR "Lancet Glob Health"[Journal] OR "Ann Intern Med"[Journal] OR "Psychol Bull"[Journal] OR "Sci Transl Med"[Journal] OR "Gut"[Journal] OR "Trends Biochem Sci"[Journal] OR "JAMA Oncol"[Journal] OR "JAMA Intern Med"[Journal] OR "Psychol Inq"[Journal] OR "Eur Urol"[Journal] OR "Cell Res"[Journal] OR "Trends Cogn Sci"[Journal] OR "JAMA Psychiatry"[Journal] OR "Nat Chem Biol"[Journal])

Results: 187 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57349993/public/

Pharma trial match: Found in original search – Spitzer et al. (2012)

11) Exercise trial matching search: ID 528

("Aged"[Mesh] OR (("aged" OR "elderly" OR "older") AND ("adult" OR "adults"))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal])

Results: 310 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000777/public/

Pharma trial match: Found in manual search – Devereux et al. (2018)

12) Exercise trial matching search: ID 585

("peripheral arterial disease"[MeSH Terms] OR ("peripheral" AND ("arterial" OR "artery" OR "arteries") AND "disease") OR "peripheral arterial disease") AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal])

Results: 3 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000794/public/

Pharma trial match: Found in original search – Poole et al. (2013)

13) Exercise trial matching search: ID 631

(("Obesity"[Mesh]OR "obesity" OR "obese") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR

controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("Ann Intern Med"[Journal])

Results: 9 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000827/public/

Pharma trial match: Found in manual search – Kim et al. (2018)

14) Exercise trial matching search: ID 709

NOTE - Originally considered this strategy:

((("Obesity"[Mesh]OR "obesity" OR "obese") AND ("Heart Failure"[Mesh] OR "heart failure" OR "Cardiac Failure" OR "Heart Decompensation" OR (("heart" OR "cardiac") AND ("failure" OR "decompensation")) AND ("Preserved Ejection Fraction" OR ("Preserved" AND "Ejection" AND "Fraction"))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal])

However - including the "Obesity" concept led to NO results, so removed it

Final search strategy used:

((("Heart Failure"[Mesh] OR "heart failure" OR "Cardiac Failure" OR "Heart Decompensation") OR (("heart" OR "cardiac") AND ("failure" OR "decompensation"))) AND (("Preserved Ejection Fraction") OR ("Preserved" AND "Ejection" AND "Fraction")) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal])

Results: 3 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55000925/public/

Pharma trial match: Found in original search from an alternate record (#27) – Gheorghiade et al. (2008)

15) Exercise trial matching search: ID 822

(("peripheral arterial disease"[MeSH Terms] OR ("peripheral" AND ("arterial" OR "artery" OR "arteries") AND "disease") OR "peripheral arterial disease") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal])

Results: 3 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/55001534/public/

Pharma trial match: Found in manual search – Pradhan et al. (2009)

16) Exercise trial matching search: ID 842

(("Cardiomyopathy, Hypertrophic"[Mesh] OR "Hypertrophic Cardiomyopathies" OR "Hypertrophic Cardiomyopathy" OR ("hypertrophic" AND "cardiomyopathy")) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("Ann Intern Med"[Journal] OR "BMJ"[Journal] OR "JAMA"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal]) AND ("JAMA"[Journal])

Results: NONE

Pharma trial match: Found in original search from an alternate record (#1184) – Kosmala et al. (2016)

17) Exercise trial matching search: ID 856

Supplementary Methods 5: Pharmacological RCT Search Strategies & Matches

(((((((("Obesity"[Mesh] OR "obesity" OR "obese" OR "Overweight"[Mesh] OR "overweight" OR "Weight Loss"[MeSH Terms] OR "Body Mass Index"[MeSH Terms])))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre"))) AND (("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations")))))) AND (((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])))) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]))) AND ("CA Cancer J Clin"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal] OR "JAMA"[Journal] OR "Nat Biotechnol"[Journal] OR "Nature"[Journal] OR "Science"[Journal] OR "Lancet Oncol"[Journal] OR "Cell"[Journal] OR "Nat Med"[Journal] OR "Nat Genet"[Journal] OR "Cancer Cell"[Journal] OR "World Psychiatry"[Journal] OR "Lancet Neurol"[Journal] OR "Nat Chem"[Journal] OR "J Clin Oncol"[Journal] OR "Cell Stem Cell"[Journal] OR "Immunity"[Journal] OR "Nat Immunol"[Journal] OR "BMJ"[Journal] OR "Eur Heart J"[Journal] OR "Nat Cell Biol"[Journal] OR "Cancer Discov"[Journal] OR "J Am Coll Cardiol"[Journal] OR "Lancet Infect Dis"[Journal] OR "Lancet Diabetes Endocrinol"[Journal] OR "Circulation"[Journal] OR "Lancet Respir Med"[Journal] OR "Gastroenterology"[Journal] OR "Cell Metab"[Journal] OR "Nat Neurosci"[Journal] OR "Lancet Glob Health"[Journal] OR "Ann Intern Med"[Journal] OR "Psychol Bull"[Journal] OR "Sci Transl Med"[Journal] OR "Gut"[Journal] OR "Trends Biochem Sci"[Journal] OR "JAMA Oncol"[Journal] OR "JAMA Intern Med"[Journal] OR "Psychol Inq"[Journal] OR "Eur Urol"[Journal] OR "Cell Res"[Journal] OR "Trends Cogn Sci"[Journal] OR "JAMA Psychiatry"[Journal] OR "Nat Chem Biol"[Journal])

Results: 187 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57349993/public/

Pharma trial match: Found in manual search – Grudell et al. (2008)

18) Exercise trial matching search: ID 892

(("Heart Failure"[Mesh] OR "heart failure" OR "Cardiac Failure" OR "Heart Decompensation" OR (("heart" OR "cardiac") AND ("failure" OR "decompensation"))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (Eur Heart J[Journal])

Results: 87 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57137958/public/

Pharma trial match: Found in original search – Hoendermis et al. (2015)

19) Exercise trial matching search: ID 901

(("hypertension, pulmonary"[MeSH Terms] OR ("hypertension" AND "pulmonary") OR "pulmonary hypertension") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (Eur Heart J[Journal])

Results: 6 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138124/public/

Pharma trial match: Found in original search – Ulrich et al. (2015)

20) Exercise trial matching search: ID 927

("heart failure"[MeSH Terms] OR "heart failure" OR "Heart Decompensation" OR (("heart" OR "cardiac") AND ("failure" OR "decompensation"))) AND (("ejection fraction" OR "Ventricular Dysfunction"[Mesh] OR ("ejection" AND "fraction") OR ("ventricular" AND "dysfunction"))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (Eur Heart J[Journal])

Results: 33 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138774/public/

Pharma trial match: Found in original search – Frustaci et al. (2009)

21) Exercise trial matching search: ID 942

((((("transposition of great arteries" OR "Ventricular Dysfunction, Right"[Mesh] OR "Right Ventricular Dysfunction" OR "Right Ventricular Dysfunctions" OR ("Right" AND "Ventricular" AND ("systemic" OR "Dysfunction")) OR "systemic right ventricle" OR (("systemic" or dysfunction*) AND ("right ventricle" OR "right ventricles" OR "heart ventricles"[MeSH Terms] OR "heart ventricles" OR "heart ventricle"))))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND (("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR

Supplementary Methods 5: Pharmacological RCT Search Strategies & Matches

"therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))))) AND (((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh]))))) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) **Results:** 85 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57350826/public/ **Pharma trial match:** Found in revised search – van der Bom et al. (2013)
22) Exercise trial matching search: ID 948
("Prostatic Neoplasms"[Mesh] OR (("prostate" OR "prostatic") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (Eur Urol[Journal]) **Results:** 45 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138696/public/ **Pharma trial match:** Found in original search from an alternate record (#23) – Irani et al. (2008)
23) Exercise trial matching search: ID 952
("Prostatic Neoplasms"[Mesh] OR (("prostate" OR "prostatic") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (Eur Urol[Journal]) **Results:** 141 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138441/public/ **Pharma trial match:** Found in original search from an alternate record (#22) – Yoshimura et al. (2016)
24) Exercise trial matching search: ID 962
("Prostatic Neoplasms"[Mesh] OR (("prostate" OR "prostatic") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (Eur Urol[Journal]) **Results:** 45 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138696/public/ **Pharma trial match:** Found in original search – Klotz et al. (2013)
25) Exercise trial matching search: ID 1164
(((((((((("non-alcoholic fatty liver disease"[MeSH Terms] OR "Fatty Liver"[Mesh] OR "fatty liver" OR ("fatty" AND "liver") OR "steatosis" OR "steatoses" OR "Steatohepatitis" OR (("non-alcoholic" OR "nonalcoholic") AND "fatty" AND "liver" AND "disease") OR "non-alcoholic fatty liver disease" OR "NAFLD" OR "nonalcoholic fatty liver disease" OR "non-alcoholic steatohepatitis" OR "nonalcoholic steatohepatitis" OR "NASH" OR ((fatty AND (liver* OR hepat*)) OR steatohepat* OR NAFL* OR NASH*)))) NOT (("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")))) AND (("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))))) AND (((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh]))))) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT])))) AND ((("CA Cancer J Clin"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal] OR "JAMA"[Journal] OR "Nat Biotechnol"[Journal] OR "Nature"[Journal] OR "Science"[Journal] OR "Lancet Oncol"[Journal] OR "Cell"[Journal] OR "Nat Med"[Journal] OR "Nat Genet"[Journal] OR "Cancer Cell"[Journal] OR "World Psychiatry"[Journal] OR "Lancet Neurol"[Journal] OR "Nat Chem"[Journal] OR "J Clin Oncol"[Journal] OR "Cell Stem Cell"[Journal] OR "Immunity"[Journal] OR "Nat Immunol"[Journal] OR "BMJ"[Journal] OR "Eur Heart J"[Journal] OR "Nat Cell Biol"[Journal] OR "Cancer Discov"[Journal] OR "J Am Coll Cardiol"[Journal] OR "Lancet Infect Dis"[Journal] OR "Lancet Diabetes Endocrinol"[Journal] OR "Circulation"[Journal] OR "Lancet Respir Med"[Journal] OR "Gastroenterology"[Journal] OR "Cell Metab"[Journal] OR "Nat Neurosci"[Journal] OR "Lancet Glob Health"[Journal] OR "Ann Intern Med"[Journal] OR "Psychol Bull"[Journal] OR "Sci Transl Med"[Journal] OR "Gut"[Journal] OR "Trends Biochem Sci"[Journal] OR "JAMA Oncol"[Journal] OR "JAMA Intern Med"[Journal] OR "Psychol Inq"[Journal] OR "Eur Urol"[Journal] OR "Cell Res"[Journal] OR "Trends Cogn Sci"[Journal] OR "JAMA Psychiatry"[Journal] OR "Nat Chem Biol"[Journal]))

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Results: 123 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57351095/public/

Pharma trial match: Found in revised search – Ratziu et al. (2008)

26) Exercise trial matching search: ID 1183

(("cardiomyopathy, dilated"[MeSH Terms] OR (("cardiomyopathy" OR "cardiomyopathies") AND ("dilated" OR "familial idiopathic" OR "Congestive")) OR "dilated cardiomyopathy" OR "dilated cardiomyopathies") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Am Coll Cardiol[Journal])

Results: 2 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140665/public/

Pharma trial match: Found in original search from an alternate record (#18) – Hamshere et al. (2015)

27) Exercise trial matching search: ID 1184

(("heart failure"[MeSH Terms] OR "heart failure" OR ("chronic" AND "heart" AND "failure") OR "chronic heart failure" OR "Cardiac Failure" OR "Heart Decompensation" OR (("heart" OR "cardiac") AND ("failure" OR "decompensation"))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Am Coll Cardiol[Journal])

Results: 117 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138880/public/

Pharma trial match: Found in manual search – Goebel et al. (2017)

28) Exercise trial matching search: ID 1198

((("heart failure"[MeSH Terms] OR "heart failure" OR "Heart Decompensation" OR (("heart" OR "cardiac") AND ("failure" OR "decompensation"))) AND ("ejection fraction" OR "Ventricular Dysfunction"[Mesh] OR ("ejection" AND "fraction") OR ("ventricular" AND "dysfunction"))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Am Coll Cardiol[Journal])

Results: 44 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57139980/public/

Pharma trial match: Found in original search – Kosmala et al. (2013)

29) Exercise trial matching search: ID 1218

(("T2DM" OR "Diabetes Mellitus, Type 2"[Mesh] OR "NIDDM" OR "type 2 diabetes mellitus" OR "diabetes mellitus type 2" OR "diabetes") AND ("Ventricular Dysfunction"[Mesh] OR "diastolic dysfunction" OR ("diastolic" AND "dysfunction") OR "diastolic")) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Am Coll Cardiol[Journal])

Results: 1 record – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57139674/public/

Pharma trial match: Found in original search from an alternate record (#27) – Han et al. (2014)

30) Exercise trial matching search: ID 1232

((("heart failure"[MeSH Terms] OR "heart failure" OR "Heart Decompensation" OR (("heart" OR "cardiac") AND ("failure" OR "decompensation"))) AND ("ejection fraction" OR "Ventricular Dysfunction"[Mesh] OR ("ejection" AND "fraction") OR ("ventricular" AND "dysfunction"))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND

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((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Am Coll Cardiol[Journal]) **Results:** 44 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57139980/public/ **Pharma trial match:** Found in original search from an alternate record (#27) – Caminiti et al. (2009)
31) Exercise trial matching search: ID 1251
("peripheral arterial disease"[MeSH Terms] OR ("peripheral" AND ("arterial" OR "artery" OR "arteries") AND "disease") OR "peripheral arterial disease") AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Am Coll Cardiol[Journal]) **Results:** 14 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140267/public/ **Pharma trial match:** Found in manual search – Krankenberg et al. (2015)
32) Exercise trial matching search: ID 1256
(("Cardiac Resynchronization" OR ("Cardiac" AND "Resynchronization") OR "Resynchronization Pacing" OR "Biventricular Pacing" OR (("Resynchronization" OR "Biventricular" OR "Atrio-Biventricular") AND ("Pacing")) OR "Cardiac Resynchronization Therapy"[Mesh] OR "Cardiac Resynchronization Therapy Devices"[Mesh]) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Am Coll Cardiol[Journal]) **Results:** 3 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140355/public/ **Pharma trial match:** Found in manual search – Tsujita et al. (2015)
33) Exercise trial matching search: ID 1292
(("Postmenopause"[Mesh] OR "Postmenopause" OR "Post-menopause" OR "Postmenopausal" OR "Post-menopausal" OR "Postmenopauses" OR "Post-menopauses") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 42 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138370/public/ **Pharma trial match:** Found in original search – Ellis et al. (2011)
34) Exercise trial matching search: ID 1296
(("lymphoma"[MeSH Terms] OR "lymphoma" OR "lymphomas") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 96 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140430/public/ **Pharma trial match:** Found in original search – Cortelazzo et al. (2016)
35) Exercise trial matching search: ID 1298
(("Breast Neoplasms"[Mesh] OR ("breast" OR "breasts" OR "mammary") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR

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"pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 242 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57139370/public/ **Pharma trial match:** Found in revised search – Greenspan et al. (2008)
36) Exercise trial matching search: ID 1299
("Breast Neoplasms"[Mesh] OR (("breast" OR "breasts" OR "mammary") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 179 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140047/public/ **Pharma trial match:** Found in original search – Urruticoechea et al. (2017)
37) Exercise trial matching search: ID 1301
("Postmenopause"[Mesh] OR "Postmenopause" OR "Post-menopause" OR "Postmenopausal" OR "Post-menopausal" OR "Postmenopauses" OR "Post-menopauses") AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 49 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138311/public/ **Pharma trial match:** Found in original search from an alternate record (#35) – Johnston et al. (2018)
38) Exercise trial matching search: ID 1303
("Prostatic Neoplasms"[Mesh] OR (("prostate" OR "prostatic") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 85 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138499/public/ **Pharma trial match:** Found in original search – Taplin et al. (2014)
39) Exercise trial matching search: ID 1310
(("Breast Neoplasms"[Mesh] OR (("breast" OR "breasts" OR "mammary") AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 242 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57139370/public/ **Pharma trial match:** Found in original search – Yardley et al. (2013)
40) Exercise trial matching search: ID 1314

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(("Breast Neoplasms"[Mesh] OR ((“breast” OR “breasts” OR “mammary”) AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR “drug therapy” OR “therapeutic use” OR “pharmacotherapy” OR “pharmacotherapies” OR “chemotherapy” OR “chemotherapies” OR “medication” OR “medications” OR ((“drug” OR “pharmacologic” OR “pharmacological” OR “prescription” OR “pharmaceutical”) AND (“therapy” OR “therapies” OR “treatment” OR “treatments” OR “intervention” OR “interventions” OR “drug” OR “drugs” OR “preparation” OR “preparations”))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 242 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57139370/public/ **Pharma trial match:** Found in original search – Schmid et al. (2016)
41) Exercise trial matching search: ID 1320
(("Postmenopause"[Mesh] OR "Postmenopause" OR "Post-menopause" OR "Postmenopausal" OR "Post-menopausal" OR "Postmenopauses" OR "Post-menopauses") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR “drug therapy” OR “therapeutic use” OR “pharmacotherapy” OR “pharmacotherapies” OR “chemotherapy” OR “chemotherapies” OR “medication” OR “medications” OR ((“drug” OR “pharmacologic” OR “pharmacological” OR “prescription” OR “pharmaceutical”) AND (“therapy” OR “therapies” OR “treatment” OR “treatments” OR “intervention” OR “interventions” OR “drug” OR “drugs” OR “preparation” OR “preparations”))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 42 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138370/public/ **Pharma trial match:** Found in original search – Loprinzi et al. (2010)
42) Exercise trial matching search: ID 1328
("Prostatic Neoplasms"[Mesh] OR ((“prostate” OR “prostatic”) AND (cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant))) NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR “drug therapy” OR “therapeutic use” OR “pharmacotherapy” OR “pharmacotherapies” OR “chemotherapy” OR “chemotherapies” OR “medication” OR “medications” OR ((“drug” OR “pharmacologic” OR “pharmacological” OR “prescription” OR “pharmaceutical”) AND (“therapy” OR “therapies” OR “treatment” OR “treatments” OR “intervention” OR “interventions” OR “drug” OR “drugs” OR “preparation” OR “preparations”))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 85 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138499/public/ **Pharma trial match:** Found in original search from an alternate record (#38) – McKay et al. (2016)
43) Exercise trial matching search: ID 1332
(cancer OR cancers OR cancerous OR oncology OR oncolog* OR neoplasm OR neoplasms OR neoplasm* OR carcinoma OR carcinom* OR tumor OR tumour OR tumors OR tumours OR malignan* OR malignant OR "hematooncological" OR "hemato oncological" OR "hemato-oncological" OR hematologic neoplasms OR hematolo*) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR “drug therapy” OR “therapeutic use” OR “pharmacotherapy” OR “pharmacotherapies” OR “chemotherapy” OR “chemotherapies” OR “medication” OR “medications” OR ((“drug” OR “pharmacologic” OR “pharmacological” OR “prescription” OR “pharmaceutical”) AND (“therapy” OR “therapies” OR “treatment” OR “treatments” OR “intervention” OR “interventions” OR “drug” OR “drugs” OR “preparation” OR “preparations”))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (J Clin Oncol[Journal]) **Results:** 853 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140190/public/ **Pharma trial match:** Found in original search – Soiffer et al. (2017)
44) Exercise trial matching search: ID 1385
(("peripheral arterial disease"[MeSH Terms] OR ("peripheral" AND ("arterial" OR “artery” OR “arteries”) AND "disease") OR "peripheral arterial disease") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR “drug therapy” OR “therapeutic use” OR “pharmacotherapy” OR “pharmacotherapies” OR “chemotherapy” OR “chemotherapies” OR “medication” OR “medications” OR ((“drug” OR “pharmacologic” OR “pharmacological” OR “prescription” OR “pharmaceutical”) AND (“therapy” OR “therapies” OR “treatment” OR “treatments” OR “intervention” OR “interventions” OR “drug” OR “drugs” OR “preparation” OR “preparations”))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("JAMA"[Journal]) **Results:** 3 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138957/public/

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Pharma trial match: Found in manual search – Ahmed et al. (2008)

45) Exercise trial matching search: ID 1599

("Alzheimer Disease"[Mesh] OR "Alzheimer Disease" OR "Alzheimer's Disease" OR ("alzheimer's" AND "disease") OR ("alzheimer" AND "disease")) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (JAMA Intern Med[Journal])

Results: 0 records

NOTE: Since this string let to zero results, changed journal title limit to JAMA:

(alzheimer* OR "Alzheimer Disease"[Mesh] OR "Alzheimer Disease" OR "Alzheimer's Disease" OR ("alzheimer's" AND "disease") OR ("alzheimer" AND "disease")) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (JAMA [Journal])

Results: 10 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140943/public/

Pharma trial match: Found in original search – Cummings et al. (2015)

46) Exercise trial matching search: ID 1610

(("non-alcoholic fatty liver disease"[MeSH Terms] OR "Fatty Liver"[Mesh] OR "fatty liver" OR ("fatty" AND "liver") OR "steatosis" OR "steatoses" OR "Steatohepatitis" OR (("non-alcoholic" OR "nonalcoholic") AND "fatty" AND "liver" AND "disease") OR "non-alcoholic fatty liver disease" OR "NAFLD" OR "nonalcoholic fatty liver disease") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (JAMA Intern Med[Journal])

Result: 1 record – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140841/public/

NOTE: Also tried changing the journal title to JAMA…see below:

(("non-alcoholic fatty liver disease"[MeSH Terms] OR "Fatty Liver"[Mesh] OR "fatty liver" OR ("fatty" AND "liver") OR "steatosis" OR "steatoses" OR "Steatohepatitis" OR (("non-alcoholic" OR "nonalcoholic") AND "fatty" AND "liver" AND "disease") OR "non-alcoholic fatty liver disease" OR "NAFLD" OR "nonalcoholic fatty liver disease") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (JAMA[Journal])

Result: 2 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57140782/public/

Revised search:

(((((((((("non-alcoholic fatty liver disease"[MeSH Terms] OR "Fatty Liver"[Mesh] OR "fatty liver" OR ("fatty" AND "liver") OR "steatosis" OR "steatoses" OR "Steatohepatitis" OR (("non-alcoholic" OR "nonalcoholic") AND "fatty" AND "liver" AND "disease") OR "non-alcoholic fatty liver disease" OR "NAFLD" OR "nonalcoholic fatty liver disease" OR "non-alcoholic steatohepatitis" OR "nonalcoholic steatohepatitis" OR "NASH" OR ((fatty AND (liver* OR hepat*)) OR steatohepat* OR NAFL* OR NASH*)))) NOT (("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")))) AND (("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))))) AND (((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh]))))) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]))) AND ((("CA Cancer J Clin"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal] OR "JAMA"[Journal] OR "Nat Biotechnol"[Journal] OR "Nature"[Journal] OR "Science"[Journal] OR "Lancet Oncol"[Journal] OR "Cell"[Journal] OR "Nat Med"[Journal] OR "Nat Genet"[Journal] OR "Cancer Cell"[Journal] OR "World Psychiatry"[Journal] OR "Lancet Neurol"[Journal] OR "Nat Chem"[Journal] OR "J Clin Oncol"[Journal] OR "Cell Stem Cell"[Journal] OR "Immunity"[Journal] OR "Nat Immunol"[Journal] OR "BMJ"[Journal] OR "Eur Heart J"[Journal] OR "Nat Cell Biol"[Journal] OR "Cancer Discov"[Journal] OR "J Am Coll Cardiol"[Journal] OR "Lancet Infect Dis"[Journal] OR "Lancet Diabetes Endocrinol"[Journal] OR "Circulation"[Journal] OR "Lancet Respir Med"[Journal] OR "Gastroenterology"[Journal] OR "Cell Metab"[Journal] OR "Nat Neurosci"[Journal] OR "Lancet Glob Health"[Journal] OR "Ann Intern Med"[Journal] OR "Psychol Bull"[Journal] OR "Sci Transl Med"[Journal] OR "Gut"[Journal] OR "Trends Biochem Sci"[Journal] OR "JAMA Oncol"[Journal] OR "JAMA Intern Med"[Journal] OR "Psychol Inq"[Journal] OR "Eur Urol"[Journal] OR "Cell Res"[Journal] OR "Trends Cogn Sci"[Journal] OR "JAMA Psychiatry"[Journal] OR "Nat Chem Biol"[Journal])))

Supplementary Methods 5: Pharmacological RCT Search Strategies & Matches

Results: 123 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57351095/public/

Pharma trial match: Found in revised search – Cusi et al. (2016)

47) Exercise trial matching search: ID 1691

("Postmenopause"[Mesh] OR "Postmenopause" OR "Post-menopause" OR "Postmenopausal" OR "Post-menopausal" OR "Postmenopauses" OR "Post-menopauses") AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre") AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND (JAMA Oncol[Journal])

Results: 4 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57138206/public/

Revised search

(((((((("Postmenopause"[Mesh] OR Postmenopaus* OR "Post-menopause" OR "Post-menopausal" OR "Post-menopauses" OR (("Menopause"[Mesh] OR menopaus*) AND (post OR after OR following))))) AND ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND (("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))))) AND (((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh]))))) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]))) AND (("CA Cancer J Clin"[Journal] OR "N Engl J Med"[Journal] OR "Lancet"[Journal] OR "JAMA"[Journal] OR "Nat Biotechnol"[Journal] OR "Nature"[Journal] OR "Science"[Journal] OR "Lancet Oncol"[Journal] OR "Cell"[Journal] OR "Nat Med"[Journal] OR "Nat Genet"[Journal] OR "Cancer Cell"[Journal] OR "World Psychiatry"[Journal] OR "Lancet Neurol"[Journal] OR "Nat Chem"[Journal] OR "J Clin Oncol"[Journal] OR "Cell Stem Cell"[Journal] OR "Immunity"[Journal] OR "Nat Immunol"[Journal] OR "BMJ"[Journal] OR "Eur Heart J"[Journal] OR "Nat Cell Biol"[Journal] OR "Cancer Discov"[Journal] OR "J Am Coll Cardiol"[Journal] OR "Lancet Infect Dis"[Journal] OR "Lancet Diabetes Endocrinol"[Journal] OR "Circulation"[Journal] OR "Lancet Respir Med"[Journal] OR "Gastroenterology"[Journal] OR "Cell Metab"[Journal] OR "Nat Neurosci"[Journal] OR "Lancet Glob Health"[Journal] OR "Ann Intern Med"[Journal] OR "Psychol Bull"[Journal] OR "Sci Transl Med"[Journal] OR "Gut"[Journal] OR "Trends Biochem Sci"[Journal] OR "JAMA Oncol"[Journal] OR "JAMA Intern Med"[Journal] OR "Psychol Inq"[Journal] OR "Eur Urol"[Journal] OR "Cell Res"[Journal] OR "Trends Cogn Sci"[Journal] OR "JAMA Psychiatry"[Journal] OR "Nat Chem Biol"[Journal]))

Results: 139 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57350758/public/

Pharma trial match: Found in revised search – Harman et al. (2014)

48) Exercise trial matching search: ID 2837

(("diabetes mellitus"[MeSH Terms] OR ("diabetes" AND "mellitus") OR "diabetes mellitus" OR "diabetes" OR "diabetic" OR "diabetics") NOT ("Multicenter Study" [Publication Type] OR "Multicenter Studies as Topic"[Mesh] OR "multicenter" OR "multi-center" OR "multicentre" OR "multi-centre")) AND ("Drug Therapy"[Mesh] OR "drug therapy" [Subheading] OR "therapeutic use" [Subheading] OR "Pharmaceutical Preparations"[Mesh] OR "drug therapy" OR "therapeutic use" OR "pharmacotherapy" OR "pharmacotherapies" OR "chemotherapy" OR "chemotherapies" OR "medication" OR "medications" OR (("drug" OR "pharmacologic" OR "pharmacological" OR "prescription" OR "pharmaceutical") AND ("therapy" OR "therapies" OR "treatment" OR "treatments" OR "intervention" OR "interventions" OR "drug" OR "drugs" OR "preparation" OR "preparations"))) AND ((randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR clinical trials as topic[mesh:noexp] OR randomly[tiab] OR trial[ti]) NOT (animals[mh] NOT humans [mh])) AND ("2008/01/01"[PDAT] : "2018/12/31"[PDAT]) AND ("JAMA"[Journal])

Results: 51 records – https://www.ncbi.nlm.nih.gov/sites/myncbi/1TwR_tlOrYmkO/collections/57139460/public/

Pharma trial match: Found in original search from an alternate record (#11) – Wysham et al. (2017)

Supplementary Methods 6: Data Extraction Reference Guide – Exercise RCTs

Data Extraction Reference Guide – Exercise RCTs

Memorial Sloan Kettering Cancer Center™

EXTRACTION ABBREVIATIONS

- %: percent
- 1-RM: 1 repetition maximum (strength test)
- AET: Aerobic exercise training
- BL: baseline
- BMI: body mass index
- bpm: heart beats per minute
- d: days
- EX: exercise
- FU: follow-up
- HR: heart rate
- HRR: heart rate reserve
- hr/hrs: hour/hours
- Man: manuscript
- MAX: maximum
- MIN: minimum
- mins: minutes
- mo: months
- PA: physical activity
- Reg: registry
- RET: Resistance exercise training
- RPE: rate of perceived exertion (self-reported exercise intensity)
- sec: seconds
- UC: usual care/control
- VO_{2peak}: peak aerobic exercise capacity
- wk/wks: week/weeks
- yrs: years

GENERAL NOMENCLATURE & EXTRACTION GUIDELINES

Nomenclature Guidelines

- Ranges:
  - Use 'to' and not '-' (e.g., 150 bpm to 175 bpm)
- Units:
  - List all units of measure including percentages
- Significant figures:
  - Raw values / averages → round to the nearest 0.1
  - Percentages → round to the nearest whole number
- Averages:
  - Mean value is preferred and assumed
  - Only list median values if mean are not reported
    - If listing median values, please label appropriately
- Lists:
  - Be succinct → only include pertinent details and use bullet form with semicolon separated values

- List details in the same order as it is presented in the manuscript
- *Examples*:
  - Inclusion/exclusion criteria: e.g., 40 to 65 yrs; BMI<40; sedentary
  - Primary/secondary outcomes: e.g., resting HR; body weight; PA mins/wk

Extraction Guidelines

- Multiple intervention arms
  - Base group numbering on layout of flow diagram (e.g., AET 1 = left-most group; AET 2 = group immediately to the right, etc.)
- In the case of discrepancies between data sources:
  - Prioritize the data provided in the primary manuscript.
  - Report both sets of numbers (e.g., Man: ##; Reg: ##)

ARTICLE INCLUSION/EXCLUSION

- **Should this article be included in our systematic review?**
  - **Yes** → Does not meet any exclusion criteria.
  - **No** → Meets one or more exclusion criteria.

DATA SOURCES

- **Data Sources:**
  - Please list all sources of information included in this extraction.
  - **Options:**
    - Primary manuscript
    - Online supplement
    - Protocol paper
    - Clinical trial registry
    - Clinical trial protocol
    - Other

- **If Other, please list.**

PUBLICATION INFORMATION

- **Country of publication?**
  - Please provide the full name of the country where the study was conducted/where the primary author is based

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Supplementary Methods 6: Data Extraction Reference Guide – Exercise RCTs

TITLE, ABSTRACT & INTRODUCTION

- **CONSORT (1a) – Identification as a randomized trial in the title.**
  - **Options:**
    - **Yes** → Either randomized controlled trial; randomized trial; randomized
    - **No** → Not mentioned

- **CONSORT (1b) – Structured summary of trial design, methods, results, and conclusions.**
  - **Options:**
    - **Yes** → Introduction/Background + Methods + Results + Discussion/Conclusion
    - **No** → Not properly structured

- **CONSORT (2a) – Scientific background and explanation of rationale.**
  - **Options:**
    - **Yes** → Reviews relevant literature ***AND*** identifies a knowledge gap/question
    - **No** → Did not adequately review the literature and/or identify the knowledge gap/question the study attempted to address

- **CONSORT (2b) – Specific objectives or hypothesis.**
  - **Options:**
    - **Yes** (*objectives*) → Must provide a specific purpose/objective for study in the context of the intervention ***AND*** the specific outcomes of interest

      OR
    - **Yes** (*hypothesis*) → Must provide a specific hypothesis in the context of a group-related change in a specific outcome of interest ***AND*** the expected direction of change
    - **Unclear** → Provided the specific purpose/objective or hypothesis but only 1 of 2 additional required components
    - **No** → Failed to provide either (1) the specific purpose/objective **OR** hypothesis, and/or (2) both additional required components
  - **TIP:**
    - This information is typically reported within final paragraph of the introduction or early in the methods section.

METHODS

- **CONSORT (3ai) – Description of trial design (such as parallel, factorial) including allocation ratio.**
  - **Options:**
    - **Yes** → Must provide both a description of overall study design (e.g., parallel arm, crossover) ***AND*** allocation ratio
    - **Unclear** → Description of study design is provided but ***NOT*** allocation ratio
    - **No** → If missing the study design (even if allocation ratio is provided)
  - **EXAMPLES:**
    - Parallel trials, cross-over trials, factorial trials ***AND*** 1:1, 1:2, 1:1:1

- **CONSORT (4b) – Settings and locations where the data were collected.**
  - **Options:**
    - **Yes** → Provided details of where the data were collected for the trial

- *This includes single-location trials when the authors clearly state the entire trial took place onsite*
- **Unclear** → Specifies that data was collected in a lab/testing room but does not provide the actual location of said room (e.g., at a hospital or university)
- **No** → Details not provided

- **TIP:**
  - This does ***NOT*** include where the recruitment or intervention took place.

- **DETAILS – Population:**
  - List the population being studied
  - **NR** → If not reported

- **DETAILS – Disease setting:**
  - Identify the disease phase [Prevention (P) vs. Management (M)] during which the exercise intervention took place.
  - **NR** → If not reported
  - **NA** → If the intervention was not conducted in the context of a disease

- **CONSORT (3aii) – When applicable, how care providers were allocated to each trial group.**
  - **Options:**
    - **NA** → Only one interventionist involved with study – no allocation strategy required.
    - **Yes** → Must describe how the interventionists were assigned to supervise intervention arms
      - *This applies to all components of the intervention (e.g., AET, RET, counseling)*
    - **Yes** → Authors clearly state that no allocation strategy was used
    - **No** → Fails to report any details
  - **TIP:**
    - These details are seldom reported in exercise-based RCTs.

- **CONSORT (3b) – Important changes to methods after trial commencement (such as eligibility criteria), with reasons.**
  - **Options:**
    - **NA** → The methods did not change
    - **Yes** → Methods changed and reasons were provided
      - *Examples include (but are not limited to): study design, sample size (≥ ± 10%), eligibility criteria, recruitment strategy, randomization, blinding, data analysis, etc.*
    - **Unclear** → It appears that methods may have changed but there is not enough information to make assessment
    - **No** → Methods changed but no reasons were provided
  - **TIPS:**
    - This includes under/over recruitment according to the a priori-defined sample size without adequate justification.
    - Does ***NOT*** include changes to the intervention → that data is captured in the TIDieR inventory
    - Does ***NOT*** include changes in trial outcomes → that data is captured in a separate CONSORT item

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Eligibility Criteria

- **CONSORT (4ai) – Eligibility criteria for participants.**
  - **Options:**
    - **Yes** → Provided details/criteria for ***BOTH*** inclusion ***AND*** exclusion of participants
    - **Unclear** → Only provides details of inclusion ***OR*** exclusion but ***NOT*** both
    - **No** → Details not provided

- **CONSORT (4aii) – When applicable, eligibility criteria for centers and for care providers.**
  - **Options:**
    - **Yes** (*multicenter trials*) → Provided criteria for eligible centers ***AND*** interventionists
    - **Unclear** (*multicenter trials*) → Provided criteria for interventionists but ***NOT*** centers or vice versa
    - **Yes** (*single center trials*) → Provided criteria for interventionists
    - **Yes** → Authors clearly state there were no eligibility criteria for centers and/or care providers
    - **Unclear** (multi and *single center trials*) → Stated professional background and/or study-specific training for interventionists but did not describe them as requirements
    - **No** → Eligibility criteria not specifically stated
  - **TIPS**:
    - Eligibility criteria for centers is applicable for all multi-center trials.
    - Eligibility criteria for care providers is applicable for all trials.
    - This is seldom reported.

Data Comparison: Eligibility Criteria

- **Was there a difference in Eligibility Criteria between the Registry and the Manuscript?**
  - **Options:**
    - **Yes** → One or more differences between the two data sources.
    - **No** → No difference between the two data sources.
    - **Unclear** → Possible difference between the two data sources, but insufficient information to make a determination.
    - **Not Applicable** → No clinical trial registry data available.

- **Was the change noted in the Manuscript?**
  - **Options:**
    - **Yes** → The change in eligibility criteria was clearly stated and explained.
    - **No** → The change in eligibility criteria was apparent but not explained.
    - **Not Applicable** → There was no difference in the eligibility criteria between the Registry and the Manuscript.
    - **Not Applicable** → No clinical trial registry data available.

- **How many Inclusion Criteria were listed in the Registry?**
  - Please record the total number of individual Inclusion Criteria listed in the Registry.

- **DC DETAILS - Please list the Inclusion Criteria reported in the Registry.**
  - Please record each individual Inclusion Criteria listed in the Registry.

- **How many Inclusion Criteria were listed in the Manuscript?**

- Please record the total number of individual Inclusion Criteria listed in the Manuscript.

- **DC DETAILS - Please list the Inclusion Criteria reported in the Manuscript.**
  - Please record each individual Inclusion Criteria listed in the Manuscript.

- **How many Exclusion Criteria were listed in the Registry?**
  - Please record the total number of individual Exclusion Criteria listed in the Registry.

- **DC DETAILS - Please list the Exclusion Criteria reported in the Registry.**
  - Please record each individual Exclusion Criteria listed in the Registry.

- **How many Exclusion Criteria were listed in the Manuscript?**
  - Please record the total number of individual Exclusion Criteria listed in the Manuscript.

- **DC DETAILS - Please list the Exclusion Criteria reported in the Manuscript.**
  - Please record each individual Exclusion Criteria listed in the Manuscript.

Outcome Measures

- **CONSORT (6a) – Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed.**
  - **Options:**
    - **Yes** → Clearly defined a single primary outcome (*co-primary outcomes at max*), all relevant secondary outcomes ***AND*** provide all requisite details of the timing ***AND*** procedures used to assess these outcomes
    - **Unclear** → Primary and secondary outcomes defined but the descriptions of the timing and procedures used to assess the outcomes were lacking details required to reproduce the measurements
    - **No** → If no primary or secondary outcomes are clearly defined ***OR*** if the assessment details (e.g., ***how & when***) were missing altogether
  - **TIPS**:
    - Some studies may identify multiple primary outcomes. Although this type of study design is inappropriate in the context of medical oncology research, we are evaluating the quality of reporting and not the quality of the study design. Therefore, a 'Yes' can be assigned provided the authors clearly identify which outcomes are considered primary and secondary.

- **CONSORT (6b) – Any changes to trial outcomes after the trial commenced, with reasons.**
  - **Options:**
    - **NA** → No observable changes to trial outcomes were made
    - **Yes** → Describes changes in outcomes according to all pertinent features (e.g., what, why & when)
    - **Unclear** → Describes changes according to all but one pertinent feature
    - **No** → If the description is missing or unclear on two or more pertinent features

Data Comparison: Primary Outcome

- **Was there a difference in the Primary Outcome(s) between the Registry and the Manuscript?**
  - **Options:**
    - **Yes** → ≥1 difference between the two data sources.
    - **No** → No difference between the two data sources.
    - **Unclear** → Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** → No clinical trial registry data available.

- **Was the change in Primary Outcome noted in the Manuscript?**
  - **Options:**
    - **Yes** → The change in Primary Outcome was clearly stated and explained.
    - **No** → The change in Primary Outcome was apparent but not explained.
    - **NR** → No clinical trial registry data available.
    - **NA** → No difference (i.e., Q1 = No)

- **Was a new Primary Outcome reported in the Manuscript which was not reported in the Registry?**
  - **Options:**
    - **Yes** → ≥1 Primary Outcome reported in the Manuscript that was not listed in the Registry.
    - **No** → No new Primary Outcome added to the Manuscript.
    - **Unclear** → Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** → No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

- **Was the Primary Outcome reported in the Registry reported as a Secondary Outcome in the Manuscript?**
  - **Options:**
    - **Yes** → ≥1 Primary Outcome reported in the Registry listed as a Secondary Outcome in the Manuscript.
    - **No** → No Primary Outcome from the Registry listed as a Secondary Outcome in the Manuscript.
    - **Unclear** → Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** → No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

- **Was the Primary Outcome reported in the Registry omitted from the Manuscript?**
  - **Options:**
    - **Yes** → The Primary Outcomes reported in the Registry was omitted from the Manuscript.
    - **No** → The Primary Outcome reported in the Registry was included in the Manuscript.
    - **Unclear** → Possible difference between the two data sources, but insufficient information to make a determination.

- **NR** → No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

Data Comparison: Secondary Outcomes

- **Were different (new) Secondary Outcomes reported in the Manuscript which were not reported in the Registry?**
  - **Options:**
    - **Yes** → ≥1 Secondary Outcomes reported in the Manuscript were not reported in the Registry.
    - **No** → The Secondary Outcomes reported in the Manuscript were consistent with the Registry.
    - **Unclear** → Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** → No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

- **If different (new) Secondary Outcomes were added to the Manuscript, were the reasons noted in the Manuscript?**
  - **Options:**
    - **Yes** → The change(s) in Secondary Outcomes were clearly stated and explained
    - **No** → The changes in Secondary Outcomes were apparent but not explained
    - **NR** → No clinical trial registry data available
    - **NA** → No difference in Secondary Outcomes (i.e., Q6 = No)

- **Was one or more of the Secondary Outcomes reported in the Registry reported as Primary Outcomes in the Manuscript?**
  - **Options:**
    - **Yes** → A Secondary Outcome reported in the Registry was reported as a Primary Outcome in the Manuscript.
    - **No** → None of the Secondary Outcomes reported in the Registry were reported as Primary Outcomes in the Manuscript.
    - **Unclear** → Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** → No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

Randomization & Blinding

- **CONSORT (8a) – Method used to generate the random allocation sequence.**
  - **Options:**

- **Yes** → Clearly stated the specific process used to generate the randomization (e.g., a coin flip, computer generated)
- **No** → Not provided

- **CONSORT (8b) – Type of randomization; details of any restriction (such as blocking and block size).**
  - **Options:**
    - **Yes** → Provided the details of how the randomization accounted for key confounding variables (e.g., blocking, minimization, stratification)
    - **No** → Not provided

- **CONSORT (9) – Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned.**
  - **Options:**
    - **Yes** → Provided details of how the physical randomization was performed or how the participants were notified of their allocation (e.g., phone call, sealed envelopes, centralized allocation)
    - **No** → Not provided

- **CONSORT (10) – Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions.**
  - **Options:**
    - **Yes** → Must include a clear description of who performed ***ALL*** of these tasks
    - **Unclear** → If description of one of these tasks is inadequate or missing
    - **No** → If two or more of these tasks are poorly described or not described at all
  - **TIP:**
    - An exception can be made for participant assignment criteria for studies using centralized allocation.

- **CONSORT (11a) – If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how.**
  - **Options:**
    - **Yes** → Details regarding testers ***AND*** data analyzers are provided
    - **Unclear** → If any of the aforementioned details are provided but poorly described
    - **No** → If any of the aforementioned details are missing
  - **TIP:**
    - Remember, we are assessing if the reporting is complete ***NOT*** how good the methods are. Therefore, if authors state that the testers and data analyzers were not blinded, we would consider this good reporting and assign a 'Yes' for this category.

- **CONSORT (11c) – If blinding not possible, description of attempts to limit bias.**
  - **Options:**
    - **NA** → If testers ***AND*** data analyzers were blinded
    - **Yes** → Clearly stated that a specific strategy (e.g., physical or statistical) was employed to help reduce the potential confounding influence of unblinded investigators
      - *Example strategies: Identified strategy 'following standardized procedures' **AND** provided requisite details*
    - **Yes** → Authors stated that no strategy was used limit bias related to lack of blinding
    - **Unclear** → If strategies were identified ***OR*** described for ***ALL*** unblinded personnel but not identified ***AND*** described
    - **No** → If not clearly stated either in the methods, results or discussion

- *Simply listing lack of blinding in the limitations does not count*
- **TIP:**
  - Remember, we are evaluating these studies according to the quality of their reporting and not their methods. We are looking for transparency in methods. As such, it does not matter, per se, if investigators were not blinded – rather, it matters how they report it and how well they report the strategies used to compensate for it.

- **CONSORT (11b) – If relevant, description of the similarity of interventions.**
  - **Options:**
    - **NA** → If it is a 2-arm trial with a non-exercise control group comparison ***OR*** a 3+ -arm trial with obviously different intervention groups (e.g., AET v RET v UC)
    - **Yes** → If details are adequately provided for two or more intervention arms with similar modalities of exercise
    - **No** → If details are not adequately provided for two or more intervention arms with similar modalities of exercise
  - **TIP:**
    - NA is not an option for superiority trials (i.e., exercise trials with only two similar intervention arms)

Intervention Details

- **TIDieR (1) – Provide the name or a phrase that describes the intervention.**
  - **Options:**
    - **Yes** → Provided a phrase to describe the intervention
    - **No** → A clear summary phrase describing the intervention was not provided

- **TIDieR (2) – Describe any rationale, theory, or goal of the elements essential to the intervention.**
  - **Options:**
    - **Yes** → Provides any rationale, theory ***OR*** goal of the elements essential to the intervention
    - **No** → Did not provide at least one of the above

- **INTERVENTION TYPE – Exercise or Pharmaceutical**
  - **Options:**
    - **Exercise** → Stated methods included delivery of a structured exercise program with a stated goal of improving a health/fitness/psychosocial outcome.
    - **Pharmaceutical** → Stated methods included delivery of a pharmaceutical intervention with a stated goal of improving health.

- **TIDieR (4) – Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities.**
  - **Options:**
    - **Yes** → Provides complete details for each of the major intervention procedures, activities, and processes, including enabling or supporting activities
    - **Unclear (*multi-component interventions*)** → If a single component of the intervention is identified but not adequately described (e.g., the aerobic exercise component is well described but the behavioral support component is not)
    - **No** → If the primary component or more than one secondary component of the intervention is (are) not adequately described

- **CONSORT (5ii) – Precise details of both the experimental treatment and comparator.**
  - **Options:**
    - **Yes** → Clear descriptions of the intervention arm(s) and control group
    - **No** → Control group conditions/requirements not defined

- **TIDieR (8d) – Describes length of the intervention period.**
  - **Options:**
    - **Yes** → Must define the period over which the intervention was delivered according to a specific number of weeks/months or life period
    - **No** → Not clearly defined (e.g., stated during chemotherapy without providing the average number of weeks/months)

- **DETAILS – What was the total length of the program/intervention (weeks)?**
  - Note the total duration of the intervention in weeks
  - **NR** → If not reported
  - **TIP:**
    - Actual intervention length preferred (if provided); proposed intervention length if actual is not reported

- **DETAILS – How many phases did the intervention have?**
  - Note the total number of intervention phases
  - **TIP:**
    - Lead-in period considered part of the intervention but not necessarily a separate phase

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PHASE I/II – DETAILS

- **How many weeks was this phase?**
  - Note number of weeks
  - **NR** → If not reported

- **TIDieR (7) – Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features.**
  - **Options:**
    - **Yes** → If specifically described
      - *This includes single-location trials when the authors clearly state the entire trial took place onsite.*
    - **Unclear** → Inadequate description provided
    - **No** → Details not provided
  - **TIP:**
    - Interventions described as being telephone- / mail-based can be considered home-based by default – even if the authors do not specifically state the intervention took place at home.
    - However, these trials should be further identified according to the location of the interventionists (e.g., medical center or university).

- **Where did this phase of the intervention take place?**

- Check off which of these intervention settings apply
  - Medical Center
  - Rehabilitation Center
  - University
  - Public Gym
  - Home
  - Other
- **TIP:**
  - Check off more than one if needed (e.g., telephone-based or mixed facility- / home-based interventions).

- **TIDieR (5) – For each category of intervention provider (e.g. physiologist, psychologist, nursing assistant), describe their expertise/background *AND* any specific training given.**
  - **Options:**
    - **Yes** → Must provide formal education, professional designation, ***OR*** certified designation ***with*** certifying organization ***AND*** any study-specific training they received
    - **Unclear** → If education/designation ***AND*** study-specific training are provided ***BUT*** are poorly described
    - **No** → If either education/designation ***OR*** study specific training are not provided
  - **Background Examples:**
    - Kinesiologist (KIN), Exercise Physiologist (EP), Physiotherapist (PhT), Cancer Exercise Specialist (CES), Personal Trainer + certifying organization (PT-org)
  - **Training Examples:**
    - Interventionists were required to complete 3 hours of training pertaining to intervention delivery and participant follow-up.
    - Interventionists completed 4 online training modules related to delivering the exercise and behavioral support components of the intervention.

- **PHASE I (AET / RET / CET) – Was aerobic (AET), resistance (RET), combined (CET) exercise training prescribed.**
  - **Options:**
    - **Yes** → It/they were
    - **No** → It/they were not

- **DETAILS – How many AET / RET / CET groups were there?**
  - Indicate 1 or 2 groups as appropriate.

- **DETAILS – What modalities of AET / RET / CET were prescribed?**
  - Check off which of these intervention modalities apply
    - **AET**
      - Cycle ergometer
      - Treadmill
      - Elliptical ergometer
      - Walking (e.g., outdoors, indoor track)
      - Other
      - **NR** → If not reported
    - **RET**
      - Machine weights
      - Free weights
      - Resistance bands

- Body weight
- Other
- **NR** → If not reported

  - **TIP:**
    - Check off more than one modality when applicable (e.g., RET trials which list the names of exercises but not the specific modalities should be assigned Machine weights and Free weights)

- **TIDieR (6) – Describe the modes of delivery (e.g. face-to-face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group.**
  - **Options:**
    - **Yes** → If clearly described for ***ALL*** phases ***AND*** components of the intervention
    - **Unclear** → If clearly described for one phase/component ***BUT*** is poorly described for another
    - **No** → If not described ***OR*** is unclear for more than one intervention phase/component
  - **TIP:**
    - Must be specifically stated and **NOT** just implied (e.g., home based programs)

- **DETAILS – Mode of AET / RET / CET supervision:**
  - Check off which of these supervision modes apply
    - Individual
    - Group
    - Mixed
    - Not applicable
    - Not reported

- **DETAILS – Method of AET / RET / CET supervision:**
  - Check off which of these supervision modes apply
    - In person
    - Phone
    - Other

- **DETAILS – If Other, please list:**
  - Please list the method of exercise supervision

- **TIDieR (8b) – Describes the frequency of intervention sessions.**
  - **Options:**
    - **Yes** → Must define a specific minimum ***OR*** range of sessions per week
    - **No** → Not provided

- **DETAILS – How many sessions per week was AET / RET / CET prescribed?**
  - Note the number or the range

- **TIDieR (8a) – Describes the intensity of intervention sessions.**
  - **Options:**
    - **Yes** → Must define prescribed intensity according to a standardized and measurable unit (e.g., $\%VO_{2peak}$, $\%HR_{max}$, %1-RM, RPE range)
    - **No** → Not provided
  - **TIP:**
    - It is acceptable if authors state in the Methods that participants were asked to train between XX% and XX% without specifically stating that the intensity was prescribed between these values.

However, this information must be apriori defined (i.e., Methods) and not reported after the fact (i.e., Results).

- **DETAILS – How was the intensity of AET / RET / CET prescribed?**
  - Note the test/scale (e.g., VO_{2peak}, HR_{max}, 1-RM, RPE) upon which the relative intensity of exercise was prescribed.

- **DETAILS – Minimum prescribed AET / RET / CET intensity:**
  - Note the lowest relative intensity of exercise prescribed
  - **NR** → If not reported

- **DETAILS – Maximum prescribed AET / RET / CET intensity:**
  - Note the highest relative intensity of exercise prescribed
  - **NR** → If not reported

- **TIDieR (8c) – Describes the duration of AET / RET / CET sessions.**
  - **Options:**
    - **Yes** → Must define a specific minimum ***OR*** range for exercise session durations
    - **No** → Not provided

- **DETAILS – Minimum prescribed AET / RET / CET session duration (minutes):**
  - Note the shortest duration of exercise prescribed in minutes
  - **NR** → If not reported

- **DETAILS – Maximum prescribed AET / RET / CET session duration (minutes):**
  - Note the longest duration of exercise prescribed in minutes
  - **NR** → If not reported

- **DETAILS – Number of prescribed sets (RET only):**
  - Provide details
  - **NR** → If not reported

- **DETAILS – Number of prescribed repetitions (RET only):**
  - Provide details
  - **NR** → If not reported

- **CONSORT (5a) – Description of the different components of the interventions and, when applicable, description of the procedure for tailoring the interventions to individual participants?**
  - **Options:**
    - **Yes** → Must describe the major (primary and secondary) intervention components and, when applicable, when ***AND*** how the intervention was individually tailored (personalized or progressed)
    - **Unclear** → If any of the major intervention components are not well described and/or if either the timing or manner in which the intervention was tailored was not well described
    - **No** → If any of the major intervention components and/or tailoring was not described
    - **No** → If multiple intervention components and/or tailoring was not well described

- **TIDieR (9i) – If the intervention was planned to be personalized / individualized, then describe when and how.**
  - **Options:**

- **Yes** → Must at least describe when ***AND*** how the intervention was personalized
- **Unclear** → If either the timing or manner in which the intervention was personalized was not well described
- **No** → If either the timing or manner in which the intervention was personalized was missing

- **TIDieR (9ii) – If the intervention was planned to be progressed, then describe when and how.**
  - **Options:**
    - **Yes** → Must at least describe when ***AND*** how the intervention was progressed
    - **Unclear** → If either the timing or manner in which the intervention was progressed was not well described
    - **No** → If either the timing or manner in which the intervention was progressed was missing
  - **TIP:**
    - Progressions must be defined according to the timing and increment of change throughout the intervention
    - Lead-in periods are not considered progressions

- **TIDieR (11) – If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them.**
  - **Options:**
    - **Yes** → Must both identify the strategy ***AND*** provide requisite details describing how the strategy was implemented ***(including how & by whom)***
    - **Unclear** → If the strategy was identified but not adequately described
    - **No** → If the strategy was identified but not described ***OR*** no strategy identified
  - **TIP:**
    - This only applies to strategies related to supporting the exercise or physical activity component of interventions.

- **CONSORT (5b) – Details of whether and how the AET / RET / CET interventions were standardized.**
  - **Options:**
    - **Yes** → Provided enough detail related to the consistency of how the exercise intervention was prescribed ***AND*** progressed **AND/OR** modified in a structured manner
      - *This could also apply to how participants were coached or counseled.*
    - **Unclear** → Used the word 'standardized' but failed to provide the requisite details
    - **Unclear** → Attempted to provide the requisite details but a key aspect is not well described
    - **No** → Failed to describe the intervention as standardized and/or failed to describe more than one key aspect of the exercise prescription, progression, and/or modification process

- **CONSORT (5c) – Details of whether and how adherence of care providers to the protocol was assessed or enhanced.**
  - **Options:**
    - **Yes** → Provided details as to how ***AND*** when the actions of the **interventionists** were evaluated by **study investigators**
    - **Yes** → Authors stated that interventionist adherence was not tracked
    - **Unclear** → Provided details as to how ***OR*** when the actions of the **interventionists** were evaluated by **study investigators**
    - **No** → Details not provided
  - **TIPS:**
    - This specifically pertains to someone evaluating the interventionists' performance and ***NOT*** training or supporting the interventionists in any way.

- **CONSORT (5d), TIDieR (12) – Details of whether and how intervention fidelity or adherence of participants to interventions was assessed or enhanced – describe the extent to which the intervention was delivered as planned.**
  - **Options:**
    - **Yes** → Provided details ***AND*** data related to how much of the prescribed dose of exercise was actually delivered to each participant relative to what was intended
    - **Yes** → Authors stated that participant adherence was not tracked
    - **Unclear** → Provides details (i.e., intensity ***AND*** volume) ***AND*** data but one or both are unclear
    - **No** → Failed to report the method ***OR*** the results of this assessment
  - **TIPS:**
    - Although a participant must attend a session in order to adhere to the prescription, attendance does ***NOT*** count toward adherence.
    - Authors must describe the method of assessing participant adherence which captures both **target intensity** (e.g., % VO_{2peak} or % HR_{max}) ***AND*** **target volume** (e.g., total exercise time) ***as well as*** the results data comparing actual vs target exercise dose delivery.
    - Must describe findings in the context of the planned dose.
    - This ONLY applies to the exercise-specific components of the interventions.

Other Phase I/II Information

- **DETAILS – Was there a co-intervention prescribed in this trial?**
  - **Options:**
    - **Yes** → There was/were
    - **Unclear** → There was/were but not well described
    - **No** → There was/were not
  - **TIP:**
    - Behavioral support strategies are counted as non-exercise intervention components and the data should be extracted here and for the formal CONSORT behavioral support item.

- **DETAILS – Please describe the co-intervention.**
  - Note all pertinent details of the non-exercise intervention component(s)

- **TIDieR (3) – Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (e.g. online appendix, URL).**
  - **Options:**
    - **NA** → No physical or informational material was provided (stated or not)
    - **Yes** → Provides details on any physical or informational materials used in the intervention (including those provided to participants or used to train interventionists)
    - **Unclear** → Appears physical or informational material was provided but the details were not well described
    - **No** → Appears physical or informational material was provided but the details were not provided
  - **TIPS:**
    - This pertains to physical or informational material which are only provided to the intervention group(s) and **NOT** the usual care/control group.

- **TIDieR (10) – If the intervention was modified during the course of the study, describe the changes (what, why, when, and how).**

- **Options:**
  - **NA** → No observable modification to the intervention
  - **Yes** → Describes modification according to all pertinent features (e.g., what, why, when & how)
  - **Unclear** → Notes intervention modification but fails to describe and justify it appropriately
  - **No** → If the description or justification is missing
- **TIPS:**
  - Again, base this evaluation solely on the information provided in the primary paper (and online supplement, when applicable) for ***Round I - Data Extraction***.

Intervention Summary

- **CONSORT (5i) – Described the interventions for each group with sufficient details to allow replication, including how and when they were actually administered.**
  - **Options:**
    - **Yes** → Provided a complete description of the intervention, such that you could confidently reproduce the intervention
    - **No** → If they failed to provide sufficient detail (even if they provided a reasonable amount)
  - **TIP:**
    - Wait to answer this question until after you have gone through the TIDieR questions. If you assign 'Yes's' to TIDieR items 5.3, 5.4, 5.6, 5.7, 5.8a, 5.8b, 5.8c, 5.8d, and 5.9, then this CONSORT-based item will also be 'Yes'. If any of these TIDieR items are not labelled 'Yes', you will assign a 'No' to this CONSORT-based inventory item (*this may often be the case*).

Sample Size & Statistics

- **CONSORT (12ai) – Statistical methods used to compare groups for primary and secondary outcomes.**
  - **Options:**
    - **Yes** → The methods used to compare the groups on the primary and secondary outcomes are clearly described
    - **Unclear** → There is any ambiguity in the description
    - **No** → Any aspect is not described

- **CONSORT (7ai) – How sample size was determined.**
  - **Options:**
    - **Yes** → Provides the details of the power calculation (i.e., based on α, β and, when applicable, adjustment for drop-outs – how many participants were needed per group/overall)
    - **Yes** → Authors specifically stated that no power calculation was performed
    - **No** → Any details not provided

- **CONSORT (7aii; *sample size*) – When applicable, details of whether and how the clustering by care providers or centers was addressed.**
  - **Options:**

- **NA** → If study was conducted at a single center and under the supervision of the same group of interventionists
- **Yes** (*multicenter trials*) → If details of how the analyses were adjusted to account for potential differences across intervention sites and interventionists
- **Yes** (*single center/multi-intervention location*) → If details of how the analyses were adjusted to account for potential differences across interventionists
- **Yes** → Authors clearly stated that no clustering was performed
- **No** → Details not provided

- **CONSORT (7b) – When applicable, explanation of any interim analysis or stopping guidelines.**
  - **Options:**
    - **NA** → No interim analysis or apriori defined stopping criteria
    - **Yes** → Authors apriori defined the rationale, nature and methods for interim analyses or stopping criteria
    - **Unclear** → If any aspect of the rationale, nature and methods for the interim analysis or stopping criteria are poorly described
    - **No** → If any aspect of the rationale, nature and methods are missing or if results are reported without details provided in the methods section
  - **TIPS:**
    - **Interim analyses**: Typically used to assess the safety, feasibility, or establish the preliminary efficacy of an intervention at a prespecified time-point in a trial with the express purpose of making decisions around whether the trial should continue as planned, if modifications are required, or if the trial should be stopped altogether. Do not mistake this type of analysis for a midpoint assessment wherein the primary and/or secondary outcome data are collected and reported as another testing time-point in the overall trial.
    - **Stopping criteria**: Likely related to the outcome of the aforementioned interim analyses. Must be apriori defined and described and ***NOT*** just reported on after the fact.

- **CONSORT (12aii; *statistics*) – When applicable, details of whether and how the clustering by care providers or centers was addressed.**
  - **Options:**
    - **NA** → If study was conducted at a single center and under the supervision of the same group of interventionists
    - **NA** → If multicenter trial stratified by center and no further exploratory analyses were performed
    - **Yes** (*multicenter trials*) → If details of how the analyses were adjusted to account for potential differences across intervention sites and interventionists
    - **Yes** (*single center/multi-intervention location*) → If details of how the analyses were adjusted to account for potential differences across interventionists
    - **Yes** → Authors stated that clustering was not performed
    - **No** → Details not provided

- **CONSORT (12b) – Methods for additional analyses, such as subgroup analyses and adjusted analyses.**
  - **Options:**
    - **NA** → If no additional subgroup analyses were performed
    - **Yes** → If any analysis other than the primary/secondary intervention effects are described
    - **No** → If any analysis other than the primary/secondary intervention effects are reported but not described

Data Comparison: Sample Size

	Sample Size Calculated	Sample Size Recruited
Sample size – calculated vs actual?	Number: _____	Number: _____

- **TIP:**
  - If the calculated sample size listed in the Registry and Manuscript are different, please note both values (e.g., Reg: ##; Man: ##).

- **DETAILS – If different, were the changes noted in the Manuscript?**
  - **Options:**
    - **Yes** → The difference(s) in Sample Size were clearly stated and explained.
    - **No** → The difference(s) in Sample Size were apparent but not explained.
    - **Not Applicable** → There was no difference in the Sample Size calculations between the Registry and the Manuscript.
    - **Not Applicable** → No clinical trial registry data available.

RESULTS

Participant Flow

- **CONSORT (13) – Participant flow diagram (a diagram is strongly recommended).**
  - **Options:**
    - **Yes** → A clear depiction of participant flow was provided
    - **No** → Not provided

- **CONSORT (13b) – For each group, losses and exclusions after randomization, together with reasons.**
  - **Options:**
    - **NA** → If authors specifically state there were no losses/exclusions post randomization
    - **Yes** → Provided a complete account of all randomized participants
    - **Unclear** → If all randomized participants are accounted for but the details of any participant are unclear
    - **No** → If any details of any participant are missing

Centers & Care Providers

- **CONSORT (13aii) – The number of care providers and/or centers performing the intervention in each group and the number of patients treated by each care provider or in each center.**

- **Options:**
  - **Yes** → (Multi-site trials) List the number of intervention sites ***OR*** individually identify each site ***AND*** must clearly state the number of interventionists at each study site.
  - **Yes** → (Single-site trials) Must clearly state the number of interventionists at the study site.
  - **No** → (Multi-site trials) Data not provided for number of centers and/or number of interventionists.
  - **No** → (Single-site trials) Data not provided for number of interventionists.

- **CONSORT (15ii) – When applicable, a description of care providers (case volume, qualification, expertise, etc.) and centers (volume) in each group.**
  - **Options:**
    - **Yes** → (Multi-site trials) Must at least provide the background education or training of the interventionists ***AND*** the volume of participants at each site.
    - **Yes** → (Single-site trials) Must at least provide the background education or training of the interventionists.
    - **No** → (Multi-site trials) Data not provided for interventionists and/or centers.
    - **No** → (Single-site trials) Data not provided for interventionists.

Participants, Analyses & Outcomes

- **CONSORT (15i) – A table showing baseline demographic and clinical characteristics for each group.**
  - **Options:**
    - **Yes** → A unique table displaying demographic data is provided
    - **No** → Table not provided

- **CONSORT (13ai) – For each group, the number of participants who were randomly assigned, received intended treatment, and were analyzed for the primary outcome.**
  - **Options:**
    - **Yes** → All requisite details were provided
    - **No** → Any of the requisite details are not provided
  - **TIP:**
    - Must include sample sizes in the body of the Results or directly within the Results tables.

- **CONSORT (16) – For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups.**
  - **Options:**
    - **Yes** → Must provide details of how many participants from each group were included within each analysis
    - **Unclear** → The authors suggest that analyses were performed according to intention-to-treat but failed to provide a description of how missing data from drop-outs or testing errors was accounted for
    - **Unclear** → The authors provided numbers for the analysis but did not indicate that analyses adhered to intention-to-treat principles
    - **No** → Data not provided
  - **TIPS:**
    - This information is typically reported in the main results tables in the form of (n = #) but may also be found in the results section.
    - Double check the flow diagram to check for potential dropouts/missing data.

- If any participants withdrew or were lost to follow-up, the authors should disclose how their missing data was treated.
- Must include sample sizes in the body of the Results or directly within the Results tables.

- **CONSORT (17a) – For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval).**
  - **Options:**
    - **Yes** → Authors must provide the raw baseline data, raw or adjusted follow-up data, change scores or effect sizes, ***AND*** 95% CI data
    - **No** → Missing any of the aforementioned data

- **CONSORT (17b) – For binary outcomes, presentation of both absolute and relative effect sizes is recommended.**
  - **Options:**
    - **NA** → If no binary outcomes are tracked/reported
    - **Yes** → Authors provide an indication of the actual number of observations relative to the expected number of observations ***AND*** whether the ratio of observations differed between groups
    - **No** → Missing any of the aforementioned data

- **CONSORT (18) – Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory.**
  - **Options:**
    - **NA** → If no subgroup or sensitivity analysis were performed
    - **Yes** → If the results of any analysis other than the main intervention effects were performed and reported
    - **No** → If the results of any analysis other than the main intervention effects were performed but not reported

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- **DETAILS – What was the outcome of this trial?**
  - **Options:**
    - **Positive** → As hypothesized, there was a significant difference in the primary outcome
    - **Positive → As hypothesized, equivalency was demonstrated**
    - **Negative** → Contrary to the hypothesis, there was no significant difference in the primary outcome
    - **Negative → Contrary to the hypothesis, equivalency was not demonstrated**
    - **Unclear** → If the primary findings are not well defined or not interpretable
    - **Mixed** → Only an option for trials with more than one primary outcome (rare)

Trial Characteristics

- **CONSORT (13d) – Details of the experimental treatment and comparator as they were implemented.**
  - **Options:**
    - **Yes** → Clearly reported findings for the intervention arms(s) and control group
    - **No** → Results not clearly defined for each group

- **CONSORT (14b) – Why the trial ended or was stopped.**
  - **Options:**
    - **NA** → If the trial appeared to finish as planned (i.e., achieved target sample size and concluded the intervention and follow-up tested as intended)
    - **Yes** → If the trial stopped early or was extended ***AND*** a full justification was provided
    - **Unclear** → If the trial stopped early or was extended ***AND*** the authors made special note of that fact without providing an adequate justification
    - **Unclear** → If the trial stopped early or was extended ***AND*** an inadequate discussion was provided
    - **No** → If the trial stopped early or was extended ***BUT*** an adequate justification was not provided
  - **TIP:**
    - The majority of studies will finish as planned and will be assigned an **NA**

- **CONSORT (14a) – Dates defining the periods of recruitment and follow-up.**
  - **Options:**
    - **Yes** → Must provide both the dates of when the trial was open to recruitment ***AND*** at least indicate a specific date as to when participant follow-up finished
    - **Unclear** → Authors provided recruitment dates but only eluded to how long the follow-up period lasted (e.g., 12 months)
    - **No** → Only provided dates of recruitment but not follow-up ***OR*** not at all

DETAILS

- **Recruitment (enrollment) start date:**
  - *Note details*
  - **Nomenclature:** Date format → MM/YY
  - **NR** → If not reported

- **Recruitment (enrollment) end date:**
  - *Note details*
  - **Nomenclature:** Date format → MM/YY
  - **NR** → If not reported

- **Trial start date:**
  - *Note details*
  - **Nomenclature:** Date format → MM/YY
  - **NR** → If not reported

- **Trial end date:**
  - *Note details*
  - **Nomenclature:** Date format → MM/YY
  - **NR** → If not reported

Timing of Assessments

- **CONSORT (13c) – For each group, the delay between randomization and the initiation of the intervention.**
  - **Options:**

- **Yes** → Explicitly states an average or maximum time (days/weeks) between randomization and intervention start
- **No** → Data not provided

Randomization & Testing

- **Number of subjects randomized to Exercise:**
  - **AET (2) / RET (2) / COMB (2)** → *Note details* for each group as relevant
  - **NR** → If not reported
- **Number of subjects randomized to Usual Care/Control:**
  - *Note details*
  - **NR** → If not reported
- **Number of Exercise participants with baseline data:**
  - **AET (2) / RET (2) / COMB (2)** → *Note details* for each group as relevant
  - **NR** → If not reported
- **Number of Usual Care/Control participants with baseline data:**
  - *Note details*
  - **NR** → If not reported
- **Number of Exercise participants with follow-up data:**
  - **AET (2) / RET (2) / COMB (2)** → *Note details* for each group as relevant
  - **NR** → If not reported
- **Number of Usual Care/Control participants with follow-up data:**
  - *Note details*
  - **NR** → If not reported

Demographics

- **Total number of subjects:**
  - *Note details*
  - **NR** → If not reported
- **Number of male participants:**
  - *Note details*
  - **NR** → If not reported
- **Number of female participants:**
  - *Note details*

- **NR** → If not reported

- **Average age of all participants:**
  - *Note details*
  - **NR** → If not reported

- **Average age of Exercise participants:**
  - *Note details*
  - **NR** → If not reported

- **Average age of Usual Care/Control participants:**
  - *Note details*
  - **NR** → If not reported

Medical Characteristics

- **Average disease duration (*months*):**
  - Not Applicable
  - <6 months
  - <12 months
  - <24 months
  - <60 months
  - <120 months
  - ≥120 months
  - **NR** → If not reported

Comorbidities

Hypertension (n):
- *Note details*
- **NR** → If not reported
- **NA** → If listed in exclusion criteria

Hypertension (%): *Note details*

Hypercholesterolemia (n):
- *Note details*
- **NR** → If not reported
- **NA** → If listed in exclusion criteria

Hypercholesterolemia (%): *Note details*

Diabetes (n):
- *Note details*
- **NR** → If not reported
- **NA** → If listed in exclusion criteria

Diabetes (%): *Note details*

Attendance

AET (2) Attendance – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** → If not reported ***OR*** if trial reports attendance as X% attended X% of sessions

RET (2) Attendance – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** → If not reported ***OR*** if trial reports attendance as X% attended X% of sessions

CET (2) Attendance – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** → If not reported ***OR*** if trial reports attendance as X% attended X% of sessions

- **TIPS:**
  - **Attendance**: Only report attendance with the exercise-based components of the intervention and NOT attendance to other components (e.g., telephone counseling sessions).

Exclusion

AET (2) Exclusion – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** → If not reported

RET (2) Exclusion – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** → If not reported

CET (2) Exclusion – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** → If not reported

UC Exclusion – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** → If not reported

- **TIP (*if patient attrition has occurred*):**
  - **NA** → When missing data strategies are used (e.g., imputation) and authors confirm that the results do not differ with or without the imputed data.
  - For trials reporting intention to treat analyses, 'zero exclusion' cannot be assigned unless confirmed by analysis sample sizes defined in either the body of the results or the results tables.

CONSORT – HARMS

- **HARMS (19a) – If the study collected data on harms and benefits, the title or abstract should so state.**
  - **Options:**
    - **Yes** → If authors mention safety or AEs anywhere in the title or abstract
    - **No** → If safety or AEs are not mentioned in these sections
  - **TIPS:**
    - **IMPORTANT – All Phase I-III, by definition, should report safety outcomes. Thus, the safety of the intervention should be assessed and reported on.**

- **HARMS (19b) – If the trial addresses both harms and benefits, the introduction should so state.**
  - **Options:**
    - **Yes** → Authors should state the safety of the intervention is in question ***OR*** they should state that one of the trial objectives (typically last paragraph of the intro) is to assess the safety of the intervention.
    - **No** → Not mentioned

- **HARMS (19c) – List addressed adverse events with definitions for each** (*when relevant, attention to grading, expected vs. unexpected AEs, reference to standardized and validated definition, and description of new definitions*)**.**
  - **Options:**
    - **Yes** → Authors listed ***AND*** defined the potential/anticipated AEs being studied
    - **Unclear** → Authors listed the AEs but failed to define them
    - **No** → Details not provided
  - **TIPS:**
    - For trials reporting AEs as the primary and secondary outcomes, the definitions for the outcomes count towards defining the AEs.

- **HARMS (19d) – Clarify how harms-related data was collected (***mode of collection, timing, attribution methods, intensity of ascertainment, and harms-related monitoring and stopping rules***).**
  - **Options:**
    - **Yes** → Authors should clearly state how, when ***AND*** by whom AE data was collected
    - **Unclear** → Authors fail to properly describe a single aspect (how, when, by whom) of how the AE data was collected but adequately describe all other aspects
    - **No** → Details not provided
  - **TIPS:**
    - For trials reporting AEs as the primary and secondary outcomes, the collection methods for the outcomes count towards collecting the AEs.

- **HARMS (19e) – Describe plans for presenting and analyzing information on harms (***including coding, handling of recurrent event, specification of timing issues, handling of continuous measures, and statistical analyses***).**
  - **Options:**
    - **Yes** → Authors should clearly state how AE data was analyzed
    - **Unclear** → Authors fail to properly describe a single aspect of how the AE data was analyzed but adequately describe all other aspects
    - **No** → Details not provided

GENERAL TIPS FOR HARMS:

- If authors fail to explicitly state if AEs were attributable to the intervention, check to see if there were analyses comparing AE frequency or relative risk per arm.
    - If analyses were performed:
        - For AEs which occur significantly more frequently within the intervention group(s) → list details for those specific AEs under 'intervention-related'
        - For AEs which do not occur significantly more frequently within the intervention group(s) → list details for those specific AEs under 'non-intervention-related'
    - If analyses were not performed:
        - Rate 'intervention-related' AEs as **NR**
        - List all reported AEs for both groups as 'non-intervention-related'
- For trials reporting AEs as the primary and secondary outcomes, the analysis methods for the outcomes count towards analyzing the AEs.

Testing-related AEs

- **DETAILS – Did any testing-related AE occur?**
    - **NA** → Specifically stated that no testing-related AEs occurred
    - **Yes** → Specifically stated the type and number of testing-related AEs
    - **Unclear** → The numbers are provided but the details were unclear
    - **No** → Details not provided

- **DETAILS – If so, how many?**
    - Note pertinent details
    - **NR** → If not reported
    - **TIPS:**
        - Report both values if there are discrepancies between the Registry and Manuscript

- **DETAILS – How were testing-related AE defined?**
    - Note pertinent details
    - **NR** → If not reported

- **DETAILS – How were testing-related AE monitored/tracked?**
    - Note pertinent details
    - **NR** → If not reported

Intervention-related AEs

- **DETAILS – Did any intervention-related AE occur?**
    - **NA** → Specifically stated that no intervention-related AEs occurred
    - **Yes** → Specifically stated the type and number of intervention-related AEs
    - **Unclear** → The numbers are provided but the details are unclear
    - **No** → Details not provided

- **DETAILS – If so, how many?**
    - Note pertinent details
    - **NR** → If not reported

- **TIPS:**
  - Report both values if there are discrepancies between the Registry and Manuscript

- **DETAILS – How were intervention-related AE defined?**
  - Note pertinent details
  - **NR** → If not reported

- **DETAILS – How were intervention-related AE monitored/tracked?**
  - Note pertinent details
  - **NR** → If not reported

Non-Intervention-related AEs

- **DETAILS – Did any non-intervention-related AE occur?**
  - **NA** → Specifically stated that no intervention-related AEs occurred
  - **Yes** → Specifically stated the type and number of intervention-related AEs
  - **Unclear** → The numbers are provided but the details are unclear
  - **No** → Details not provided

- **DETAILS – If so, how many?**
  - Note pertinent details
  - **NR** → If not reported
  - **TIPS:**
    - Report both values if there are discrepancies between the Registry and Manuscript

- **DETAILS – How were non-intervention-related AE defined?**
  - Note pertinent details
  - **NR** → If not reported

- **DETAILS – How were non-intervention-related AE monitored/tracked?**
  - Note pertinent details
  - **NR** → If not reported

AEs Per Group

- **DETAILS – How many AEs were reported for the PHARMA (4) & UC groups?**
  - Note pertinent details
  - **NR** → If not reported

HARMS Continued…

- **HARMS (19f) – Describe for each arm the participant withdrawals that are due to harms and their experiences with the allocated treatment.**
  - **Options:**
    - **NA** → If the authors specifically stated there were no AEs ***OR*** that no participant withdrew/was lost to follow-up due to AEs

- **Yes** → If the authors clearly identify the number of participants who withdrew or were lost to follow-up due to AEs
- **No** → If the reasons why participants withdrew or were lost-to-follow-up are not provided for every applicable case

- **HARMS (19g) – Provide denominators for analyses on harms.**
  - **Options:**
    - **NA** → If the authors specifically stated there were no AEs
    - **Yes** → Reference numbers provided for AE risk calculations
    - **No** → Details not provided

- **HARMS (19h) – Presents absolute risk per arm and per AE type, grade, and seriousness, and present appropriate metrics for recurrent events, continuous variables, and scale variables.**
  - **Options:**
    - **NA** → If the authors specifically stated there were no AEs
    - **Yes** → If the authors present the absolute risk per arm ***AND*** per adverse event type/grade ***AND*** describe the frequency of AEs
    - **No** → Details not provided

- **HARMS (19i) – Describes any subgroup analyses and exploratory analyses for harms.**
  - **Options:**
    - **NA** → If the authors specifically stated there were no AEs
    - **NA** → There were no subgroup / exploratory analyses proposed or reported
    - **NA** → If the number of AEs were so small that it was not reasonable to perform subgroup or exploratory analyses
    - **Yes** → If the authors present the results of subgroup analyses or exploratory analyses
    - **No** → Details not provided

- **HARMS (19j) – Provide a balanced discussion of benefits and harms with emphasis on study limitation, generalizability, and other sources of information on harms.**
  - **Options:**
    - **NA** → If the authors specifically stated there were no AEs
    - **Yes** → Should formally address any AEs in the Discussion in the context of trial limitations and whether the risk intervention-related AEs should be considered when implementing or conducting further tests of the intervention in question.
    - **No** → Not discussed

DISCUSSION & OTHER

- **CONSORT (20i) – Trial limitations: addressing sources of potential bias, imprecision, and if relevant, multiplicity of analyses.**
  - **Options:**
    - **Yes** → If authors listed major sources of potential bias or measurement error ***AND*** provided basic details as to how these factors may have influenced results
    - **Unclear** → Authors listed sources of bias but failed to adequately discuss the potential impact/implications of these factors

- **No** → Failed to list and adequately discuss potential sources of bias within the description of trial limitations

- **CONSORT (20ii) – Trial limitations: taking into account the choice of comparator, lack of or partial blinding, and unequal expertise of care providers or centers in each group.**
  - **Options:**
    - **Yes** → If authors listed sources of potential bias related to the control group(s), incomplete or lack of blinding, and/or between care providers/intervention sites ***AND*** provided basic details as to how these factors may have influenced results
    - **Unclear** → Authors listed sources of bias but failed to adequately discuss the potential impact/implications of these factors
    - **No** → Failed to list and adequately discuss potential sources of bias within the description of trial limitations
  - **TIPS:**
    - Trials with only PROs: ***analysis*** must be blinded to be rated ***Low***.
    - Trials with only physiologic outcomes: ***testing*** must be blinded to be rated ***Low***.
    - Trials with both physiologic and PROs: ***testing*** and ***analysis*** must be blinded to be rated ***Low***. In these mixed outcome trials, an Unclear can be assigned if the ***analysis*** details are missing.

- **CONSORT (21) – Generalizability of trial findings according to the intervention, comparators, patients, and care providers and centers involved in the trial.**
  - **Options:**
    - **Yes** → Authors must discuss their findings in the context of similar interventions, comparators, patient groups, and care provider/centers.
    - **No** → None of these aspects were not adequately discussed within the context of other research (past and future)

- **CONSORT (22) – Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence.**
  - **Options:**
    - **Yes** → Authors should not overstate non-significant or modestly altered endpoints; nor should they dismiss/ignore/fail to adequately describe non-significant findings for any of the primary outcomes in favor of discussing secondary outcomes
    - **No** → Authors do not present an unbiased interpretation of their findings
  - **TIP:**
    - Look closely at the results for the primary outcomes (data tables). The first paragraph of the Discussion should summarize these results without inflating/downplaying the findings. Similarly, the Conclusion should also provide an unbiased summary of the main trial findings.

- **CONSORT (23) – Registration number and name of trial registry.**
  - **Options:**
    - **Yes** → If the number was provided
    - **Yes** → If authors clearly stated the trial was not registered
    - **No** → If the number was not provided
  - **TIP:**
    - Check the abstract, methods, and footnotes/margins of the paper to locate this number.

- **DETAILS – If so, please list.**
  - Note pertinent details

- **CONSORT (24) – Where the full trial protocol can be accessed, if available.**
  - **Options:**
    - **Yes** → If the full protocol or a link to the full protocol is provided in the primary manuscript or as an online supplement
    - **No** → Data not provided

- **DETAILS – If so, please provide the URL:**
  - Note pertinent details

- **CONSORT (25) – Sources of funding and other support, role of funders.**
  - **Options:**
    - **Yes** → If funder and funder's role are both described
    - **Unclear** → If either funder ***OR*** funder's role are described
    - **No** → Neither funder nor funder's role are described
  - **TIP:**
    - Similar to the registration number, check the footnotes, margins, and any supplemental information listed between the Conclusion and the Reference list.

- **DETAILS – If so, please provide the details:**
  - Note pertinent details

COCHRANE – Risk of Bias

- **Selection Bias: Random sequence generation**
  - **High** → Selection bias (biased allocation to interventions) due to inadequate generation of a randomized sequence
  - **Low** → Random sequence generation method should produce comparable groups
  - **Unclear** → Not described in sufficient detail to permit judgement

- **Selection Bias: Allocation concealment**
  - **High** → Selection bias (biased allocation to interventions) due to inadequate concealment of allocations prior to assignment
  - **Low** → Intervention allocations likely could not have been foreseen in before or during enrollment
  - **Unclear** → Not described in sufficient detail to permit judgement

- **Performance Bias: Blinding (participants & personnel)**
  - **High** → Performance bias due to knowledge of the allocated interventions by participants and personnel during the study
  - **Low** → Blinding was likely effective
  - **Unclear** → Not described in sufficient detail to permit judgement

- **Detection Bias: Blinding (outcome assessment)**
  - **High** → Detection bias due to knowledge of the allocated interventions by outcome assessors
  - **Low** → Blinding was likely effective
  - **Unclear** → Not described in sufficient detail to permit judgement
  - **TIPS:**
    - Trials with only PROs: ***analysis*** must be blinded to be rated ***Low***.
    - Trials with only physiologic outcomes: ***testing*** must be blinded to be rated ***Low***.
    - Trials with both physiologic and PROs: ***testing*** and ***analysis*** must be blinded to be rated ***Low***. In these mixed outcome trials, an Unclear can be assigned if the ***analysis*** details are missing.

- **Attrition Bias: Incomplete outcome data**
  - **High** → Attrition bias due to amount, nature or handling of incomplete outcome data
  - **Low** → Handling of incomplete outcome data was complete and unlikely to have produced bias
  - **Unclear** → Insufficient reporting of attrition/exclusions to permit judgment (e.g., number randomized not stated, no reasons for missing data provided)

- **Reporting Bias: Selective reporting**
  - **High** → Reporting bias due to selective outcome reporting
  - **Low** → Selective reporting bias not detected
  - **Unclear** → Insufficient information to permit judgment

- **Other sources of bias**
  - **High** → Bias due to problems not covered elsewhere in the criteria
  - **Low** → No other bias detected
  - **Unclear** → There may be a risk of bias, but there is insufficient information to assess whether an important risk of bias exists or insufficient rationale or evidence that an identified problem will introduce bias

- **Quality Comments: Justify 'high-risk' & 'unclear' decisions**
  - Please note pertinent details

JADAD Score

- **Randomization Score:**
  - 1 point if randomization is mentioned
  - 1 additional point if the method of randomization is appropriate
  - Deduct 1 point if the method of randomization is inappropriate (minimum 0)

- **Blinding Score:**
  - 1 point if blinding is mentioned
  - 1 additional point if the method of blinding is appropriate
  - Deduct 1 point if the method of blinding is inappropriate (minimum 0)
  - **TIPS:**
    - For trials reporting exclusively PROs the analysis must be blinded.
    - For trials reporting any physiologic outcomes the testing must be blinded.
    - For trials with both physiologic and PROs the testing and analysis must be blinded.

- **Account of All Patient Score:**
  - 1 point if the fate of all patients in the trial is known. If there are no data the reason is stated.

Supplementary Methods 7: Data Extraction Reference Guide – Pharmacological RCTs

Data Extraction Reference Guide – Pharmacological RCTs

Memorial Sloan Kettering Cancer Center™

EXTRACTION ABBREVIATIONS

- %: percent
- BL: baseline
- d: days
- FU: follow-up
- hr/hrs: hour/hours
- IN: injection
- INH: inhalent
- IO: intraosseous
- mins: minutes
- mo: months
- PHARMA: pharmaceutical intervention
- PO: oral
- PR: per rectum
- SL: sublingual
- TD: transdermal
- Top: topical
- UC: usual care/control
- wk/wks: week/weeks
- yrs: years

GENERAL NOMENCLATURE & EXTRACTION GUIDELINES

Nomenclature Guidelines

- Ranges:
  - Use 'to' and not '-' (e.g., 150 bpm to 175 bpm)
- Units:
  - List all units of measure including percentages
- Significant figures:
  - Raw values / averages → round to the nearest 0.1
  - Percentages → round to the nearest whole number
- Averages:
  - Mean value is preferred and assumed
  - Only list median values if mean are not reported
    - If listing median values, please label appropriately
- Lists:
  - Be succinct → only include pertinent details and use bullet form with semicolon separated values
  - List details in the same order as it is presented in the manuscript
  - *Examples*:
    - Inclusion/exclusion criteria: e.g., 40 to 65 yrs; BMI<40; sedentary
    - Primary/secondary outcomes: e.g., resting HR; body weight; PA mins/wk

Extraction Guidelines

- Multiple intervention arms
  - Base group numbering on layout of flow diagram (e.g., PHARMA 1 = left-most group; PHARMA 2 = group immediately to the right, etc.)
- Placebo group
  - Extract data into Control group fields
- In the case of discrepancies between conflicting sources of data, prioritize the data provided in the primary manuscript.

ARTICLE INCLUSION/EXCLUSION

- **Should this article be included in our systematic review?**
  - **Yes** → Does not meet any exclusion criteria.
  - **No** → Meets one or more exclusion criteria.

PUBLICATION INFORMATION

- **Country of publication?**
  - Please provide the full name of the country where the study was conducted/where the primary author is based

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TITLE, ABSTRACT & INTRODUCTION

- **CONSORT (1a) – Identification as a randomized trial in the title.**
  - **Options:**
    - **Yes** → Either randomized controlled trial; randomized trial; randomized
    - **No** → Not mentioned

- **CONSORT (1b) – Structured summary of trial design, methods, results, and conclusions.**
  - **Options:**
    - **Yes** → Introduction/Background + Methods + Results + Discussion/Conclusion
    - **No** → Not properly structured

- **CONSORT (2a) – Scientific background and explanation of rationale.**
  - **Options:**
    - **Yes** → Reviews relevant literature ***AND*** identifies a knowledge gap/question
    - **No** → Did not adequately review the literature and/or identify the knowledge gap/question the study attempted to address

- **CONSORT (2b) – Specific objectives or hypothesis.**
  - **Options:**

- **Yes** (*objectives*) → Must provide a specific purpose/objective for study in the context of the intervention ***AND*** the specific outcomes of interest

OR

- **Yes** (*hypothesis*) → Must provide a specific hypothesis in the context of a group-related change in a specific outcome of interest ***AND*** the expected direction of change
- **Unclear** → Provided the specific purpose/objective or hypothesis but only 1 of 2 additional required components
- **No** → Failed to provide either (1) the specific purpose/objective **OR** hypothesis, and/or (2) both additional required components

- **TIP:**
  - This information is typically reported within final paragraph of the introduction or early in the methods section.

METHODS

- **CONSORT (3a) – Description of trial design (such as parallel, factorial) including allocation ratio.**
  - **Options:**
    - **Yes** → Must provide both a description of overall study design (e.g., parallel arm, crossover) ***AND*** allocation ratio
    - **Unclear** → Description of study design is provided but ***NOT*** allocation ratio
    - **No** → If missing the study design (even if allocation ratio is provided)
  - **EXAMPLES:**
    - Parallel trials, cross-over trials, factorial trials ***AND*** 1:1, 1:2, 1:1:1

- **CONSORT (4b) – Settings and locations where the data were collected.**
  - **Options:**
    - **Yes** → Provided details of where the data were collected for the trial
      - *This includes single-location trials when the authors clearly state the entire trial took place onsite*
    - **Unclear** → Specifies that data was collected in a lab/office but does not provide the actual location of said room (e.g., at which hospital)
    - **No** → Details not provided
  - **TIP:**
    - This does ***NOT*** include where the recruitment or intervention took place.
    - Listing the institutional / ethics review board does not count.

- **DETAILS – Clinical population:**
  - List the clinical population being studied
  - **NR** → If not reported

- **DETAILS – Disease setting:**
  - Identify the disease phase [Prevention (P) vs. Management (M)] during and after) during which the PHARMA intervention took place.

- **CONSORT (3b) – Important changes to methods after trial commencement (such as eligibility criteria), with reasons.**

- **Options:**
  - **NA** → The methods did not change
  - **Yes** → Methods changed and reasons were provided
    - *Examples include (but are not limited to): study design, sample size (± 10%), eligibility criteria, recruitment strategy, randomization, blinding, data analysis, etc.*
  - **Unclear** → Described change in methods but no reasons were provided
  - **No** → It appears that methods may have changed but there is not enough information to make assessment
- **TIPS:**
  - This includes under/over recruitment according to the a priori-defined sample size without adequate justification.
  - Does ***NOT*** include changes in trial outcomes → that data is captured in a separate CONSORT item

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Eligibility Criteria

- **CONSORT (4a) – Eligibility criteria for participants.**
  - **Options:**
    - **Yes** → Provided details/criteria for ***BOTH*** inclusion ***AND*** exclusion of participants
    - **Unclear** → Only provides details of inclusion ***OR*** exclusion but ***NOT*** both
    - **No** → Details not provided

Data Comparison: Eligibility Criteria

- **Was there a difference in Eligibility Criteria between the Registry and the Manuscript?**
  - **Options:**
    - **Yes** → One or more differences between the two data sources.
    - **No** → No difference between the two data sources.
    - **Unclear** → Possible difference between the two data sources, but insufficient information to make a determination.
    - **Not Applicable** → No clinical trial registry data available.

- **Was the change noted in the Manuscript?**
  - **Options:**
    - **Yes** → The change in eligibility criteria was clearly stated and explained.
    - **No** → The change in eligibility criteria was apparent but not explained.
    - **Not Applicable** → There was no difference in the eligibility criteria between the Registry and the Manuscript.
    - **Not Applicable** → No clinical trial registry data available.

- **How many Inclusion Criteria were listed in the Registry?**
  - Please record the total number of individual Inclusion Criteria listed in the Registry.

- **DC DETAILS - Please list the Inclusion Criteria reported in the Registry.**
  - Please record each individual Inclusion Criteria listed in the Registry.

- **How many Inclusion Criteria were listed in the Manuscript?**
  - Please record the total number of individual Inclusion Criteria listed in the Manuscript.

- **DC DETAILS - Please list the Inclusion Criteria reported in the Manuscript.**
  - Please record each individual Inclusion Criteria listed in the Manuscript.

- **How many Exclusion Criteria were listed in the Registry?**
  - Please record the total number of individual Exclusion Criteria listed in the Registry.

- **DC DETAILS - Please list the Exclusion Criteria reported in the Registry.**
  - Please record each individual Exclusion Criteria listed in the Registry.

- **How many Exclusion Criteria were listed in the Manuscript?**
  - Please record the total number of individual Exclusion Criteria listed in the Manuscript.

- **DC DETAILS - Please list the Exclusion Criteria reported in the Manuscript.**
  - Please record each individual Exclusion Criteria listed in the Manuscript.

Outcome Measures

- **CONSORT (6a) – Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed.**
  - **Options:**
    - **Yes** → Clearly defined a single primary outcome (*co-primary outcomes at max*), all relevant secondary outcomes ***AND*** provide all requisite details of the timing ***AND*** procedures used to assess these outcomes
    - **Unclear** → Primary and secondary outcomes defined but the descriptions of the timing and procedures used to assess the outcomes were lacking details required to reproduce the measurements
    - **No** → If no primary or secondary outcomes are clearly defined ***OR*** if the assessment details (e.g., ***how & when***) were missing altogether
  - **TIPS**:
    - Some studies may identify multiple primary outcomes. Although this type of study design is inappropriate in the context of medical oncology research, we are evaluating the quality of reporting and not the quality of the study design. Therefore, a 'Yes' can be assigned provided the authors clearly identify which outcomes are considered primary and secondary.

- **DETAILS – Please list the primary endpoint(s):**
  - When entering data, list the primary endpoint(s) using a semicolon to separate individual criteria
  - **NR** → If not reported.

- **DETAILS – Please list the secondary endpoint(s):**

- When entering data, list the secondary endpoints using a semicolon to separate individual criteria
- **NR** → If not reported.

- **CONSORT (6b) – Any changes to trial outcomes after the trial commenced, with reasons.**
  - **Options:**
    - **NA** → No observable changes to trial outcomes were made
    - **Yes** → Describes changes in outcomes according to all pertinent features (e.g., what, why & when)
    - **Unclear** → Describes changes according to all but one pertinent feature
    - **No** → If the description is missing or unclear on two or more pertinent features

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Data Comparison: Primary Outcome

- **Was there a difference in the Primary Outcome(s) between the Registry and the Manuscript?**
  - **Options:**
    - **Yes** → ≥1 difference between the two data sources.
    - **No** → No difference between the two data sources.
    - **Unclear** → Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** → No clinical trial registry data available.

- **Was the change in Primary Outcome noted in the Manuscript?**
  - **Options:**
    - **Yes** → The change in Primary Outcome was clearly stated and explained.
    - **No** → The change in Primary Outcome was apparent but not explained.
    - **NR** → No clinical trial registry data available.
    - **NA** → No difference (i.e., Q1 = No)

- **Was a new Primary Outcome reported in the Manuscript which was not reported in the Registry?**
  - **Options:**
    - **Yes** → ≥1 Primary Outcome reported in the Manuscript that was not listed in the Registry.
    - **No** → No new Primary Outcome added to the Manuscript.
    - **Unclear** → Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** → No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

- **Was the Primary Outcome reported in the Registry reported as a Secondary Outcome in the Manuscript?**
  - **Options:**
    - **Yes** → ≥1 Primary Outcome reported in the Registry listed as a Secondary Outcome in the Manuscript.
    - **No** → No Primary Outcome from the Registry listed as a Secondary Outcome in the Manuscript.

- **Unclear** → Possible difference between the two data sources, but insufficient information to make a determination.
- **NR** → No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

- **Was the Primary Outcome reported in the Registry omitted from the Manuscript?**
  - **Options:**
    - **Yes** → The Primary Outcomes reported in the Registry was omitted from the Manuscript.
    - **No** → The Primary Outcome reported in the Registry was included in the Manuscript.
    - **Unclear** → Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** → No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

Data Comparison: Secondary Outcomes

- **Were different (new) Secondary Outcomes reported in the Manuscript which were not reported in the Registry?**
  - **Options:**
    - **Yes** → ≥1 Secondary Outcomes reported in the Manuscript were not reported in the Registry.
    - **No** → The Secondary Outcomes reported in the Manuscript were consistent with the Registry.
    - **Unclear** → Possible difference between the two data sources, but insufficient information to make a determination.
    - **NR** → No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

- **If different (new) Secondary Outcomes were added to the Manuscript, were the reasons noted in the Manuscript?**
  - **Options:**
    - **Yes** → The change(s) in Secondary Outcomes were clearly stated and explained
    - **No** → The changes in Secondary Outcomes were apparent but not explained
    - **NR** → No clinical trial registry data available
    - **NA** → No difference in Secondary Outcomes (i.e., Q6 = No)

- **Was one or more of the Secondary Outcomes reported in the Registry reported as Primary Outcomes in the Manuscript?**
  - **Options:**
    - **Yes** → A Secondary Outcome reported in the Registry was reported as a Primary Outcome in the Manuscript.
    - **No** → None of the Secondary Outcomes reported in the Registry were reported as Primary Outcomes in the Manuscript.
    - **Unclear** → Possible difference between the two data sources, but insufficient information to make a determination.

- **NR** → No clinical trial registry data available.

- **DC DETAILS – If Yes/Unclear, please provide the details?**
  - Please list all pertinent details.

Randomization & Blinding

- **CONSORT (8a) – Method used to generate the random allocation sequence.**
  - **Options:**
    - **Yes** → Clearly stated the specific process used to generate the randomization (e.g., a coin flip, computer generated)
    - **No** → Not provided

- **CONSORT (8b) – Type of randomization; details of any restriction (such as blocking and block size).**
  - **Options:**
    - **Yes** → Provided the details of how the randomization accounted for key confounding variables (e.g., blocking, minimization, stratification)
    - **No** → Not provided

- **CONSORT (9) – Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned.**
  - **Options:**
    - **Yes** → Provided details of how the physical randomization was performed or how the participants were notified of their allocation (e.g., phone call, sealed envelopes, centralized allocation)
    - **No** → Not provided

- **CONSORT (10) – Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions.**
  - **Options:**
    - **Yes** → Must include a clear description of who performed ***ALL*** of these tasks
    - **Unclear** → If description of one of these tasks is inadequate or missing
    - **No** → If two or more of these tasks are poorly described or not described at all
  - **TIP:**
    - An exception can be made for participant assignment criteria for studies using centralized allocation.

- **CONSORT (11a) – If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how.**
  - **Options:**
    - **Yes** → Details regarding testers ***AND*** data analyzers are provided
    - **Unclear** → If any of the aforementioned details are provided but poorly described
    - **No** → If any of the aforementioned details are missing
  - **TIP:**

- Remember, we are assessing if the reporting is complete ***NOT*** how good the methods are. Therefore, if authors state that the outcome assessors were not blinded, we would consider this good reporting and assign a 'Yes' for this category.
- Trials listing "double-blind" or "open label" qualify as complete reporting

- **CONSORT (11b) – If relevant, description of the similarity of interventions.**
  - **Options:**
    - **NA** → If it is a 2-arm trial with a non-pharma control group comparison ***OR*** a 3+ -arm trial with obviously different intervention groups
    - **Yes** → If details are adequately provided for two or more intervention arms with similar pharma interventions
    - **No** → If details are not adequately provided for two or more intervention arms with similar pharma interventions
  - **TIP:**
    - NA is not an option for superiority trials (i.e., pharma trials with only two similar intervention arms)

Intervention Details

- **INTERVENTION TYPE – Exercise or Pharmaceutical**
  - **Options:**
    - **Exercise** → Stated methods included delivery of a structured exercise program with a stated goal of improving a health/fitness/psychosocial outcome.
    - **Pharmaceutical** → Stated methods included delivery of a pharmaceutical intervention with a stated goal of improving health.

- **DETAILS – Was there a run-in / lead-in period?**
  - **Options:**
    - **Yes** → Authors clearly stated there was a run-in period
    - **Unclear** → Appears to be a run-in period, but it was not well described
    - **No** → No evidence of a run-in period

- **DETAILS – How many weeks was the run-in period?**
  - Note the total duration of the run-in period in weeks
  - **NR** → If not reported

- **DETAILS – Please provide the details of the run-in period, including the modality of drug administration, dose and frequency.**
  - Note all pertinent details

- **DETAILS – What was the total length of the program/intervention (weeks)?**
  - Note the total duration of the intervention in weeks
  - **NR** → If not reported
  - **Options:**
    - **Yes** → Must define the period over which the intervention was delivered according to a specific number of weeks/months or life period

- **No** → Not clearly defined (e.g., stated during chemotherapy without providing the average number of weeks/months)

- **DETAILS – How many phases did the intervention have?**
  - Note the total number of intervention phases

- **DETAILS – How many pharmaceutical intervention groups were there?**
  - Indicate 1, 2, 3 or 4 groups, as appropriate.

PHASE I/II – DETAILS

- **DETAILS – How many weeks was this phase?**
  - Note number of weeks
  - **NR** → If not reported

- **DETAILS – Where did this phase of the intervention take place?**
  - Check off which of these intervention settings apply
    - Hospital
    - Research laboratory
    - Outpatient medical clinic
    - Home
    - Other
  - **TIP:**
    - Check off more than one if needed
    - Check off Home if regular (e.g., daily) doses are prescribed and no other locations are described

- **DETAILS – If Other, please list.**
  - Note location of intervention
  - **NR** → If not reported

- **DETAILS – What was the modality of drug administration?**
  - Check off which of these intervention modalities apply
    - Oral (PO)
    - Injection (IN)
    - Topical (Top)
    - Intraosseous (IO)
    - Transdermal (TD)
    - Inhalent (INH)
    - Per rectum (PR)
    - Sublingual (SL)
    - Other
    - Not Reported
  - **TIP:**
    - Check off more than one modality when applicable

- **DETAILS – If Other, please list.**
  - Note modality of drug administration
  - **NR** → If not reported

Pharma Dose and Frequency Extraction Example:

- Patients taking two 500 mg capsules of a drug (total 1000 mg) twice a day
  - **Dose:** 1000 mg / 2
  - **Frequency:** 2x / day

- **DETAILS – What dose of drug was administered?**
  - Note the dose of drug administered
  - **NR** → If not reported
  - **TIP:**
    - List total dose and fractionation (e.g., two 500 mg capsules → 1000 mg / 2)

- **DETAILS – What was the frequency of drug administration (# per day or week)?**
  - Note the frequency (number or range) of drug administration
  - **NR** → If not reported
  - **TIP:**
    - List frequency per day or week (e.g., twice daily → 2x / day)

- **DETAILS – Was there a co-intervention prescribed for this group?**
  - **Options:**
    - **Yes** → If the details of a non-pharmacologic co-intervention was described
      - If yes, write 'Yes' and provide details
    - **No** → If there was no non-pharmacologic co-intervention described
      - If no, write 'No' only
  - **TIP:**
    - Co-interventions do not include concomitant use of medications or therapies unless they have been specifically administered/prescribed in the context of the intervention

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Intervention Summary

- **CONSORT (5) – Described the interventions for each group with sufficient details to allow replication, including how and when they were actually administered.**
  - **Options:**
    - **Yes** → Provided a complete description of the intervention, such that you could confidently reproduce the intervention
    - **No** → If they failed to provide sufficient detail (even if they provided a reasonable amount)
  - **TIP:**
    - Must describe the type, modality, dose, frequency and any co-interventions to warrant a Yes (intervention location not necessarily required).

Sample Size & Statistics

- **CONSORT (12a) – Statistical methods used to compare groups for primary and secondary outcomes.**
  - **Options:**
    - **Yes** → The methods used to compare the groups on the primary and secondary outcomes are clearly described

- **Unclear** → There is any ambiguity in the description
- **No** → Any aspect is not described

- **CONSORT (7a) – How sample size was determined.**
  - **Options:**
    - **Yes** → Provides the details of the power calculation (i.e., based on α, β and, when applicable, adjustment for drop-outs – how many participants were needed per group/overall)
    - **Yes** → Authors specifically stated that no power calculation was performed
    - **No** → Any details not provided

- **CONSORT (7b) – When applicable, explanation of any interim analysis or stopping guidelines.**
  - **Options:**
    - **NA** → No interim analysis or apriori defined stopping criteria
    - **Yes** → Authors apriori defined the rationale, nature and methods for interim analyses or stopping criteria
    - **Unclear** → If any aspect of the rationale, nature and methods for the interim analysis or stopping criteria are poorly described
    - **No** → If any aspect of the rationale, nature and methods are missing or if results are reported without details provided in the methods section
  - **TIPS:**
    - **Interim analyses**: Typically used to assess the safety, feasibility, or establish the preliminary efficacy of an intervention at a prespecified time-point in a trial with the express purpose of making decisions around whether the trial should continue as planned, if modifications are required, or if the trial should be stopped altogether. Do not mistake this type of analysis for a midpoint assessment wherein the primary and/or secondary outcome data are collected and reported as another testing time-point in the overall trial.
    - **Stopping criteria**: Likely related to the outcome of the aforementioned interim analyses. Must be apriori defined and described and ***NOT*** just reported on after the fact.

- **CONSORT (12b) – Methods for additional analyses, such as subgroup analyses and adjusted analyses.**
  - **Options:**
    - **NA** → If no additional subgroup analyses were performed
    - **Yes** → If any analysis other than the primary/secondary intervention effects are described
    - **No** → If the results of any analysis other than the primary/secondary intervention effects are reported but no methods are described

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Data Comparison: Sample Size

	Sample Size Calculated	Sample Size Recruited
Sample size – calculated vs actual?	Number: _____	Number: _____

- **TIP:**
  - If the calculated sample size listed in the Registry and Manuscript are different, please note both values (e.g., Reg: ##; Man: ##).

- **DETAILS – If different, were the changes noted in the Manuscript?**
  - **Options:**
    - **Yes** → The difference(s) in Sample Size were clearly stated and explained.
    - **No** → The difference(s) in Sample Size were apparent but not explained.
    - **Not Applicable** → There was no difference in the Sample Size calculations between the Registry and the Manuscript.
    - **Not Applicable** → No clinical trial registry data available.

RESULTS

Participant Flow

- **CONSORT (13) – Participant flow diagram (a diagram is strongly recommended).**
  - **Options:**
    - **Yes** → A clear depiction of participant flow was provided
    - **No** → Not provided

- **CONSORT (13b) – For each group, losses and exclusions after randomization, together with reasons.**
  - **Options:**
    - **NA** → If authors specifically state there were no losses/exclusions post randomization
    - **Yes** → Provided a complete account of all randomized participants
    - **Unclear** → If all randomized participants are accounted for but the details of any participant are unclear
    - **No** → If any details of any participant are missing

Participants, Analyses & Outcomes

- **CONSORT (15) – A table showing baseline demographic and clinical characteristics for each group.**
  - **Options:**
    - **Yes** → A unique table displaying demographic data is provided
    - **No** → Table not provided

- **CONSORT (13a) – For each group, the number of participants who were randomly assigned, received intended treatment, and were analyzed for the primary outcome.**
  - **Options:**
    - **Yes** → All requisite details were provided
    - **No** → Any of the requisite details are not provided
  - **TIP:**
    - Must include sample sizes in the body of the Results or directly within the Results tables.

- **CONSORT (16) – For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups.**
  - **Options:**

- **Yes** → Must provide details of how many participants from each group were included within each analysis
- **Unclear** → The authors suggest that analyses were performed according to intention-to-treat but failed to provide a description of how missing data from drop-outs or testing errors was accounted for
- **Unclear** → The authors provided numbers for the analysis but did not indicate that analyses adhered to intention-to-treat principles
- **No** → Data not provided

  - **TIPS:**
    - This information is typically reported in the main results tables in the form of (n = #) but may also be found in the results section.
    - Double check the flow diagram to check for potential dropouts/missing data.
      - If any participants withdrew or were lost to follow-up, the authors should disclose how their missing data was treated.
    - Must include sample sizes in the body of the Results or directly within the Results tables.

- **CONSORT (17a) – For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval).**
  - **Options:**
    - **Yes** → Authors must provide the raw baseline data, raw or adjusted follow-up data, change scores or effect sizes, ***AND*** 95% CI data
    - **No** → Missing any of the aforementioned data

- **CONSORT (17b) – For binary outcomes, presentation of both absolute and relative effect sizes is recommended.**
  - **Options:**
    - **NA** → If no binary outcomes are tracked/reported
    - **Yes** → Authors provide an indication of the actual number of observations relative to the expected number of observations ***AND*** whether the ratio of observations differed between groups
    - **No** → Missing any of the aforementioned data

- **CONSORT (18) – Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory.**
  - **Options:**
    - **NA** → If no subgroup or sensitivity analysis were performed
    - **Yes** → If the results of any analysis other than the main intervention effects were performed and reported
    - **No** → If the results of any analysis other than the main intervention effects were performed but not reported

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- **DETAILS – What was the outcome of this trial?**
  - **Options:**
    - **Positive** → As hypothesized, there was a significant difference in the primary outcome
    - **Negative** → Contrary to the hypothesis, there was no significant difference in the primary outcome
    - **Unclear** → If the primary findings are not well defined or not interpretable
    - **Mixed** → Only an option for trials with more than one primary outcome (rare)

Trial Characteristics

- **CONSORT (14b) – Why the trial ended or was stopped.**
  - **Options:**
    - **NA** → If the trial appeared to finish as planned (i.e., achieved target sample size and concluded the intervention and follow-up tested as intended)
    - **Yes** → If the trial stopped early or was extended ***AND*** a full justification was provided
    - **Unclear** → If the trial stopped early or was extended ***AND*** the authors made special note of that fact without providing an adequate justification
    - **Unclear** → If the trial stopped early or was extended ***AND*** an inadequate discussion was provided
    - **No** → If the trial stopped early or was extended ***BUT*** an adequate justification was not provided
  - **TIP:**
    - The majority of studies will finish as planned and will be assigned an **NA**

- **CONSORT (14a) – Dates defining the periods of recruitment and follow-up.**
  - **Options:**
    - **Yes** → Must provide both the dates of when the trial was open to recruitment ***AND*** at least indicate a specific date as to when participant follow-up finished
    - **Unclear** → Authors provided recruitment dates but only eluded to how long the follow-up period lasted (e.g., 12 months)
    - **No** → Only provided dates of recruitment but not follow-up ***OR*** not at all

DETAILS

- **Recruitment (enrollment) start date:**
  - *Note details*
  - **Nomenclature:** Date format → MM/YY
  - **NR** → If not reported

- **Recruitment (enrollment) end date:**
  - *Note details*
  - **Nomenclature:** Date format → MM/YY
  - **NR** → If not reported

- **Trial start date:**
  - *Note details*
  - **Nomenclature:** Date format → MM/YY
  - **NR** → If not reported

- **Trial end date:**
  - *Note details*
  - **Nomenclature:** Date format → MM/YY
  - **NR** → If not reported

Randomization & Testing

- **Number of subjects randomized to PHARMA intervention:**
  - **PHARMA (4)** → *Note details* for each group as relevant
  - **NR** → If not reported
- **Number of subjects randomized to Usual Care/Control:**
  - *Note details*
  - **NR** → If not reported
- **Number of PHARMA participants tested at baseline:**
  - **PHARMA (4)** → *Note details* for each group as relevant
  - **NR** → If not reported
- **Number of Usual Care/Control participants tested at baseline:**
  - *Note details*
  - **NR** → If not reported
- **Number of PHARMA participants tested at follow-up:**
  - **PHARMA (4)** → *Note details* for each group as relevant
  - **NR** → If not reported
- **Number of Usual Care/Control participants tested at follow-up:**
  - *Note details*
  - **NR** → If not reported

Demographics

- **Total number of subjects:**
  - *Note details*
  - **NR** → If not reported
- **Number of male participants:**
  - *Note details*
  - **NR** → If not reported
- **Number of female participants:**
  - *Note details*
  - **NR** → If not reported
- **Average age of all participants:**
  - *Note details*
  - **NR** → If not reported
- **Average age of PHARMA participants:**

- *Note details*
- **NR** → If not reported

- **Average age of Usual Care/Control participants:**
  - *Note details*
  - **NR** → If not reported

Medical Characteristics

- **Average disease duration (*months*):**
  - Not Applicable
  - <6 months
  - <12 months
  - <24 months
  - <60 months
  - <120 months
  - ≥120 months
  - **NR** → If not reported

Comorbidities

Hypertension (n):
- *Note details*
- **NR** → If not reported
- **NA** → If listed in exclusion criteria

Hypertension (%): *Note details*

Hypercholesterolemia (n):
- *Note details*
- **NR** → If not reported
- **NA** → If listed in exclusion criteria

Hypercholesterolemia (%): *Note details*

Diabetes (n):
- *Note details*
- **NR** → If not reported
- **NA** → If listed in exclusion criteria

Diabetes (%): *Note details*

Pharmaceutical Outcomes

PHARMA (4) & UC Compliance:

Number: **Percent:** *Note details*
- *Note details*
- **NR** → If not reported ***OR*** if trial reports compliance as X% attended X% of sessions

- Cannot be NA

PHARMA (4) & UC RDI:

Number: **Percent:** *Note details*

- *Note details*
- **NR** → If not reported
- Cannot be **NA**

PHARMA (4) & UC Dose Modification:

Number: **Percent:** *Note details*

- *Note details*
- **NR** → If not reported
- If no dose modifications occurred list as '0' not **NA**

PHARMA (4) & UC Treatment Discontinuation:

Number: **Percent:** *Note details*

- *Note details*
- **NR** → If not reported
- If no dose modifications occurred list as '0' not NA

Exclusion

PHARMA (4) Exclusion –

Number: **Percent:** *Note details*

- *Note details*
- **NR** → If not reported
- If no participants were excluded list as '0' not NA

UC Exclusion – **Number:** **Percent:** *Note details*

- *Note details*
- **NR** → If not reported
- If no participants were excluded list as '0' not NA

- **TIP (*if patient attrition has occurred*):**
  - **NA** → When missing data strategies are used (e.g., imputation) and authors confirm that the results do not differ with or without the imputed data.
  - For trials reporting intention to treat analyses, 'zero exclusion' cannot be assigned unless confirmed by analysis sample sizes defined in either the body of the results or the results tables.

CONSORT – HARMS

- **HARMS (19a) – If the study collected data on harms and benefits, the title or abstract should so state.**
  - **Options:**
    - **NA** → Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **Yes** → If authors mention safety or AEs anywhere in the title or abstract
    - **No** → If safety or AEs are not mentioned in these sections
  - **TIPS:**
    - **IMPORTANT – All Phase I-II, by definition, should report safety outcomes. Thus, the safety of the intervention should be assessed and reported on.**

- **HARMS (19b) – If the trial addresses both harms and benefits, the introduction should so state.**
  - **Options:**
    - **NA** → Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **Yes** → Authors should state the safety of the intervention is in question ***OR*** they should state that one of the trial objectives (typically last paragraph of the intro) is to assess the safety of the intervention.
    - **No** → Not mentioned

- **HARMS (19c) – List addressed adverse events with definitions for each** (*when relevant, attention to grading, expected vs. unexpected AEs, reference to standardized and validated definition, and description of new definitions*)**.**
  - **Options:**
    - **NA** → Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **Yes** → Authors listed ***AND*** defined the potential/anticipated AEs being studied
    - **Unclear** → Authors listed the AEs but failed to define them
    - **No** → Details not provided
  - **TIPS:**
    - For trials reporting AEs as the primary and secondary outcomes, the definitions for the outcomes count towards defining the AEs.

- **HARMS (19d) – Clarify how harms-related data was collected (***mode of collection, timing, attribution methods, intensity of ascertainment, and harms-related monitoring and stopping rules***).**
  - **Options:**
    - **NA** → Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **Yes** → Authors should clearly state how, when ***AND*** by whom AE data was collected
    - **Unclear** → Authors fail to properly describe a single aspect (how, when, by whom) of how the AE data was collected but adequately describe all other aspects
    - **No** → Details not provided
  - **TIPS:**
    - For trials reporting AEs as the primary and secondary outcomes, the collection methods for the outcomes count towards collecting the AEs.

- **HARMS (19e) – Describe plans for presenting and analyzing information on harms (***including coding, handling of recurrent event, specification of timing issues, handling of continuous measures, and statistical analyses***).**
  - **Options:**

- **NA** → Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
- **Yes** → Authors should clearly state how AE data was analyzed
- **Unclear** → Authors fail to properly describe a single aspect of how the AE data was analyzed but adequately describe all other aspects
- **No** → Details not provided

GENERAL TIPS FOR HARMS:

- If authors fail to explicitly state if AEs were attributable to the intervention, check to see if there were analyses comparing AE frequency or relative risk per arm.
  - If analyses were performed:
    - For AEs which occur significantly more frequently within the intervention group(s) → list details for those specific AEs under 'intervention-related'
    - For AEs which do not occur significantly more frequently within the intervention group(s) → list details for those specific AEs under 'non-intervention-related'
  - If analyses were not performed:
    - Rate 'intervention-related' AEs as **NR**
    - List all reported AEs for both groups as 'non-intervention-related'
- For trials reporting AEs as the primary and secondary outcomes, the analysis methods for the outcomes count towards analyzing the AEs.

Intervention-related AEs

- **DETAILS – Did any intervention-related AE occur?**
  - **NA** → Specifically stated that no intervention-related AEs occurred
  - **Yes** → Specifically stated the type and number of intervention-related AEs
  - **Unclear** → The numbers are provided but the details are unclear
  - **No** → Details not provided

- **DETAILS – If so, how many?**
  - Note pertinent details
  - **NR** → If not reported

- **DETAILS – How were intervention-related AE defined?**
  - Note pertinent details
  - **NR** → If not reported

- **DETAILS – How were intervention-related AE monitored/tracked?**
  - Note pertinent details
  - **NR** → If not reported

Non-Intervention-related AEs

- **DETAILS – Did any non-intervention-related AE occur?**

- **NA** → Specifically stated that no intervention-related AEs occurred
- **Yes** → Specifically stated the type and number of intervention-related AEs
- **Unclear** → The numbers are provided but the details are unclear
- **No** → Details not provided

- **DETAILS – If so, how many?**
  - Note pertinent details
  - **NR** → If not reported

- **DETAILS – How were non-intervention-related AE defined?**
  - Note pertinent details
  - **NR** → If not reported

- **DETAILS – How were non-intervention-related AE monitored/tracked?**
  - Note pertinent details
  - **NR** → If not reported

AEs Per Group

- **DETAILS – How many AEs were reported for the PHARMA (4) & UC groups?**
  - Note pertinent details
  - **NR** → If not reported

HARMS Continued…

- **HARMS (19f) – Describe for each arm the participant withdrawals that are due to harms and their experiences with the allocated treatment.**
  - **Options:**
    - **NA** → Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **NA** → If the authors specifically stated there were no AEs ***OR*** that no participant withdrew/was lost to follow-up due to AEs
    - **Yes** → If the authors clearly identify the number of participants who withdrew or were lost to follow-up due to AEs
    - **No** → If the reasons why participants withdrew or were lost-to-follow-up are not provided for every applicable case

- **HARMS (19g) – Provide denominators for analyses on harms.**
  - **Options:**
    - **NA** → Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **NA** → If the authors specifically stated there were no AEs
    - **Yes** → Reference numbers provided for AE risk calculations
    - **No** → Details not provided

- **HARMS (19h) – Presents absolute risk per arm and per AE type, grade, and seriousness, and present appropriate metrics for recurrent events, continuous variables, and scale variables.**

- **Options:**
  - **NA** → Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
  - **NA** → If the authors specifically stated there were no AEs
  - **Yes** → If the authors present the absolute risk per arm ***AND*** per adverse event type/grade ***AND*** describe the frequency of AEs
  - **No** → Details not provided

- **HARMS (19i) – Describes any subgroup analyses and exploratory analyses for harms.**
  - **Options:**
    - **NA** → Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **NA** → If the authors specifically stated there were no AEs
    - **Yes** → If the authors present the results of subgroup analyses or exploratory analyses
    - **No** → Details not provided

- **HARMS (19j) – Provide a balanced discussion of benefits and harms with emphasis on study limitation, generalizability, and other sources of information on harms.**
  - **Options:**
    - **NA** → Testing an intervention (e.g., calcium, insulin) which has either no risks or well documented risks and is no longer the question
    - **NA** → If the authors specifically stated there were no AEs
    - **Yes** → Should formally address any AEs in the Discussion in the context of trial limitations and whether the risk intervention-related AEs should be considered when implementing or conducting further tests of the intervention in question.
    - **No** → Not discussed

DISCUSSION & OTHER

- **CONSORT (20) – Trial limitations: addressing sources of potential bias, imprecision, and if relevant, multiplicity of analyses.**
  - **Options:**
    - **Yes** → If authors listed major sources of potential bias or measurement error ***AND*** provided basic details as to how these factors may have influenced results
    - **Unclear** → Authors listed sources of bias but failed to adequately discuss the potential impact/implications of these factors
    - **No** → Failed to list and adequately discuss potential sources of bias within the description of trial limitations

- **CONSORT (21) – Generalizability of trial findings according to the intervention, comparators, patients, and care providers and centers involved in the trial.**
  - **Options:**
    - **Yes** → Authors must discuss their findings in the context of similar interventions, comparators, patient groups, and care provider/centers.

- **No** → None of these aspects were not adequately discussed within the context of other research (past and future)

- **CONSORT (22) – Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence.**
  - **Options:**
    - **Yes** → Authors should not overstate non-significant or modestly altered endpoints; nor should they dismiss/ignore/fail to adequately describe non-significant findings for any of the primary outcomes in favor of discussing secondary outcomes
    - **No** → Authors do not present an unbiased interpretation of their findings
  - **TIP:**
    - Look closely at the results for the primary outcomes (data tables). The first paragraph of the Discussion should summarize these results without inflating/downplaying the findings. Similarly, the Conclusion should also provide an unbiased summary of the main trial findings.

- **CONSORT (23) – Registration number and name of trial registry.**
  - **Options:**
    - **Yes** → If the number was provided
    - **Yes** → If authors clearly stated the trial was not registered
    - **No** → If the number was not provided
  - **TIP:**
    - Check the abstract, methods, and footnotes/margins of the paper to locate this number.

- **DETAILS – If so, please list.**
  - Note pertinent details

- **CONSORT (24) – Where the full trial protocol can be accessed, if available.**
  - **Options:**
    - **Yes** → If the full protocol or a link to the full protocol is provided in the primary manuscript or as an online supplement
    - **No** → Data not provided
  - **TIP:**
    - Check the abstract, methods, and footnotes/margins of the paper to locate this number.

- **DETAILS – If so, please provide the URL:**
  - Note pertinent details

- **CONSORT (25) – Sources of funding and other support, role of funders.**
  - **Options:**
    - **Yes** → If described
    - **Unclear** → If described either the funder or the role but not both
    - **No** → Not described
  - **TIP:**
    - Similar to the registration number, check the footnotes, margins, and any supplemental information listed between the Conclusion and the Reference list.

- **DETAILS – If so, please provide the details:**
  - Note pertinent details

COCHRANE – Risk of Bias

- **Selection Bias: Random sequence generation**
  - **High** → Selection bias (biased allocation to interventions) due to inadequate generation of a randomized sequence
  - **Low** → Random sequence generation method should produce comparable groups
  - **Unclear** → Not described in sufficient detail to permit judgement

- **Selection Bias: Allocation concealment**
  - **High** → Selection bias (biased allocation to interventions) due to inadequate concealment of allocations prior to assignment
  - **Low** → Intervention allocations likely could not have been foreseen in before or during enrollment
  - **Unclear** → Not described in sufficient detail to permit judgement

- **Performance Bias: Blinding (participants & personnel)**
  - **High** → Performance bias due to knowledge of the allocated interventions by participants and personnel during the study
  - **Low** → Blinding was likely effective
  - **Unclear** → Not described in sufficient detail to permit judgement

- **Detection Bias: Blinding (outcome assessment)**
  - **High** → Detection bias due to knowledge of the allocated interventions by outcome assessors
  - **Low** → Blinding was likely effective
  - **Unclear** → Not described in sufficient detail to permit judgement

- **Attrition Bias: Incomplete outcome data**
  - **High** → Attrition bias due to amount, nature or handling of incomplete outcome data
  - **Low** → Handling of incomplete outcome data was complete and unlikely to have produced bias
  - **Unclear** → Insufficient reporting of attrition/exclusions to permit judgment (e.g., number randomized not stated, no reasons for missing data provided)

- **Reporting Bias: Selective reporting**
  - **High** → Reporting bias due to selective outcome reporting
  - **Low** → Selective reporting bias not detected
  - **Unclear** → Insufficient information to permit judgment

- **Other sources of bias**
  - **High** → Bias due to problems not covered elsewhere in the criteria
  - **Low** → No other bias detected
  - **Unclear** → There may be a risk of bias, but there is insufficient information to assess whether an important risk of bias exists or insufficient rationale or evidence that an identified problem will introduce bias

- **Quality Comments: Justify 'high-risk' & 'unclear' decisions**
  - Please note pertinent details

JADAD Score

- **Randomization Score:**
  - 1 point if randomization is mentioned
  - 1 additional point if the method of randomization is appropriate
  - Deduct 1 point if the method of randomization is inappropriate (minimum 0)

- **Blinding Score:**
  - 1 point if blinding is mentioned
  - 1 additional point if the method of blinding is appropriate
  - Deduct 1 point if the method of blinding is inappropriate (minimum 0)

- **Account of All Patient Score:**
  - 1 point if the fate of all patients in the trial is known. If there are no data the reason is stated.

Supplementary Table 1: List of Excluded Exercise Records

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Author	Year	Title	Primary Exclusion Criteria
Cumming et al.	2008	Cluster randomised trial of a targeted multifactorial intervention to prevent falls among older people in hospital	Not exercise-based
Dixon et al.	2008	Adjustable gastric banding and conventional therapy for type 2 diabetes: a randomized controlled trial	Not exercise-based
Hollinghurst et al.	2008	Randomised controlled trial of Alexander technique lessons, exercise, and massage (ATEAM) for chronic and recurrent back pain: economic evaluation	Not exercise-based
Kerse et al.	2008	Does a functional activity programme improve function, quality of life, and falls for residents in long term care? Cluster randomised controlled trial	Exercise session duration too short
Kinmonth et al.	2008	Efficacy of a theory-based behavioural intervention to increase physical activity in an at-risk group in primary care (ProActive UK): a randomised trial	Not exercise-based
Lautenschlager et al.	2008	Effect of physical activity on cognitive function in older adults at risk for Alzheimer disease: a randomized trial	Not exercise-based
Li et al.	2008	The long-term effect of lifestyle interventions to prevent diabetes in the China Da Qing Diabetes Prevention Study: a 20-year follow-up study	Secondary analysis
Little et al.	2008	Randomised controlled trial of Alexander technique lessons, exercise, and massage (ATEAM) for chronic and recurrent back pain	Not exercise-based
Lloyd & Barnett	2008	Physical activity and risk of diabetes	Not a RCT
Lloyd et al.	2008	Physical activity and risk of diabetes	R/C paper
Mitka, M.	2008	Therapies aim to boost "good" cholesterol	R/C paper
NA	2008	Summaries for patients. A combination treatment for pulmonary hypertension	Not a RCT
Pasanen et al.	2008	Neuromuscular training and the risk of leg injuries in female floorball players: cluster randomised controlled study	Exercise session duration too short
Barton et al.	2009	Lifestyle interventions for knee pain in overweight and obese adults aged ≥45: Economic evaluation of randomised controlled trial	Secondary analysis
Boysen et al.	2009	ExStroke Pilot Trial of the effect of repeated instructions to improve physical activity after ischaemic stroke: A multinational randomised controlled clinical trial	Not exercise-based
Engebretsen et al.	2009	Radial extracorporeal shockwave treatment compared with supervised exercises in patients with subacromial pain syndrome: Single blind randomised study	Not exercise-based
Flynn et al.	2009	Effects of exercise training on health status in patients with chronic heart failure: HF-action randomized controlled trial	Secondary analysis
Flynn et al.	2009	Effects of exercise training on health status in patients with chronic heart failure: HF-ACTION randomized controlled trial	Duplicate
Flynn et al.	2009	Effects of exercise training on health status in patients with chronic heart failure: HF-ACTION randomized controlled trial	Secondary analysis
Flynn et al.	2009	Effects of exercise training on health status in patients with chronic heart failure: HF-action randomized controlled trial.	Secondary analysis
Hupperets et al.	2009	Effect of unsupervised home based proprioceptive training on recurrences of ankle sprain: Randomised controlled trial	Not exercise-based
Jafar et al.	2009	Community-based interventions to promote blood pressure control in a developing country: A cluster randomized trial	Not exercise-based
Jarvik et al.	2009	Surgery versus non-surgical therapy for carpal tunnel syndrome: a randomised parallel-group trial	Not exercise-based
Jenkinson et al.	2009	Effects of dietary intervention and quadriceps strengthening exercises on pain and function in overweight people with knee pain: Randomised controlled trial	Not exercise-based
Karthikeyan et al.	2009	Treatment of intermittent claudication	R/C paper
Khattri, S.	2009	Treadmill exercise or resistance training in patients with peripheral arterial disease	R/C paper
Khattri, S.	2009	Treadmill exercise or resistance training in patients with peripheral arterial disease	Not a RCT
Kuijper et al.	2009	Cervical collar or physiotherapy versus wait and see policy for recent onset cervical radiculopathy: Randomised trial	Not exercise-based
Lautenschlager et al.	2009	Effect of physical activity on cognitive function in older adults at risk for Alzheimer disease: A randomized trial	Duplicate
Lautenschlager et al.	2009	Effect of physical activity on cognitive function in older adults at risk for Alzheimer disease: A randomized trial.	Not exercise-based

Supplementary Table 1: List of Excluded Exercise Records

Author	Year	Title	Primary Exclusion Criteria
Lawton et al.	2009	Exercise on prescription for women aged 40-74 recruited through primary care: Two year randomised controlled trial	Not exercise-based
Marshall et al.	2009	Losing weight in moderate to severe obstructive sleep apnoea	R/C paper
McDermott et al.	2009	Treadmill exercise and resistance training in patients with peripheral arterial disease with and without intermittent claudication: a randomized controlled trial	Duplicate
Mead, G.	2009	Exercise after stroke Is beneficial but how best to increase physical activity is unknown	R/C paper
Misra, A.	2009	Prevention of type 2 diabetes: the long and winding road	R/C paper
Morey et al.	2009	Effects of home-based diet and exercise on functional outcomes among older, overweight long-term cancer survivors: RENEW: a randomized controlled trial	Not exercise-based
O'Connor et al.	2009	Efficacy and safety of exercise training in patients with chronic heart failure: HF-ACTION randomized controlled trial	Duplicate
Patwala et al.	2009	Maximizing Patient Benefit From Cardiac Resynchronization Therapy With the Addition of Structured Exercise Training. A Randomized Controlled Study	Duplicate
Ravaud et al.	2009	ARTIST (osteoarthritis intervention standardized) study of standardised consultation versus usual care for patients with osteoarthritis of the knee in primary care in France: Pragmatic randomised controlled trial	Not exercise-based
Sackley et al.	2009	Effects of a physiotherapy and occupational therapy intervention on mobility and activity in care home residents: A cluster randomised controlled trial	Not exercise-based
Schmitz et al.	2009	Weight lifting in women with breast-cancer-related lymphedema	Duplicate
Schweickert et al..	2009	Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomised controlled trial	Not exercise-based
Soligard et al.	2009	Comprehensive warm-up programme to prevent injuries in young female footballers: Cluster randomised controlled trial	Not studying adults
Subak et al.	2009	Weight loss to treat urinary incontinence in overweight and obese women	Not exercise-based
Van Linschoten et al.	2009	Supervised exercise therapy versus usual care for patellofemoral pain syndrome: An open label randomised controlled trial	Not exercise-based
Bennell et al.	2010	Efficacy of standardised manual therapy and home exercise programme for chronic rotator cuff disease: Randomised placebo controlled trial	Not exercise-based
Bleakley et al.	2010	Effect of accelerated rehabilitation on function after ankle sprain: Randomised controlled trial	Not exercise-based
Crawshaw et al.	2010	Exercise therapy after corticosteroid injection for moderate to severe shoulder pain: Large pragmatic randomised trial	Not exercise-based
Frobell et al.	2010	A randomized trial of treatment for acute anterior cruciate ligament tears	Not exercise-based
Goodpaster et al.	2010	Effects of diet and physical activity interventions on weight loss and cardiometabolic risk factors in severely obese adults: a randomized trial	Not exercise-based
Lacomba et al.	2010	Effectiveness of early physiotherapy to prevent lymphoedema after surgery for breast cancer: Randomised, single blinded, clinical trial	Not exercise-based
Lo et al.	2010	Robot-assisted therapy for long-term upper-limb impairment after stroke	Not exercise-based
Logan et al.	2010	Community falls prevention for people who call an emergency ambulance after a fall: randomised controlled trial	Not exercise-based
Lombard et al.	2010	A low intensity, community based lifestyle programme to prevent weight gain in women with young children: Cluster randomised controlled trial	Not exercise-based
Rock et al.	2010	Effect of a free prepared meal and incentivized weight loss program on weight loss and weight loss maintenance in obese and overweight women: a randomized controlled trial	Not exercise-based
Schmitz et al.	2010	Weight lifting for women at risk for breast cancer-related lymphedema: a randomized trial	Duplicate
Sixt et al.	2010	Long- but not short-term multifactorial intervention with focus on exercise training improves coronary endothelial dysfunction in diabetes mellitus type 2 and coronary artery disease	Not exercise-based
van Eijk-Hustings et al.	2010	A randomized trial of tai chi for fibromyalgia	R/C paper
Van Gelder et al.	2010	Lenient versus strict rate control in patients with atrial fibrillation	Not exercise-based
Wang et al.	2010	A randomized trial of tai chi for fibromyalgia	Not exercise-based
Wearden et al.	2010	Nurse led, home based self help treatment for patients in primary care with chronic fatigue syndrome: randomised controlled trial	Not exercise-based
Zhan & Wu	2010	A randomized trial of tai chi for fibromyalgia	Duplicate
Zhou et al.	2010	A randomized trial of tai chi for fibromyalgia	Duplicate

Supplementary Table 1: List of Excluded Exercise Records

Author	Year	Title	Primary Exclusion Criteria
Andrews et al.	2011	Diet or diet plus physical activity versus usual care in patients with newly diagnosed type 2 diabetes: the Early ACTID randomised controlled trial	Not exercise-based
Bleijenberg & Knoop	2011	Chronic fatigue syndrome: Where to PACE from here?	Not a RCT
Church et al.	2011	Effects of aerobic and resistance training on hemoglobin A1c levels in patients with type 2 diabetes: A randomized controlled trial	Duplicate
Church et al.	2011	Effects of aerobic and resistance training on hemoglobin A1c levels in patients with type 2 diabetes: A randomized controlled trial	Duplicate
Devoogdt et al.	2011	Effect of manual lymph drainage in addition to guidelines and exercise therapy on arm lymphoedema related to breast cancer: Randomised controlled trial	Not exercise-based
Dubowitz et al.	2011	Exercise interventions and glycemic control in patients with diabetes	R/C paper
Dubowitz et al.	2011	Exercise interventions and glycemic control in patients with diabetes	Not a RCT
Duncan et al.	2011	Body-weight-supported treadmill rehabilitation after stroke	R/C paper
Duncan et al.	2011	Body-weight-supported treadmill rehabilitation after stroke	Not a RCT
Edelmann et al.	2011	Exercise Training Improves Exercise Capacity and Diastolic Function in Patients With Heart Failure With Preserved Ejection Fraction Results of the Ex-DHF (Exercise training in Diastolic Heart Failure) Pilot Study	Duplicate
Engel, C	2011	Tailored cognitive-behavioral therapy plus exercise training improved clinical and functional outcomes in fibromyalgia	R/C paper
Giakoumakis, J.	2011	The PACE trial in chronic fatigue syndrome	Not a RCT
Glazener et al.	2011	Urinary incontinence in men after formal one-to-one pelvic-floor muscle training following radical prostatectomy or transurethral resection of the prostate (MAPS): two parallel randomised controlled trials	Not exercise-based
Gondoni & Liuzzi	2011	Diet and physical activity interventions in severely obese adults	R/C paper
Gondoni & Liuzzi	2011	Diet and physical activity interventions in severely obese adults	Not a RCT
Hemmingsson et al.	2011	Diet and physical activity interventions in severely obese adults	Duplicate
Hemmingsson et al.	2011	Diet and physical activity interventions in severely obese adults	Not a RCT
Hu, F.	2011	Diet and exercise for new-onset type 2 diabetes?	R/C paper
Jebb et al.	2011	Primary care referral to a commercial provider for weight loss treatment versus standard care: a randomised controlled trial	Not exercise-based
Jolly et al.	2011	Comparison of range of commercial or primary care led weight reduction programmes with minimal intervention control for weight loss in obesity: Lighten Up randomised controlled trial	Not exercise-based
Kewley, A.	2011	The PACE trial in chronic fatigue syndrome	Not a RCT
Khan et al.	2011	Prescribing exercise in primary care	R/C paper
Kindlon, T.	2011	The PACE trial in chronic fatigue syndrome	Not a RCT
Langhorne et al.	2011	Stroke rehabilitation	R/C paper
McArthur et al.	2011	Post-acute care and secondary prevention after ischaemic stroke	R/C paper
Mitchell, J.	2011	The PACE trial in chronic fatigue syndrome	Not a RCT
Pearse et al.	2011	Managing perioperative risk in patients undergoing elective non-cardiac surgery	R/C paper
Rice, K.	2011	A COPD disease management program reduced a composite of hospitalizations or emergency department visits	wrong journal
Rolla & Bucca	2011	Placebo and other interventions in asthma	Not a RCT
Shinohara, M.	2011	The PACE trial in chronic fatigue syndrome	Not a RCT
Spink et al.	2011	Effectiveness of a multifaceted podiatry intervention to prevent falls in community dwelling older people with disabling foot pain: randomised controlled trial	Not exercise-based
Stouten et al.	2011	The PACE trial in chronic fatigue syndrome	Not a RCT
Tilbrook et al.	2011	Yoga for chronic low back pain: A randomized trial	Not exercise-based
Villareal et al.	2011	Weight loss, exercise, or both and physical function in obese older adults	Duplicate
Vlaeyen et al.	2011	The PACE trial in chronic fatigue syndrome	Not a RCT
White et al.	2011	Comparison of adaptive pacing therapy, cognitive behaviour therapy, graded exercise therapy, and specialist medical care for chronic fatigue syndrome (PACE): a randomised trial	Duplicate

Supplementary Table 1: List of Excluded Exercise Records

Author	Year	Title	Primary Exclusion Criteria
Bennell et al.	2012	Management of osteoarthritis of the knee	R/C paper
Blumenthal et al.	2012	Effects of exercise training on depressive symptoms in patients with chronic heart failure: The HF-ACTION randomized trial.	Duplicate
Blumenthal et al.	2012	Effects of exercise training on depressive symptoms in patients with chronic heart failure: the HF-ACTION randomized trial	Secondary analysis
Blumenthal et al.	2012	Exercise and pharmacological treatment of depressive symptoms in patients with coronary heart disease: results from the UPBEAT (Understanding the Prognostic Benefits of Exercise and Antidepressant Therapy) study	Secondary analysis
Bronfort et al.	2012	Spinal manipulation, medication, or home exercise with advice for acute and subacute neck pain: a randomized trial	Not exercise-based
Chalder et al.	2012	Facilitated physical activity as a treatment for depressed adults: Randomised controlled trial	Not exercise-based
Clemson et al.	2012	Integration of balance and strength training into daily life activity to reduce rate of falls in older people (the LiFE study): Randomised parallel trial	Not exercise-based
Ernst, E.	2012	Acute and subacute neck pain	R/C paper
Franklin, B.	2012	Multifactorial cardiac rehabilitation did not reduce mortality or morbidity after acute myocardial infarction	R/C paper
Holmgren et al.	2012	Effect of specific exercise strategy on need for surgery in patients with subacromial impingement syndrome: Randomised controlled study	Not exercise-based
Jakicic et al.	2012	Effect of a stepped-care intervention approach on weight loss in adults: a randomized clinical trial	Not exercise-based
Layden et al.	2012	Diagnosis and management of lower limb peripheral arterial disease: Summary of NICE guidance	R/C paper
Lazzeri et al.	2012	Pelvic floor muscle training after prostate surgery	R/C paper
Li et al.	2012	Tai chi and postural stability in patients with Parkinson's disease	Not exercise-based
Li et al.	2012	Tai chi and postural stability in patients with Parkinson's disease	Not exercise-based
McDermott et al.	2012	Treadmill exercise and resistance training in patients with peripheral arterial disease with and without intermittent claudication: A randomized trial.	Duplicate
McDermott et al.	2012	Treadmill exercise and resistance training in patients with peripheral arterial disease with and without intermittent claudication: A randomized trial.	Duplicate
Morris, M.	2012	Preventing falls in older people	R/C paper
O'Connor & Ahmad	2012	Can We Prevent Heart Failure with Exercise?	Not a RCT
Rejeski et al.	2012	Lifestyle change and mobility in obese adults with type 2 diabetes	Not exercise-based
Sossai & Sponga	2012	Physical activity to combat depression in chronic heart failure	R/C paper
Van De Port et al.	2012	Effects of circuit training as alternative to usual physiotherapy after stroke: Randomised controlled trial	Not exercise-based
Waldén et al.	2012	Prevention of acute knee injuries in adolescent female football players: Cluster randomised controlled trial	Not studying adults
Belardinelli et al.	2013	A 10-year exercise program improved oxygen consumption and quality of life in stable chronic heart failure	R/C paper
Katz, J.	2013	Surgery and physical therapy did not differ for function in meniscal tears with knee osteoarthritis	Not exercise-based
Labrie et al.	2013	Surgery versus physiotherapy for stress urinary incontinence	Not exercise-based
Lamb et al.	2013	Emergency department treatments and physiotherapy for acute whiplash: a pragmatic, two-step, randomised controlled trial	Not exercise-based
Mascitelli & Goldstein	2013	Statin and exercise prescription	R/C paper
Mascitelli & Goldstein	2013	Statin and exercise prescription	Not a RCT
McDermott et al.	2013	Home-based walking exercise intervention in peripheral artery disease: a randomized clinical trial	Not exercise-based
Messier et al.	2013	Effects of intensive diet and exercise on knee joint loads, inflammation, and clinical outcomes among overweight and obese adults with knee osteoarthritis: the IDEA randomized clinical trial	Not exercise-based
Solomon et al.	2013	The influence of hyperglycemia on the therapeutic effect of exercise on glycemic control in patients with type 2 diabetes mellitus	Not a RCT
Underwood et al.	2013	Exercise for depression in elderly residents of care homes: a cluster-randomised controlled trial	Duplicate
Van Nimwegen, et al.	2013	Promotion of physical activity and fitness in sedentary patients with Parkinson's disease: Randomised controlled trial	Not exercise-based
Wing et al.	2013	Cardiovascular effects of intensive lifestyle intervention in type 2 diabetes	Secondary analysis

Supplementary Table 1: List of Excluded Exercise Records

Author	Year	Title	Primary Exclusion Criteria
Wing, R.	2013	A lifestyle intervention did not reduce cardiovascular outcomes in overweight or obese patients with type 2 diabetes	R/C paper
Bennell et al.	2014	Effect of physical therapy on pain and function in patients with hip osteoarthritis: a randomized clinical trial	Not exercise-based
Bronfort et al.	2014	Spinal manipulation and home exercise with advice for subacute and chronic back-related leg pain: a trial with adaptive allocation	Not exercise-based
Cooney et al.	2014	Exercise for depression	R/C paper
Goonewardene et al.	2014	Letter to the Editor: Re: Bourke et al., Lifestyle changes for improving disease-specific quality of life in sedentary men on long-term androgen-deprivation therapy for advanced prostate cancer: a randomised controlled trial. Eur Urol 2014;65:865-72; Re: Galvão et al., A multicentre year-long randomised controlled trial of exercise training targeting physical functioning in men with prostate cancer previously treated with androgen suppression and radiation from TROG 03.04 RADAR. Eur Urol 2014;65:856-64; Re: Keating et al., Androgen-deprivation therapy and diabetes control among diabetic men with prostate cancer. Eur Urol 2014;65:816-24; Re: Jespersen et al., Androgen-deprivation therapy in treatment of prostate cancer and risk of myocardial infarction and stroke: a nationwide Danish population-based cohort study. Eur Urol 2014;65:704-9	Not a RCT
Hunt et al.	2014	A gender-sensitised weight loss and healthy living programme for overweight and obese men delivered by Scottish Premier League football clubs (FFIT): a pragmatic randomised controlled trial	Not exercise-based
Latham et al.	2014	Effect of a home-based exercise program on functional recovery following rehabilitation after hip fracture: a randomized clinical trial	Not exercise-based
Li et al.	2014	Cardiovascular mortality, all-cause mortality, and diabetes incidence after lifestyle intervention for people with impaired glucose tolerance in the Da Qing Diabetes Prevention Study: a 23-year follow-up study	Secondary analysis
Michaleff et al.	2014	Comprehensive physiotherapy exercise programme or advice for chronic whiplash (PROMISE): a pragmatic randomised controlled trial	Not exercise-based
Michaleff et al.	2014	Comprehensive physiotherapy exercise programme or advice for chronic whiplash (PROMISE): a pragmatic randomised controlled trial	Not exercise-based
Pahor et al.	2014	Effect of structured physical activity on prevention of major mobility disability in older adults: the LIFE study randomized clinical trial	Not exercise-based
Pugliese & Balducci	2014	NAVIGATOR: Physical activity for cardiovascular health?	R/C paper
Rhon et al.	2014	One-year outcome of subacromial corticosteroid injection compared with manual physical therapy for the management of the unilateral shoulder impingement syndrome: A pragmatic randomized trial	Not exercise-based
Sanders & Wyse	2014	In overweight or obese patients with atrial fibrillation, a weight reduction program reduced symptoms	R/C paper
Westman, E.	2014	In overweight or obese patients with diabetes, a lifestyle intervention increased weight loss at 8 years	R/C paper
El-Khoury et al.	2015	Effectiveness of two year balance training programme on prevention of fall induced injuries in at risk women aged 75-85 living in community: Ossébo randomised controlled trial	Not exercise-based
Fakhry et al.	2015	Endovascular Revascularization and Supervised Exercise for Peripheral Artery Disease and Intermittent Claudication: A Randomized Clinical Trial	Duplicate
Fritz et al.	2015	Early Physical Therapy vs Usual Care in Patients With Recent-Onset Low Back Pain: A Randomized Clinical Trial	Not exercise-based
Lamb et al.	2015	Exercises to improve function of the rheumatoid hand (SARAH): a randomised controlled trial	Not exercise-based
Lamb et al.	2015	Exercises to improve function of the rheumatoid hand (SARAH): a randomised controlled trial	Not exercise-based
Lipscombe, L.	2015	In high-risk pregnant women, an individualized lifestyle intervention reduced gestational diabetes mellitus	R/C paper
March, L.	2015	An exercise program for hands and arms improved hand function in RA controlled with medication	R/C paper
McDermott, M.	2015	Erasing disability in peripheral artery disease: The role of endovascular procedures and supervised exercise	R/C paper
McDermott, M.	2015	Erasing disability in peripheral artery disease: The role of endovascular procedures and supervised exercise	Not a RCT
Moseley et al.	2015	Rehabilitation After Immobilization for Ankle Fracture: The EXACT Randomized Clinical Trial	Not exercise-based

Supplementary Table 1: List of Excluded Exercise Records

Author	Year	Title	Primary Exclusion Criteria
Moseley et al.	2015	Rehabilitation After Immobilization for Ankle Fracture: The EXACT Randomized Clinical Trial	Not exercise-based
Opava & Björk	2015	Towards evidence-based hand exercises in rheumatoid arthritis	R/C paper
Sink et al.	2015	Effect of a 24-Month Physical Activity Intervention vs Health Education on Cognitive Outcomes in Sedentary Older Adults: The LIFE Randomized Trial	Secondary analysis
Sink et al.	2015	Effect of a 24-Month Physical Activity Intervention vs Health Education on Cognitive Outcomes in Sedentary Older Adults: The LIFE Randomized Trial	Not exercise-based
Skou et al.	2015	A Randomized, Controlled Trial of Total Knee Replacement	Not exercise-based
Sussman et al.	2015	Improving diabetes prevention with benefit based tailored treatment: Risk based reanalysis of diabetes prevention program	Not exercise-based
Anokye et al.	2016	The short-term and long-term cost-effectiveness of a pedometer-based intervention in primary care: A within trial analysis and beyond-trial modelling	R/C paper
Charante et al.	2016	Effectiveness of a 6-year multidomain vascular care intervention to prevent dementia (preDIVA): a cluster-randomised controlled trial	Not exercise-based
Gill et al.	2016	Effect of Structured Physical Activity on Overall Burden and Transitions Between States of Major Mobility Disability in Older Persons: Secondary Analysis of a Randomized Trial	Secondary analysis
Gill et al.	2016	Effect of structured physical activity on prevention of serious fall injuries in adults aged 70-89: Randomized clinical trial (LIFE study)	Secondary analysis
Guralnik et al.	2016	Effect of a Structured Exercise Program on the Overall Burden of Major Mobility Disability Among Older Adults	R/C paper
Iwashyna et al.	2016	Early mobilisation in ICU is far more than just exercise	R/C paper
Jakicic et al.	2016	Effect of Wearable Technology Combined With a Lifestyle Intervention on Long-term Weight Loss: The IDEA Randomized Clinical Trial	Not exercise-based
Kise et al.	2016	Exercise therapy versus arthroscopic partial meniscectomy for degenerative meniscal tear in middle aged patients: Randomised controlled trial with two year follow-up	Not exercise-based
Kitzman et al.	2016	Effect of Caloric Restriction or Aerobic Exercise Training on Peak Oxygen Consumption and Quality of Life in Obese Older Patients With Heart Failure With Preserved Ejection Fraction: A Randomized Clinical Trial	Duplicate
Mirelman et al.	2016	Addition of a non-immersive virtual reality component to treadmill training to reduce fall risk in older adults (V-TIME): a randomised controlled trial	Not exercise-based
Mirelman et al.	2016	Addition of a non-immersive virtual reality component to treadmill training to reduce fall risk in older adults (V-TIME): a randomised controlled trial	Not exercise-based
Morris et al.	2016	Standardized Rehabilitation and Hospital Length of Stay Among Patients With Acute Respiratory Failure: A Randomized Clinical Trial	Not exercise-based
Mutsaerts et al.	2016	Randomized Trial of a Lifestyle Program in Obese Infertile Women	Not exercise-based
Patel et al.	2016	Framing Financial Incentives to Increase Physical Activity Among Overweight and Obese Adults: A Randomized, Controlled Trial	Not exercise-based
Prenner & Rinella	2016	Moderate exercise for nonalcoholic fatty liver disease	Not a RCT
Saposnik et al.	2016	Efficacy and safety of non-immersive virtual reality exercising in stroke rehabilitation (EVREST): a randomised, multicentre, single-blind, controlled trial	Not exercise-based
Sit et al.	2016	A smartphone-based exercise adherence intervention for people with metabolic syndrome: A feasibility pilot study	Abstract only
Skou et al.	2016	A Randomized, Controlled Trial of Total Knee Replacement	Duplicate
Teuscher et al.	2016	A Randomized, Controlled Trial of Total Knee Replacement	Duplicate
Wang et al.	2016	Effectiveness of a health promotion programme on self-efficacy and practice of exercise in Chinese metabolic syndrome population: A single-centre, open-label, randomised controlled trial	Abstract only
Winstein et al.	2016	Effect of a Task-Oriented Rehabilitation Program on Upper Extremity Recovery Following Motor Stroke: The ICARE Randomized Clinical Trial	Not exercise-based
Wise, J.	2016	Moderate physical activity in older adults is not associated with reduced cardiovascular events	R/C paper
Wise, J.	2016	Activity trackers, even with cash incentives, do not improve health	R/C paper
Allen et al.	2017	Patient, Provider, and Combined Interventions for Managing Osteoarthritis in Primary Care: A Cluster Randomized Trial	Not exercise-based
Bayer et al.	2017	Early versus delayed rehabilitation after acute muscle injury	R/C paper
Bennell et al.	2017	Effectiveness of an Internet-Delivered Exercise and Pain-Coping Skills Training Intervention for Persons With Chronic Knee Pain: A Randomized Trial	Not exercise-based

Supplementary Table 1: List of Excluded Exercise Records

Author	Year	Title	Primary Exclusion Criteria
Bennell et al.	2017	Internet-delivered exercise and pain-coping skills training for chronic knee pain	R/C paper
Brach et al.	2017	Effectiveness of a Timing and Coordination Group Exercise Program to Improve Mobility in Community-Dwelling Older Adults: A Randomized Clinical Trial	Not exercise-based
Brindal, E.	2017	Weight management programmes of extended duration	R/C paper
Buhagiar et al.	2017	Effect of Inpatient Rehabilitation vs a Monitored Home-Based Program on Mobility in Patients With Total Knee Arthroplasty: the HIHO Randomized Clinical Trial	Not exercise-based
Clark et al.	2017	Guided graded exercise self-help plus specialist medical care versus specialist medical care alone for chronic fatigue syndrome (GETSET): a pragmatic randomised controlled trial	Not exercise-based
Clauw, D.	2017	Guided graded exercise self-help as a treatment of fatigue in chronic fatigue syndrome	R/C paper
Dawes et al.	2017	Impact of volunteer-led running groups for women affected by homelessness: A qualitative study of the charity, A Mile in Her Shoes	Not a RCT
Fong et al.	2017	Novel aquatic physiotherapy programme for elderly Chinese adults with osteoarthritis of the knee: A randomised controlled trial	Abstract only
Juch et al.	2017	Effect of Radiofrequency Denervation on Pain Intensity Among Patients With Chronic Low Back Pain: The Mint Randomized Clinical Trials	Not exercise-based
Kwakkel & van Wegen	2017	Family-delivered rehabilitation services at home: is the glass empty?	Not a RCT
Liu et al.	2017	Effect of health literacy and exercise interventions on glycated haemoglobin levels in Chinese patients with type 2 diabetes: A cluster-randomised controlled trial	Abstract only
Mayor, S.	2017	Self help approach to graded exercise may help chronic fatigue syndrome	R/C paper
McDermott & Kibbe	2017	Improving lower extremity functioning in peripheral artery disease: Exercise, endovascular revascularization, or both?	R/C paper
Owens & Cappola	2017	Recreational exercise in hypertrophic cardiomyopathy	R/C paper
Saberi et al.	2017	Effect of Moderate-Intensity Exercise Training on Peak Oxygen Consumption in Patients With Hypertrophic Cardiomyopathy: A Randomized Clinical Trial	Duplicate
Saper et al.	2017	Yoga, physical therapy, or education for chronic low back pain: A randomized noninferiority trial	Not exercise-based
Villareal et al.	2017	Aerobic or Resistance Exercise, or Both, in Dieting Obese Older Adults	Duplicate
Wahlich et al.	2017	Primary care pedometer-based walking intervention: Mixed-methods results from 3 year follow-up of PACE-UP cluster-randomised controlled trial	Abstract only
Wanigatunga et al.	2017	Association Between Structured Physical Activity and Sedentary Time in Older Adults	R/C paper
Wanigatunga et al.	2017	Association Between Structured Physical Activity and Sedentary Time in Older Adults	Not a RCT
Crawford, J.	2018	Graded exercise self-help for chronic fatigue syndrome in GETSET	R/C paper
Trombetti et al.	2018	Effect of Physical Activity on Frailty: Secondary Analysis of a Randomized Controlled Trial	Secondary analysis

Notes: R/C, review or conference paper; RCT, randomized controlled trial

Supplementary Table 2: Exercise & Pharmacological RCT Matching

Supplementary Table 2: Exercise & Pharmacological RCT Matching

Exercise Studies	Journal	Population	Size	Sites	Pharmacological Studies	Journal	Population	Size	Sites	% Match
Beckers et al., (2008)[18]	Eur Heart J	Heart Failure	58	Single	Hoendermis et al., (2015)[19]	Eur Heart J	HFpEF	52	Single	100%
Beer et al., (2008)[20]	JACC	Dilated Cardiomyopathy	24	Single	Hamshere et al., (2015)[21]	Eur Heart J	Dilated Cardiomyopathy	60	Single	75%
Ligibel et al., (2008)[22]	JCO	Breast CA	101	Single	Schmid et al., (2016)[23]	JCO	Breast CA	75	Multiple	75%
Maltais et al. (2008)[24]	AIM	COPD	252	Multiple	Lapperre et al., (2009)[25]	AIM	COPD	114	Multiple	75%
Adamsen et al., (2009)[26]	BMJ	Mixed CA	269	Multiple	Rimawi et al., (2018)[27]	JCO	Breast CA	258	Multiple	100%
Courneya et al., (2009)[28]	JCO	Lymphoma	122	Single	Cortelazzo et al., (2016)[29]	JCO	Lymphoma	246	Multiple	50%
McDermott et al., (2009)[30]	JAMA	PAD	156	Single	Ford et al., (2014)[31]	JACC	PAD	171	Multiple	50%
Monninkhof et al., (2009)[32]	JCO	Postmenopausal women	189	Single	Loprinzi et al., (2010)[33]	JCO	Women with hot flashes	207	Multiple	75%
O'Connor et al., (2009)[34]	JAMA	Heart Failure	2331	Multiple	Gheorghiade et al., (2013)[35]	JAMA	Heart Failure	1639	Multiple	75%
Patwala et al., (2009)[36]	JACC	Cardiac Resynch	50	Single	Tsujita et al., (2015)[37]	JACC	Percutaneous Coronary Inter	246	Multiple	50%
Schmitz et al., (2009)[38]	NEJM	Breast CA	141	Single	Wapnir et al., (2018)[39]	Lancet	Breast CA	162	Multiple	50%
Segal et al., (2009)[40]	JCO	Prostate CA	121	Single	McKay et al., (2016)[41]	JCO	Prostate CA	102	Multiple	75%
Church et al., (2010)[42]	JAMA	T2DM	262	Single	Nissen et al., (2008)[43]	JAMA	T2DM & CAD	547	Multiple	50%
Friedenreich et al., (2010)[44]	JCO	Postmenopausal women	320	Multiple	Johnston et al., (2018)[45]	JCO	Postmenopausal Breast CA	355	Multiple	100%
Galvao et al., (2010)[46]	JCO	Prostate CA	57	Single	Taplin et al., (2014)[47]	JCO	Prostate CA	58	Single	100%
Schmitz et al., (2010)[48]	JAMA	Breast CA	154	Single	Hurvitz et al., (2013)[49]	JCO	Breast CA	137	Multiple	50%
Edelmann et al., (2011)[50]	JACC	HFpEF	64	Single	Kosmala et al., (2013)[51]	JACC	HFpEF	61	Single	100%

Supplementary Table 2: Exercise & Pharmacological RCT Matching

Exercise Studies	Journal	Population	Size	Sites	Pharmacological Studies	Journal	Population	Size	Sites	% Match
Hallsworth et al., (2011)[52]	Gut	NAFLD	19	Single	Ratziu et al., (2008)[53]	Gastroenterol	NASH	64	Single	75%
Villareal et al., (2011)[54]	NEJM	Obese	107	Single	Smith et al., (2010)[55]	NEJM	Obese	3182	Multiple	50%
Belardinelli et al., (2012)[56]	JACC	CHF	123	Single	Goebel et al., (2017)[57]	AIM	Complex Pain Syndrome	111	Multiple	50%
Campbell et al., (2012)[58]	JCO	Postmenopausal women	439	Single	Ellis et al., (2011)[59]	JCO	Postmenopausal Breast CA	377	Multiple	75%
Duijts et al., (2012)[60]	JCO	Breast CA	422	Multiple	Urruticoechea et al., (2017)[61]	JCO	Breast CA	452	Multiple	100%
Sandri et al., (2012)[62]	Eur Heart J	HFrEF	120	Single	Frustaci et al., (2009)[63]	Eur Heart J	CHF w Cardio-myopathy	85	Single	75%
Winter et al., (2012)[64]	Eur Heart J	Systemic Right Ventricle	54	Multiple	van der Bom et al., (2013)[65]	Circulation	Systemic Right Ventricle	88	Multiple	75%
Daumit et al., (2013)[66]	NEJM	Mental Illness	291	Multiple	Rosenheck et al., (2011)[67]	NEJM	Mental Illness	382	Multiple	75%
Kitzman et al., (2013)[68]	JACC	HFpEF	63	Single	Caminiti et al., (2009)[69]	JACC	CHF	70	Single	100%
Messier et al., (2013)[70]	JAMA	Overweight & Obese	454	Single	Spitzer et al., (2012)[71]	AIM	Obese w ED	140	Single	50%
Pitkala et al., (2013)[72]	JAMA Int Med	Alzheimer's Disease	210	Multiple	Cummings et al., (2015)[73]	JAMA	Alzheimer's Disease	220	Multiple	75%
Galvao et al., (2014)[74]	Eur Urol	Prostate CA	100	Multiple	Irani et al., (2008)[75]	Eur Urol	Prostate CA	138	Single	50%
Hollekim-Strand et al., (2014)[76]	JACC	T2DM & DD	47	Single	Han et al., (2014)[77]	JACC	T2DM & CKD	3082	Multiple	50%
Jones et al., (2014)[78]	Eur Urol	Prostate CA	50	Single	Yoshimura et al., (2016)[79]	Eur Urol	Prostate CA	73	Multiple	50%
Pahor et al., (2014)[80]	JAMA	Elderly	1635	Multiple	Devereux et al., (2018)[81]	JAMA	Elderly w COPD	1578	Multiple	100%
Fakhry et al., (2015)[82]	JAMA	PAD	212	Multiple	Poole et al., (2013)[83]	JAMA	PAD	159	Multiple	100%
Friedenreich et al., (2015)[84]	JAMA Oncol	Postmenopausal women	400	Multiple	Harman et al., (2014)[85]	JAMA Int Med	Postmenopausal women	727	Multiple	75%
Irwin et al., (2015)[86]	JCO	Breast CA	121	Single	Yardley et al., (2013)[87]	JCO	Breast CA	130	Multiple	75%

Supplementary Table 2: Exercise & Pharmacological RCT Matching

Exercise Studies	Journal	Population	Size	Sites	Pharmacological Studies	Journal	Population	Size	Sites	% Match
Murphy et al., (2015)[88]	JACC	PAD	111	Multiple	Krankenberg et al., (2015)[89]	Circulation	PAD	119	Multiple	100%
Ross et al., (2015)[90]	AIM	Obese	300	Single	Kim et al., (2018)[91]	JAMA	Acute Coronary Syndrome	300	Single	50%
van Waart et al., (2015)[92]	JCO	Mixed CA	230	Multiple	Soiffer et al., (2017)[93]	JCO	HSCT	260	Multiple	100%
Ehlken et al., (2016)[94]	Eur Heart J	Pulmonary HTN	87	Single	Ulrich et al., (2015)[95]	Eur Heart J	Pulmonary HTN	23	Single	75%
Kitzman et al., (2016)[96]	JAMA	HFpEF & Obese	100	Single	Gheorghiade et al., (2008)[97]	JACC	Heart Failure	120	Multiple	50%
Zhang et al., (2016)[98]	JAMA Int Med	NAFLD	220	Single	Cusi et al., (2016)[99]	AIM	NASH	101	Single	75%
Johansen et al., (2017)[100]	JAMA	T2DM	98	Single	Wysham et al., (2017)[101]	JAMA	T2DM	721	Multiple	50%
McDermott et al., (2017)[102]	JAMA	PAD	210	Single	Pradhan et al., (2009)[103]	JAMA	PAD	500	Multiple	50%
Saberi et al., (2017)[104]	JAMA	Hypertrophic Cardiomyopathy	136	Single	Kosmala et al., (2016)[105]	JACC	HFpEF	150	Single	75%
Taaffe et al., (2017)[106]	Eur Urol	Prostate CA	163	Multiple	Klotz et al., (2013)[107]	Eur Urol	Prostate CA	186	Multiple	100%
Villareal et al., (2017)[108]	NEJM	Obese	160	Single	Grudell et al., (2008)[109]	Gastroenterol	Overweight & Obese	181	Single	75%
Dieli-Conwright et al., (2018)[110]	JCO	Breast CA	100	Single	Greenspan et al., (2008)[111]	JCO	Breast CA	87	Single	100%
McDermott et al., (2018)[112]	JAMA	PAD	200	Single	Ahmed et al., (2008)[113]	JAMA	A-Fib w Cardiac Resynch	214	Multiple	50%

Notes: A-Fib, atrial fibrillation; AIM, Annals of Internal Medicine; BMJ, British Medical Journal; CA, cancer; CAD, coronary artery disease; CHF, chronic heart failure; CKD, chronic kidney disease; COPD, chronic obstructive pulmonary disorder; CVD, cardiovascular disease; DD, diastolic dysfunction; ED, erectile dysfunction; Eur Heart J, European Heart Journal; Eur Urol, European Urology; HCL, hypercholesterolemia; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; HSCT, hematopoietic stem cell transplantation; HTN, hypertension; Inter, intervention; JACC, Journal of the American College of Cardiology; JAMA, Journal of the American Medical Association; JAMA Int Med, JAMA Internal Medicine; JAMA Oncol, JAMA Oncology; JCO, Journal of Clinical Oncology; MDS, myelodisplastic syndrome; NEJM, New England Journal of Medicine; NAFLD, non-alcoholic fatty liver disease; NASH, non-alcoholic steatohepatitis; PAD, peripheral arterial disease; Resynch, resynchronization; T2DM, type 2 diabetes mellitus

Supplementary Table 3: Reporting Quality Differences Between Exercise and Pharmacological RCTs Matched on 50% to 100% of Criteria

Supplementary Table 3: Reporting Quality Differences Between Exercise and Pharmacological RCTs Matched on 50% to 100% of Criteria

Reporting Outcome	Criteria Matched	Number of Matched Studies	Difference Between Matched Studies	Standard Deviation	95% CI	p-value
CONSORT	100%	13	-14.8	17.4	-25.3 to -4.3	.97
	75%	18	-15.1	18.4	-24.2 to -5.9	
	50%	17	-13.7	19.3	-23.6 to -3.8	
CONSORT-Harms	100%	13	-19.7	29.0	-37.2 to -2.1	.85
	75%	18	-12.9	40.3	-32.9 to 7.2	
	50%	17	-17.7	32.7	-34.5 to -0.9	
Intervention	100%	13	-7.7	26.0	-23.4 to 8.0	.53
	75%	18	-14.8	22.1	-25.8 to -3.9	
	50%	17	-5.9	25.7	-19.1 to 7.3	

Supplementary Table 4: Pre vs. Post Author Contact

Supplementary Table 4: Pre vs. Post Author Contact

Outcomes		Exercise Studies (n=16)			Pharmacological Studies (n=7)		
		Pre	Post	Δ	Pre	Post	Δ
Study Reporting Score	Median	30.5	43.0	12.5	33.0	39.0	5.0
	IQR	27.8, 35.0	41.5, 45.8	10.0, 16.2	30.0, 37.0	35.5, 41.5	4.0, 6.5
CONSORT	Median	24.5	36.5	10.5	24.0	27.0	4.0
	IQR	24.0, 26.5	31.8, 38.2	8.8, 13.2	23.0, 27.5	27.0, 29.5	2.0, 4.0
CONSORT-Harms	Median	1.0	2.0	1.0	6.0	6.0	0.0
	IQR	0.0, 3.0	1.8, 5.0	0.0, 2.0	4.0, 6.5	4.0, 6.5	0.0, 0.0
TIDieR	Median	9.5	12.5	3.0	NA	NA	NA
	IQR	7.0, 10.2	10.0, 13.0	2.0, 4.0	NA	NA	NA

Notes: Δ, change; CONSORT, Consolidated Standards for Reporting Trials; CONSORT-Harms, CONSORT Extension for Harms Reporting; IQR, interquartile range; Pre, original score (prior to author contact); Post, updated score (following author contact); TIDieR, Template for Intervention Description and Replication

Supplementary Table 5: Exercise RCT Characteristics

Supplementary Table 5: Exercise RCT Characteristics

Study	Population	Participants [n]	Participants per Arm [n]	Age [mean]	Female Sex [n (%)]	CVD Comorbidity [Condition: n (%)]
Beckers et al., (2008)[18]	Heart Failure	58	AET1: 30; CET1: 30	NR	16 (28)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Beer et al., (2008)[20]	Dilated Cardiomyopathy	24	AET1: 12; UC: 12	56	NR	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Ligibel et al., (2008)[22]	Breast CA	101	CET1: 51; UC: 50	NR	101 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Maltais et al. (2008)[24]	COPD	252	CET1: 126; CET2: 126	66	112 (44)	HTN: 112 (44); HCL: NR (NR); T2DM: 30 (12)
Adamsen et al., (2009)[26]	Mixed CA	269	CET1: 135; UC: 134	47.2	196 (73)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Courneya et al., (2009)[28]	Lymphoma	122	AET1: 60; UC: 62	53	50 (41)	HTN: 35 (29); HCL: 36 (30); T2DM: NR (NR)
McDermott et al., (2009)[30]	PAD	156	AET1: 51; RET1: 52; UC: 53	73.7	81 (52)	HTN: NR (NR); HCL: NR (NR); T2DM: 69 (44)
Monninkhof et al., (2009)[32]	Postmenopausal Women	189	CET1: 96; UC: 93	NR	189 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NA (NA)
O'Connor et al., (2009)[34]	Heart Failure	2331	AET1: 1159; UC: 1172	59.2 MED	661 (28)	HTN: 1388 (60); HCL: NR (NR); T2DM: 748 (32)
Patwala et al., (2009)[36]	Congestive Heart Failure	50	AET1: 25; UC: 25	64	4 (8)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Schmitz et al., (2009)[38]	Breast CA	141	RET1: 71; UC: 70	NR	NR	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Segal et al., (2009)[40]	Prostate CA	121	AET1: 40; CET1: 40; UC: 41	66	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Church et al., (2010)[42]	T2DM	262	AET1: 72; RET1: 73; CET1: 76; UC: 41	56	165 (63)	HTN: 208 (79); HCL: 168 (64); T2DM: 262 (100)
Friedenreich et al., (2010)[44]	Postmenopausal Women	320	AET1: 160; UC: 160	61	320 (100)	HTN: NR (NR); HCL: NA (NA); T2DM: NR (NR)
Galvao et al., (2010)[46]	Prostate CA	57	CET1: 29; UC: 28	NR	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Schmitz et al., (2010)[48]	Breast CA	154	RET1: 71; UC: 77	NR	154 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Edelmann et al., (2011)[50]	Heart Failure	64	CET1: 46; UC: 21	65	36 (56)	HTN: 55 (86); HCL: 30 (47); T2DM: 9 (14)
Hallsworth et al., (2011)[52]	NAFLD	19	RET1: 11; UC: 10	NR	NR	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)

Supplementary Table 5: Exercise RCT Characteristics

Study	Population	Participants [n]	Participants per Arm [n]	Age [mean]	Female Sex [n (%)]	CVD Comorbidity [Condition: n (%)]
Villareal et al., (2011)[54]	Obese Elderly	107	AET1: 26; CET1: 26; CET2: 28; UC: 27	70	67 (63)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Belardinelli et al., (2012)[56]	Heart Failure	123	AET1: 63; UC: 60	59	27 (22)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Campbell et al., (2012)[58]	Postmenopausal Women	439	AET1: 117; AET2: 117; RET1: 118; UC: 87	58	439 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NA (NA)
Duijts et al., (2012)[60]	Breast CA	422	AET1: 104; AET2: 106; RET1: 109; UC: 103	48	422 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Sandri et al., (2012)[62]	HFrEF	120	AET1: 60; UC: 60	NR	23 (19)	HTN: 90 (75); HCL: 72 (60); T2DM: 35 (29)
Winter et al., (2012)[64]	Systemic Right Ventricle	46	AET1: 28; UC: 26	32	23 (50)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Daumit et al., (2013)[66]	Serious Mental Illness	291	AET1: 144; UC: 147	45	146 (50)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Kitzman et al., (2013)[68]	HFpEF	63	AET1: 32; UC: 31	70	48 (76)	HTN: 56 (89); HCL: NA (NA); T2DM: 15 (24)
Messier et al., (2013)[70]	Overweight & Obese w Osteoarthritis	454	AET1: 152; CET1: 150; CET2: 152	66	325 (72)	HTN: 273 (60); HCL: NR (NR); T2DM: 59 (13)
Pitkala et al., (2013)[72]	Alzheimer's Diesase	210	AET1: 70; CET1: 70; UC: 70	78	81 (39	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Galvao et al., (2014)[74]	Prostate CA	100	CET1: 50; UC: 50	NR	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Hollekim-Strand et al., (2014)[76]	T2DM w Diastolic Dysfunction	37	AET1: 23; AET2: 24	56	17 (46)	HTN: NR (NR); HCL: NR (NR); T2DM: NA (NA)
Jones et al., (2014)[78]	Prostate CA	50	AET1: 25; UC: 25	59	NA	HTN: 27 (54); HCL: 30 (60); T2DM: 8 (16)
Pahor et al., (2014)[80]	Elderly	1635	CET1: 818; UC: 817	79	1098 (67)	HTN: 1151 (70); HCL: NR (NR); T2DM: 412 (25)
Fakhry et al., (2015)[82]	PAD	212	AET1: 106; AET2: 106	65	80 (38)	HTN: 128 (60); HCL: 91 (43); T2DM: 44 (21)
Friedenreich et al., (2015)[84]	Postmenopausal Women	400	AET1: 200; AET2: 200	59	400 (100)	HTN: NR (NR); HCL: NA (NA); T2DM: NA (NA)
Irwin et al., (2015)[86]	Breast CA	121	CET1: 61; UC: 60	61	121 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Murphy et al., (2015)[88]	PAD	111	AET1: 43; Stent: 46; UC: 22	64	42 (38)	HTN: 94 (85); HCL: 89 (80); T2DM: 26 (24)
Ross et al., (2015)[90]	Obese	300	AET1: 73; AET2: 76; CET1: 76; UC: 75	51	196 (65)	HTN: NR (NR); HCL: NR (NR); T2DM: NA (NA)

Supplementary Table 5: Exercise RCT Characteristics

Study	Population	Participants [n]	Participants per Arm [n]	Age [mean]	Female Sex [n (%)]	CVD Comorbidity [Condition: n (%)]
van Waart et al., (2015)[92]	Breast CA	230	AET1: 77; CET1: 76; UC: 77	51	228 (99)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Ehlken et al., (2016)[94]	Pulmonary Artery HTN	87	CET1: 46; UC: 41	56	47 (54)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Kitzman et al., (2016)[96]	HFpEF	100	AET1: 26; AET2: 25; RET1: 24; UC: 25	67	81 (81)	HTN: 95 (95); HCL: NR (NR); T2DM: 32 (32)
Zhang et al., (2016)[98]	NAFLD	220	AET1: 73; AET2: 73; UC: 74	54	149 (68)	HTN: NA (NA); HCL: NR (NR); T2DM: NA (NA)
Johansen et al., (2017)[100]	T2DM	98	CET1: 64; UC: 34	55	47 (48)	HTN: NR (NR); HCL: NR (NR); T2DM: NA (NA)
McDermott et al., (2017)[102]	PAD	210	AET1: 53; AET2: 53; RET1: 53; UC: 51	67	82 (39)	HTN: 175 (83); HCL: NR (NR); T2DM: 80 (38)
Saberi et al., (2017)[104]	Hypertrophic Cardiomyopathy	136	AET1: 67; UC: 69	50	57 (42)	HTN: 30 (22); HCL: NR (NR); T2DM: 9 (7)
Taaffe et al., (2017)[106]	Prostate CA	163	AET1: 51; RET1: 58; CET1: 54	NR	NA	HTN: 58 (36); HCL: 35 (21); T2DM: 20 (12)
Villareal et al., (2017)[108]	Obese Elderly	160	AET1: 40; RET1: 40; CET1: 40; UC: 40	70	103 (64)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Dieli-Conwright et al., (2018)[110]	Overweight & Obese Breast CA	100	CET1: 50; UC: 50	54	100 (100)	HTN: NA (NA); HCL: NR (NR); T2DM: NA (NA)
McDermott et al., (2018)[112]	PAD	200	AET1: 99; UC: 101	70	105 (53)	HTN: NR (NR); HCL: NR (NR); T2DM: 67 (34)

Notes: AET1, aerobic exercise training (group 1); AET2, aerobic exercise training (group 2); CA, cancer; CET1, combined aerobic and resistance exercise training (group 1); CET2, combined aerobic and resistance exercise training (group 2); COPD, chronic obstructive pulmonary disorder; CVD, cardiovascular disease; HCL, hypercholesterolemia; HFpEF, heart failure with preserved ejection fraction; HTN, hypertension; LTF, loss-to-follow up; PAD, peripheral arterial disease; n, number; NA, not applicable; NAFLD, non-alcoholic fatty liver disease; NR, not reported; RET1, resistance exercise training (group 1); RET2, resistance exercise training (group 2); T2DM, type 2 diabetes mellitus; UC, usual care

Supplementary Table 6: Pharmacological RCT Characteristics

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Study	Population	Participants [n]	Participants per Arm [n]	Age [mean]	Female Sex [n (%)]	CVD Comorbidity [Condition: n (%)]
Ahmed et al. (2008)[113]	Atrial Fibrillation	214	Grp1: 106; Grp2: 108	NR	73 (34.11)	HTN: 84 (39); HCL: NR (NR); T2DM: 21 (10)
Gheorghiade et al. (2008)[97]	Heart Failure	120	Grp1: 29; Grp2: 30; Grp3: 30; UC: 31	55	15 (12.5)	HTN: NA (NA); HCL: NR (NR); T2DM: 21 (18)
Greenspan et al. (2008)[111]	Breast CA	87	Grp1: 43; UC: 44	NR	87 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Grudell et al. (2008)[109]	Obese & Overweight	181	Grp1: 58; Grp2: 61; UC: 62	NR	161 (88.95)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Irani et al. (2008)[75]	Prostate CA	129	Grp1: 62; Grp2: 67	73	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Nissen et al. (2008)[43]	T2DM	547	Grp1: 273; Grp2: 274	60	181 (33.09)	HTN: 475 (87); HCL: NR (NR); T2DM: NA (NA)
Ratziu et al. (2008)[53]	NASH	64	Grp1: 32; UC: 32	54	26 (40.63)	HTN: 22 (35); HCL: NR (NR); T2DM: 20 (32)
Caminiti et al. (2009)[69]	Heart Failure	70	Grp1: 35; UC: 35	70 [MED]	NA	HTN: 25 (36); HCL: 39 (56); T2DM: 20 (29)
Frustaci et al. (2009)[63]	Cardiomyopathy	85	Grp1: 43; UC: 42	NR	34 (40)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Lapperre et al. (2009)[25]	COPD	114	Grp1: 26; Grp2: 31; Grp3: 28; UC: 29	NR	27 (23.68)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Pradhan et al. (2009)[103]	T2DM	500	Grp1: 126; Grp2: 126; Grp3: 124; UC: 124	54	281 (56.2)	HTN: 341 (68); HCL: 299 (60); T2DM: 500 (100)
Loprinzi et al. (2010)[33]	Women with Hot Flashes	207	Grp1: 69; Grp2: 69; UC: 69	NR	207 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Smith et al. (2010)[55]	Overweight & Obese	3182	Grp1: 1595; UC: 1587	44	2652 (83.34)	HTN: NA (NA); HCL: NR (NR); T2DM: NA (NA)
Ellis et al. (2011)[59]	Breast CA	377	Grp1: 124; Grp2: 128; Grp3: 125	NR	377 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Rosenheck et al. (2011)[67]	Schizophrenia	382	Grp1: 190; UC: 192	51	32 (8.38)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Spitzer et al. (2012)[71]	Erectile Dysfunction	140	Grp1: 70; Grp2: 70	55	NA	HTN: 56 (40); HCL: NR (NR); T2DM: 27 (19)
Gheorghiade et al. (2013)[35]	Heart Failure	1639	Grp1: 821; UC: 818	65	368 (22.45)	HTN: 1225 (76); HCL: NR (NR); T2DM: 662 (41)

Supplementary Table 6: Pharmacological RCT Characteristics

Study	Population	Participants [n]	Participants per Arm [n]	Age [mean]	Female Sex [n (%)]	CVD Comorbidity [Condition: n (%)]
Hurvitz et al. (2013)[49]	Breast CA	137	Grp1: 67; Grp2: 70	NR	NR	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Klotz et al. (2013)[107]	Prostate CA	186	Grp1: 84; Grp2: 102	NR	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Kosmala et al. (2013)[51]	HFpEF	61	Grp1: 30; UC: 31	67	50 (81.97)	HTN: 51 (84); HCL: NR (NR); T2DM: 22 (36)
Poole et al. (2013)[83]	PAD	159	Grp1: 80; UC: 79	64	20 (12.58)	HTN: 153 (96); HCL: 134 (87); T2DM: 58 (37)
van der Bom et al. (2013)[65]	Systemic Right Ventricle	88	Grp1: 44; UC: 44	33	31 (35.23)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Yardley et al. (2013)[87]	Breast CA	130	Grp1: 64; Grp2: 66	NR	130 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Ford et al. (2014)[31]	Cardiovascular Disease	171	Grp1: 86; UC: 85	65	26 (15.2)	HTN: 52 (30); HCL: NR (NR); T2DM: 14 (9)
Han et al. (2014)[77]	T2DM & Chronic Kidney Disease	3082	Grp1: 1543; UC: 1539	61	1044 (33.87)	HTN: 2156 (70); HCL: 256 (8); T2DM: 3082 (100)
Harman et al. (2014)[85]	Menopausal	727	Grp1: 230; Grp2: 222; UC: 275	53	727 (100)	HTN: NA (NA); HCL: NA (NA); T2DM: NA (NA)
Taplin et al. (2014)[47]	Prostate CA	58	Grp1: 28; Grp2: 30	58 MED	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Cummings et al. (2015)[73]	Alzheimer's	220	Grp1: 93; UC: 127	78	126 (57.27)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Hamshere et al. (2015)[21]	Dilated Cardiomyopathy	60	Grp1: 15; Grp2: 15; Grp3: 15; UC: 15	55	17 (28.33)	HTN: 6 (10); HCL: 6 (10); T2DM: 6 (10)
Hoendermis et al. (2015)[19]	HFpEF	52	Grp1: 26; UC: 26	74	37 (71.15)	HTN: 47 (90); HCL: 27 (52); T2DM: 18 (35)
Krankenberg et al. (2015)[89]	PAD	119	Grp1: 62; Grp2: 57	NR	37 (31.09)	HTN: 105 (88); HCL: 93 (78); T2DM: 45 (38)
Tsujita et al. (2015)[37]	Coronary Artery Disease	246	Grp1: 122; Grp2: 124	NR	44 (17.89)	HTN: 142 (58); HCL: 142 (58); T2DM: 60 (24)
Ulrich et al. (2015)[95]	Pulmonary Artery HTN	23	Grp1: 23; Grp2: 23; UC: 23	66	15 (65.22)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Cortelazzo et al. (2016)[29]	Lymphoma	246	Grp1: 126; Grp2: 120	51 MED	99 (40.24)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Cusi et al. (2016)[99]	NASH & Prediabetes or T2DM	101	Grp1: 50; UC: 51	NR	30 (29.7)	HTN: NR (NR); HCL: NR (NR); T2DM: 52 (52)
Kosmala et al. (2016)[105]	HFpEF	150	Grp1: 75; UC: 75	67	110 (73.33)	HTN: 120 (80); HCL: NR (NR); T2DM: 52 (35)

Supplementary Table 6: Pharmacological RCT Characteristics

Study	Population	Participants [n]	Participants per Arm [n]	Age [mean]	Female Sex [n (%)]	CVD Comorbidity [Condition: n (%)]
McKay et al. (2016)[41]	Prostate CA	102	Grp1: 66; Grp2: 36; UC: NA	65 MED	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Schmid et al. (2016)[23]	Breast CA	75	Grp1: 26; Grp2: 49	NR	75 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NA (NA)
Yoshimura et al. (2016)[79]	Prostate CA	73	Grp1: 36; Grp2: 37	NR	NA	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Goebel et al. (2017)[57]	Complex Regional Pain Syndrome	111	Grp1: 55; UC: 56	NR	75 (67.57)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Soiffer et al. (2017)[93]	Acute Leukemia or MDS w HSCT	260	Grp1: 128; UC: 132	NR	115 (44.23)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Urruticoechea et al. (2017)[61]	Breast CA	452	Grp1: 224; Grp2: 228	NR	452 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NA (NA)
Wysham et al. (2017)[101]	T2DM	721	Grp1: 361; Grp2: 360	61	338 (46.88)	HTN: NR (NR); HCL: NR (NR); T2DM: 721 (100)
Devereux et al. (2018)[81]	COPD	1578	Grp1: 791; UC: 787	68	724 (45.88)	HTN: 594 (38); HCL: NR (NR); T2DM: 176 (11)
Johnson et al. (2018)[45]	Breast CA	355	Grp1: 120; Grp2: 117; Grp3: 118	NR	355 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Kim et al. (2018)[91]	Depression & Acute Coronary Syndrome	300	Grp1: 149; UC: 151	60	119 (39.67)	HTN: 184 (61); HCL: 144 (48); T2DM: 85 (28)
Rimawi et al. (2018)[27]	Breast CA	258	Grp1: 129; Grp2: 129	60	258 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)
Wapnir et al. (2018)[39]	Breast CA	162	Grp1: 85; UC: 77	56 MED	162 (100)	HTN: NR (NR); HCL: NR (NR); T2DM: NR (NR)

Notes: CA, cancer; CAD, coronary artery disease; COPD, chronic obstructive pulmonary disease; CVD, cardiovascular disease; Grp, group; HCL, hypercholesterolemia; HFpEF, heart failure with preserved ejection fraction; HSCT, hematopoietic stem cell transplantation; HTN, hypertension; kg, kilogram; LTF, loss to follow up; MDS, myelodisplastic syndrome; MED, median; PAD, peripheral arterial disease; n, number; NA, not applicable; NASH, non-alcoholic steatohepatitis; NR, not reported; T2DM, type 2 diabetes mellitus; UC, usual care

Supplementary Table 7: Exercise Intervention Characteristics

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Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Exercise Dose			Co-intervention [Group: Details]
				Frequency [days / week]	Duration [Grp: mins]	Intensity [AET Grp: % tested value] [RET Grp: % tested value; reps, sets]	
Beckers et al., (2008)[18]	MC	Total (single-phase): 26 wks	AET1: CE, TM CAET1: NR CRET1: MW	AET1: 3 CAET1: 3 CRET1: 3	AET1: 40-45 CAET1: 10-45 CRET1: 10-40	AET1: 90% HR at AT CAET1: 90% HR at AT CRET1: 50-60% 1RM; 10-15 reps, 1-2 sets	NA
Beer et al., (2008)[20]	NR	Total (single-phase): 36 wks	AET1: CE, NR	AET1: 5	AET1: 45	AET1: 60-80% VO_2^{max}; 13-15 RPE	NA
Ligibel et al., (2008)[22]	PG, HM	Total (single-phase): 16 wks	CAET1: NR CRET1: MW, BW	CAET1: NR CRET1: 2	CAET1: NR CRET1: 35	CAET1: 55-80% HR^{max} CRET1: 80% 1RM; 10 reps, 4 sets	NA
Maltais et al. (2008)[24]	MC, HM, Other	Total: 52 wks Lead-in: 4 wks Phase 1: 8 wks	Lead-in: NA Phase 1 CAET1: CE CRET1: RB, BW, NR CAET2: CE CRET2: RB, BW, NR	Lead-in: NA Phase 1 CAET1: 3 CRET1: 3 CAET2: 3 CRET2: 3	Lead-in: NA Phase 1 CAET1: 25-30 CRET1: 30 CAET2: 40 CRET2: 30	Lead-in: NA Phase 1 CAET1: 80% peak work CRET1: NR; 10 reps, 1-3 sets CAET2: 60% maximum work capacity CRET2: NR; 10 reps, 1-3 sets	Lead-in: 4 wk education program
		Phase 2: 40 wks	Phase 2 CRET1: NR CAET1: NR CAET2: NR CRET2: NR	Phase 2 CAET1: 3 CRET1: 3 CAET2: 3 CRET2: 3	Phase 2 CAET1: NR CRET1: NR CAET2: NR CRET2: NR	Phase 2 CAET1: NR (NR) CRET1: NR (NR) CAET2: NR (NR) CRET2: NR (NR)	
Adamsen et al., (2009)[26]	MC	Total (single-phase): 6 wks	CAET1: CE CRET1: MW	CAET1: 3 CRET1: 3	CAET1: 15 CRET1: 45	CAET1: 85-95% HR^{max} CRET1: 70-100% 1RM; 5-8 reps, 3 sets	Body awareness & restoration; relax-ation; massage
Courneya et al., (2009)[28]	NR	Total (single-phase): 12 wks	AET1: CE	AET1: 3	AET1: 15-45	AET1: 60-75% PPO at VO_2^{peak}	NA
McDermott et al., (2009)[30]	UNI, Other	Total (single-phase): 24 wks	AET1: TM RET1: MW, BW	AET1: 3 RET1: 3	AET1: 15-40 RET1: NR	AET1: 12-14 RPE RET1: 50-80% 1RM, 12-14 RPE; 8 reps, 3 sets	NA
Monninkhof et al., (2009)[32]	PG, HM	Total (single-phase): 52 wks	CAET1: CE, WK, NR CRET1: NR	CAET1: 3 CRET1: 2	CAET1: 20-30 CRET1: 25	CAET1: 60-85% HR^{max} CRET1: NR; NR; NR	NA

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Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Exercise Dose			Co-intervention [Group: Details]
				Frequency [days / week]	Duration [Grp: mins]	Intensity [AET Grp: % tested value] [RET Grp: % tested value; reps, sets]	
O'Connor et al., (2009)[34]	Other	Total: 130 wks [MED] Phase 1: 12 wks Phase 2: 118 wks[MED]	Phase 1 AET1: CE, TM, WK Phase 2 AET1: CE, TM, WK	Phase 1 AET1: 3 Phase 2 AET1: 5	Phase 1 AET1: 15-35 Phase 2 AET1: 40	Phase 1 AET1: 60-70% HRR Phase 2 AET1: 60-70% HRR	NA
Patwala et al., (2009)[36]	UNI	Total (single-phase): 12 wks	AET1: CE, TM	AET1: 3	AET1: 30	AET1: 80-90% HR^{peak}	NA
Schmitz et al., (2009)[38]	PG	Total: 52 wks Phase 1: 13 wks Phase 2: 39 wks	Phase 1 RET1: MW, FW Phase 2 RET1: NR	Phase 1 RET1: 2 Phase 2 RET1: 2	Phase 1 RET1: 90 Phase 2 RET1: NR	Phase 1 RET: NR; 10 reps, 2-3 sets Phase 2 RET1: NR; NR, NR	NA
Segal et al., (2009)[40]	RC	Total (single-phase): 24 wks	AET1: CE, TM, EE RET1: MW, FW	AET1: 3 RET1: 3	AET1: 15-45 RET1: NR	AET1: 50-75% VO_2^{peak} RET1: 60-70% 1RM; 8-12 reps, 2 sets	NA
Church et al., (2010)[42]	MC	Total (single-phase): 40 wks	AET1: NR RET1: MW, BW CAET1: NR CRET1: MW, BW	AET1: NR RET1: 3 CAET1: NR CRET1: 2	AET1: NR RET1: NR CAET1: NR CRET1: NR	AET1: 50-80% VO_2^{peak} RET1: NR; 10-12 reps, 2-3 sets CAET1: 50-80% VO_2^{peak} CRET1: NR, 10-12 reps, 1 set	NA
Friedenreich et al., (2010)[44]	UNI, PG, HM	Total (single-phase): 52 wks	AET1: NR	AET1: 3-5	AET1: 15-45	AET1: 50- 80% HRR	NA
Galvao et al., (2010)[46]	RC, HM	Total (single-phase): 12 wks	CAET1: CE, WK, JG CRET1: MW, FW	CAET1: 2 CRET1: 2	CAET1: 15-20 CRET1: NR	CAET1: 65-80% HR^{max}; 11-13 RPE CRET1: 6-12 RM; NR, 2-4 sets	NA
Schmitz et al., (2010)[48]	PG	Total: 52 wks Phase 1: 13 wks Phase 2: 39 wks	Phase 1 RET1: MW, FW Phase 2 RET1: MW, FW	Phase 1 RET1: 2 Phase 2 RET1: 2	Phase 1 RET1: 60-90 Phase 2 RET1: NR	Phase 1 RET1: NR; 10 reps, 3 sets Phase 2 RET1: NR; NR, NR	NA
Edelmann et al., (2011)[50]	Other (Facility Based)	Total: 12 wks Phase 1: 4 wks	Phase 1 CAET1: CE CRET1: NR	Phase 1 CAET1: 2 CRET1: NR	Phase 1 CAET1: 20-40 CRET1: NR	Phase 1 CAET1: 50-60% VO_2^{peak} CRET1: NR	NA

Supplementary Table 7: Exercise Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Exercise Dose			Co-intervention [Group: Details]
				Frequency [days / week]	Duration [Grp: mins]	Intensity [AET Grp: % tested value] [RET Grp: % tested value; reps, sets]	
Edelmann cont'd		Phase 2: 8 wks	Phase 2 CAET1: CE CRET1: MW	Phase 2 CAET1: 3 CRET1: 2	Phase 2 CAET1: NR CRET1: NR	Phase 2 CAET1: 70% VO_2^{peak} CRET1: 60-65% 1RM; 15 reps, NR	
Hallsworth et al., (2011)[52]	NR	Total (single-phase): 8 wks	RET1: MW	RET1: 3	RET1: 25-40	RET1: 50% 1RM; 8-12 reps, 2-4 sets	NA
Villareal et al., (2011)[54]	UNI	Total (single-phase): 52 wks	CAET1: CE, TM, SC CRET1: MW, FW CAET2: CE, TM CRET2: MW, FW	CAET1: 3 CRET1: 3 CAET2: 3 CRET2: 3	CAET1: 30 CRET1: 30 CAET2: 30 CRET2: 30	CAET1: 65-85% VO_2^{peak} CRET1: 65-85% 1RM; 6-12 reps, 1-3 sets CAET2: 65-85% VO_2^{peak} CRET2: 65-85% 1RM; 6-12 reps, 1-3 sets	CET1: Diet CET2: NA
Belardinelli et al., (2012)[56]	MC	Total: 120 mo Phase 1: 8 wks Phase 2: 118 mo	Phase 1 AET1: CE, TM Phase 2 AET1: CE, TM	Phase 1 AET1: 3 Phase 2 AET1: 3	Phase 1 AET1: 40 Phase 2 AET1: 40	Phase 1 AET1: 60% VO_2^{peak} Phase 2 AET1: 70% VO2 peak	Phase 1 & Phase 2 Counselling (smoking, stress, & diet)
Campbell et al., (2012)[58]	MC, HM	Total (single-phase): 52 wks	AET1: WK AET2: WK	AET1: 5 AET2: 5	AET1: 45 AET2: 45	AET1: 70-85% HR^{max} AET2: 70-85% HR^{max}	AET1 & AET2: Diet
Duijts et al., (2012)[60]	HM	Total (single-phase): 12 wks	AET1: NR AET2: NR	AET1: NR AET2: NR	AET1: NR AET2: NR	AET1: 60-80% HR - Karvonen AET2: 60-80% HR - Karvonen	AET1 & AET 2: CBT
Sandri et al., (2012)[62]	NR	Total (single-phase): 4 days	AET1: NR CAET1: CE, WK CRET1: BW	AET1: NR CAET1: 5 CRET1: 1	AET1: NR CAET1: CE: 20 4x/day; WK: NR CRET1: NR	AET1: NR CAET1: 70% VO_2^{max} CRET1: NR; NR, NR	NA
Winter et al., (2012)[64]	HM	Total (single-phase): 10 wks	AET11: NR	AET1: 3	AET1: 32	AET1: 60-90% HR^{max}	NA
Daumit et al., (2013)[66]	HM	Total: 78 wks Phase 1: 26 wks Phase 2: 52 wks	Phase 1 AET1: WK Phase 2 AET1: WK	Phase 1 AET1: 3 Phase 2 AET1: 3	Phase 1 AET1: 10-30 Phase 2 AET1: NR	Phase 1 AET1: 50-69% HR^{max} Phase 2 AET1: NR	Phase 1 & Phase 2 AET1: Ind & grp weight manage-ment

Supplementary Table 7: Exercise Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Exercise Dose			Co-intervention [Group: Details]
				Frequency [days / week]	Duration [Grp: mins]	Intensity [AET Grp: % tested value] [RET Grp: % tested value; reps, sets]	
Kitzman et al., (2013)[68]	NR	Total (single-phase): 16 wks	AET1: CE, WK	AET1: 3	AET1: 10-40	AET1: 40-70% HRR	NA
Messier et al., (2013)[70]	MC, UNI	Total: 78 wks Phase 1: 26 wks	Phase 1 CAET1: CE, WK CRET1: MW CAET2: CE, WK CRET2: MW	Phase 1 CAET1: 3 CRET1: 3 CAET2: 3 CRET2: 3	Phase 1 CAET1: 30 CRET1: 20 CAET2: 30 CRET2: 20	Phase 1 CAET1: 50-75% HRR CRET1: NR; 10-12 reps, 1-2 sets CAET2: 50-75% HRR CRET2: NR; 10-12 reps, 1-2 sets	Phase 1 & Phase 2 CET1: Diet CET2: NA
		Phase 2: 52 wks	Phase 2 CAET1: CE, WK CRET1: MW, RB CAET2: CE, WK, NR CRET2: MW, RB	Phase 2 CAET1: 3 CRET1: 3 CAET2: 3 CRET2: 3	Phase 2 CAET1: 30 CRET1: 20 CAET2: 30 CRET2: 20	Phase 2 CAET1: 50-75% HRR CRET1: NR; 10-12 reps, 1-2 sets CAET2: 50-75% HRR CRET2: NR; 10-12 reps, 1-2 sets	
Pitkala et al., (2013)[72]	RC, HM	Total (single-phase): 52 wks	AET1: NR CAET1: CE CRET1: MW	AET1: 2 CAET1: 2 CRET1: 2	AET1: 60 CAET1: NR CRET1: NR	AET1: NR CAET1: NR CRET1: NR; NR, NR	NA
Galvao et al., (2014)[74]	NR	Total: 52 wks Phase 1: 26 wks	Phase 1 CAET1: CE, WK/JG CRET1: MW, FW, BW	Phase 1 CAET1: 4 CRET1: 2	Phase 1 CAET1: 20-30 CRET1: NR	Phase 1 CAET1: 70-85% HR^{max}, 11-13 RPE CRET1: 6-12RM; NR, 2-4 sets	NA
		Phase 2: 26 wks	Phase 2 CAET1: NR CRET1: NR	Phase 2 CAET1: NR CRET1: NR	Phase 2 CAET1: NR CRET1: NR	Phase 2 CAET1: NR CRET1: NR; NR, NR	
Hollekim-Strand et al., (2014)[76]	HM, Other	Total: 52 wks Phase 1: 12 wks Phase 2: 40 wks	Phase 1 AET1: CE, WK, SW AET2: TM Phase 2 AET1: CE, WK, SW AET2: TM, CE, SW	Phase 1 AET1: NR AET2: 3 Phase 2 AET1: NR AET2: NR	Phase 1 AET1: 10-NR AET2: 40 Phase 2 AET1: NR AET2: NR	Phase 1 AET1: 70% HR^{max} AET2: 90-95% HR^{max} Phase 2 AET1: NR AET2: NR	NA
Jones et al., (2014)[78]	HM, Other	Total (single-phase): 26 wks	AET1: TM	AET1: 5	AET1: 30-45	AET1: 55-100% VO_2^{peak}	NA
Pahor et al., (2014)[80]	MC	Total: 135 wks Phase 1: 52 wks	Phase 1 CAET1: WK CRET1: FW	Phase 1 CAET1: 3-6 CRET1: 3	Phase 1 CAET1: NR CRET1: 10	Phase 1 CAET1: 13 RPE (Borg) CRET1: 15-16 RPE (Borg); 10 reps, 2 sets	NA

Supplementary Table 7: Exercise Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Exercise Dose			Co-intervention [Group: Details]
				Frequency [days / week]	Duration [Grp: mins]	Intensity [AET Grp: % tested value] [RET Grp: % tested value; reps, sets]	
		Phase 2: 83 wks	Phase 2 CAET1: WK CRET1: FW	Phase 2 CAET1: 5-6 CRET1: 3	Phase 2 CAET1: NR CRET1: 10	Phase 2 CAET1: 13 RPE (Borg) CRET1: 15-16 RPE (Borg); 10 reps, 2 sets	
Fakhry et al., (2015)[82]	RC	Total: 52 wks Phase 1: 26 wks	Phase 1 AET1: TM AET2: TM	Phase 1 AET1: 2-3 AET2: 2-3	Phase 1 AET1: 30-45 AET2: 30-45	Phase 1 AET1: NR AET2: NR	Phase 1 & Phase 2 AET1: NA AET2: Endovasc. revascularization
		Phase 2: 26 wks	Phase 2 AET1: TM AET2: TM	Phase 2 AET1: 1 AET2: 1	Phase 2 AET1: 30-45 AET2: 30-45	Phase 2 AET1: NR AET2: NR	
Friedenreich et al., (2015)[84]	PG, HM	Total: 52 wks Phase 1: 12 wks	Phase 1 AET1: NR AET2: NR	Phase 1 AET1: 3-5 AET2: 3-5	Phase 1 AET1: 15-60 AET2: 10-30	Phase 1 AET1: 50-75% HRR AET2: 50-75% HRR	NA
		Phase 2: 40 wks	Phase 2 AET1: WK, EG, CE, RG, NR AET2: NR	Phase 2 AET1: 5 AET2: 5	Phase 2 AET1: 60 AET2: 30	Phase 2 AET1: 65-75% HRR AET2: 65-75% HRR	
Irwin et al., (2015)[86]	PG, HM	Total (single-phase): 52 wks	CAET1: CE, TM, WK, NR CRET1: MW	CAET1: NR CRET1: 2	CAET1: NR CRET1: NR	CAET1: 50-80% HR^{max} CRET1: NR; NR, NR	NA
Murphy et al., (2015)[88]	RC	Total: 78 wks Phase 1: 26 wks	Phase 1 AET1: TM	Phase 1 AET1: 5	Phase 1 AET1: 15-50	Phase 1 AET1: 2-4 claudication pain scale	Phase 1 Cilostazol, EX counselling
		Phase 2: 52 wks	Phase 2 AET1: NR	Phase 2 AET1: NR	Phase 2 AET1: NR	Phase 2 AET1: NR	Phase 2 EX counselling
Ross et al., (2015)[90]	NR	Total (single-phase): 24 wks	AET1: TM AET2: TM CAET1: TM	AET1: 5 AET2: 5 CAET1: 5	AET1: 31.2 AET2: 58.4 CAET1: 40	AET1: 50% VO_2^{peak} AET2: 50% VO_2^{peak} CAET1: 75% VO_2^{peak}	NA
van Waart et al., (2015)[92]	RC, HM	Total (single-phase): NR	AET1: NR CAET1: NR CRET1: MW, FW, BW	AET1: 5 CAET1: 2 CRET1: 2	AET1: 30-NR CAET1: 30 CRET1: 20	AET1: 12-14 RPE CAET1: 50-80% workload max CRET1: 70-80% 1RM; 8-12 reps, NR	NA

Supplementary Table 7: Exercise Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Exercise Dose			Co-intervention [Group: Details]
				Frequency [days / week]	Duration [Grp: mins]	Intensity [AET Grp: % tested value] [RET Grp: % tested value; reps, sets]	
Ehlken et al., (2016)[94]	MC	Total: 15 wks Phase 1: 3 wks	Phase 1 CAET1: CE, WK CRET1: FW	Phase 1 CAET1: 7 CRET1: 5	Phase 1 CAET1: 70-85 CRET1: 30	Phase 1 CAET1: 60-80% HR at VO_2^{max} CRET: NR; NR, 1-3 sets	Phase 1 Respiratory & "mental" training
		Phase 2: 12 wks	Phase 2 CAET1: CE CRET1: FW	Phase 2 CAET1: 5 CRET1: 3-4	Phase 2 CAET1: 15-30 CRET1: 15-30	Phase 2 CAET1: NR CRET1: NR; NR, 1-2 sets	Phase 2 Respiratory training
Kitzman et al., (2016)[96]	MC	Total (single-phase): 20 wks	AET1: WK AET2: WK	AET1: 3 AET2: 3	AET1: 18-48 AET2: 19-50	AET1: HRR (NR) AET2: HRR (NR)	AET1 & AET2: Diet
Zhang et al., (2016)[98]	PG, HM	Total: 52 wks Phase 1: 26 wks	Phase 1 AET1: TM AET2: WK	Phase 1 AET1: 5 AET2: 5	Phase 1 AET1: 15-30 AET2: 30	Phase 1 AET1: 45-50%; 65-80% HR^{max} AET2: 45-55% HR^{max}	Phase 1 & Phase 2 AET1 & AET2: Health education
		Phase 2: 26 wks	Phase 2 AET1: WK AET2: WK	Phase 2 AET1: 5 AET2: 5	Phase 2 AET1: 30 AET2: 30	Phase 2 AET1: 45-55% HR^{max} AET2: 45-55% HR^{max}	w EX behavioral support
Johansen et al., (2017)[100]	REC, Other	Total: 52 wks Phase 1: 16 wks	Phase 1 CAET1: NR CRET1: NR	Phase 1 CAET1: 6 CRET1: 2	Phase 1 CAET1: 30-60 CRET1: 30	Phase 1 CAET1: 62-80% HRR CRET1: NR; NR, NR	Phase 1 & Phase 2 Diet & sleep
		Phase 2: 36 wks	Phase 2 CAET1: NR CRET1: NR	Phase 2 CAET1: NR CRET1: NR	Phase 2 CAET1: 45-60 CRET1: 30	Phase 2 CAET1: 68-88% HRR CRET1: NR; NR, NR	
McDermott et al., (2017)[102]	MC	Total (single-phase): 26 wks	AET1: TM AET2: TM	AET1: 3 AET2: 3	AET1: 15-50 AET2: 15-50	AET1: 12-14 RPE AET2: 12-14 RPE	AET1: GM-CSF injections AET2: NA
Saberi et al., (2017)[104]	HM	Total (single-phase): 16 wks	AET1: EE, WK	AET1: 3-7	AET1: 20-60	AET1: 60-70% HRR, 11-14 RPE	NA
Taaffe et al., (2017)[106]	UNI	Total: 52 wks Phase 1: 26 wks	Phase 1 RET1: MW CAET1: CE, TM, RE; MW CRET1: MW	Phase 1 RET1: 2 CAET1: 2 CRET1: 2	Phase 1 RET1: NR CAET1: 20-30 CRET1: NR	Phase 1 RET1: 6-12 RM CAET1: 60-75% HR^{max} CRET1: 6-12 RM; NR, 2-4 sets	Phase 1 RET1: Impact-loading activities CET1: NA

Supplementary Table 7: Exercise Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Exercise Dose			Co-intervention [Group: Details]
				Frequency [days / week]	Duration [Grp: mins]	Intensity [AET Grp: % tested value] [RET Grp: % tested value; reps, sets]	
Taaffe cont'd		Phase 2: 26 wks	Phase 2 AET1: CE	Phase 2 AET1: 2	Phase 2 AET1: NR	Phase 2 AET1: 70% HR^{max}	Phase 2 AET1: NA
Villareal et al., (2017)[108]	MC	Total (single-phase): 26 wks	AET1: CE, TM RET1: MW, FW CAET1: CE, TM, SC CRET1: MW, FW	AET1: 3 RET1: 3 CAET1: 3 CRET1: 3	AET1: 40 RET1: 40 CAET1: 30-40 CRET1: 30-40	AET1: 65-85% VO_2^{max} RET1: 65-85% 1RM; 8-12 reps, 1-3 sets CAET1: 65-85% VO_2^{max} CRET1: 65-85% 1RM	AET1, RET1 & CET1: Diet & dietician support therapy
Dieli-Conwright et al., (2018)[110]	UNI	Total (single-phase): 16 wks	CAET1: CE, TM, WK, RE CRET1: MW	CAET1: 3 CRET1: 2	CAET1: 30-50 CRET1: NR	CAET1: 65-80% HR^{max} CRET1: 60% 1RM (upper); 10-15 reps, 3 sets; 80% 1RM (lower); 10-15 reps, 3 sets	NA
McDermott et al., (2018)[112]	HM	Total: 40 wks Phase 1: 4 wks Phase 2: 36 wks	Phase 1 AET1: WK Phase 2 AET1: WK	Phase 1 AET1: 1 Phase 2 AET1: 5	Phase 1 AET1: NR Phase 2 AET1: 10-50	Phase 1 AET1: NR Phase 2 AET1: 12-14 RPE	NA

Notes: AET1: aerobic exercise training (group 1); AET2: aerobic exercise training (group 2); AT: anaerobic threshold; BW: body weight; CAET1: aerobic component of combined aerobic and resistance exercise training (group 1); CAET2: aerobic component of combined aerobic and resistance exercise training (group 2); CE: cycle ergometer; CET1: combined aerobic and resistance exercise training (group 1); CET2: combined aerobic and resistance exercise training (group 2); CRET1: resistance component of combined aerobic and resistance exercise training (group 1); CRET2: resistance component of combined aerobic and resistance exercise training (group 2); d/wk: days per week; EE: elliptical ergometer; EX: exercise; FW: free weights; HM: home; HR: heart rate; HR^{max}: maximal heart rate; HR^{peak}: peak heart rate; HRR: heart rate reserve; JG: jogging; MC: medical center; min: minutes; MW: machine weights; NA: not applicable; n: number; NR: not reported; PG: public gym; RB: resistance bands; RC: rehabilitation center; RE: rowing ergometer; REC: recreational center; reps: repetitions; RET1: resistance exercise training (group 1); RET2: resistance exercise training (group 2); RM: repetition maximum; RPE: rate of perceived exertion; SC: stair climb; SW: swimming; TM: treadmill; UC: usual care; UNI: university; VO2max: maximal oxygen uptake; VO2peak: peak oxygen uptake; WK: walking; wk(s): week(s)

Supplementary Table 8: Pharmacological Intervention Characteristics

Supplementary Table 8: Pharmacological Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Pharmaceutical Dose		Co-intervention [Group: Details]
				Frequency [x/time]	Medication [Grp#: Med 1 dose; med 2 dose, etc.]	
Ahmed et al. (2008)[113]	NR	Total (single-phase): 109.2 wks	Grp1: NR Grp2: NR	Grp1: 1x/day Grp2: 1x/day	Grp1: Amiodarone 200mg, 600mg Grp2: Amiodarone 200mg	NA
Gheorghiade et al. (2008)[97]	HSP	Total (single-phase): 1 day	Grp1: IV Grp2: IN Grp3: IN	Grp1: 1x dose Grp2: 1x dose Grp3: 1x dose	Grp1: Istaroxime 0.5ug/kg/min Grp2: Istaroxime 1.0ug/kg/min Grp3: Istaroxime 1.5ug/kg/min	NA
Greenspan et al. (2008)[111]	NR	Total (single-phase): 104 wks	Grp1: PO	Grp1: 1x/wk	Grp1: Risendronate 35 mg	Calcium & Vitamin D as needed
Grudell et al. (2008)[109]	OMC	Total (single-phase): 12 wks	Grp1: NR Grp2: NR	Grp1: 1x/day Grp2: 1x/day	Grp1: Sibutramine 10mg Grp2: Sibutramine 15mg	Grp1 & Grp2: Written & psychologist-based weight management behavioral therapy
Irani et al. (2008)[75]	NR	Total (single-phase): 193.5 wks	Grp1: PO, IN Grp2: PO, IN	Grp1: 1x/3mo (Goserelin) Grp1: 3x/day (Flutamide) Grp2: 1x/3mo (Goserelin) Grp2: 3x/day (Flutamide) 6 mths, no drugs 6mths, repeat	Grp1: Goserelin 10.8mg Grp1: Flutamide 250mg Grp2: Goserelin 10.8mg Grp2: Flutamide 250mg	NA
Nissen et al. (2008)[43]	NR	Total (single-phase): 52 wks	Grp1: PO Grp2: PO	Grp1: 1x/day Grp2: 1x/day	Grp1: Glimepiride 2.9 mg (1-4mg) Grp2: Pioglitazone 37.4 mg (15-45mg)	Grp1 & Grp2: Insulin, Metformin, or both as needed
Ratziu et al. (2008)[53]	NR	Total: 51.3 wks Phase 1: 4 wks Phase 2: 47.3 wks	Phase 1 Grp1: NR Phase 2 Grp1: NR	Phase 1 Grp1: 1x/day Phase 2 Grp1: 1x/day	Phase 1 Grp1: Rosiglitazone 4mg Phase 2 Grp1: Rosiglitazone 8mg	NA
Caminiti et al. (2009)[69]	NR	Total (single-phase): 12 wks	Grp1: IN	Grp1: 1x/6wks	Grp1: Testosterone undecanoate 1000mg	NA
Frustaci et al. (2009)[63]	NR	Total (single-phase): 26 wks	Grp1: PO	Grp1: 2x/day	Grp1: Prednisone 0.33mg/kg/day, 1mg/kg/day Grp1: Azathioprine 2mg/kg/day	NA

Supplementary Table 8: Pharmacological Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Pharmaceutical Dose		Co-intervention [Group: Details]
				Frequency [x/time]	Medication [Grp#: Med 1 dose; med 2 dose, etc.]	
Lapperre et al. (2009)[25]	NR	Total: 130 wks Phase 1: 26 wks	Phase 1 Grp1: INH Grp2: INH Grp3: INH	Phase 1 Grp1: 2x/day Grp2: 2x/day Grp3: 2x/day	Phase 1 Grp1: Fluticasone propionate 500ug Grp2: Fluticasone propionate 500ug Grp3: Fluticasone propionate 500ug Grp3: Salmeterol 50ug	NA
		Phase 2: 104 wks	Phase 2 Grp1: INH Grp2: INH Grp3: INH	Phase 2 Grp1: 2x/day Grp2: 2x/day Grp3: 2x/day	Phase 2 Grp1: Fluticasone propionate 500ug Grp2: Placebo 0mg Grp3: Fluticasone propionate 500ug Grp3: Salmeterol 50ug	
Pradhan et al. (2009)[103]	HSP	Total (single-phase): 14 wks	Grp1: IN Grp2: PO Grp3: PO, IN	Grp1: 1x/day Grp2: 2x/day Grp3: 1x/day (Insulin) Grp3: 1-2x/day (Metformin)	Grp1: Insulin glargine 5U starting Grp2: Metformin 500mg, 1000mg Grp3: Insulin glargine 5U starting Grp3: Metformin 500mg, 1000mg	NA
Loprinzi et al. (2010)[33]	NR	Total (single-phase): 6 wks	Grp1: PO Grp2: PO	Grp1: 1x/day; 2x/day Grp2: 1x/day; 2x/day	Grp1: Pregabalin 50mg, 75mg Grp2: Pregabalin 50mg, 75mg, 150mg	NA
Smith et al. (2010)[55]	NR	Total (single-phase): 52 wks	Grp1: PO	Grp1: 2x/day	Grp1: Lorcaserin 10mg	NA
Ellis et al. (2011)[59]	NR	Total (single-phase): 3-4 wks	Grp1: PO Grp2: PO Grp3: PO	Grp1: 1x/day Grp2: 1x/day GrGrp3: 1x/day	Grp1: Exemestane 25mg Grp2: Letrozole 2.5mg Grp3: Anastrozole 1mg	NA
Rosenheck et al. (2011)[67]	HSP	Total (single-phase): 104 wks	Grp1: IN	Grp1: 1x/2wk	Grp1: Risperidone 25mg, 37.5mg, 50mg	NA
Spitzer et al. (2012)[71]	NR	Total (single-phase): 14 wks	Grp1: PO, TD Grp2: PO	Grp1: 2.7 x/wk (Sildenafil) Grp1: 3 x/day (Testosterone) Grp2: 2.7 x/wk (Sildenafil)	Grp1: Sildenafil 25mg, 50mg, 100mg Grp1: Testosterone 5g, 10g, 15g Grp2: Sildenafil 25mg, 50mg, 100mg	NA
Gheorghiade et al. (2013)[35]	NR	Total (single-phase): 48.6 wks^{MED}	Grp1: PO	Grp1: 1x/day	Grp1: Aliskiren 150mg or 300mg	NA
Hurvitz et al. (2013)[49]	NR	Total (single-phase): 43.9 wks^{MED}	Grp1: IV Grp2: Other, IV	Grp1: 1x/3wks Grp2: 1x/3wks	Grp1: Trastuzumab emtansine 3.6 mg/kg Grp2: Trastuzumab 8mg/kg load, 6mg/kg Grp2: Docetaxel 75mg/m^2 or 100mg/m^2	NA

Supplementary Table 8: Pharmacological Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Pharmaceutical Dose		Co-intervention [Group: Details]
				Frequency [x/time]	Medication [Grp#: Med 1 dose; med 2 dose, etc.]	
Klotz et al. (2013)[107]	NR	Total (single-phase): 52 wks	Grp1: PO, IN Grp2: PO, IN	Grp1: 1x/4mo (Leuoprolide) Grp1: 1x/wk (Alendonrate) Grp1: 1x/day (Calcium) Grp1: 1x/day (Vitamin D) Grp2: 1x/4mo (Leuoprolide) Grp2: 1x/day (Calcium) Grp2: 1x/day (Vitamin D)	Grp1: Leuoprolide 30mg Grp1: Alendonrate 70mg Grp1: Calcium 500mg Grp1: Vitamin D 500Iu Grp2: Leuoprolide 30mg Grp2: Calcium 500mg Grp2: Vitamin D 500Iu	NA
Kosmala et al. (2013)[51]	HSP	Total (single-phase): 1 wk	Grp1: PO	Grp1: 2x/day	Grp1: Ivabradine 5mg	NA
Poole et al. (2013)[83]	HSP	Total (single-phase): 4 wks	Grp1: IN	Grp1: 3x/wk	Grp1: Granulocyte-macrophage-colony stimulating factor 500ug	NA
van der Bom et al. (2013)[65]	NR	Total (single-phase): 166.4 wks	Grp1: PO	Grp1: 2x/day	Grp1: Valsartan 160mg	NA
Yardley et al. (2013)[87]	HSP	Total (single-phase): Grp1: 18.5 wks^{MED} Grp2: 9.89 wks^{MED}	Grp1: PO Grp2: PO	Grp1: 1x/day (Exemestane) Grp1: 1x/wk (Entinostat) Grp2: 1x/day	Grp1: Exemestane 25mg; Grp1: Entinostat 5mg Grp2: Exemestane 25mg	NA
Ford et al. (2014)[31]	NR	Total (single-phase): 30 days	Grp1: PO	Grp1: 1x/day	Grp1: Clopidogrel 75mg	NA
Han et al. (2014)[77]	NR	Total (single-phase): 5 days	Grp1: PO	Grp1: 1x/day	Grp1: Rosuvastatin 10mg	Isotonic saline (0.9 NaCl at 1ml/kg/h) as needed
Harman et al. (2014)[85]	NR	Total (single-phase): 208 wks	Grp1: PO Grp2: TD	Grp1: 1x/day Grp2: 1x/wk	Grp1: Equine estrogen 0.45mg Grp2: Transdermal 17B-estradiol 50ug/d	Grp1& Grp2: Progest-erone (200 mg/d; first 12 days / mth)
Taplin et al. (2014)[47]	NR	Total: 24 wks Phase 1: 12 wks	Phase 1 Grp1: IN Grp2: IN, NR	Phase 1 Grp1: 1x/4wk Grp2: 1x/4wk (LHRH agonist) Grp2: 1x/day (Abiraterone acetate) Grp2: 1x/day (Prednisone)	Phase 1 Grp1: Leuprolide acetate 7.5mg Grp2: LHRH agonist 7.5 mg Grp2: Abiraterone acetate 1000 mg Grp2: Prednisone 5 mg	Phase 1 & Phase 2: Radical prostatectomy at end of Phase 2

Supplementary Table 8: Pharmacological Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Pharmaceutical Dose		Co-intervention [Group: Details]
				Frequency [x/time]	Medication [Grp#: Med 1 dose; med 2 dose, etc.]	
Taplin cont'd		Phase 2: 12 wks	Phase 2 Grp1: IN, NR Grp2: IN, NR	Phase 2 Grp1: 1x/day (Abiraterone acetate) Grp1: 1x/4wk (Leuprolide acetate) Grp1: 1x/day (Prednisone) Grp2: 1x/day (Abiraterone acetate) Grp2: 1x/4wk (Leuprolide acetate) Grp2: 1x/day (Prednisone)	Phase 2 Grp1: Abiraterone acetate 1000mg Grp1: Leuprolide acetate 7.5mg Grp1: Prednisone 5mg Grp2: Abiraterone acetate 1000mg Grp2: Leuprolide acetate 7.5mg Grp2: Prednisone 5mg	
Cummings et al. (2015)[73]	HSP, OMC	Total (single-phase): 5 wks	Grp1: PO	Grp1: 1x/day (active drug) & 1x/day placebo (wk 1) Grp1: 2x/day active drug (wks 2-5)	Grp1: Dextromethorphan 20mg, 30mg Grp1: Quinidine 10mg	NA
Hamshere et al. (2015)[21]	HSP	Total (single-phase): 5 days	Grp1: IN Grp2: IN Grp3: IN	Grp1: 1x/day Grp2: 1x/day Grp3: 1x/day	Grp1: GCSF 10 ug/kg/day Grp2: GCSF 10 ug/kg/day Grp3: GCSF 10 ug/kg/day	Grp1: NA Grp2: BM harvest & intracoronary injection of bone marrow-derived cells. Grp3: BM harvest & intracoronary serum injection
Hoendermis et al. (2015)[19]	NR	Total (single-phase): 10 wks	Grp1: PO	Grp1: 3x/day	Grp1: Sildenafil 60 mg	NA
Krankenberg et al. (2015)[89]	OMC	Total (single-phase): 1 day	Grp1: Intra-lesion via coated balloon Grp2: NR	Grp1: 1x dose (Paclitaxel); Grp1: 1x/day (Aspirin); Grp1: 1x/day (Clopidogrel) Grp2: 1x/day (Aspirin); Grp2: 1x/day (Clopidogrel)	Grp1: Paclitaxel 3.5ug/mm^2 of balloon; Grp1: Aspirin 100mg; Grp1: Clopidogrel 75mg Grp2: Aspirin 100mg; Grp2: Clopidogrel 75mg	Grp1 & Grp2: Heparin (5,000 - 10,000U based on body weight during Sx)
Tsujita et al. (2015)[37]	NR	Total (single-phase): Grp1: 43.4 wks Grp2: 41.7 wks	Grp1: NR Grp2: NR	Grp1: 1x/day Grp2: NR	Grp1: Atorvastatin NR Grp1: Ezemtimibe 10mg Grp2: Atorvastatin NR	NA
Ulrich et al. (2015)[95]	HSP	Total (single-phase): 1 wk	Grp1: PO Grp2: PO	Grp1: 2x/day Grp2: 2x/day	Grp1: Acetazolamide 250mg Grp2: Placebo 0mg	Grp1: Sham nocturnal oxygen therapy Grp2: Real nocturnal oxygen therapy

Supplementary Table 8: Pharmacological Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Pharmaceutical Dose		Co-intervention [Group: Details]
				Frequency [x/time]	Medication [Grp#: Med 1 dose; med 2 dose, etc.]	
Cortelazzo et al. (2016)[29]	NR	Total: Grp1: 4 wks Grp2: 4.6 wks Phase 1: Grp1: 2 wks Grp2: 3 wks	Phase 1 Grp1: PO, IN, IV Grp2: PO, IN, IV	Phase 1 Grp1: 1x/2wk **RCHOP** (w 1x/d P; days 1-5 per cycle) Grp1: 1x/d Filgrastim; days 7-11 per cycle) Grp2: 1x/d **R**; days 52, 60, 78, 86 Grp2: 1x **C**; day 50 Grp2: 1x/2wk **H**; days 1, 15, 29 Grp2: 1x/2wk **O**; days 1, 15, 29 Grp2: 1x/d **P**; days 1-28 Grp2: 1x/d Filgrastim; days 51-60 Grp2: 2x/d Cytarabine; days 71-76	Phase 1 Grp1: **R** (375mg/m^2); **C** (750 mg/m^2); **H** (50mg/m^2); **O** (1.4 mg/m^2); **P** (100mg); Filgrastim (5ug/kg) Grp2: **R** (375mg/m^2); **C** (7g/m^2); **H** (50mg/m^2; 75mg/m^2); **O** (1.4 mg/m^2); **P** (40mg/m^2); Filgrastim (5ug/kg and 10ug/kg); Cytarabine (2g/m^2)	Phase 1 & Phase 2 Grp1: CNS prophylaxis (high risk patients) Grp1: PCP prophylaxis. Grp1: HSV prophylaxis. Grp2: Peripheral blood progenitor cell reinfusion (day 77) Grp2: CNS prophylaxis (high risk patients) Grp2: PCP prophylaxis Grp2: HSV prophylaxis
		Phase 2: Grp1: 2 wks Grp2: 1.6 wks	Phase 2 Grp1: PO, IN, IV Grp2: IV	Phase 2 Grp1: 1x/2wk **RCHOP** (w 1x/d P; days 1-5 per cycle) Grp1: 1x/d Filgrastim; days 7-11 per cycle) Grp2: 1x/d Etoposide; day 112 Grp2: 1x/d Cisplatin; day 113 Grp2: 1x/d Filgrastim; day 114 Conditional… Grp2: 1x/d Mitoxantrone; day 133 Grp2: 1x/day Melphalan; day 135 or 137 OR Grp2: 1x/d Carmustine; day 133 Grp2: 1x/d Etoposide; day 134-137 Grp2: 12hr Cytarabine; day 134-137 Grp2: 1x/d Melphalan; day 138	Phase 2 Grp1: **R** (375mg/m^2); **C** (750 mg/m^2); **H** (50mg/m^2); **O** (1.4 mg/m^2); **P** (100 mg/m^2); Filgrastim (5ug/kg) Grp2: Etoposide 2.4 g/ m^2 Grp2: Cisplatin 100mg/ m^2 Grp2: Filgrastim 5ug/kg Conditional… Grp2: Mitoxantrone 60mg/ m^2 Grp2: Melphalan 180mg/ m^2 OR Grp2: Carmustine 300mg/m^2 Grp2: Etoposide 200mg/m^2 Grp2: Cytarabine 200mg/m^2 Grp2: Melphalen 140mg/m^2	
Cusi et al. (2016)[99]	NR	Total: 77 wks Phase 1: 8 wks Phase 2: 69 wks	Phase 1 Grp1: PO Phase 2 Grp1: PO	Phase 1 Grp1: 1x/day Phase 2 Grp1: 1x/day	Phase 1 Grp1: Pioglitazone 30mg Phase 2 Grp1: Pioglitazone 45mg	Phase 1 & Phase 2 Hypocaloric diet

Supplementary Table 8: Pharmacological Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Pharmaceutical Dose		Co-intervention [Group: Details]
				Frequency [x/time]	Medication [Grp#: Med 1 dose; med 2 dose, etc.]	
Kosmala et al. (2016)[105]	NR	Total (single-phase): 26 wks	Grp1: PO	Grp1: 1x/day	Grp1: Spironolactone 25mg	NA
McKay et al. (2016)[41]	NR	Total (single-phase): 26 wks	Grp1: PO, IN, IV Grp2: PO, IN	Grp1: 1x/3mo (Leuprolide OR Goserelin); Grp1: 1x/day (Bicalutamide) Grp1: 1x/3wk (Bevacizumab) Grp2: 1x/3mo (Leuprolide OR Goserelin) Grp2: 1x/day (Bicalutamide)	Grp1: Leuprolide acetate 22.5mg or Goserelin acetate 10.8mg Grp1: Bicalutamide 10mg Grp1: Bevacizumab 15mg/kg Grp2: Leuprolide acetate 22.5mg or Goserelin acetate 10.8mg Grp2: Bicalutamide 50mg	NA
Schmid et al. (2016)[23]	NR	Total (single-phase): 2 wks	Grp1: PO Grp2: PO	Grp1: 1x/day Grp2: 1x/day	Grp1: Anastrazole 1mg Grp2: Anaztrazole 1mg Grp2: Pictilisib 260mg, 340mg	NA
Yoshimura et al. (2016)[79]	NR	Total (single-phase): Grp1: 30 wks^{MED} Grp2: 94.6 wks^{MED}	Grp1: NR Grp2: IN, NR	Grp1: 1x/day Grp2: 1x/day (Dexamethasone) Grp2: 1x/2wk (Peptide vaccine)	Grp1: Dexamethasone 1mg Grp2: Dexamethasone 1mg Grp2: Peptide vaccine 3mg	NA
Goebel et al. (2017)[57]	NR	Total (single-phase): 6 wks	Grp1: IV	Grp1: 2x/6wks	Grp1: Intratectivig 0.5g/kg	NA
Soiffer et al. (2017)[93]	NR	Total (single-phase): 3 days	Grp1: IV	Grp1: 1x/day Anti–T- lymphocyte globulin (3 days) Grp1: Antihistamine (NR) Grp1: 1x/day Methylprednisolone (3 days) Grp1: 1x/day Methotrexate (4 days)	Grp1: Anti–T- lymphocyte globulin Grp1: Antihistamine 20mg/kg Grp1: Methylprednisolone 2mg/kg, 1mg/kg Grp1: Methotrexate 10-15 mg/m^2	NA
Urruticoechea et al. (2017)[61]	NR	Total (single-phase): Grp1: 36 wks (Trastuzumab) 30 wks (Capecitabine) Grp2: 45 wks (Trastuzumab) 36 wks (Capecitabine) 45 wks (Pertuzumab)	Grp1: PO, IV Grp2: PO, IV	Grp1: 1x/3wk Trastuzumab Grp1: 2x/day Capecitabine (2 wks on / 1wk off) Grp2: 1x/3wk Pertuzumab Grp2: 1x/3wk Trastuzumab Grp2: 2x/day Capecitabine (2 wks on / 1wk off)	Grp1: Trastuzumab (8mg/kg loading; 6mg/kg maintenance) Grp1: Capecitabine 1250 mg/m^2 Grp2: Pertuzumab (840mg loading; 420mg maintenance) Grp2: Trastuzumab (8mg/kg loading; 6mg/kg maintenance) Grp2: Capecitabine 1000 mg/m^2	NA
Wysham et al. (2017)[101]	NR	Total: 64 wks Phase 1: 32 wks	Phase 1 Grp1: IN Grp2: IN	Phase 1 Grp1: 1x/day Grp2: 1x/day	Phase 1 Grp1: Insulin degludec 70U Grp2: Insulin glargine 74U	NA

Supplementary Table 8: Pharmacological Intervention Characteristics

Study	Location	Length [Total; Phase 1 & Phase 2 (when applicable)]	Modalities	Pharmaceutical Dose		Co-intervention [Group: Details]
				Frequency [x/time]	Medication [Grp#: Med 1 dose; med 2 dose, etc.]	
		Phase 2: 32 wks	Phase 2 Grp1: IN Grp2: IN	Phase 2 Grp1: 1x/day Grp2: 1x/day	Phase 2 Grp1: Insulin glargine 83U Grp2: Insulin degludec 83U	
Devereux et al. (2018)[81]	NR	Total (single-phase): 52 wks	Grp1: PO	Grp1: 1-2x/day	Grp1: Theophylline 200mg	NA
Johnson et al. (2018)[45]	NR	Total (single-phase): 53.6 wks	Grp1: PO, IV Grp2: IV Grp3: PO	Grp1: 1x/day (Lapatinib) Grp1: 1x/3wk (Trastuzumab) Grp2: 1x/3wk Trastuzumab GrGrp3: 1x/day Lapatinib	Grp1: Lapatinib 1000mg; Grp1: Trastuzumab (8mg/kg loading, 6mg/kg maintenance) Grp2: Trastuzumab (8mg/kg loading, 6mg/kg maintenance) Grp3: Lapatinib 1500 mg	Grp1, Grp2 & GrGrp3: Aromatase inhibitor (as needed): Letrozole 2.5mg/day, Anastrozole 1mg/day, or Exemestane 25mg/day.
Kim et al. (2018)[91]	NR	Total (single-phase): 24 wks	Grp1: PO	Grp1: 1x/day	Grp1: Escitalopram 7.6mg (5mg, 10mg, 15mg or 20mg)	NA
Rimawi et al. (2018)[27]	OMC	Total (single-phase): 52 wks	Grp1: PO, IV Grp2: PO, IN	Grp1: 1x/3wk (Pertuzumab or Trastuzumab); Grp1: 1x/day (Letrozole) Grp2: 1x/3wk (Trastuzumab); Grp2: 1x/day (Anastrozole or Letrozole)	Grp1: Pertuzumab (840mg loading, 420mg maintenance) Grp1: Trastuzumab (8mg/kg loading, 6mg/kg maintenance) Grp1: Anastrozole 1mg or Letrozole 2.5mg Grp2: Trastuzumab (8mg/kg loading, 6mg/kg maintenance) Grp2: Anastrozole 1mg or Letrozole 2.5mg	Grp1 & Grp2: Induction IV Docetaxel q3wk or Paclitaxel q1wk for 18-24wk as needed (decided prior to random assignment)
Wapnir et al. (2018)[39]	NR	Total (single-phase): 12-26 wks	Grp1: NR	Grp1: NR	Grp1: NR	Grp1: Radiotherapy & endocrine therapy as required by surgical margins & tumor hormone markers.

Notes: CAL, calcium; CAPE, capecitabine; GCSF, granulocyte-colony stimulating factor; HSP, hospital; IN, injection; INH, inhalant; IV, intravenous; kg, kilogram; LHRH, luteinizing hormone-releasing hormone; load, loading; m, meter; maint, maintenance; MET, metformin; mg, milligram; min, minutes; mm, millimetre; mo, month(s); NA, not applicable; NR, not reported; OMC, outpatient medical clinic; PERT, pertuzumab; PO, oral; PRED, prednisone; RCHOP, rituximab, cyclophosphamide, doxorubicin, vincristine, prednisone; TD, transdermal; TEST, testosterone; TRAZ, trastuzumab; U, units; ug, microgram; VIT, vitamin; wk(s), week

Supplementary Table 9: Exercise RCT CONSORT-NPT Data Extraction Summary

Supplementary Table 9: Exercise RCT CONSORT-NPT Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes			
		Yes No. (%)	Unclear No. (%)	No No. (%)	NA No. (%)
1a	Identification as a randomized trial in the title.	36 (75.0%)	0 (0.0%)	12 (25.0%)	0 (0.0%)
1b	Structured summary of trial design, methods, results, and conclusions.	46 (95.8%)	0 (0.0%)	2 (4.2%)	0 (0.0%)
2a	Scientific background and explanation of rationale.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
2b	Specific objectives or hypothesis.	44 (91.7%)	4 (8.3%)	0 (0.0%)	0 (0.0%)
3ai	Description of trial design (such as parallel, factorial) including allocation ratio.	13 (27.1%)	20 (41.7%)	15 (31.3%)	0 (0.0%)
3aii	When applicable, how care providers were allocated to each trial group.	0 (0.0%)	0 (0.0%)	46 (95.8%)	2 (4.2%)
3b	Important changes to methods after trial commencement (such as eligibility criteria), with reasons.	9 (18.8%)	0 (0.0%)	6 (12.5%)	33 (68.8%)
4ai	Eligibility criteria for participants.	38 (79.2%)	10 (20.8%)	0 (0.0%)	0 (0.0%)
4aii	When applicable, eligibility criteria for centers and for care providers.	3 (6.3%)	16 (33.3%)	29 (60.4%)	0 (0.0%)
4b	Settings and locations where the data were collected.	18 (37.5%)	3 (6.3%)	27 (56.3%)	0 (0.0%)
5i	The interventions for each group with sufficient details to allow replication, including how and when they were actually administered.	0 (0.0%)	0 (0.0%)	48 (100.0%)	0 (0.0%)
5ii	Precise details of both the experimental treatment and comparator.	47 (97.9%)	0 (0.0%)	1 (2.1%)	0 (0.0%)
5a	Description of the different components of the interventions and, when applicable, description of the procedure for tailoring the interventions to individual participants.	8 (16.7%)	16 (33.3%)	24 (50.0%)	0 (0.0%)
5b	Details of whether and how the interventions were standardized.	5 (10.4%)	2 (4.2%)	41 (85.4%)	0 (0.0%)
5c	Details of whether and how adherence of care providers to the protocol was assessed or enhanced.	2 (4.2%)	3 (6.3%)	43 (89.6%)	0 (0.0%)
5d	Details of whether and how adherence of participants to interventions was assessed or enhanced.	2 (4.2%)	3 (6.3%)	43 (89.6%)	0 (0.0%)
6a	Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed.	40 (83.3%)	2 (4.2%)	6 (12.5%)	0 (0.0%)

Supplementary Table 9: Exercise RCT CONSORT-NPT Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes			
		Yes No. (%)	Unclear No. (%)	No No. (%)	NA No. (%)
6b	Any changes to trial outcomes after the trial commenced, with reasons.	2 (4.2%)	0 (0.0%)	1 (2.1%)	45 (93.8%)
7ai	How sample size was determined.	42 (87.5%)	0 (0.0%)	6 (12.5%)	0 (0.0%)
7aii	When applicable, details of whether and how the clustering by care providers or centers was addressed.	0 (0.0%)	0 (0.0%)	30 (62.5%)	18 (37.5%)
7b	When applicable, explanation of any interim analyses and stopping guidelines.	5 (10.4%)	0 (0.0%)	0 (0.0%)	43 (89.6%)
8a	Method used to generate random allocation sequence.	33 (68.8%)	0 (0.0%)	15 (31.3%)	0 (0.0%)
8b	Type of randomization; details of any restriction (such as blocking and block size).	39 (81.3%)	0 (0.0%)	9 (18.8%)	0 (0.0%)
9	Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned.	15 (31.3%)	0 (0.0%)	33 (68.8%)	0 (0.0%)
10	Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions.	3 (6.3%)	7 (14.6%)	38 (79.2%)	0 (0.0%)
11a	If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how.	18 (37.5%)	0 (0.0%)	30 (62.5%)	0 (0.0%)
11b	If relevant, description of the similarity of interventions.	12 (25.0%)	0 (0.0%)	0 (0.0%)	36 (75.0%)
11c	If blinding was not possible, description of any attempts to limit bias.	12 (25.0%)	1 (2.1%)	22 (45.8%)	13 (27.1%)
12ai	Statistical methods used to compare groups for primary and secondary outcomes.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
12aii	When applicable, details of whether and how the clustering by care providers or centers was addressed.	5 (10.4%)	0 (0.0%)	21 (43.8%)	22 (45.8%)
12b	Methods for additional analyses, such as subgroup analyses and adjusted analyses.	27 (56.3%)	0 (0.0%)	0 (0.0%)	21 (43.8%)
13a	Participant flow diagram.	42 (87.5%)	0 (0.0%)	6 (12.5%)	0 (0.0%)
13ai	For each group, the numbers of participants who were randomly assigned, received intended treatment, and were analyzed for the primary outcome.	41 (85.4%)	0 (0.0%)	7 (14.6%)	0 (0.0%)
13aii	The number of care providers or centers performing the intervention in each group and the number of patients treated by each care provider or in each center.	7 (14.6%)	0 (0.0%)	41 (85.4%)	0 (0.0%)
13b	For each group, losses and exclusions after randomization, together with reasons.	43 (89.6%)	2 (4.2%)	3 (6.3%)	0 (0.0%)

Supplementary Table 9: Exercise RCT CONSORT-NPT Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes			
		Yes No. (%)	Unclear No. (%)	No No. (%)	NA No. (%)
13c	For each group, the delay between randomization and the initiation of the intervention.	1 (2.1%)	0 (0.0%)	47 (97.9%)	0 (0.0%)
13d	Details of the experimental treatment and comparator as they were implemented.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
14a	Dates defining the periods of recruitment and follow-up.	18 (37.5%)	22 (45.8%)	8 (16.7%)	0 (0.0%)
14b	Why the trial ended or was stopped.	7 (14.6%)	0 (0.0%)	3 (6.3%)	38 (79.2%)
15i	A table showing baseline demographic and clinical characteristics for each group.	45 (93.8%)	0 (0.0%)	3 (6.3%)	0 (0.0%)
15ii	When applicable, a description of care providers (case volume, qualification, expertise, etc.) and centers (volume) in each group.	13 (27.1%)	0 (0.0%)	35 (72.9%)	0 (0.0%)
16	For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups.	37 (77.1%)	9 (18.8%)	2 (4.2%)	0 (0.0%)
17a	For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval).	36 (75.0%)	0 (0.0%)	12 (25.0%)	0 (0.0%)
17b	For binary outcomes, presentation of both absolute and relative effect sizes is recommended.	13 (27.1%)	0 (0.0%)	3 (6.3%)	32 (66.7%)
18	Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory.	29 (60.4%)	0 (0.0%)	1 (2.1%)	18 (37.5%)
19	See CONSORT-Harms				
20i	Trial limitations, addressing sources of potential bias, imprecision, and, if relevant, multiplicity of analyses.	33 (68.8%)	8 (16.7%)	7 (14.6%)	0 (0.0%)
20ii	In addition, take into account the choice of the comparator, lack of or partial blinding, and unequal expertise of care providers or centers in each group.	9 (18.8%)	7 (14.6%)	32 (66.7%)	0 (0.0%)
21	Generalizability (external validity) of the trial findings according to the intervention, comparators, patients, and care providers and centers involved in the trial.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
22	Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
23	Registration number and name of trial registry.	39 (81.3%)	0 (0.0%)	9 (18.8%)	0 (0.0%)
24	Where the full trial protocol can be accessed, if available.	10 (20.8%)	0 (0.0%)	38 (79.2%)	0 (0.0%)
25	Sources of funding and other support (such as supply of drugs), role of funders.	24 (50.0%)	20 (41.7%)	4 (8.3%)	0 (0.0%)

Notes: NA, not applicable; No., number

Supplementary Table 10: Pharmacological RCT CONSORT Data Extraction Summary

Supplementary Table 10: Pharmacological RCT CONSORT Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes			
		Yes No. (%)	Unclear No. (%)	No No. (%)	NA No. (%)
1a	Identification as a randomized trial in the title.	43 (89.6%)	0 (0.0%)	5 (10.4%)	0 (0.0%)
1b	Structured summary of trial design, methods, results, and conclusions.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
2a	Scientific background and explanation of rationale.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
2b	Specific objectives or hypothesis.	37 (77.1%)	11 (22.9%)	0 (0.0%)	0 (0.0%)
3a	Description of trial design (such as parallel, factorial) including allocation ratio.	30 (62.5%)	9 (18.8%)	9 (18.8%)	0 (0.0%)
3b	Important changes to methods after trial commencement (such as eligibility criteria), with reasons.	10 (20.8%)	0 (0.0%)	5 (10.4%)	33 (68.8%)
4a	Eligibility criteria for participants.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
4b	Settings and locations where the data were collected.	10 (20.8%)	7 (14.6%)	31 (64.6%)	0 (0.0%)
5	The interventions for each group with sufficient details to allow replication, including how and when they were actually administered.	32 (66.7%)	0 (0.0%)	16 (33.3%)	0 (0.0%)
6a	Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed.	42 (87.5%)	5 (10.4%)	1 (2.1%)	0 (0.0%)
6b	Any changes to trial outcomes after the trial commenced, with reasons.	1 (2.1%)	0 (0.0%)	0 (0.0%)	47 (97.9%)
7a	How sample size was determined.	46 (95.8%)	0 (0.0%)	2 (4.2%)	0 (0.0%)
7b	When applicable, explanation of any interim analyses and stopping guidelines.	10 (20.8%)	0 (0.0%)	1 (2.1%)	37 (77.1%)
8a	Method used to generate random allocation sequence.	26 (54.2%)	0 (0.0%)	22 (45.8%)	0 (0.0%)
8b	Type of randomization; details of any restriction (such as blocking and block size).	38 (79.2%)	0 (0.0%)	10 (20.8%)	0 (0.0%)

Supplementary Table 10: Pharmacological RCT CONSORT Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes			
		Yes No. (%)	Unclear No. (%)	No No. (%)	NA No. (%)
9	Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned.	21 (43.8%)	0 (0.0%)	27 (56.3%)	0 (0.0%)
10	Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions.	4 (8.3%)	10 (20.8%)	34 (70.8%)	0 (0.0%)
11a	If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how.	47 (97.9%)	0 (0.0%)	1 (2.1%)	0 (0.0%)
11b	If relevant, description of the similarity of interventions.	22 (45.8%)	0 (0.0%)	0 (0.0%)	26 (54.2%)
12a	Statistical methods used to compare groups for primary and secondary outcomes.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
12b	Methods for additional analyses, such as subgroup analyses and adjusted analyses.	30 (62.5%)	0 (0.0%)	11 (22.9%)	7 (14.6%)
13	Participant flow diagram.	43 (89.6%)	0 (0.0%)	5 (10.4%)	0 (0.0%)
13a	For each group, the numbers of participants who were randomly assigned, received intended treatment, and were analyzed for the primary outcome.	46 (95.8%)	0 (0.0%)	2 (4.2%)	0 (0.0%)
13b	For each group, the delay between randomization and the initiation of the intervention.	39 (81.3%)	6 (12.5%)	1 (2.1%)	2 (4.2%)
14a	Dates defining the periods of recruitment and follow-up.	32 (66.7%)	14 (29.2%)	2 (4.2%)	0 (0.0%)
14b	Why the trial ended or was stopped.	7 (14.6%)	0 (0.0%)	6 (12.5%)	35 (72.9%)
15	A table showing baseline demographic and clinical characteristics for each group.	47 (97.9%)	0 (0.0%)	1 (2.1%)	0 (0.0%)
16	For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups.	36 (75.0%)	11 (22.9%)	1 (2.1%)	0 (0.0%)
17a	For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval).	39 (81.3%)	0 (0.0%)	9 (18.8%)	0 (0.0%)
17b	For binary outcomes, presentation of both absolute and relative effect sizes is recommended.	34 (70.8%)	0 (0.0%)	3 (6.3%)	11 (22.9%)
18	Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory.	41 (85.4%)	0 (0.0%)	1 (2.1%)	6 (12.5%)

Supplementary Table 10: Pharmacological RCT CONSORT Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes			
		Yes No. (%)	Unclear No. (%)	No No. (%)	NA No. (%)
19	See CONSORT-Harms				
20	Trial limitations, addressing sources of potential bias, imprecision, and, if relevant, multiplicity of analyses.	29 (60.4%)	9 (18.8%)	10 (20.8%)	0 (0.0%)
21	Generalizability (external validity) of the trial findings.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
22	Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence.	48 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
23	Registration number and name of trial registry.	40 (83.3%)	0 (0.0%)	8 (16.7%)	0 (0.0%)
24	Where the full trial protocol can be accessed, if available.	12 (25.0%)	0 (0.0%)	36 (75.0%)	0 (0.0%)
25	Sources of funding and other support (such as supply of drugs), role of funders.	23 (47.9%)	23 (47.9%)	2 (4.2%)	0 (0.0%)

Notes: NA, not applicable; No., number

Supplementary Table 11: Exercise & Pharmacological RCT CONSORT-Harms Data Extraction Summary

Supplementary Table 11: Exercise & Pharmacological RCT CONSORT-Harms Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes	Exercise No. (%)	Pharma No. (%)
1	If the study collected data on harms and benefits, the title or abstract should so state.	Yes	17 (35.4%)	34 (70.8%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	31 (64.6%)	14 (29.2%)
		NA	0 (0.0%)	0 (0.0%)
2	If the trial addresses both harms and benefits, the introduction should so state.	Yes	10 (20.8%)	16 (33.3%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	38 (79.2%)	32 (66.7%)
		NA	0 (0.0%)	0 (0.0%)
3	List addressed adverse events with definitions for each (with attention, when relevant, to grading, expected vs. unexpected events, reference to standardized and validated definitions, and description of new definitions).	Yes	31 (64.6%)	41 (85.4%)
		Unclear	1 (2.1%)	3 (6.3%)
		No	16 (33.3%)	4 (8.3%)
		NA	0 (0.0%)	0 (0.0%)
4	Clarify how harms-related information was collected (mode of data collection, timing, attribution methods, intensity of ascertainment, and harms-related monitoring and stopping rules, if pertinent).	Yes	12 (25.0%)	17 (35.4%)
		Unclear	5 (10.4%)	12 (25.0%)
		No	31 (64.6%)	19 (39.6%)
		NA	0 (0.0%)	0 (0.0%)
5	Describe plans for presenting and analyzing information on harms (including coding, handling of recurrent events, specification of timing issues, handling of continuous measures, and any statistical analyses).	Yes	8 (16.7%)	27 (56.3%)
		Unclear	0 (0.0%)	1 (2.1%)
		No	39 (81.3%)	20 (41.7%)
		NA	1 (2.1%)	0 (0.0%)
6	Describe for each arm the participant withdrawals that are due to harms and their experiences with the allocated treatment.	Yes	26 (54.2%)	31 (64.6%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	16 (33.3%)	12 (25.0%)
		NA	6 (12.5%)	5 (10.4%)
7	Provide the denominators for analyses on harms.	Yes	22 (45.8%)	39 (81.3%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	18 (37.5%)	8 (16.7%)
		NA	8 (16.7%)	1 (2.1%)
8	Present the absolute risk per arm and per adverse event type, grade, and seriousness, and present appropriate metrics for recurrent events, continuous variables, and scale variables, whenever pertinent.	Yes	13 (27.1%)	33 (68.8%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	29 (60.4%)	14 (29.2%)
		NA	6 (12.5%)	1 (2.1%)
9	Describe any subgroup analyses and exploratory analyses for harms.	Yes	3 (6.3%)	3 (6.3%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	24 (50.0%)	44 (91.7%)
		NA	21 (43.8%)	1 (2.1%)
10	Provide a balanced discussion of benefits and harms with emphasis on study limitations, generalizability, and other sources of information on harms.	Yes	15 (31.3%)	31 (64.6%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	25 (52.1%)	16 (33.3%)
		NA	8 (16.7%)	1 (2.1%)

Notes: NA, not applicable; No., number

Supplementary Table 12: Exercise & Pharmacological Intervention Data Extraction Summary

Supplementary Table 12: Exercise & Pharmacological Intervention Data Extraction Summary

Item No.	Criterion	Evaluation Outcomes	Exercise No. (%)	Pharma No. (%)
1	Intervention Modality	Yes	22 (45.8%)	40 (83.3%)
		Unclear	17 (35.4%)	0 (0.0%)
		No	9 (18.8%)	8 (16.7%)
		NA	0 (0.0%)	0 (0.0%)
2	Intervention Setting	Yes	36 (75.0%)	10 (20.8%)
		Unclear	5 (10.4%)	2 (4.2%)
		No	7 (14.6%)	36 (75.0%)
		NA	0 (0.0%)	0 (0.0%)
3	Intervention Frequency	Yes	40 (83.3%)	46 (95.8%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	8 (16.7%)	2 (4.2%)
		NA	0 (0.0%)	0 (0.0%)
4	Total Intervention Time	Yes	48 (100.0%)	47 (97.9%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	0 (0.0%)	1 (2.1%)
		NA	0 (0.0%)	0 (0.0%)
5	Intervention Dose*	Yes	22 (45.8%)	46 (95.8%)
		Unclear	0 (0.0%)	0 (0.0%)
		No	26 (54.2%)	2 (4.2%)
		NA	0 (0.0%)	0 (0.0%)
6	Intervention Compliance & Adherence	Yes	2 (4.2%)	8 (16.7%)
		Unclear	3 (6.3%)	0 (0.0%)
		No	43 (89.6%)	40 (83.3%)
		NA	0 (0.0%)	0 (0.0%)

Notes: NA, not applicable; No., number

*Complete reporting of exercise therapy dose required complete reporting of:

- Exercise session intensity (aerobic and resistance training interventions)
- Exercise session duration (aerobic and resistance training interventions)
- Number of sets (resistance training interventions only)
- Number of repetitions (resistance training interventions only)

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