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A Randomized-Controlled Trial on Mobile Approach Avoidance Training for Measuring and Changing Food Preferences in Everyday Life in an EMA context

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2022-070443
Article Type:	Protocol
Date Submitted by the Author:	23-Nov-2022
Complete List of Authors:	Aulbach, Matthias; Paris Lodron Universitat Salzburg, Department of Psychology van Alebeek, Hannah; Centre for Cognitive Neuroscience, Department of Psychology Kahveci, Sercan; Centre for Cognitive Neuroscience, Department of Psychology Blechert, Jens; Centre for Cognitive Neuroscience, Department of Psychology
Keywords:	Information technology < BIOTECHNOLOGY & BIOINFORMATICS, World Wide Web technology < BIOTECHNOLOGY & BIOINFORMATICS, NUTRITION & DIETETICS, PREVENTIVE MEDICINE, PUBLIC HEALTH

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Manuscripts

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3 **A Randomized-Controlled Trial on Mobile Approach Avoidance Training for Measuring and**
4 **Changing Food Preferences in Everyday Life in an EMA context**

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51 **Word count:** 4159 words

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55 Keywords: randomized controlled trial; approach-avoidance training; eating behavior; intervention;
56 ecological momentary assessment; m-health

ABSTRACT

Introduction: Unhealthy eating behavior is a major contributor to obesity and related diseases and may be driven by automatic approach tendencies towards tasty but unhealthy foods. Approach-Avoidance interventions (AAI) have been proposed as a remedy to retrain approach biases and help people to eat in line with their dietary goals. Mobile implementations of AAI might represent a useful, low threshold intervention but its effectiveness has not been established yet.

Methods and analysis: Participants with the goal of changing their eating behavior are randomized to intervention or control groups, each completing six sessions of a smartphone-based AAI, in which they push (i.e., avoid) or pull (i.e., approach) personalized food images. Intervention group participants always avoid individualized sets of foods that they want to eat less often and approach foods that they want to eat more often. In the control group, response directions and images are paired equally often. To evaluate contextual and dynamic intervention effects, ecological momentary assessment (EMA) is measured throughout, with questions about food intake, hunger, stress, emotions, eating intentions, food craving, and impulsivity twice a day. Additional EMA pre- and post-intervention phases are measured before and after the intervention phase (4 days each) with a one-day follow-up EMA four weeks after the intervention.

Multilevel models will examine the temporal covariance between approach bias and self-reported variables as well as short- and long-term intervention effects on approach bias, food intake, and craving.

Ethics and dissemination: The study was approved by the Ethics Committee of the University of Salzburg. Results will be published in peer reviewed scientific journals and presented at scientific conferences.

Trial registration: This study was registered at the German Clinical Trials Register DRKS, registration number DRKS00030780, and on the Open Science Framework https://osf.io/4k3q9/?view_only=4db6431fd5ee4148a97f3be7f799ea4a.

Strengths and limitations of this study

- The study is a randomized controlled trial testing an m-health intervention to assist participants in implementing their dietary intentions by re-training their automatic approach bias towards to-be-reduced foods with an Approach-Avoidance intervention (AAI) against a closely matched active control task
- It includes ecological momentary assessment before, during, and after the trial in both control and intervention groups, which allows examining both short- and long-term intervention effects
- It measures a range of potentially relevant phenomena like food craving, hunger, emotions, stress, and day-level impulsivity
- Control group data allows examining variability in approach bias and its covariation with data obtained through EMA
- Measures of food intake are restricted to single-item daily self-reports which are prone to underreporting and experimenter demand

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2
3 Humans make several decisions about whether, what, and how much to eat per day [1]. All these
4 decisions have an influence on human health, as eating too many of some foods can lead to obesity
5 and related diseases [2]. It is therefore of paramount importance to understand which factors
6 contribute to eating decisions and how we can intervene on them. Traditional psychological models
7 have postulated that people reflect on behavioral options, form intentions, and then translate these
8 into behavior. However, decades of research have shown that intentions are often not successfully
9 enacted, a phenomenon termed the “intention behavior gap” [3].
10
11

12 Impulsive processes may be a factor in hindering the implementation of intentions. These
13 happen automatically, that is, quickly, often outside of conscious awareness, are difficult to control,
14 and might bypass intention formation [4–7] and are typically assessed with computer tasks based on
15 the measurement of reaction times (RT) [8,9]. Under certain conditions, such indirect measures of
16 food preference can increase prediction accuracy of actual behavior, above and beyond
17 questionnaire data [6,10]. One example of such an RT task is the Approach Avoidance Task (AAT). In
18 the AAT, participants usually use a joystick [or in more recent studies, a touch-screen; ,11,12] to
19 perform movements towards or away from different stimulus categories. These categories, such as
20 foods and non-food objects, are compared on how fast they are approached and avoided and this RT
21 difference indicates the strength of an approach-avoidance bias towards some category over
22 another [13]. Food approach-avoidance biases seem relevant to real-world eating behavior, as they
23 are higher in people who strongly crave foods [14] and relate to increased food consumption in
24 impulsive individuals and in people who are prone to external or emotional eating [15,16].
25
26

27 Earlier studies have already shown that approach bias [17], food choice [18] and subsequent
28 food intake [19] can be reduced through Approach-Avoidance Interventions (AAI) that
29 predominantly pair one food category with avoidance and the other with approach movements. The
30 mixed evidence in this domain [20–24], however, might have different reasons. Firstly, in some
31 studies participants approach and avoid stimuli based on their category (e.g., food vs objects) and in
32 others, based on an irrelevant feature of the stimulus such as the frame color or orientation. While
33 such task differences affect reliability of bias measures [25], they may also affect participants'
34 awareness about the contingencies and expectations about training effects, potentially important
35 features influencing the effectiveness of AAIs [26]. Secondly, the personal relevance of the trained
36 stimuli may differ between interventions. While some interventions specifically try to retrain
37 approach biases to chocolates in individuals reporting high trait-level chocolate craving or
38 consumption [17], other interventions train responses to a pre-selected set of healthy and unhealthy
39 foods without taking into account if unhealthy foods are actually consumed across participants or if
40 healthy foods fit to individual needs of the participants (for example in terms of taste, food
41 intolerances and so on). Thirdly, most studies only deliver a single session of AAI (with Meule,
42 Richard, et al., 2019 being an exception) and more sessions might lead to larger effects that would
43 be easier to detect [28]. Finally, the effectiveness of AAIs might depend on the time of intervention
44 delivery. If approach biases vary over time, it is easy to see that interventions might be most fruitful
45 in moments when the bias is strong [as hypothesized for social anxiety by 29], or just before a
46 tempting eating situation.
47
48

49 This possible fluctuation of biases over time has thus far been mostly ignored. In most
50 studies to date, approach bias has, at least implicitly, been treated as a relatively stable, trait-like
51 phenomenon. Approach bias is typically measured at a single timepoint and then correlated with
52 other phenomena like trait food craving [12], weight status [30], or eating disorder diagnosis [31].
53 One recent study demonstrated that approach bias was independent of experimentally induced
54 satiety, indicating stability of the bias across situations. However, participants' desire to eat specific
55
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foods did explain variance in approach bias, implying that bias might vary across time within individuals depending on their current consumption desires [32]. This is in line with the finding that approach bias for chocolate was positively correlated with current chocolate craving [25,33,34], craving being an experience of intense desire for a specific food which is temporally variable by definition [35]. Other studies using a mobile version of the AAT indicated that test-retest reliability across eight measurement occasions was low while split-half reliability was high, again indicating temporal fluctuations in approach biases [36]. This is in line with findings obtained from other indirect measures that showed modest stability over time [37]. Such within-subject fluctuations in biases are probably not due to random variation or measurement error as every-day biases have been shown to decrease with after-meal-satiety in normal-weight individuals and bias size changes based on peoples current affective states [38–42]. In combination, these results raise questions about the trait- or state-like nature of approach biases.

Smartphone-based AATs and AAIs are therefore interesting for a range of research questions that cannot be answered with stationary computer-based tasks. Firstly, smartphones allow relatively easy delivery of AAI to participants during their daily routines. This is helpful not only for participants to perform the intervention task repeatedly but also to bring the intervention temporally closer to “high-risk” situations in everyday life. Assuming a rather fast decay of intervention effects, this should enhance effectiveness compared to conducting a training intervention on one’s personal computer [43] or in a laboratory session [44,45]. Another advantage of repeated intervention through smartphones is the possibility to measure immediate and delayed intervention effects on fluctuating phenomena like food craving in participants’ real-world environment. Secondly, bias can be more easily measured at any time of the day, and especially at moments when it may be relevant for food consumption. This allows us to examine the temporal and situational variability of approach bias, shedding light on its trait- vs. state-like components. Combining it with repeated delivery of eating-related questions throughout the day (i.e., ecological momentary assessment, EMA) also allows for correlating fluctuations in approach bias with other temporally variable phenomena like food craving, affect and intake.

Several studies have provided interventions using computer tasks through the internet [43,44,46–48] and have generally reported good compliance rates and effects on dietary intake. Smartphone-based interventions using similar RT tasks are much rarer and have reported mixed results on key outcomes [27,28,49,50]. One of the two studies delivering smartphone-based AAI requiring tilt movements of the smartphone as responses found positive effects on food choice and approach bias towards unhealthy foods [49]. The other study reported neither day-level nor longer-term effects of AAI using swipe movements compared to an EMA-only intervention and a sham training group [27]. It is important to note that that study did not find any approach bias in participants to begin with and that the sample size was small. It is therefore unclear to what degree its results can be taken as evidence against the effectiveness of mobile AAI.

One recent AAT variant does not require swiping movements on the touchscreen, but instead requires participants to physically move the phone towards or away from themselves while viewing food stimuli [36,51–53]. For measurement purposes, this task has been shown to be a valid tool to study food approach biases outside the laboratory and to provide relevant information beyond self-report measures [51]. In addition to RTs, it also yields data on the forcefulness of the movements which might contain relevant information not captured by RTs [53].

The study presented here sets out to (1) test its effectiveness as an intervention tool when programmed to deliver AAI, that is, to pair foods a specific participant wants to eat more often with approach and foods a specific participant wants to eat less often with avoidance responses.

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3 Specifically, we will study to what degree the intervention can support participants in their goal of
4 changing their eating behavior and (2) to further examine the reliability and validity of approach bias
5 scores obtained through a phone-delivered AAT. Combining the AAT with the repeated
6 measurement of related phenomena through EMA allows us to disentangle short- and long-term
7 intervention effects outlined in aim (1) and to closely study aim (2).
8
9

10 METHODS AND ANALYSIS

11 Study Overview

12
13 The study uses a two-arm, double blind randomized controlled trial conducted with German
14 speaking participants and is coordinated at the University of Salzburg, Austria. It compares an active
15 Approach-Avoidance Intervention (AAI) to a sham-training (a measurement Approach-Avoidance
16 Task, AAT) in its impact on eating behavior, food liking, food craving, and food approach bias.
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18

19 Participants

20
21 Participants will be recruited via university emailing lists, social networks, university events, and
22 word of mouth. Participants are required to be between 18 and 60 years of age, and not to be
23 pregnant or report a diagnosis for an eating disorder. Importantly, participants are required to have
24 an intention to change their eating behavior.
25
26

27 We calculated power using the data of a previous, unpublished study from our group with a medium
28 effect size ($g = .56$); a multilevel model was fitted examining the pre- to post-training difference in
29 approach-avoidance bias between individuals undergoing actual training and sham training.
30 Between 50 and 200 participants were sampled randomly with replacement in steps of 10, with 10
31 samplings per sample size. The significance of the Time \times Group effect was tallied per sample size.
32 The resulting power curve indicated 80% of random samples were significant at sample sizes of 120
33 and above (60 per group). We opted to err on the safer side and chose to recruit a sample of $n = 150$
34 valid subjects, after applying exclusion criteria (75 per group). With an estimated recruitment rate of
35 three participants per week and allowing for recruitment difficulties slowing down the process, we
36 expect data collection to last from November 2022 to roughly January 2024. However, data
37 collection continues until 150 participants are reached.
38
39

40 Materials

41
42 *Baseline questionnaires.* In a web-based questionnaire, participants give informed consent
43 and then indicate their age, gender, nationality, state of employment, highest achieved formal
44 education level, dietary restrictions (vegan, vegetarian, pescatarian, omnivorous, other), height,
45 weight, and possible food allergies or intolerances. Participants identifying as female or diverse are
46 also asked about their menstrual cycle. Further, to assess exclusion criteria, they are asked if they
47 are currently suffering from an eating disorder. This is followed by the stimulus selection (see below
48 for details). Participants then complete the German versions of the following questionnaires:
49 subscales restrained eating and external eating from the Dutch Eating Behavior Questionnaire
50 (DEBQ; van Strien et al., 1986); the Salzburg Emotional Eating Scale (SEES; Meule et al., 2018); the
51 Salzburg Stress Eating Scale (SEES; Meule et al., 2018b); Perceived Self-Regulatory Success in Dieting
52 (PSRS; Meule et al., 2012); the short version of the UPPS Impulsivity Scale [58].
53
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55
56 *Stimuli.* At the beginning of the study, participants rate a pre-selected set of 90 food and
57 drink images from the food.pics [59] and CROCUFID [60] databases, and from freely available online
58 resources on two scales: "In the last three weeks, on how many days have you eaten/drunk this
59 food/drink?" (recent intake) and "In the next three weeks, on how many days would you like to
60

eat/drink this food/drink?" (intended intake). We select the six foods with the most negative difference between past and intended consumption as "increase foods" (eaten less often than intended). Then, among the foods that were eaten at least on six days in the past three weeks, we select six with the most positive difference between past and intended future consumption (eaten more often than intended = "decrease-foods"). A randomly selected four of these six images are then used in the intervention phase in both groups while the other two were left untrained to test whether the intervention would generalize and show an effect on untrained foods. A random selection of 8 out of a set of 12 images of non-food items serves as control stimuli. Figure 1 displays the selection of stimuli.

Setup call. Within a few days of filling out the online questionnaire, a member of the study team contacts participants to schedule a setup call via phone or a video conferencing tool. In this call, the member of the research team explains the procedure of the study. They further help participants install the necessary apps onto their smartphone (m-path; KU Leuven, 2022 for EMA and the AAT app¹) and then confirm the correct selection of approach and avoidance foods as determined by the rating task. After the call, participants receive a manual for the study via email which summarizes the study procedures and the use of the smartphone applications and includes participants' individual three-digit identification code as well as contact information of the study team.

Approach-Avoidance Task (AAT). We use the smartphone-based AAT as introduced by Zech and colleagues [53]. In this version of the task, participants see stimuli on their horizontally held phone screen and approach/avoidance movements are performed by physically moving the phone towards/away from themselves (see Figure 2 and two short introductory videos here: https://osf.io/4k3q9/?view_only=4db6431fd5ee4148a97f3be7f799ea4a). Each trial starts with a fixation dot in the middle of a white screen, which is followed by either one of the food or object stimuli after a 1500 ms delay. While correct approach or avoidance responses make the picture disappear and trigger the start of a new trial, incorrect responses are followed by a 2000 ms display of a black error-cross. If a participant does not respond for 2000 ms, a clock icon is displayed indicating timeout.

The active and sham AAT trainings feature 4 out of 6 approach-foods, 4 out of 6 avoid-foods, as well as 8 out of 12 control object stimuli. The training sessions consist of four training blocks of 16 trials each, and each training block is preceded by 4 practice trials, yielding a training session of 64 training trials and 16 practice trials, or 80 trials total. The pre-, post- and follow-up bias assessment AATs similarly consist of four blocks preceded each by four practice trials but feature all selected images (6 increase-foods, 6 decrease-foods and 12 objects). All 24 images are presented one time per block, yielding 96 test trials and 16 practice trials, or 112 trials total. In all AATs, the instructions of the blocks alternate such that participants are instructed to approach foods while avoiding objects in the first block (approach-food blocks) and avoid foods while approaching objects in the second block (avoid-food blocks). This order is the same for all sessions and all participants. Crucially, in the active training AATs, only approach-foods are shown in the approach-food blocks, while only avoid-foods are shown in the avoid-food blocks; sham training instead features both approach- and avoid-foods during both approach-food and avoid-food blocks.

¹ The app can be downloaded on Android devices from this address:
<https://play.google.com/store/apps/details?id=com.eatlabsbg.eatapp>

Table 1: overview of EMA questions (own translations from German). All items are answered on a slider from 0 to 100 unless indicated differently in parentheses. Midday prompts remain the same across the entire study duration. Evening prompts differ depending on the study phase as indicated:

* These items are asked alongside a food image and are repeated for each image (six “increase” and six “decrease” images).

[†]This item is only asked after the first and the last AAT session (day 5 and 15).

Item	Midday (all study phases)	Evening Days 1-4 and 17-20	Evening Days 5-16	Evening - follow-up
When was the last time you ate something?	X			
What type of meal was it? (breakfast, lunch, dinner, snack)	X			
How hungry are you right now?	X	X	X	
Do you feel like you have everything under control?	X			
Do you feel like you are on top of things?	X			
How optimistic do you feel right now?	X			X
How happy do you feel right now?	X			X
How lonely do you feel right now?	X			X
How depressed do you feel right now?	X			X
How angry do you feel right now?	X			X
How mad do you feel right now?	X			X
How tense do you feel right now?	X			X
How anxious do you feel right now?	X			X
How much do you want to stick to your dietary goals <i>for the rest of the day</i> ?	X			
How much do you want to stick to your dietary goals <i>tomorrow</i> ?		X		X
How strong has your craving for this food been <i>today</i> ? *		X		X
How much of this food have you eaten <i>today</i> ? *		X		X
Have you said things today without thinking?	X	X	X	X

Have you spent more money today than you wanted to?	X	X	X	X
Have you felt impatient today?	X	X	X	X
Have you made a spontaneous decision today?	X	X	X	X
How strong has your craving for this food been since the midday questionnaire? *			X	
How much of this food have you eaten since the midday questionnaire? *			X	
How much do you expect that this task will help you reach your dietary goals? +	X ⁺			
Throughout the whole study, how often did you push this food away from yourself? *				X
Please indicate the day your last period started.				X

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Ecological Momentary Assessment (EMA). Participants follow the EMA schedule for a total of 20 days. During the whole period, participants receive two prompts per day (delivered through the smartphone application m-path [61], one just before the time a participant usually eats lunch and the other in the evening (exact time agreed-upon with the participant to represent an end-of-day signal). Table 1 shows the questions that participants answer on those prompts and Figure 3 displays the temporal sequence of the study. EMA prompts on days 1-3 of the study only contain the listed questions. On day 4 (the day before the start of the intervention) and day 17 (the day after the end of the intervention), participants receive an instruction to open the AAT application and complete a measurement AAT. On every second day during the intervention phase (days 5 through 16), participants receive an instruction to open the AAT application and complete a training AAT after completing the midday prompt. 30 minutes after completing the midday prompt, participants receive a notification asking whether they conducted the training. On replying “yes”, they receive positive feedback; on replying “no”, they are asked to now open the AAT app to conduct the task. In addition, on day 6 and day 16 (the first and the last day including an AAT/AI session), participants further indicate their expectancy of how much the task will help them reach their dietary goals. Four weeks after the end of the initial 20-day EMA period, participants receive one additional EMA questionnaire and a measurement AAT in the evening. After performing this final AAT, participants indicate how often they believed they pushed or pulled each of their “decrease-foods” and “increase-foods”.

Procedure. The procedure for study participation is as follows: after interested participants contact the study team, they receive an individual participant code and a weblink to the baseline questionnaire. At this point, an R-script² randomizes participants to either the intervention or control group with the condition unknown to the study team. After a setup call with a member of the research team within a few days of filling out the questionnaires, participants start receiving EMA prompts and AAT as described above. Figure 3 shows the timeline of the whole study. Throughout the study period, participants can contact study personnel who also monitor compliance to the EMA and AAT schedule and contact participants in case of low compliance.

Outcomes

Main outcomes. This study uses three main outcomes: First, participants’ self-report intake of “increase” and “decrease” foods according to the EMA schedule outlined above on a slider from 0 (labelled “nothing”) to 100 (“very much”). Second, participants self-report craving for those same foods in the same manner.

Third, we measure approach biases for all selected foods based on the RT and force in the AAT. The RT will be defined as the time from picture to movement onset. Force will be defined as the peak acceleration in the correct direction during a trial, standardized within participant by dividing every individual’s measurement of force by the participant-specific standard deviation. Separately for approach and avoidance trials as well as for sessions, the RT and the force will be averaged across the four AAT blocks for each specific food stimuli. For objects, we will also average across the different stimuli. The average approach or avoid response for objects on a session will be subtracted from stimulus-specific food approach or avoidance response on that session to achieve food-specific *single-difference* approach and avoidance scores according to these formulas:

$$\text{Stimulus-specific approach} = [\text{food-specific approach}] - [\text{average object approach}]$$

² The function *sample* randomly outputs the number “1” or “2” which correspond to the conditions.

1
2 Stimulus-specific avoidance = [food-specific avoidance]-[average object avoidance]
3
4

5 *Double-difference scores* will be used to achieve a full bias score per food stimulus and session:
6 ([food-specific avoidance]-[food-specific approach])-([average object avoidance]-[average object
7 approach]).
8

9 *Secondary outcomes.* Dietary intentions are measured according to the outlined EMA
10 schedule. Intention-behavior gaps (IBGs) are calculated as the difference between intentions and
11 actual food intake for all applicable time periods.
12

13 *Further assessments.* Further, we assess day-level impulsivity with the four item Momentary
14 Impulsivity Scale [62]. Perceived contingency between foods and required reactions is reported with
15 a single item per food image at follow-up. Belief in the effectiveness of the intervention is assessed
16 after the first and last session of AAT/AAI.
17

18
19 **Data analysis plan**
20

21 Data analysis will serve to investigate a series of research questions relating to different aspects of
22 the study. Further detail on the data analysis is available in the pre-registration at
23 https://osf.io/4k3q9/?view_only=4db6431fd5ee4148a97f3be7f799ea4a.
24

25 *Data exclusion.* For analyses regarding the effectiveness of the AAI, we will exclude
26 participants who did not conduct any of the AATs during the intervention phase as we regard them
27 as "not treated". For the remaining participants, sensitivity analyses will be performed to test
28 whether the number of completed training sessions affects intervention effectiveness. For analyses
29 of approach bias, we will exclude error trials and trials with reaction times that deviate more than
30 +/-3SD from the individual mean of the participant in that AAT session. If more than 25% of trials
31 must be excluded based on these criteria, the whole AAT session will be excluded from further
32 analyses. This post-hoc session exclusion does not affect whether a participant will be counted as
33 "not treated" or not in the analyses regarding the effectiveness of the AAI.
34

35
36 *Overall intervention effectiveness.* The first set of research questions relates to the
37 effectiveness of the intervention as compared to the control condition from pre- to post-training. To
38 this end, we use multilevel models to predict intake of trained "increase" and "decrease" foods as a
39 function of timepoint (three days pre- vs post-intervention), condition (intervention vs control), and
40 their interaction. Equivalent models test the intervention effect on approach biases towards - and
41 craving for - the two food categories. To test to what degree the effect of the training intervention
42 generalizes to non-trained foods, we then use data from trained and untrained stimuli and add a
43 variable that indicates whether a food appeared in the training or not (trained vs untrained) and all
44 interaction terms to the model. This will be followed up with tests to determine whether changes in
45 the approach bias are mainly driven by changes in approach- or avoidance RTs. We further test the
46 moderating role of intentions, baseline stimulus craving, and person-level variables obtained from
47 the questionnaires, as well as contingency awareness and expectancy by adding the relevant
48 variable and its interaction terms to the equations. Finally, we examine the mediating effect of
49 craving for changes in intake.
50

51
52 *Immediate intervention effectiveness.* The second set of research questions concerns the
53 short-term effects of the intervention during the intervention phase (days 5-16). Multilevel models
54 predicting food intake and cravings, respectively, will include the factors group (intervention vs
55 control) and (off-)training day (training day vs no training day) as predictors. In another pair of
56 multilevel models, we use group and the number of days since the beginning of the intervention and
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58
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1
2
3 their interaction as predictors of craving and food intake, respectively. The force applied during the
4 training will be used as a predictor for the change in craving and intake from before the start of the
5 training.
6

7 *Trait and state components of approach bias.* The third set of research questions relates to
8 the state and trait components of approach bias and will be examined within the control group only.
9 This is because only participants in the control group receive measurement AATs throughout the
10 study period. Multilevel models will test whether bias size and negative emotions are related on
11 both a between-subjects and a within-subjects level and to what degree this depends on the
12 strength of the desire for these foods. A separate model tests equivalent research questions for the
13 relation between bias strength and craving and bias strength and intake, respectively. The later
14 analyses testing how bias strength is related to subsequent food intake will be expanded by
15 including trait and day-level impulsivity and day-level intentions of regulating food intake
16
17

18 **Ethics, dissemination, and data handling.**
19

20 The study received ethical approval from the ethics board of the University of Salzburg and is
21 conducted in accordance with the declaration of Helsinki. Results of the trial will be disseminated
22 through a series of articles in appropriate scientific journals and conference presentations.
23

24 Data will be handled confidentially and stored in a pseudonymized manner. Neither m-path
25 nor the AAT application collect personal data but work through three-digit identification codes
26 assigned to participants. The identification key linking personal data to the identification codes will
27 be kept in password-protected files separately from the pseudonymized data and will be destroyed
28 one year after termination of the study. Deidentified data will be archived for at least ten years and
29 consent forms as documentation of participation will be archived for 30 years. The deidentified data
30 will be made publicly on the Open Science Framework after the completion of planned publications.
31
32

33 **Patient and public involvement**
34

35 Patients and the public are not involved in study design, data collection, data analysis, or
36 dissemination.
37
38

Contributorship statement

MBA: conceptualisation, methodology, writing first draft of the protocol, revising the protocol
HvA: conceptualisation, methodology, analysis plan, reviewing drafts of the protocol
SK: conceptualisation, methodology, analysis plan, reviewing drafts of the protocol
JB: conceptualisation, methodology, supervision, reviewing drafts of the protocol
all authors read and approved the final version of the protocol.

Competing interests

All authors report no competing interests.

Funding

This work was supported by FWF grant number P 34542-B. The funder plays no role in the study design; collection, management, analysis, and interpretation of data; writing of the report; and the decision to submit the report for publication.

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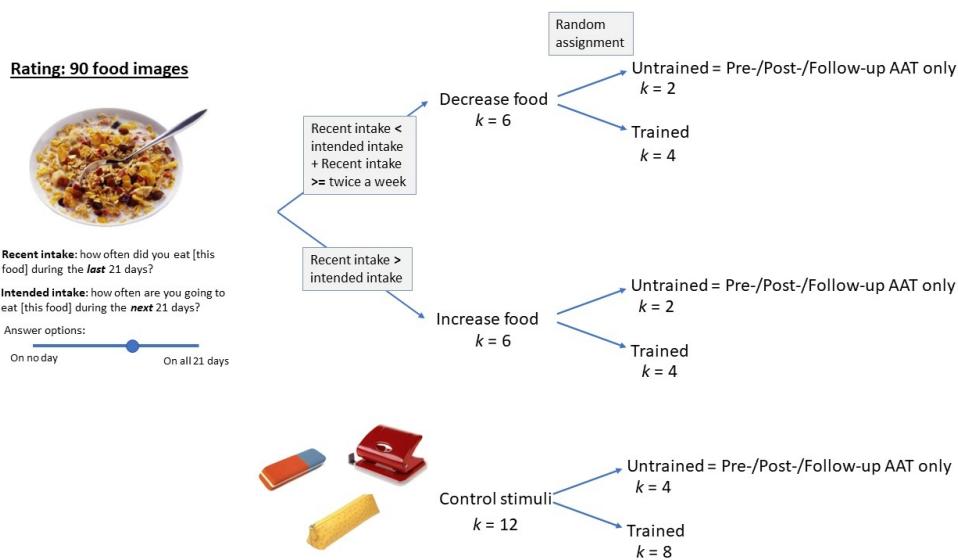


Figure 1: selection of the images presented in the training.

338x190mm (96 x 96 DPI)



Figure 2 (reproduced from Zech et al., 2020): movements in the mobile Approach-Avoidance task. The image on the left shows the starting position, the image in the middle an approach trial and the image on the right an avoidance trial

274x89mm (120 x 120 DPI)

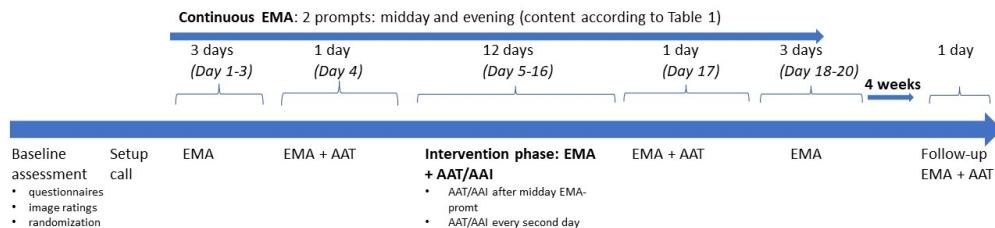


Figure 3: time schedule of the whole study period.

338x110mm (96 x 96 DPI)

1 2 Reporting checklist for protocol of a clinical trial. 3 4 5 6

7 Based on the SPIRIT guidelines.
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11 Instructions to authors 12

13 Complete this checklist by entering the page numbers from your manuscript where readers will find
14 each of the items listed below.
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17 Your article may not currently address all the items on the checklist. Please modify your text to
18 include the missing information. If you are certain that an item does not apply, please write "n/a" and
19 provide a short explanation.
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22 Upload your completed checklist as an extra file when you submit to a journal.
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25 In your methods section, say that you used the SPIRIT reporting guidelines, and cite them as:
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28 Chan A-W, Tetzlaff JM, Gøtzsche PC, Altman DG, Mann H, Berlin J, Dickersin K, Hróbjartsson A,
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43 Reporting Item	44	45 Page	
46	47	48 Number	
49 Administrative	50	51	
52 information	53	54	
55 Title	56 #1	57 Descriptive title identifying the study design, population, 58 interventions, and, if applicable, trial acronym	59 1
60 Trial registration	61 #2a	62 Trial identifier and registry name. If not yet registered,	63 2

		name of intended registry	
1	Trial registration: data set	#2b All items from the World Health Organization Trial Registration Data Set	n/a
2	Protocol version	#3 Date and version identifier	n/a
3	Funding	#4 Sources and types of financial, material, and other support	12
4	Roles and responsibilities: contributorship	#5a Names, affiliations, and roles of protocol contributors	12
5	Roles and responsibilities: sponsor contact information	#5b Name and contact information for the trial sponsor	1
6	Roles and responsibilities: sponsor and funder	#5c Role of study sponsor and funders, if any, in study design; collection, management, analysis, and interpretation of data; writing of the report; and the decision to submit the report for publication, including whether they will have ultimate authority over any of these activities	12
7	Roles and responsibilities: committees	#5d Composition, roles, and responsibilities of the coordinating centre, steering committee, endpoint adjudication committee, data management team, and other individuals or groups overseeing the trial, if applicable (see Item 21a for data monitoring committee)	n/a

Introduction

1	Background and	#6a	Description of research question and justification for	3-5
2	rationale		undertaking the trial, including summary of relevant studies	
3			(published and unpublished) examining benefits and harms	
4			for each intervention	
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6	Background and	#6b	Explanation for choice of comparators	3-5
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8	rationale: choice of			
9	comparators			
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11	Objectives	#7	Specific objectives or hypotheses	5
12				
13	Trial design	#8	Description of trial design including type of trial (eg, parallel	5-7
14			group, crossover, factorial, single group), allocation ratio,	
15			and framework (eg, superiority, equivalence, non-inferiority,	
16			exploratory)	
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19	Methods:			
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21	Participants,			
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23	interventions, and			
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42	Study setting	#9	Description of study settings (eg, community clinic,	5-8
43			academic hospital) and list of countries where data will be	
44			collected. Reference to where list of study sites can be	
45			obtained	
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52	Eligibility criteria	#10	Inclusion and exclusion criteria for participants. If	5
53			applicable, eligibility criteria for study centres and	
54			individuals who will perform the interventions (eg,	
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		surgeons, psychotherapists)	
1	Interventions:	#11a Interventions for each group with sufficient detail to allow	6
2	description	replication, including how and when they will be	
3		administered	
4	Interventions:	#11b Criteria for discontinuing or modifying allocated	n/a
5	modifications	interventions for a given trial participant (eg, drug dose	
6		change in response to harms, participant request, or	
7		improving / worsening disease)	
8	Interventions:	#11c Strategies to improve adherence to intervention protocols,	5
9	adherence	and any procedures for monitoring adherence (eg, drug	
10		tablet return; laboratory tests)	
11	Interventions:	#11d Relevant concomitant care and interventions that are	n/a
12	concomitant care	permitted or prohibited during the trial	
13	Outcomes	#12 Primary, secondary, and other outcomes, including the	9-10
14		specific measurement variable (eg, systolic blood	
15		pressure), analysis metric (eg, change from baseline, final	
16		value, time to event), method of aggregation (eg, median,	
17		proportion), and time point for each outcome. Explanation	
18		of the clinical relevance of chosen efficacy and harm	
19		outcomes is strongly recommended	
20	Participant timeline	#13 Time schedule of enrolment, interventions (including any	
21		run-ins and washouts), assessments, and visits for	
22		participants. A schematic diagram is highly recommended	
23		(see Figure)	
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1	Sample size	#14	Estimated number of participants needed to achieve study objectives and how it was determined, including clinical and statistical assumptions supporting any sample size calculations	5	
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3	Methods: Assignment of interventions (for controlled trials)				
4	Recruitment	#15	Strategies for achieving adequate participant enrolment to reach target sample size	5	
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24	Allocation: sequence generation	#16a	Method of generating the allocation sequence (eg, computer-generated random numbers), and list of any factors for stratification. To reduce predictability of a random sequence, details of any planned restriction (eg, blocking) should be provided in a separate document that is unavailable to those who enrol participants or assign interventions	9	
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41	Allocation concealment mechanism	#16b	Mechanism of implementing the allocation sequence (eg, central telephone; sequentially numbered, opaque, sealed envelopes), describing any steps to conceal the sequence until interventions are assigned	9	
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51	Allocation: implementation	#16c	Who will generate the allocation sequence, who will enrol participants, and who will assign participants to interventions	9	
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1	Blinding (masking)	#17a	Who will be blinded after assignment to interventions (eg, trial participants, care providers, outcome assessors, data analysts), and how	9
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9	Blinding (masking):	#17b	If blinded, circumstances under which unblinding is emergency unblinding	n/a
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17	Methods: Data collection, management, and analysis			
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26	Data collection plan	#18a	Plans for assessment and collection of outcome, baseline, and other trial data, including any related processes to promote data quality (eg, duplicate measurements, training of assessors) and a description of study instruments (eg, questionnaires, laboratory tests) along with their reliability and validity, if known. Reference to where data collection forms can be found, if not in the protocol	6-10
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43	Data collection plan:	#18b	Plans to promote participant retention and complete follow-up, including list of any outcome data to be collected for participants who discontinue or deviate from intervention protocols	6-10
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53	Data management	#19	Plans for data entry, coding, security, and storage, including any related processes to promote data quality (eg, double data entry; range checks for data values).	10
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		Reference to where details of data management procedures can be found, if not in the protocol	
1	Statistics: outcomes	#20a Statistical methods for analysing primary and secondary outcomes. Reference to where other details of the statistical analysis plan can be found, if not in the protocol	9-10
2	Statistics: additional analyses	#20b Methods for any additional analyses (eg, subgroup and adjusted analyses)	9-10
3	Statistics: analysis population and missing data	#20c Definition of analysis population relating to protocol non-adherence (eg, as randomised analysis), and any statistical methods to handle missing data (eg, multiple imputation)	9-10
4	Methods: Monitoring		
5	Data monitoring: formal committee	#21a Composition of data monitoring committee (DMC); summary of its role and reporting structure; statement of whether it is independent from the sponsor and competing interests; and reference to where further details about its charter can be found, if not in the protocol. Alternatively, an explanation of why a DMC is not needed	n/a
6	Data monitoring: interim analysis	#21b Description of any interim analyses and stopping guidelines, including who will have access to these interim results and make the final decision to terminate the trial	n/a
7	Harms	#22 Plans for collecting, assessing, reporting, and managing solicited and spontaneously reported adverse events and other unintended effects of trial interventions or trial	n/a

	conduct	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	Auditing #23 Frequency and procedures for auditing trial conduct, if any, and whether the process will be independent from investigators and the sponsor	n/a
Ethics and dissemination		
Research ethics	#24 Plans for seeking research ethics committee / institutional review board (REC / IRB) approval	2
Protocol amendments	#25 Plans for communicating important protocol modifications (eg, changes to eligibility criteria, outcomes, analyses) to relevant parties (eg, investigators, REC / IRBs, trial participants, trial registries, journals, regulators)	n/a
Consent or assent	#26a Who will obtain informed consent or assent from potential trial participants or authorised surrogates, and how (see Item 32)	6
Consent or assent: ancillary studies	#26b Additional consent provisions for collection and use of participant data and biological specimens in ancillary studies, if applicable	n/a
Confidentiality	#27 How personal information about potential and enrolled participants will be collected, shared, and maintained in order to protect confidentiality before, during, and after the trial	10
Declaration of	#28 Financial and other competing interests for principal	12

1	interests	investigators for the overall trial and each study site	
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3	Data access	#29 Statement of who will have access to the final trial dataset, and disclosure of contractual agreements that limit such access for investigators	11
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11	Ancillary and post trial care	#30 Provisions, if any, for ancillary and post-trial care, and for compensation to those who suffer harm from trial participation	n/a
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19	Dissemination policy: trial results	#31a Plans for investigators and sponsor to communicate trial results to participants, healthcare professionals, the public, and other relevant groups (eg, via publication, reporting in results databases, or other data sharing arrangements), including any publication restrictions	11
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31	Dissemination policy: authorship	#31b Authorship eligibility guidelines and any intended use of professional writers	n/a
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36	Dissemination policy: reproducible research	#31c Plans, if any, for granting public access to the full protocol, participant-level dataset, and statistical code	11
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42	Appendices		
43			
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45	Informed consent materials	#32 Model consent form and other related documentation given to participants and authorised surrogates	n/a
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50	Biological specimens	#33 Plans for collection, laboratory evaluation, and storage of biological specimens for genetic or molecular analysis in the current trial and for future use in ancillary studies, if applicable	n/a
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For peer review only

BMJ Open

Study protocol for a Randomized-Controlled Trial to Test the Effectiveness of a Mobile Approach Avoidance Intervention and to Measure Approach Biases in an EMA context

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2022-070443.R1
Article Type:	Protocol
Date Submitted by the Author:	03-Mar-2023
Complete List of Authors:	Aulbach, Matthias; Paris Lodron Universitat Salzburg, Department of Psychology van Alebeek, Hannah; Centre for Cognitive Neuroscience, Department of Psychology Kahveci, Sercan; Centre for Cognitive Neuroscience, Department of Psychology Blechert, Jens; Centre for Cognitive Neuroscience, Department of Psychology
Primary Subject Heading:	Nutrition and metabolism
Secondary Subject Heading:	Public health
Keywords:	Information technology < BIOTECHNOLOGY & BIOINFORMATICS, World Wide Web technology < BIOTECHNOLOGY & BIOINFORMATICS, NUTRITION & DIETETICS, PREVENTIVE MEDICINE, PUBLIC HEALTH

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Manuscripts

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3 **Study protocol for a Randomized-Controlled Trial to Test the Effectiveness of a Mobile Approach**
4 **Avoidance Intervention and to Measure Approach Biases in an EMA context**
5

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20 Word count: 4433 words
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51 Keywords: randomized controlled trial; approach-avoidance training; eating behavior; intervention;
52 ecological momentary assessment; m-health
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ABSTRACT

Introduction: Unhealthy eating behavior is a major contributor to obesity and related diseases and is associated with a behavioral bias to approach rather than avoid desired foods, as measured with reaction time tasks. Approach-Avoidance interventions (AAI) have been proposed as a way to modify food evaluations and help people to eat in accordance with their dietary goals. Mobile implementations of AAI might be easily accessible, low threshold interventions, but their effectiveness has not been established yet.

Methods and analysis: Participants who aim to change their eating behavior are randomized to intervention or control groups. They complete six sessions of a smartphone-based AAI, in which they push (i.e., avoid) or pull (i.e., approach) personalized food images. Intervention group participants always avoid foods that they personally want to eat less often and approach foods that they personally want to eat more often. In the control group, images are paired equally often with both response directions. To evaluate contextual and dynamic intervention effects, ecological momentary assessment (EMA) is measured throughout, with questions about food intake, hunger, stress, emotions, eating intentions, food craving, and impulsivity twice a day. Additional EMA pre- and post-intervention measures are administered before and after the intervention phase (4 days each) with a one-day follow-up EMA four weeks after the intervention. Multilevel models will examine the temporal covariance between approach bias and self-reported variables as well as short- and long-term intervention effects on approach bias, food intake, and craving.

Ethics and dissemination: The study was approved by the Ethics Committee of the University of Salzburg. Results will be published in peer reviewed scientific journals and presented at scientific conferences.

Trial registration: This study was registered at the German Clinical Trials Register DRKS, registration number DRKS00030780, and on the Open Science Framework <https://osf.io/yn7kt>.

Strengths and limitations of this study

- The study is a randomized controlled trial testing an m-health intervention to assist participants in implementing their dietary intentions through repeated use of a mobile Approach-Avoidance Intervention (AAI) compared with a closely matched active control task
- It includes ecological momentary before, during, and after the trial in both control and intervention groups, which allows examining both short- and long-term intervention effects
- It measures a range of potentially relevant phenomena like food craving, hunger, emotions, stress, and day-level impulsivity
- Control group data allows examining variability in approach bias and its covariation with data obtained through EMA
- Measures of food intake are restricted to single-item daily self-reports which are prone to underreporting and experimenter demand

1
2
3 Humans make several decisions per day about whether, what, and how much to eat [1]. All these
4 decisions have an influence on human health, as overeating can lead to obesity and related diseases
5 [2]. It is therefore important to understand which factors contribute to eating decisions and how we
6 can intervene on them. Traditional psychological models have postulated that people reflect on
7 behavioral options, form intentions, and then translate these into behavior. However, decades of
8 research have shown that intentions are often not successfully enacted, a phenomenon termed the
9 "intention behavior gap" [3].
10
11

12 To investigate why people sometimes fail to transfer their intentions into behavior,
13 researchers have devised a range of indirect measures, typically assessed with computer tasks based
14 on the measurement of reaction times (RT) [4,5], as opposed to direct measures such as self-
15 reported evaluations of stimuli. Under certain conditions, such indirect measures of food preference
16 can increase prediction accuracy of actual behavior, above and beyond questionnaire data [6,7] but
17 see [8] for a critical discussion. One example of such an RT task is the Approach Avoidance Task
18 (AAT). In the AAT, participants usually use a joystick [or in more recent studies, a touch-screen;
19 ,9,10] to perform movements towards or away from different stimulus categories. These categories,
20 such as foods and non-food objects, are compared on how fast they are approached and avoided,
21 and this RT difference is termed the "approach bias" [11]. Herein, we adopt an operational
22 definition, such that we define approach bias as the relative speed with which one can approach the
23 target stimuli (e.g., foods) in the AAT, remaining agnostic to what might be the underlying mental
24 construct [8,12,13]. Food approach biases seem relevant to real-world eating behavior, as they have
25 been found to be higher in people who strongly crave foods [14], and they relate to increased food
26 consumption in impulsive individuals and in people who are prone to external or emotional eating
27 [15,16] (but see [17] for contradictory findings from the alcohol domain and a wider discussion in
28 [18,19]).
29
30

31 So far, it has mostly been ignored that approach biases may fluctuate over time. In most
32 studies to date, approach bias has, at least implicitly, been treated as a relatively stable, trait-like
33 phenomenon, in line with its conceptualization as a (stable) mental construct. Approach bias is
34 typically measured at a single timepoint and then correlated with other phenomena like trait food
35 craving [10], weight status [20], or eating disorder diagnosis [21]. One recent study demonstrated
36 that approach bias was independent of experimentally induced satiety, indicating stability of the bias
37 across situations. However, participants' desire to eat specific foods did explain variance in approach
38 bias, implying that bias might vary across time within individuals depending on their current
39 consumption desires [22]. This is in line with the finding that approach bias for chocolate was
40 positively correlated with current chocolate craving [23–25], craving being an experience of intense
41 desire for a specific food which is temporally variable by definition [26]. Other studies using a mobile
42 version of the AAT indicated that test-retest reliability across eight measurement occasions was low
43 while split-half reliability was high, again indicating temporal fluctuations in approach biases [27].
44 This is in line with findings obtained from other indirect measures that showed modest stability over
45 time [28]. Such within-subject fluctuations in biases are probably not only due to random variation,
46 as approach-avoidance biases have been shown to decrease with after-meal-satiety in normal-
47 weight individuals, and they have been shown to change based on individuals' current affective
48 states [29–33]. In combination, these results raise questions about the temporal and situational
49 stability of approach biases.
50
51

52 Associations between behavioral approach bias and intake-related variables have led to the
53 development of Approach-Avoidance Interventions (AAI). Traditionally, it has been assumed that a
54 stable mental construct thought to underlie the behavioral approach bias, can be changed by
55
56

repeatedly pairing unhealthy foods with avoidance and healthy foods (or neutral objects) with approach. This should then affect food intake. How exactly AAIs might work is however a matter of current debate. Based on the idea that the behavioral approach bias operationalizes learned associations between appetitive stimuli and approach, some authors argue that the repeated pairing of appetitive stimuli and avoidance weakens or reverses this association through the formation of new associations between stimuli, movement direction, and evaluative properties inherent to approach and avoidance [23]. Others however argue that stimulus value is updated due to a conflict between evaluation and within-task behavior which then influences intake decisions [34–36], or that altered behavior is due to changed food evaluations, which are caused by cognitive inferences based on task requirements [37,38]. Independent of what might be the exact working mechanism, earlier studies have shown that the behavioral approach bias [39], food choice [40] and subsequent food intake [41] can be reduced by AAIs. The evidence in this domain is mixed, however [42–46], and might have several different reasons.

Firstly, in some studies participants approach and avoid stimuli based on their category (e.g., food vs objects) and in others, based on an irrelevant feature of the stimulus such as the frame color or orientation. Such task differences may affect participants' awareness of the contingencies between stimulus and required response, as well as expectations about training effects. As this awareness could increase the effectiveness of the intervention, especially when AAIs change behavior through cognitive inferences as noted above [47], this study uses a relevant-feature AAT/AI and closely tracks participants' contingency awareness. Secondly, the personal relevance of the trained stimuli may differ between interventions, and this may influence effectiveness [48]. Some interventions specifically try to retrain approach biases to chocolate in individuals reporting high trait-level chocolate craving or consumption [39], while other interventions train responses to a pre-selected set of healthy and unhealthy foods without taking into account if participants actually consume the unhealthy foods or if healthy foods fit to individual needs of the participants (for example in terms of taste, food intolerances). Thirdly, most studies only deliver a single session of AAI (with [49,50] being exceptions), while more sessions might lead to larger effects that would be easier to detect [51]. Finally, the effectiveness of AAIs might depend on when the intervention is delivered. It is easy to see that interventions might be most fruitful in or just before moments when the risk for unhealthy intake is high.

Smartphone-based AATs and AAIs are interesting for a range of research questions that cannot be answered with stationary computer-based AATs and AAIs. Firstly, smartphones allow easy delivery of AAI to participants during their daily routines. This helps participants to perform the intervention repeatedly, and to bring the intervention temporally and spatially closer to "high-risk" situations in everyday life. Assuming a rather fast decay of intervention effects, the closer proximity offered by the smartphone should enhance its effectiveness compared to conducting it on one's personal computer [52] or in a laboratory session [53,54]. Another advantage of repeated intervention through smartphones is the possibility to measure immediate and delayed intervention effects on fluctuating phenomena like food craving. Lastly, smartphones allow to measure bias more easily at any time of the day, and especially at moments when it may be relevant for food consumption. This allows us to examine the temporal and situational variability of approach bias. Combining it with repeated delivery of eating-related questions throughout the day (i.e., ecological momentary assessment, EMA) also allows for correlating fluctuations in approach bias with other temporally variable phenomena like food craving, affect and intake.

Several studies have delivered interventions using computer tasks through the internet [52,53,55–57] and have generally reported good compliance rates and effects on dietary intake.

1
2
3 Smartphone-based interventions using similar RT tasks are much rarer and have reported mixed
4 results on key outcomes [49–51,58]. One of the two studies delivering smartphone-based AAI
5 required participants to tilt the phone to respond, and found positive effects on food choice and
6 approach bias towards unhealthy foods [50]. The other study found neither day-level nor longer-
7 term effects of AAI using swipe movements, as compared to an EMA-only intervention and a sham
8 training group [49]. It is important to note that that study did not find any approach bias in
9 participants to begin with which suggests that the swipe movements did not clearly represent
10 approach and avoidance and that the sample size was small. It is therefore unclear to what degree
11 its results can be taken as evidence against the effectiveness of mobile AAI.
12
13

14 One recent AAT variant does not require swiping movements on the touchscreen, but
15 instead requires participants to physically move the phone towards or away from themselves while
16 viewing food stimuli [27,59–61]. This task has been shown to be a valid tool to measure food
17 approach biases outside the laboratory and to provide relevant information beyond self-report
18 measures [59]. In addition to RTs, it also yields data on the force of the movements, which might
19 contain relevant information not captured by RTs [61].
20
21

22 The study presented here sets out to test its effectiveness as an intervention tool for AAI;
23 that is, when it is programmed to pair the foods that a specific participant wants to eat more often
24 with approach, and to pair the foods that a specific participant wants to eat less often with
25 avoidance responses. Specifically, we will study to what degree the intervention can support
26 participants in their goal of changing their eating behavior. We further examine the reliability and
27 validity of approach bias scores obtained through a phone-delivered AAT. Combining the AAI/AAT
28 with the repeated measurement of related phenomena through EMA allows us to disentangle short-
29 and long-term intervention effects as well as to investigate whether approach bias covaries with
30 intake-related variables over time.
31
32

33 METHODS AND ANALYSIS

34 Study Overview

35 The study uses a two-arm, double-blind randomized controlled trial conducted with German-
36 speaking participants, and is coordinated at the University of Salzburg, Austria. It compares an active
37 Approach-Avoidance Intervention (AAI) to a sham-training (a measurement Approach-Avoidance
38 Task, AAT) in its impact on eating behavior, food liking, food craving, and food approach bias.
39
40

41 Participants

42 Participants will be recruited via university e-mailing lists, social networks, university events, and
43 word of mouth. Participants must be between 18 and 60 years of age, and must not be pregnant or
44 report a diagnosis for an eating disorder. Importantly, participants must have an intention to change
45 their eating behavior (which they indicate upon sign-up), without further specification regarding
46 increased or decreased intake of certain foods or food categories.
47
48

49 To determine the required sample size, we performed a power analysis using pre-existing
50 data from a (so far unpublished) study, wherein we attempted to change participants' approach-
51 avoidance bias and analysed its change from pre- to post-training. We opted to use this pre-existing
52 data as the structure of the study is similar to the current study and the correlations and noise
53 therein would be more likely to reflect the findings we will observe than would fully simulated data.
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56 First, group-level differences between the pre-to-post effects of sham and active training
57 were removed such that a time-by-group effect size of 0 was achieved. A new effect size was then
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3 applied by increasing the post-treatment group mean of the active training participants by a multiple
4 of 16 between 64 and 244, giving effect sizes around $g = .5$. After this, participants were randomly
5 sampled with replacement such that sample sizes between 80 and 180 in multiples of 10 were
6 achieved. Each combination of sample size and effect size was re-sampled and tested 200 times.
7 After sampling a set of participants, a multilevel analysis was performed where approach-avoidance
8 bias scores were predicted with fixed predictors of treatment group (sham or active) and time (pre-
9 training or post-training), as well as random effects of time grouped by participant and time grouped
10 by stimulus. The p-value of the group by time interaction was recorded. The proportion of p-values
11 below .05 was computed to determine the power at each combination of sample size and effect size.
12
13

14 Based on this power analysis, we determined that a medium effect size ($g = .50$) and a
15 power of .80 would require a sample size of about valid 150 participants. Based on the effect size
16 observed in that other study of $g = 0.56$, 150 participants result in a power of about .88. A table with
17 all power analysis outcomes is depicted in Supplementary Table 1. With an estimated recruitment
18 rate of three participants per week and allowing for recruitment difficulties slowing down the
19 process, we expect data collection to last from November 2022 to roughly January 2024. Data
20 collection continues until 150 participants are reached.
21
22

23 Materials and procedure

24
25 *Baseline questionnaires.* In a web-based questionnaire (see supplementary file 1),
26 participants give informed consent (consent form see supplementary file 2) and then indicate their
27 age, gender, nationality, state of employment, highest achieved formal education level, dietary
28 restrictions (vegan, vegetarian, pescatarian, omnivorous, other), height, weight, and possible food
29 allergies or intolerances. Participants identifying as female or diverse are also asked about their
30 menstrual cycle. Further, to assess exclusion criteria, they are asked if they are currently suffering
31 from an eating disorder. This is followed by the stimulus selection (see below for details).
32 Participants then complete the German versions of the following questionnaires: subscales
33 restrained eating and external eating from the Dutch Eating Behavior Questionnaire [62]; the
34 Salzburg Emotional Eating Scale [63]; the Salzburg Stress Eating Scale [64]; Perceived Self-Regulatory
35 Success in Dieting [65]; the short version of the UPPS Impulsivity Scale [66].
36
37

38 *Stimuli.* We pre-selected 90 food and drink pictures from the food.pics [67] and CROCUFID
39 [68] databases, and from freely available online resources based on typical availability in Austria and
40 Germany as the main recruitment sites. At the beginning of the study, participants rated these 90
41 images on two scales: "In the last three weeks, on how many days have you eaten/drunk this
42 food/drink?" (recent intake) and "In the next three weeks, on how many days would you like to
43 eat/drink this food/drink?" (intended intake). We select the six foods with the most negative
44 difference between past and intended consumption as "increase foods" (eaten less often than
45 intended). Then, among the foods that were eaten at least on six days in the past three weeks, we
46 select six with the most positive difference between past and intended future consumption (eaten
47 more often than intended = "decrease-foods"). A randomly selected four of these six images are
48 then used in the intervention phase in both groups while the other two were left untrained to test
49 whether the intervention would be specific to the foods used in the task. A random selection of 8
50 out of a set of 12 images of office items serves as control stimuli. Figure 1 displays the selection of
51 stimuli. The food stimuli were not categorized as "healthy" or "unhealthy", giving participants full
52 flexibility for choosing "increase-foods" and "decrease-foods".
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54

55 *Setup call.* Within a few days of filling out the online questionnaire, a member of the study
56 team contacts participants to schedule a setup call via phone or a video conferencing tool. In this
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3 call, the member of the research team explains the procedure of the study. They further help
4 participants install the necessary apps onto their smartphone (m-path; KU Leuven, 2022 for EMA
5 and the AAT app¹) and then confirm the correct selection of approach and avoidance foods as
6 determined by the rating task. After the call, participants receive a manual for the study via e-mail,
7 which summarizes the study procedures and the use of the smartphone applications and includes
8 participants' individual three-digit identification code as well as contact information of the study
9 team.
10
11

12 *Approach-Avoidance Task (AAT)*. We use the smartphone-based AAT as introduced by Zech
13 and colleagues [61]. In this version of the task, participants see stimuli on their horizontally held
14 phone screen and they perform approach or avoidance movements by physically moving the phone
15 towards/away from themselves (see Figure 2 and two short introductory videos here:
16 https://osf.io/4k3q9/?view_only=4db6431fd5ee4148a97f3be7f799ea4a). Each trial starts with a
17 fixation dot in the middle of a white screen, which is followed by either one of the food or object
18 stimuli after a 1500 ms delay. While correct approach or avoidance responses make the picture
19 disappear and trigger the start of a new trial, incorrect responses are followed by a 2000 ms display
20 of a black error-cross. If a participant does not respond for 2000 ms, a clock icon is displayed
21 indicating timeout.
22
23

24 The active and sham AAT trainings feature 4 out of 6 approach-foods, 4 out of 6 avoid-foods,
25 as well as 8 out of 12 control object stimuli. The training sessions consist of four training blocks of 16
26 trials each, and each training block is preceded by 4 practice trials, yielding a training session of 64
27 training trials and 16 practice trials, or 80 trials total. The pre-, post- and follow-up bias assessment
28 AATs similarly consist of four blocks preceded each by four practice trials but feature all selected
29 images (6 "increase-foods", 6 "decrease-foods" and 12 objects). All 24 images are presented one
30 time per block, yielding 96 test trials and 16 practice trials, or 112 trials total. In all AATs, the
31 instructions of the blocks alternate such that participants are instructed to approach foods while
32 avoiding objects in the first block (approach-food blocks) and avoid foods while approaching objects
33 in the second block (avoid-food blocks). This order is the same for all sessions and all participants.
34 Crucially, in the active training AATs, only approach-foods are shown in the approach-food blocks,
35 while only avoid-foods are shown in the avoid-food blocks; sham training instead features both
36 approach- and avoid-foods during both approach-food and avoid-food blocks. Completing one
37 session of the AAT/AI takes about five minutes.
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58 ¹The app can be downloaded on Android devices from this address:
59 <https://play.google.com/store/apps/details?id=com.eatlabsbg.eatapp>
60

1
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3 Table 1: overview of EMA questions (own translations from German). All items are answered on a slider from 0 to 100 unless indicated differently in
4 parentheses. Midday prompts remain the same across the entire study duration. Evening prompts differ depending on the study phase as indicated:
5

6 * These items are asked alongside a food image and are repeated for each image (six “increase-food” and six “decrease-food” images).
7

8 + This item is only asked after the first and the last AAT session (day 5 and 15).

Item	Midday (all study phases)	Evening Days 1-4 and 17-20	Evening Days 5-16	Evening - follow-up
When was the last time you ate something?	X			
What type of meal was it? (breakfast, lunch, dinner, snack)	X			
How hungry are you right now?	X	X	X	
Do you feel like you have everything under control?	X			
Do you feel like you are on top of things?	X			
How optimistic do you feel right now?	X			X
How happy do you feel right now?	X			X
How lonely do you feel right now?	X			X
How depressed do you feel right now?	X			X
How angry do you feel right now?	X			X
How mad do you feel right now?	X			X
How tense do you feel right now?	X			X
How anxious do you feel right now?	X			X
How much do you want to stick to your dietary goals <i>for the rest of the day</i> ?	X			
How much do you want to stick to your dietary goals <i>tomorrow</i> ?		X		X
How strong has your craving for this food been <i>today</i> ? *		X		X
How much of this food have you eaten <i>today</i> ? *		X		X
Have you said things today without thinking?	X	X	X	X

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Have you spent more money today than you wanted to?	X	X	X	X
Have you felt impatient today?	X	X	X	X
Have you made a spontaneous decision today?	X	X	X	X
How strong has your craving for this food been since the midday questionnaire? *			X	
How much of this food have you eaten since the midday questionnaire? *			X	
How much do you expect that this task will help you reach your dietary goals? +	X ⁺			
Throughout the whole study, how often did you push this food away from yourself? *				X
Please indicate the day your last period started.				X

Ecological Momentary Assessment (EMA). Participants follow the EMA schedule for a total of 20 days. During the whole period, participants receive two prompts per day (delivered through the smartphone application m-path [69]), one just before the time a participant usually eats lunch and the other in the evening (prompted at an individualized time agreed-upon with the participant to represent an end-of-day signal). Table 1 shows the questions that participants answer on those prompts and Figure 3 displays the temporal sequence of the study. EMA prompts on days 1-3 of the study only contain the listed questions. On day 4 (the day before the start of the intervention) and day 17 (the day after the end of the intervention), participants receive an instruction to open the AAT application and complete a measurement AAT. On every second day during the intervention phase (days 5 through 16), participants receive an instruction to open the AAT application and complete a training AAT after completing the midday prompt. 30 minutes after completing the midday prompt, participants receive a notification asking whether they conducted the training. On replying “yes”, they receive positive feedback; on replying “no”, they are asked to now open the AAT app to conduct the task. The number of sessions was chosen based on earlier, similar studies [50,52], balancing participant burden, compliance, and intervention intensity.

In addition, on day 6 and day 16 (the first and the last day including an AAT/AI session), participants further indicate their expectancy of how much the task will help them reach their dietary goals. Four weeks after the end of the initial 20-day EMA period, participants receive one additional EMA questionnaire and a measurement AAT in the evening. After performing this final AAT, participants indicate how often they believed they pushed or pulled each of their “decrease-foods” and “increase-foods”.

Procedure. The procedure for study participation is as follows: after interested participants contact the study team, they receive an individual participant code and a weblink to the baseline questionnaire. At this point, an R-script² randomizes participants to either the intervention or control group with the condition unknown to the study team. After a setup call with a member of the research team within a few days of filling out the questionnaires, participants start receiving EMA prompts and AAT as described above. Figure 3 shows the timeline of the whole study. Throughout the study period, participants can contact study personnel who also monitor compliance to the EMA and AAT schedule and contact participants in case of low compliance: participants receive an e-mail if they miss more than one of the first three AAT/AI sessions.

Outcomes

Main outcomes. This study uses three main outcome measures. The first outcome measure is participants’ self-reported intake of “increase” and “decrease” foods according to the EMA schedule outlined above, on a slider from 0 (labelled “nothing”) to 100 (“very much”). The second outcome measure is participants’ self-reported craving for those same foods in the same manner.

The third outcome measure is the approach bias for all selected foods based on the RT and force in the AAT. The RT is defined as the time from picture onset to movement onset. Force is defined as the peak acceleration in the correct direction during a trial, standardized within participant by dividing every individual’s measurement of force by the participant-specific standard deviation. Separately for approach and avoidance trials as well as for sessions, the RT and the force will be averaged across the four AAT blocks for each specific food stimulus. For objects, we will also average across the different stimuli. The average approach or avoid response for objects on a

² The function *sample* randomly outputs the number “1” or “2” which correspond to the conditions.

1
2
3 session will be subtracted from stimulus-specific food approach or avoidance response on that
4 session to achieve food-specific *single-difference* approach and avoidance scores according to these
5 formulas:
6

7 Stimulus-specific approach = [food-specific approach]-[average object approach]
8

9 Stimulus-specific avoidance = [food-specific avoidance]-[average object avoidance]
10

11 Double-difference scores will be used as a full bias score per food stimulus and session, according to
12 the formula: ([food-specific avoidance]-[food-specific approach])-([average object avoidance]-
13 [average object approach]).
14

15 Secondary outcomes. Dietary intentions are measured according to the outlined EMA
16 schedule.
17

18 Data analysis plan 19

20 Data analysis will serve to investigate a series of research questions relating to different aspects of
21 the study. In this section we will provide a brief description. Full details on the data analysis,
22 including the exact multilevel analysis formulas, are available in the pre-registration at
23 <https://osf.io/yn7kt>.
24

25 *Data exclusion.* For analyses regarding the effectiveness of the AAI, we exclude participants
26 who did not conduct any of the AATs during the intervention phase, as we regard them as “not
27 treated”. For the remaining participants, sensitivity analyses are performed to test whether the
28 number of completed training sessions affects intervention effectiveness. For analyses of approach
29 bias, we exclude error trials and trials with RTs that deviate more than +/-3SD from the individual
30 mean of the participant in that AAT session. If more than 25% of trials must be excluded based on
31 these criteria, the whole AAT session is excluded from further analysis. This post-hoc session
32 exclusion does not affect whether a participant is counted as “not treated” or not in the analyses
33 regarding the effectiveness of the AAI.
34

35 *Overall intervention effectiveness.* The first set of research questions relates to the
36 effectiveness of the intervention as compared to the control condition from pre- to post-training. To
37 this end, we use multilevel models to predict intake of trained “increase” and “decrease” foods as a
38 function of timepoint (three days pre- vs post-intervention), condition (intervention vs control), and
39 their interaction. Equivalent models test the intervention effect on approach biases towards - and
40 craving for - the two food categories. To test to what degree the effect of the training intervention is
41 specific to trained foods, we then use data from trained and untrained stimuli and add a variable
42 that indicates whether a food appeared in the training or not (trained vs untrained) and all
43 interaction terms to the model. This is followed up with tests to determine whether changes in the
44 approach bias are mainly driven by changes in approach- or avoidance RTs. We further test the
45 moderating role of intentions, baseline stimulus craving, and person-level variables obtained from
46 the questionnaires, as well as contingency awareness and expectancy by adding the relevant
47 variable and its interaction terms to the equations. Finally, we examine the mediating effect of
48 craving for changes in intake.
49

50 *Immediate intervention effectiveness.* The second set of research questions concerns the
51 short-term effects of the intervention during the intervention phase (days 5-16). Multilevel models
52 predicting food intake and cravings, respectively, include the factors group (intervention vs control)
53 and (off-)training day (training day vs no training day) as predictors. In another pair of multilevel
54 models, we use group and the number of days since the beginning of the intervention and their
55

1
2
3 interaction as predictors of craving and food intake, respectively. The force applied during the
4 training is used as a predictor for the change in craving and intake from before the start of the
5 training.
6

7 *Trait and state components of approach bias.* The third set of research questions relates to
8 the state and trait components of approach bias and is examined within the control group only. This
9 is because only participants in the control group receive measurement AATs throughout the study
10 period. Multilevel models test whether bias size and negative emotions are related on both a
11 between-subjects and a within-subjects level and to what degree this depends on the strength of the
12 desire for these foods. A separate model tests equivalent research questions for the relation
13 between bias strength and craving, as well as bias strength and intake, respectively. The latter
14 analyses testing how bias strength is related to subsequent food intake are expanded by including
15 trait and day-level impulsivity and day-level intentions of regulating food intake.
16
17

18 **Patient and public involvement**

19
20 Patients and the public are not involved in study design, data collection, data analysis, or
21 dissemination.
22

23 **Ethics, dissemination, and data handling.**

24
25 The study has received ethical approval from the ethics board of the University of Salzburg and is
26 conducted in accordance with the declaration of Helsinki. Results of the trial will be disseminated
27 through a series of articles in appropriate scientific journals and conference presentations.
28

29
30 Data is handled confidentially and stored in a pseudonymized manner. Neither m-path nor
31 the AAT application collect personal data but work through three-digit identification codes assigned
32 to participants. The identification key linking personal data to the identification codes will be kept in
33 password-protected files separately from the pseudonymized data and will be destroyed one year
34 after termination of the study. Deidentified data will be archived for at least ten years and consent
35 forms as documentation of participation will be archived for 30 years. The deidentified data will be
36 made public on the Open Science Framework after the completion of planned publications.
37
38

Contributorship statement

MBA: conceptualisation, methodology, writing first draft of the protocol, revising the protocol.
HvA: conceptualisation, methodology, analysis plan, reviewing drafts of the protocol. SK:
conceptualisation, methodology, analysis plan, reviewing drafts of the protocol. JB:
conceptualisation, methodology, supervision, reviewing drafts of the protocol. All authors read and
approved the final version of the protocol.

Competing interests

All authors report no competing interests.

Funding

This work was supported by the Austrian Science Fund FWF grant number P 34542-B. Sercan Kahveci
and Hannah van Alebeek were supported by the Doctoral College “Imaging the Mind” (FWF; W1233-
B). Hannah van Alebeek was additionally supported by the project: Mapping neural mechanisms of
appetitive behaviour (FWF; KLI762-B). The funder plays no role in the study design; collection,
management, analysis, and interpretation of data; writing of the report; and the decision to submit
the report for publication.

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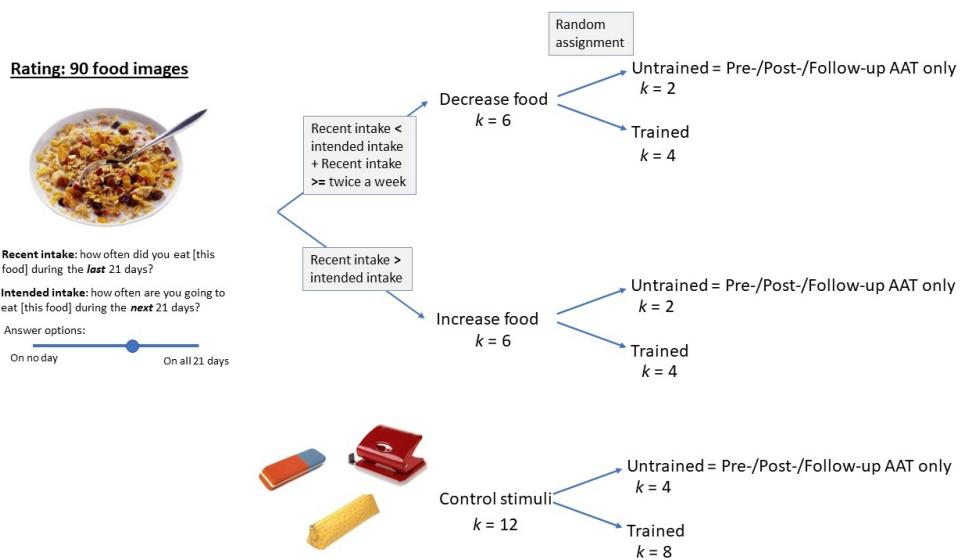


Figure 1: selection of the images presented in the training.

338x190mm (96 x 96 DPI)



Figure 2 (reproduced from Zech et al., 2020): movements in the mobile Approach-Avoidance task. The image on the left shows the starting position, the image in the middle an approach trial and the image on the right an avoidance trial

274x89mm (120 x 120 DPI)

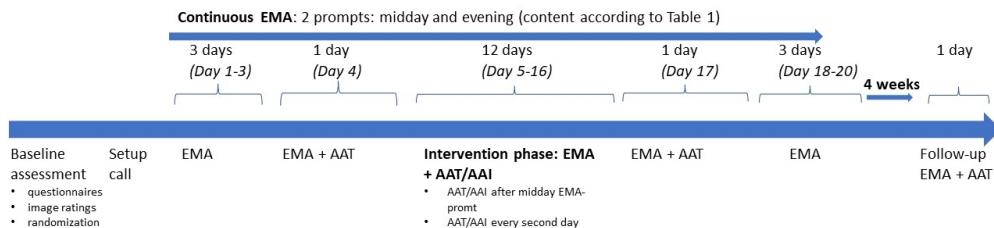


Figure 3: time schedule of the whole study period.

338x110mm (96 x 96 DPI)

Supplementary Table 1: Statistical power for a range of effect sizes and sample sizes.

Sample size	Effect size (Hedges' g)										
	.28	.36	.43	.5	.57	.65	.72	.79	.86	.93	.1.01
80	.19	.28	.38	.52	.64	.72	.82	.90	.94	.98	.98
90	.24	.34	.43	.58	.70	.76	.89	.94	.96	.96	.99
100	.17	.32	.46	.65	.69	.83	.86	.94	.98	.98	1
110	.24	.42	.57	.66	.82	.85	.92	.97	.99	1	1
120	.23	.41	.62	.66	.81	.89	.94	.97	1	1	.99
130	.34	.36	.62	.78	.86	.90	.97	.99	.99	1	.99
140	.32	.49	.56	.77	.88	.97	.97	.99	1	.99	1
150	.36	.52	.63	.78	.88	.94	.97	1	1	1	1
160	.35	.57	.68	.82	.90	.96	.98	.99	.99	1	1
170	.41	.54	.72	.83	.92	.97	.98	.99	1	1	1
180	.37	.54	.70	.90	.92	.98	.99	.99	1	1	1



1 2 3 4 **Teil A: Zahlencode**

5 **A1. Bitte geben Sie hier Ihren Zahlencode aus der Mail ein:**



1 2 **Teil B: Demografische Variablen**

3
4 Bitte beantworten Sie zunächst einige Fragen zu Ihrer Person.

5
6 Leider keine Teilnahme möglich

7 Eine der Apps, die für die Studie benötigt wird, funktioniert momentan nur mit Android-Betriebssystemen. Deshalb können Sie leider ohne ein entsprechendes Smartphone nicht an der
8 Studie teilnehmen. Falls Sie an einer anderen psychologischen Studie teilnehmen wollen, finden Sie eine Studienliste unserer Abteilung auf dieser Seite:
9 <https://sites.google.com/site/eatingandxietylab/mitmachen>

10 Sie können diesen Fragebogen jetzt schließen.

11 Leider keine Teilnahme möglich

12 Leider erfüllen Sie nicht die Einschlusskriterien für diese Studie. Falls Sie an einer anderen psychologischen Studie teilnehmen wollen, finden Sie eine Studienliste unserer Abteilung auf
13 dieser Seite: <https://sites.google.com/site/eatingandxietylab/mitmachen>

14 Sie können diesen Fragebogen jetzt schließen.

15 Leider keine Teilnahme möglich

16 Leider erfüllen Sie nicht die Einschlusskriterien für diese Studie. Falls Sie an einer anderen psychologischen Studie teilnehmen wollen, finden Sie eine Studienliste unserer Abteilung auf
17 dieser Seite: <https://sites.google.com/site/eatingandxietylab/mitmachen>

18 Sie können diesen Fragebogen jetzt schließen.

19
20 **B1. Um an der Studie teilnehmen zu können, benötigen Sie ein Smartphone mit einem Android-Betriebssystem. Bitte
21 geben Sie daher hier die auf Sie passende Antwort an:**

22 Ich habe ein Smartphone mit Android-Betriebssystem zur Verfügung (ein eigenes, oder für die Dauer der Studie aus meinem Umfeld organisiert).

23 Ich habe kein Smartphone mit Android-Betriebssystem, wäre aber bereit, mir für die Studie eines von der Uni Salzburg auszuleihen.

24 Ich habe kein Smartphone mit Android-Betriebssystem zur Verfügung und wäre nicht bereit, mir für die Studie eines von der Uni Salzburg auszuleihen.

25
26 **B2. Bitte geben Sie Ihr Alter an.**

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B3. Bitte geben Sie Ihr Geschlecht an.												<p>weiblich <input type="checkbox"/> männlich <input type="checkbox"/> divers <input type="checkbox"/></p>																																	
B4. Sind Sie schwanger?												<p>Ja <input type="checkbox"/> Nein <input type="checkbox"/></p>																																	
B5. Bitte wählen Sie alle auf Sie zutreffenden Optionen bezüglich Ihres Menstruationszyklus und/oder das von Ihnen aktuell verwendete Verhütungsmittel aus.												<p>Trifft nicht zu <input type="checkbox"/> Natürlicher Menstruationszyklus <input type="checkbox"/> Verwendung der Kupferspirale, Kupferkette, Goldspirale <input type="checkbox"/> Verwendung der Hormonspirale <input type="checkbox"/> Verwendung der Pille <input type="checkbox"/> Verwendung der Pille, die IMMER eingenommen wird <input type="checkbox"/> Dreimonatsspritze <input type="checkbox"/> Hormonimplantat <input type="checkbox"/> Verhütungspflaster <input type="checkbox"/> Hormonersatztherapie <input type="checkbox"/> Menopause <input type="checkbox"/></p>																																	



Sonstiges

Sonstiges

B6. Bitte geben Sie den Starttag Ihrer letzten Menstruation an.

B7. Bitte geben Sie den Starttag Ihrer vorletzten Menstruation an.

from **h**

B8. Bitte geben Sie den Starttag Ihrer drittletzten Menstruation an.

...mijopee...

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B9. Bitte tragen Sie Ihre Nationalität ein.



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- Ohne Schulabschluss
- Hauptschulabschluss
- abgeschlossene Lehre
- mittlere Reife
- Abitur / Matura
- abgeschlossenes Bachelorstudium
- abgeschlossenes Masterstudium
- Sonstiges

Sonstiges

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B11. Welcher Berufsgruppe gehören Sie an?15
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Sonstiges

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|------------------|-------------------------------------|
| Student/in | <input type="checkbox"/> |
| Auszubildende/r | <input type="checkbox"/> |
| Schüler/in | <input type="checkbox"/> |
| Angestellte/r | <input type="checkbox"/> |
| Selbstständige/r | <input type="checkbox"/> |
| Sonstiges | <input checked="" type="checkbox"/> |

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B12. Wie ernähren Sie sich?

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|---|-------------------------------------|
| Vegan (Ernährung ohne von Tieren stammenden Nahrungsmittel) | <input type="checkbox"/> |
| Vegetarisch (fleisch- und fischfreie Ernährung) | <input type="checkbox"/> |
| Pescetarisch (fleisch- aber nicht fischfreie Ernährung) | <input type="checkbox"/> |
| Omnivor (kein Nahrungsmittelverzicht) | <input type="checkbox"/> |
| Sonstiges | <input checked="" type="checkbox"/> |

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Sonstiges



B13. Bitte geben Sie Ihre aktuelle Körpergröße an.

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Angabe in Zentimetern.

B14. Bitte geben Sie Ihr aktuelles Gewicht an.

Angabe in Kilogramm:

Angabe in Kilogramm.

B15. Haben Sie eine Nahrungsmittelunverträglichkeit?

Ja

Nein

B16. Welche Nahrungsmittelunverträglichkeit haben Sie?

B17. Haben Sie aktuell (d.h. innerhalb der letzten 12 Wochen) eine diagnostizierte Essstörung?

Ja

Nein

Teil C: Konsumziele 1/9

Auf den nächsten 9 Seiten bekommen Sie Bilder von insgesamt 90 Nahrungsmitteln angezeigt und die Aufforderung, jeweils Ihren vergangenen und zukünftigen Konsum der abgebildeten Nahrungsmittel anzugeben. Die Anpassung der Studie auf Ihre Ernährungsziele erfolgt aufgrund Ihrer Antworten in diesem Teil des Fragebogens. Für eine möglichst gute Individualisierung ist es daher wichtig, dass Sie die Fragen möglichst genau beantworten.

C1. Erdnussflips

An wie vielen Tagen haben Sie in den letzten drei Wochen Erdnussflips gegessen?lan keinem Taglan allen 21 Tagen

d by c

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Erdnussflips essen? an keinem Tag an allen 21 Tagen

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**C2. gemischtes Müsli**

An wie vielen Tagen haben Sie in den letzten drei Wochen gemischtes Müsli gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen gemischtes Müsli essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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C3. Nussmischung

An wie vielen Tagen haben Sie in den letzten drei Wochen Studentenfutter gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Studentenfutter essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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C4. Fisch

An wie vielen Tagen haben Sie in den letzten drei Wochen Fisch gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Fisch essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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C5. salziger Snackmix

An wie vielen Tagen haben Sie in den letzten drei Wochen salzigen Snackmix gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen salzigen Snackmix essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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C6. Pizza

An wie vielen Tagen haben Sie in den letzten drei Wochen Pizza gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Pizza essen? (an keinem Tag) an allen 21 Tagen

022-0

| C7. Honig

An wie vielen Tagen haben Sie in den letzten drei Wochen Honig gegessen? an keinem Tag an allen 21 Tagen

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Honig essen?lan keinem Taglan allen 21 Tagen

C8. Chicken Nuggets

An wie vielen Tagen haben Sie in den letzten drei Wochen Chicken Nuggets gegessen? An keinem Tag an allen 21 Tagen

on <http://>

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Chicken Nuggets essen?lan keinem Taglan allen 21 Tagen

<http://lbmjj.com>

C9. Tofu

An wie vielen Tagen haben Sie in den letzten drei Wochen Tofu gegessen? an keinem Tag an allen 21 Tagen

Won A

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Tofu essen? an keinem Tag an allen 21 Tagen

April 9, _____

C10. Paprika

An wie vielen Tagen haben Sie in den letzten drei Wochen Paprika gegessen? (an keinem Tag/aus allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Paprika essen? an keinem Tag an allen 21 Tagen

ected to



Teil D: Konsumziele 2/9

D1. Tee

An wie vielen Tagen haben Sie in den letzten drei Wochen Tee getrunken? (an keinem Tag/an allen 21 Tagen)

April 2015

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Tee trinken?lan keinem Taglan allen 21 Tagen

23. Does

D2. Fischstäbchen

An wie vielen Tagen haben Sie in den letzten drei Wochen Fischstäbchen gegessen? (an keinem Tag/aus allen 21 Tagen)

m http

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Eischstäbchen essen? an keinem Tag an allen 21 Tagen

<http://bmjconferences.com>

D3 Pilze

An wie vielen Tagen haben Sie in den letzten drei Wochen Pilze gegessen? (an keinem Tag/auf allen 21 Tagen)

on April 1

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Pilze essen? an keinem Tag allen 21 Tagen

D4 salziges Gebäck

An wie vielen Tagen haben Sie in den letzten drei Wochen salziges Gebäck gegessen? (an keinem Tag/aus allen 21 Tagen)

Prote .

An wie vielen Tagen wollen Sie in den nächsten drei Wochen salziges Gebäck essen? (an keinem Tag/auf jeden Tag/auf 21 Tagen)

ected by

**D5. Gurke**

An wie vielen Tagen haben Sie in den letzten drei Wochen Gurke gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Gurke essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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D6. Quinoa

An wie vielen Tagen haben Sie in den letzten drei Wochen Quinoa gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Quinoa essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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D7. Kartoffelbrei

An wie vielen Tagen haben Sie in den letzten drei Wochen Kartoffelbrei gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Kartoffelbrei essen? (an keinem Tag an allen 21 Tagen)

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D8. Schokonüsse

An wie vielen Tagen haben Sie in den letzten drei Wochen Schokonüsse gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Schokonüsse essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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D9. Hummus

An wie vielen Tagen haben Sie in den letzten drei Wochen Hummus gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Hummus essen? an keinem Tag/a) allen 21 Tagen

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D10. Kiwi

An wie vielen Tagen haben Sie in den letzten drei Wochen Kiwi gegessen?lan keinem Taglan allen 21 Tagen

April 2

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Kiwi essen? an keinem Tag/aan allen 21 Tagen

023. D

Teil E: Konsumziele 3/9

E1. Lasagne

An wie vielen Tagen haben Sie in den letzten drei Wochen Lasagne gegessen? (an keinem Tag lan allen 21 Tagen)

open..

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Lasagne essen? an keinem Tag an allen 21 Tagen

rnj.com

E2. Nüsse im Teigmantel

An wie vielen Tagen haben Sie in den letzten drei Wochen Nüsse im Teigmantel gegessen? an keinem Tag an allen 21 Tagen

2024 |

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Nüsse im Teigmantel essen? an keinem Tag/a) allen 21 Tagen

My guess is

E3. Zucchini

An wie vielen Tagen haben Sie in den letzten drei Wochen Zucchini gegessen? (an keinem Tag/auf allen 21 Tagen)

by copy

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Zucchini essen? an keinem Tag an allen 21 Tagen

right.



E4. Wassereis

An wie vielen Tagen haben Sie in den letzten drei Wochen Wassereis gegessen? (an keinem Tag/aus allen 21 Tagen)

443 0

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Wassereis essen?lan keinem Taglan allen 21 Tagen

25 A

E5. Linsen

An wie vielen Tagen haben Sie in den letzten drei Wochen Linsen gegessen? an keinem Tag an allen 21 Tagen

wnload

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Linsen essen?lan keinem Taglan allen 21 Tagen

ed from

E6. Avocado

An wie vielen Tagen haben Sie in den letzten drei Wochen Avocado gegessen? (an keinem Tag/auf allen 21 Tagen)

en.bm

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Avocado essen? an keinem Tag/aan allen 21 Tagen

j.com/

E7. Möhren

An wie vielen Tagen haben Sie in den letzten drei Wochen Möhren gegessen? an keinem Tag an allen 21 Tagen

24 by

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Möhren essen?lan keinem Taglan allen 21 Tagen

guest.

E8. Cappuccino

An wie vielen Tagen haben Sie in den letzten drei Wochen Cappuccino getrunken? (an keinem Tag/auf allen 21 Tagen)

copyr



An wie vielen Tagen wollen Sie in den nächsten drei Wochen Cappuccino trinken? an keinem Tag an allen 21 Tagen

022-0

An wie vielen Tagen haben Sie in den letzten drei Wochen Cracker gegessen? (an keinem Tag) an allen 21 Tagen

April 2

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Cracker essen? (an keinem Tag) an allen 21 Tagen

023. □

E10. Milch

An wie vielen Tagen haben Sie in den letzten drei Wochen Milch getrunken? (an keinem Tag/aus allen 21 Tagen)

www.html5boilerplate.com

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Milch trinken? (an keinem Tag/auf allen 21 Tagen)

www.q1.com

Teil F: Konsumziele 4/9

F1. Karamellriegel

An wie vielen Tagen haben Sie in den letzten drei Wochen Karamellriegel gegessen? an keinem Tag/a) allen 21 Tagen

2024

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Karamellriegel essen? an keinem Tag an allen 21 Tagen

y que

F2. Marmelade

An wie vielen Tagen haben Sie in den letzten drei Wochen Marmelade gegessen? (an keinem Tag/auf allen 21 Tagen)

by copy

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Marmelade essen? (an keinem Tag an allen 21 Tagen)

right...



F3. Frühlingsrollen

An wie vielen Tagen haben Sie in den letzten drei Wochen Frühlingsrollen gegessen? (an keinem Tag/auf allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Frühlingsrollen essen? (an keinem Tag) an allen 21 Tagen

1) 25 A

F4. Butter

An wie vielen Tagen haben Sie in den letzten drei Wochen Butter gegessen? an keinem Tag an allen 21 Tagen

wnload

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Butter essen?lan keinem Taglan allen 21 Tagen

ed from

F5. Mandarine/ Orange

An wie vielen Tagen haben Sie in den letzten drei Wochen Mandarine/ Orange gegessen?lan keinem Taglan allen 21 Tagen

en bme

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Mandarine/ Orange essen? an keinem Tag an allen 21 Tagen

www.jj.com/

F6. Müsliriegel

An wie vielen Tagen haben Sie in den letzten drei Wochen Müsliriegel gegessen? (an keinem Tag/an allen 21 Tagen)

24 by

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Müsliriegel essen? (an keinem Tag/auf allen 21 Tagen)

guest.....

F7. Weingummis

An wie vielen Tagen haben Sie in den letzten drei Wochen Weingummis gegessen? (an keinem Tag an allen 21 Tagen)

copyright

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Weingummis essen? (an keinem Tag an allen 21 Tagen)

2022-0

An wie vielen Tagen haben Sie in den letzten drei Wochen Schnitzel gegessen? (an keinem Tag/auf allen 21 Tagen)

April 2

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Schnitzel essen? (an keinem Tag an allen 21 Tagen)

2023. D

F9. Chips

An wie vielen Tagen haben Sie in den letzten drei Wochen Chips gegessen? an keinem Tag an allen 21 Tagen

om ht

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Chips essen? (an keinem Tag an allen 21 Tagen)

<http://bmj.com>

F10. Gemüsesuppe

An wie vielen Tagen haben Sie in den letzten drei Wochen Gemüsesuppe gegessen? (an keinem Tag) an allen 21 Tagen

on /u/

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Gemüsesuppe essen? an keinem Tag an allen 21 Tagen

April 9,

Teil G: Konsumziele 5/9

G1 Ei

An wie vielen Tagen haben Sie in den letzten drei Wochen Eier (in jeglicher Zubereitungsform) gegessen? an keinem Tag allen 21 Tagen

by cop

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Eier (in jeglicher Zubereitungsform) essen? an keinem Tag an allen 21 Tagen

right.



G2. Tortellini

An wie vielen Tagen haben Sie in den letzten drei Wochen Tortellini gegessen? (an keinem Tag/auf allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Tortellini essen? an keinem Tag/a) allen 21 Tagen

G3. Bratwurst

An wie vielen Tagen haben Sie in den letzten drei Wochen Bratwurst gegessen? an keinem Tag an allen 21 Tagen

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Bratwurst essen?lan keinem Taglan allen 21 Tagen

G4. Schokoladencornflakes

An wie vielen Tagen haben Sie in den letzten drei Wochen Schokoladencornflakes gegessen? (an keinem Tag an allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Schokoladencornflakes essen? an keinem Tag an allen 21 Tagen

G5. Hähnchenfleisch

An wie vielen Tagen haben Sie in den letzten drei Wochen Hähnchenfleisch gegessen? an keinem Tag an allen 21 Tagen

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Hähnchenfleisch essen? an keinem Tag an allen 21 Tagen

G6. Softdrinks

An wie vielen Tagen haben Sie in den letzten drei Wochen Softdrinks getrunken? (an keinem Tag/aus allen 21 Tagen)



An wie vielen Tagen wollen Sie in den nächsten drei Wochen Softdrinks trinken? (an keinem Tag/ an allen 21 Tagen)

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| G7. Popcorn

An wie vielen Tagen haben Sie in den letzten drei Wochen Popcorn gegessen? (an keinem Tag/auf allen 21 Tagen)

April 2

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Popcorn essen? an keinem Tag an allen 21 Tagen

023. D

G8. Pfannkuchen/ Palatschinken

An wie vielen Tagen haben Sie in den letzten drei Wochen Pfannkuchen/ Palatschinken gegessen? an keinem Tag/aan allen 21 Tagen

on [http://](#)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Pfannkuchen/ Palatschinken essen? an keinem Tag an allen 21 Tagen

http://bmj.com

G9. Banane

An wie vielen Tagen haben Sie in den letzten drei Wochen Banane gegessen? (an keinem Tag/a) allen 21 Tagen

/u/ /ʌ/ /ɒ/ /ə/ /ɪ/ /ʊ/ /ɔ:/ /əʊ/ /əʊ/ /əʊ/

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Banane essen? an keinem Tag an allen 21 Tagen

April 9, _____

G10. Käse

An wie vielen Tagen haben Sie in den letzten drei Wochen Käse gegessen? an keinem Tag/aan allen 21 Tagen

t. Prof.

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Käse essen? an keinem Tag an allen 21 Tagen

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Teil H: Konsumziele 6/9

H1. Knödel

An wie vielen Tagen haben Sie in den letzten drei Wochen Knödel gegessen? an keinem Tag an allen 21 Tagen

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Knödel essen? an keinem Tag an allen 21 Tagen

B. Dow

H2. Pralinen

An wie vielen Tagen haben Sie in den letzten drei Wochen Pralinen gegessen? (an keinem Tag/auf allen 21 Tagen)

<http://>

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Pralinen essen? an keinem Tag an allen 21 Tagen

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H3. Burger

An wie vielen Tagen haben Sie in den letzten drei Wochen Burger gegessen? (an keinem Tag/aus allen 21 Tagen)

on April 1, 2013.

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Burger essen? (an keinem Tag/auf allen 21 Tagen)

9, 2

H4. Weintrauben

An wie vielen Tagen haben Sie in den letzten drei Wochen Weintrauben gegessen? (an keinem Tag/auf allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Weintrauben essen? an keinem Tag an allen 21 Tagen

ed by

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An wie vielen Tagen haben Sie in den letzten drei Wochen Gnocchi gegessen? an keinem Tag an allen 21 Tagen

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Gnocchi essen? an keinem Tag an allen 21 Tagen

An wie vielen Tagen haben Sie in den letzten drei Wochen Pommes gegessen? an keinem Tag an allen 21 Tagen

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Pommes essen? an keinem Tag an allen 21 Tagen

H6. Pommes

Annals of the Tropics, Series 1, No. 1, 1906-1907. W. H. Wessel, Superintendent. Total pages, 217.

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Waffeln essen? an keinem Tag an allen 21 Tagen

H8. Käsespätzle

An wie vielen Tagen haben Sie in den letzten drei Wochen Käsespätzle gegessen? an keinem Tag an allen 21 Tagen

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Käsespätzle essen? an keinem Tag an allen 21 Tagen

H9. Speiseeis

An wie vielen Tagen haben Sie in den letzten drei Wochen Speiseeis gegessen? an keinem Tag an allen 21 Tagen

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Speiseeis essen? (an keinem Tag) an allen 21 Tagen

022-0

H10. Sushi

An wie vielen Tagen haben Sie in den letzten drei Wochen Sushi gegessen? (an keinem Tag) an allen 21 Tagen

April 2

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Sushi essen? an keinem Tag an allen 21 Tagen

2023. D

Teil I: Konsumziele 7/9

II. Äpfel

An wie vielen Tagen haben Sie in den letzten drei Wochen Äpfel gegessen? (an keinem Tag an allen 21 Tagen)

Uppförförande företag (kontinuitet)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Äpfel essen? An keinem Tag an allen 21 Tagen

mj.co

I2. Salat

An wie vielen Tagen haben Sie in den letzten drei Wochen Salat gegessen?lan keinem Taglan allen 21 Tagen

2024

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Salat essen? (an keinem Tag an allen 21 Tagen)

y que

I3. Fruchtsaft

An wie vielen Tagen haben Sie in den letzten drei Wochen Fruchtsaft getrunken? (an keinem Tag/an allen 21 Tagen)

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Fruchtsaft trinken? an keinem Tag an allen 21 Tagen

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I4. Kartoffeln

An wie vielen Tagen haben Sie in den letzten drei Wochen Kartoffeln gegessen?an keinem Taglan allen 21 Tagen

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Kartoffeln essen? an keinem Tag an allen 21 Tagen

1
25 AM

I5. Leberkäse

An wie vielen Tagen haben Sie in den letzten drei Wochen Leberkäse gegessen? (an keinem Tag/aus allen 21 Tagen)

wnload

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Leberkäse essen? (an keinem Tag/auf allen 21 Tagen)

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I6. Nachos

An wie vielen Tagen haben Sie in den letzten drei Wochen Nachos gegessen? an keinem Tag an allen 21 Tagen

en.bm

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Nachos essen? an keinem Tag an allen 21 Tagen

I7. Vollmilchschokolade

An wie vielen Tagen haben Sie in den letzten drei Wochen Vollmilchschokolade gegessen? an keinem Tag an allen 21 Tagen

224 by

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Vollmilchschokolade essen? an keinem Tag an allen 21 Tagen

I8. Nudeln

An wie vielen Tagen haben Sie in den letzten drei Wochen Nudeln gegessen? (an keinem Tag/aus allen 21 Tagen)

Copy



An wie vielen Tagen wollen Sie in den nächsten drei Wochen Nudeln essen? an keinem Tag an allen 21 Tagen

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An wie vielen Tagen haben Sie in den letzten drei Wochen Nougatcreme gegessen?lan keinem Taglan allen 21 Tagen

April 2

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Nougatcreme essen? an keinem Tag an allen 21 Tagen

2023. D

I10. Wraps

An wie vielen Tagen haben Sie in den letzten drei Wochen Wraps gegessen? (an keinem Tag) an allen 21 Tagen

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Wraps essen? an keinem Tag an allen 21 Tagen

<http://bmj.com>

Teil J: Konsumziele 8/9

J1. Kekse

An wie vielen Tagen haben Sie in den letzten drei Wochen Kekse gegessen? (an keinem Tag) an allen 21 Tagen

2024 |

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Kekse essen? an keinem Tag an allen 21 Tagen

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J2. Beerentelling

An wie vielen Tagen haben Sie in den letzten drei Wochen Beeren gegessen? (an keinem Tag/aus allen 21 Tagen)

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Beeren essen? (an keinem Tag an allen 21 Tagen)

Copyright



J3. Ofenbaguette

An wie vielen Tagen haben Sie in den letzten drei Wochen Ofenbaguette gegessen? (an keinem Tag/aus allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Ofenbaguette essen?lan keinem Taglan allen 21 Tagen

J4. Muffin

An wie vielen Tagen haben Sie in den letzten drei Wochen Muffins gegessen? an keinem Tag an allen 21 Tagen

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Muffins essen? an keinem Tag an allen 21 Tagen

J5. süßes Gebäck

An wie vielen Tagen haben Sie in den letzten drei Wochen süßes Gebäck gegessen? (an keinem Tag/aus allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen süßes Gebäck essen? (an keinem Tag an allen 21 Tagen)

J6. Wurst

An wie vielen Tagen haben Sie in den letzten drei Wochen Wurst gegessen? (an keinem Tag an allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Wurst essen? (an keinem Tag/auf allen 21 Tagen)

J7. Kuchen

An wie vielen Tagen haben Sie in den letzten drei Wochen Kuchen gegessen? (an keinem Tag an allen 21 Tagen)

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Kuchen essen?lan keinem Taglan allen 21 Tagen

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J8. Kichererbsen

An wie vielen Tagen haben Sie in den letzten drei Wochen Kichererbsen gegessen? (an keinem Tag) an allen 21 Tagen

April 2

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Kichererbsen essen? (an keinem Tag an allen 21 Tagen)

23. D

J9. Bitterschokolade

An wie vielen Tagen haben Sie in den letzten drei Wochen Bitterschokolade gegessen? an keinem Tag an allen 21 Tagen

on <http://www.english-test.net>

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Bitterschokolade essen? an keinem Tag an allen 21 Tagen

<http://bmj.com>

J10. Bratnudeln

An wie vielen Tagen haben Sie in den letzten drei Wochen Bratnudeln gegessen? an keinem Tag an allen 21 Tagen

11 on A

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Bratnudeln essen?lan keinem Taglan allen 21 Tagen

April 9, 2013

Teil K: Konsumziele 9/9

Kl. Baguette

An wie vielen Tagen haben Sie in den letzten drei Wochen Baguette gegessen? (an keinem Tag/an allen 21 Tagen)

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Baguette essen? an keinem Tag an allen 21 Tagen

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K2. Döner

An wie vielen Tagen haben Sie in den letzten drei Wochen Döner gegessen? (an keinem Tag/auf allen 21 Tagen)

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Döner essen? an keinem Tag an allen 21 Tagen

125 A

K3. Toast

An wie vielen Tagen haben Sie in den letzten drei Wochen Toast gegessen? (an keinem Tag/an allen 21 Tagen)

winload

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Toast essen? an keinem Tag an allen 21 Tagen

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K4. Rindfleisch

An wie vielen Tagen haben Sie in den letzten drei Wochen Rindfleisch gegessen? an keinem Tag an allen 21 Tagen

en.bm

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Rindfleisch essen? an keinem Tag an allen 21 Tagen

j.com/

K5. Joghurt

An wie vielen Tagen haben Sie in den letzten drei Wochen Joghurt gegessen? an keinem Tag an allen 21 Tagen

24 by

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Joghurt essen? an keinem Tag an allen 21 Tagen

guest.

K6. Schokoladenwaffeln

An wie vielen Tagen haben Sie in den letzten drei Wochen Schokoladenwaffeln gegessen? an keinem Tag an allen 21 Tagen

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Schokoladenwaffeln essen? an keinem Tag an allen 21 Tagen

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K7. Fleischpflanzerl/ Fleischfrikadellen

An wie vielen Tagen haben Sie in den letzten drei Wochen Fleischpflanzerl/ Fleischfrikadellen gegessen? an keinem Tag an allen 21 Tagen

April 2

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Fleischpflanzer/ Fleischfrikadellen essen? an keinem Tag an allen 21 Tagen

23. D

K8. Gemüselaibchen/ Gemüsefrikadellen

An wie vielen Tagen haben Sie in den letzten drei Wochen Gemüselaibchen/ Gemüsefrikadellen gegessen? an keinem Tag an allen 21 Tagen

on [ht](#)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Gemüseläbchen/ Gemüsefrikadellen essen? an keinem Tag an allen 21 Tagen

<http://bmj.com>

K9. Vollkornbrot

An wie vielen Tagen haben Sie in den letzten drei Wochen Vollkornbrot gegessen? an keinem Tag/a) allen 21 Tagen

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Vollkornbrot essen? (an keinem Tag/an allen 21 Tagen)

April 9,

K10. Schokoladenriegel

An wie vielen Tagen haben Sie in den letzten drei Wochen Schokoladenriegel gegessen? (an keinem Tag/auf allen 21 Tagen)

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Schokoladenriegel essen? an keinem Tag an allen 21 Tagen

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1
2 **Vielen Dank für Ihre Teilnahme an der ersten Befragung. Wir werden die erhobenen Daten zu Ihren Konsumzielen nun**
3 **auswerten und uns bei Ihnen melden, um Sie über die weitere Studienteilnahme zu informieren und einen Termin für die**
4 **Besprechung der Hauptstudienphase zu vereinbaren.**

5
6 **Sie können dieses Fenster nun schließen.**



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Fax.: +43 / (0) 662 / 8044 - 5126

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A-5020 Salzburg – Austria

TeilnehmerInneninformation und Einwilligungserklärung

zur Teilnahme an der Studie:

,Kognitiv-Affektive Mechanismen von Essregulationstrainings‘

Interne Bezeichnung: Cognitive-affective mechanisms of food biases trainings (AAI)

Liebe/r Interessent/in,

wir laden Sie ein an der oben genannten Studie teilzunehmen.

Im Folgenden finden Sie einige Informationen, die für Sie von Bedeutung sind, wenn Sie sich für eine Teilnahme interessieren.

Bitte unterschreiben Sie diese Einverständniserklärung nur

- wenn Sie Art und Ablauf der Studie verstanden haben
- wenn Sie bereit sind, einer Teilnahme zuzustimmen und
- wenn Sie sich über Ihre Rechte als Teilnehmer im Klaren sind.

Allgemeine Informationen und Ziele der Studie

Die Ernährungspsychologie beschäftigt sich mit Grundlagen und Behandlungsmöglichkeiten von ungesunden Essensentscheidungen sowie mit Ess- und Gewichtsstörungen. Da das Verlangen nach schmackhaften Nahrungsmitteln das Essverhalten im Alltag beeinflusst, ist es wichtig, dass wir ein besseres Verständnis für diese Zusammenhänge gewinnen, auch um Abhilfe verschaffen zu können. In dieser Studie geht es speziell darum, wie automatische Annäherungstendenzen zu Essensreizen optimal erfasst werden können, was die zugrundeliegenden Mechanismen sind und wie das Annäherungsverhalten reduziert werden kann.

Ablauf der Studie

Bei Ihrer Studienteilnahme werden wir Sie bitten, verschiedene Fragebögen zum psychischen Befinden auszufüllen. Des Weiteren wird Ihre Teilnahme nachfolgende Prozeduren beinhalten:

- *Betrachten von Bildern von Nahrungsmitteln:* Sie werden verschiedene Nahrungsmittel am Bildschirm betrachten und bewerten.
- *Reaktionszeitmessung via Smartphone:* Sie werden gebeten, mit schnellen Bewegungen des Smartphones auf Bilder von Nahrungsmitteln zu reagieren.
- *Fragebögen via Smartphone:* Zweimal pro Tag werden Sie gebeten über das Smartphone verschiedene Fragen zu Ihrem momentanen Empfinden und Ihrem vergangenen Essverhalten zu beantworten.
- *Reaktionszeittraining in einer von zwei Gruppen.* Ergänzend zu den oben beschriebenen Studienteilen werden Sie zudem per Zufallsauswahl *einer von zwei Studiengruppen zugewiesen*. Aus wissenschaftlichen Gründen ist eine zufällige Gruppenzuteilung notwendig, Sie können sich also nicht eine der Gruppen aussuchen. Beide Gruppen beinhalten die Bearbeitung von Reaktionszeitaufgaben am Smartphone über mehrere Termine hinweg, jedoch unterscheidet sich die Art der Reaktionszeitaufgabe geringfügig. Am Ende der Studie erklären wir Ihnen ausführlich die Hintergründe der Trainings.

Freiwilligkeit der Teilnahme

Ihre Teilnahme an dieser Erhebung ist freiwillig. Sie können diese jederzeit, ohne Angabe von Gründen, beenden. Die Ablehnung Ihrer Teilnahme oder ein vorzeitiges Beenden kann mündlich oder schriftlich (siehe Kontaktdaten am Ende des Dokuments) erfolgen, hat keine nachteiligen Folgen und Sie werden anteilig kompensiert. Sie können Ihre Einwilligung zur Speicherung der Daten bis zum Ende der Datenerhebung widerrufen, ohne dass Ihnen daraus Nachteile entstehen.

Ausschlusskriterien

Sie können an unserer Studie teilnehmen, wenn Sie zwischen 18 und 60 Jahren alt sind und ausreichende Deutschkenntnisse besitzen, um die Instruktionen während der Studie zu verstehen. Nicht teilnehmen können außerdem Personen, die schwanger sind, in ihrer Entscheidungsfähigkeit eingeschränkt sind oder wenn eine diagnostizierte Essstörung vorliegt.

Pflichten bei einer Teilnahme

Als Studienteilnehmer/-innen werden Sie gebeten, den Anweisungen der Studienleitung so weit wie möglich zu folgen und die Fragebögen aufrichtig zu beantworten. Sollten sich während der Studie Probleme und Schwierigkeiten ergeben, informieren Sie bitte die Studienleitung darüber.

Rechte bei einer Teilnahme

Ihre Teilnahme erfolgt freiwillig und Sie können sich jederzeit, auch ohne Angabe von Gründen, aus der Studie zurückziehen, und/ oder eine Löschung der erfassten Daten verlangen, ohne dass Ihnen daraus Nachteile irgendwelcher Art entstehen.

Nutzen bei einer Teilnahme

Ihre Teilnahme an dieser Studie dient der klinisch-psychologischen Wissenschaft. Neue Erkenntnisse sollen zum besseren Verständnis der Ursachen von Überessen und starkem Verlangen nach schmackhaftem Essen beitragen. Außerdem profitieren Sie durch die Teilnahme an dem Reaktionszeittraining bezüglich Ihres

1 selbstgesteckten Ernährungsziels. Nach Studienende erhalten Sie auf Wunsch
2 ausführliche schriftliche Informationen über Sinn und Zweck der Studie sowie eine
3 individualisierte Rückmeldung und Erklärung ihrer Ergebnisse. Des Weiteren erhalten
4 Sie eine Aufwandsentschädigung.
5
6

7 **Aufwandsentschädigung**

8

9 Während wir davon ausgehen, dass Ihr Essverhalten vom Reaktionszeittraining
10 profitieren wird, entsteht durch die Beantwortung der Fragebögen jedoch zusätzlicher
11 zeitlicher Aufwand, für den wir sie finanziell kompensieren. Abhängig von der
12 Vollständigkeit ihrer Daten erhalten Sie sechs bis acht VP-Stunden beziehungsweise
13 zwischen 40 und 60 Euro.
14
15

16 **Mögliche Risiken und Unannehmlichkeiten**

17

18 Die oben beschriebenen Prozeduren sind nicht gesundheitsschädlich und
19 entsprechen wissenschaftlichen Standards. Sie können vorübergehend negative
20 physische und emotionale Empfindungen hervorrufen. Diese Empfindungen sowie
21 spätere diesbezügliche Erinnerungen sind jedoch erfahrungsgemäß vorübergehender
22 Natur. Sollten Sie unerwarteter Weise unter anhaltenden Belastungen aufgrund Ihrer
23 Studienteilnahme leiden, so melden Sie sich umgehend bei einer der unten
24 aufgeführten Kontaktpersonen.
25
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27 **Vertraulichkeit und Schutz der Daten**

28

29 Bei den Daten ist zu unterscheiden zwischen personenbezogenen Daten, mit denen
30 Sie direkt identifizierbar sind (z.B.: Name, Telefonnummer, Adresse), und
31 pseudonymisierten (verschlüsselten) Daten, bei denen alle Informationen, die direkten
32 Rückschluss auf Ihre Identität zulassen, durch einen Teilnahmecode ersetzt werden.
33 Der ‚Schlüssel‘ (Abgleich von Pseudonym mit personenbezogenen Daten) ist nur der
34 Studienleitung zugänglich, wird nach dem Stand der Technik in passwort-geschützten
35 Dokumenten geschützt und getrennt von den verschlüsselten Datensätzen
36 aufbewahrt. Sämtliche Personen, die Zugang zu personenbezogenen Daten erhalten,
37 unterliegen im Umgang mit den Daten dem österreichischen und europäischen
38 Datenschutzrecht und sind dem Datengeheimnis verpflichtet.
39
40

41 Im Rahmen dieser Studie erfolgt die Verarbeitung von folgenden Daten:
42

- 43 - *Personenbezogenen Daten:* Name, E-mail, Telefonnummer. Diese Daten
44 erleichtern uns die Studienadministration und die Sicherstellung einer hohen
45 Datenqualität.
- 46 - *Pseudonymisierte Daten:* Alle Eingaben, die Sie über die App ‚m-Path‘ machen,
47 werden dort unter einem selbstgewählten Teilnahmecode („Pseudonym“) auf
48 Servern der Universität Leuven (Belgien) gespeichert. Ihre Daten sind also
49 innerhalb der App nicht Ihrer Person zu zuordnen. Auch die Daten in der App
50 ‚Picture Game‘ werden nur über einen pseudonymisierten Teilnahmecode
51 gespeichert und über einen Account der Studienleitung von Google firebase
52 übertragen. Für beide Apps gilt: Eine Zuordnung zu Ihrer Person ist nur mit
53 zusätzlichen Daten möglich, die ausschließlich Mitarbeitenden der PLUS
54 vorliegen (‚Schlüssel‘, siehe oben).

Ihnen steht bezüglich Ihrer bei uns gespeicherten pseudonymisierten Daten grundsätzlich das Recht auf Auskunft, Richtigstellung, Löschung und Einschränkung zu. Sie können Ihre Einwilligung auch jederzeit widerrufen. Ein Widerruf hat zur Folge, dass wir Ihre Daten ab diesem Zeitpunkt zu den oben genannten Zwecken nicht mehr verarbeiten. Für einen Widerruf wenden Sie sich bitte an die unten angeführte Studienleitung. Wenn Sie glauben, dass wir gegen datenschutzrechtliche Vorschriften verstößen, können Sie sich bei dem Datenschutzbeauftragten der Universität Salzburg (datenschutz@sbg.ac.at) oder bei einer Datenschutzbehörde beschweren. Weitere Informationen finden Sie unter www.uni-salzburg.at/impressum.

Wir weisen darauf hin, dass wissenschaftliche Publikationen geplant sind und dabei Studienergebnisse in ausschließlich anonymer Weise veröffentlicht werden.

Die personenbezogenen Daten und der zugehörige Schlüssel wird **1 Jahr nach Studienende gelöscht**. Ebenso werden alle Daten in der App zu dem Zeitpunkt gelöscht. Damit erlöschen auch ihre Möglichkeiten der Einsicht/Berichtigung/Export/Lösung dieser Daten, da wir Sie ihren Daten dann nicht mehr zuordnen können (da der ‚Schlüssel‘ gelöscht wurde). Wir behalten einzig ihren Namen und diese Einverständniserklärung als Dokumentation ihrer Studenteilnahme für **30 Jahre**.

Welche Kontaktpersonen stehen zur Verfügung?

Bei anfälligen Fragen, die während oder nach Abschluss der Studie auftreten, können Sie sich unter gesundheitspsychologie07@plus.ac.at oder der +43 677 616 767 07 melden und jederzeit an die Studienleitung wenden:

- Hannah van Alebeek, MSc., Fachbereich Psychologie, Universität Salzburg, Hellbrunnerstrasse 34, 5020 Salzburg, hannah.vanalebeek@plus.ac.at

Wir freuen uns auf die Zusammenarbeit!

Diese Studie wurde von der Ethikkommission der Universität Salzburg evaluiert.

Kontaktperson: Mag.^a Clara Gröblacher, Kapitelgasse 4, A-5020 Salzburg, Tel: +43-662-8044 2391, clara.groebacher@sbg.ac.at

Einverständniserklärung

Ich habe die oben beschriebenen Informationen vollumfänglich gelesen und verstanden.

Meine Teilnahme erfolgt freiwillig und ich weiß, dass ich mich jederzeit, auch ohne Angabe von Gründen, von der Studie zurückziehen kann, ohne dass mir daraus Nachteile irgendwelcher Art entstehen.

Ich bin bereit, an dieser Studie teilzunehmen und bin mit der Erhebung und Verwendung persönlicher Daten nach Maßgabe der TeilnehmerInneninformation einverstanden.

Ort/Datum _____

Name TeilnehmerIn _____

Unterschrift TeilnehmerIn _____

Unterschrift _____

Studienverantwortliche Person _____

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2 **– Dieses Dokument bleibt bei der Versuchsleitung –**
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6 **Einverständniserklärung**

7 Ich habe die oben beschriebenen Informationen vollumfänglich gelesen und verstanden.
8 Außerdem nehme ich zur Kenntnis, dass ich für Wege zum/vom Untersuchungsort, nicht
9 wege-/unfallversichert bin.

10 Meine Teilnahme erfolgt freiwillig und ich weiß, dass ich mich jederzeit, auch ohne Angabe
11 von Gründen, von der Studie zurückziehen kann, ohne dass mir daraus Nachteile
12 irgendwelcher Art entstehen.

13 *Ich bin bereit, an dieser Studie teilzunehmen und bin mit der Erhebung und Verwendung
14 persönlicher Daten nach Maßgabe der TeilnehmerInneninformation einverstanden.* Eine
15 Kopie dieser Studieninformation und Einverständniserklärung wurde mir ausgehändigt.

16 Ort/Datum _____

17 Name TeilnehmerIn _____

18 Unterschrift TeilnehmerIn _____

19 Unterschrift
20 Studienverantwortliche Person _____

1 2 Reporting checklist for protocol of a clinical trial. 3 4 5 6

7 Based on the SPIRIT guidelines.
8
9
10

11 Instructions to authors 12

13 Complete this checklist by entering the page numbers from your manuscript where readers will find
14 each of the items listed below.
15
16

17 Your article may not currently address all the items on the checklist. Please modify your text to
18 include the missing information. If you are certain that an item does not apply, please write "n/a" and
19 provide a short explanation.
20
21

22 Upload your completed checklist as an extra file when you submit to a journal.
23
24

25 In your methods section, say that you used the SPIRIT reporting guidelines, and cite them as:
26
27

28 Chan A-W, Tetzlaff JM, Gøtzsche PC, Altman DG, Mann H, Berlin J, Dickersin K, Hróbjartsson A,
29 Schulz KF, Parulekar WR, Krleža-Jerić K, Laupacis A, Moher D. SPIRIT 2013 Explanation and
30 Elaboration: Guidance for protocols of clinical trials. BMJ. 2013;346:e7586
31
32

33 Page

34 Number

35 Reporting Item

36 Administrative 37 information 38

39 Title	40 <u>#1</u>	41 Descriptive title identifying the study design, population, 42 interventions, and, if applicable, trial acronym	43 1
50 Trial registration	51 <u>#2a</u>	52 Trial identifier and registry name. If not yet registered,	53 2

		name of intended registry	
1	Trial registration: data set	#2b All items from the World Health Organization Trial Registration Data Set	n/a
2	Protocol version	#3 Date and version identifier	n/a
3	Funding	#4 Sources and types of financial, material, and other support	12
4	Roles and responsibilities: contributorship	#5a Names, affiliations, and roles of protocol contributors	12
5	Roles and responsibilities: sponsor contact information	#5b Name and contact information for the trial sponsor	1
6	Roles and responsibilities: sponsor and funder	#5c Role of study sponsor and funders, if any, in study design; collection, management, analysis, and interpretation of data; writing of the report; and the decision to submit the report for publication, including whether they will have ultimate authority over any of these activities	12
7	Roles and responsibilities: committees	#5d Composition, roles, and responsibilities of the coordinating centre, steering committee, endpoint adjudication committee, data management team, and other individuals or groups overseeing the trial, if applicable (see Item 21a for data monitoring committee)	n/a

Introduction

1	Background and rationale	#6a	Description of research question and justification for undertaking the trial, including summary of relevant studies (published and unpublished) examining benefits and harms for each intervention	3-5
11	Background and rationale: choice of comparators	#6b	Explanation for choice of comparators	3-5
19	Objectives	#7	Specific objectives or hypotheses	5
22	Trial design	#8	Description of trial design including type of trial (eg, parallel group, crossover, factorial, single group), allocation ratio, and framework (eg, superiority, equivalence, non-inferiority, exploratory)	5-7
32	Methods:			
34	Participants,			
36	interventions, and			
39	outcomes			
42	Study setting	#9	Description of study settings (eg, community clinic, academic hospital) and list of countries where data will be collected. Reference to where list of study sites can be obtained	5-8
52	Eligibility criteria	#10	Inclusion and exclusion criteria for participants. If applicable, eligibility criteria for study centres and individuals who will perform the interventions (eg,	5

		surgeons, psychotherapists)	
1	Interventions:	#11a Interventions for each group with sufficient detail to allow	6
2	description	replication, including how and when they will be	
3		administered	
4	Interventions:	#11b Criteria for discontinuing or modifying allocated	n/a
5	modifications	interventions for a given trial participant (eg, drug dose	
6		change in response to harms, participant request, or	
7		improving / worsening disease)	
8	Interventions:	#11c Strategies to improve adherence to intervention protocols,	5
9	adherence	and any procedures for monitoring adherence (eg, drug	
10		tablet return; laboratory tests)	
11	Interventions:	#11d Relevant concomitant care and interventions that are	n/a
12	concomitant care	permitted or prohibited during the trial	
13	Outcomes	#12 Primary, secondary, and other outcomes, including the	9-10
14		specific measurement variable (eg, systolic blood	
15		pressure), analysis metric (eg, change from baseline, final	
16		value, time to event), method of aggregation (eg, median,	
17		proportion), and time point for each outcome. Explanation	
18		of the clinical relevance of chosen efficacy and harm	
19		outcomes is strongly recommended	
20	Participant timeline	#13 Time schedule of enrolment, interventions (including any	9
21		run-ins and washouts), assessments, and visits for	
22		participants. A schematic diagram is highly recommended	
23		(see Figure)	

1 Sample size [**#14**](#) Estimated number of participants needed to achieve study
2 objectives and how it was determined, including clinical and
3 statistical assumptions supporting any sample size
4 calculations
5

6
7 Recruitment [**#15**](#) Strategies for achieving adequate participant enrolment to
8 reach target sample size
9

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11 **Methods: Assignment**
12
13 of interventions (for
14 controlled trials)
15

16 Allocation: sequence [**#16a**](#) Method of generating the allocation sequence (eg,
17 generation computer-generated random numbers), and list of any
18 factors for stratification. To reduce predictability of a
19 random sequence, details of any planned restriction (eg,
20 blocking) should be provided in a separate document that is
21 unavailable to those who enrol participants or assign
22 interventions
23

24 Allocation [**#16b**](#) Mechanism of implementing the allocation sequence (eg,
25 concealment central telephone; sequentially numbered, opaque, sealed
26 mechanism envelopes), describing any steps to conceal the sequence
27 until interventions are assigned
28

29 Allocation:
30 implementation [**#16c**](#) Who will generate the allocation sequence, who will enrol
31 participants, and who will assign participants to
32 interventions
33

1	Blinding (masking)	#17a	Who will be blinded after assignment to interventions (eg, trial participants, care providers, outcome assessors, data analysts), and how	9
2				
3	Blinding (masking):	#17b	If blinded, circumstances under which unblinding is emergency unblinding	n/a
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16				
17	Methods: Data collection, management, and analysis			
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19				
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26	Data collection plan	#18a	Plans for assessment and collection of outcome, baseline, and other trial data, including any related processes to promote data quality (eg, duplicate measurements, training of assessors) and a description of study instruments (eg, questionnaires, laboratory tests) along with their reliability and validity, if known. Reference to where data collection forms can be found, if not in the protocol	6-10
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43	Data collection plan:	#18b	Plans to promote participant retention and complete follow-up, including list of any outcome data to be collected for participants who discontinue or deviate from intervention protocols	6-10
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53	Data management	#19	Plans for data entry, coding, security, and storage, including any related processes to promote data quality (eg, double data entry; range checks for data values).	10
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1	2	3	4	5	Reference to where details of data management	
6	7	8	9	10	procedures can be found, if not in the protocol	
11	12	13	14	15	Statistics: outcomes #20a Statistical methods for analysing primary and secondary	9-10
16	17	18	19	20	outcomes. Reference to where other details of the	
21	22	23	24	25	statistical analysis plan can be found, if not in the protocol	
26	27	28	29	30	Statistics: additional #20b Methods for any additional analyses (eg, subgroup and	9-10
31	32	33	34	35	adjusted analyses)	
36	37	38	39	40	Statistics: analysis #20c Definition of analysis population relating to protocol non-	9-10
41	42	43	44	45	adherence (eg, as randomised analysis), and any statistical	
46	47	48	49	50	methods to handle missing data (eg, multiple imputation)	
51	52	53	54	55	Methods: Monitoring	
56	57	58	59	60	Data monitoring: formal committee #21a Composition of data monitoring committee (DMC); summary of its role and reporting structure; statement of whether it is independent from the sponsor and competing interests; and reference to where further details about its charter can be found, if not in the protocol. Alternatively, an explanation of why a DMC is not needed	n/a
					Data monitoring: interim analysis #21b Description of any interim analyses and stopping guidelines, including who will have access to these interim results and make the final decision to terminate the trial	n/a
					Harms #22 Plans for collecting, assessing, reporting, and managing solicited and spontaneously reported adverse events and other unintended effects of trial interventions or trial	n/a

	conduct	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	Auditing #23 Frequency and procedures for auditing trial conduct, if any, and whether the process will be independent from investigators and the sponsor	n/a
Ethics and dissemination		
Research ethics	#24 Plans for seeking research ethics committee / institutional review board (REC / IRB) approval	2
Protocol amendments	#25 Plans for communicating important protocol modifications (eg, changes to eligibility criteria, outcomes, analyses) to relevant parties (eg, investigators, REC / IRBs, trial participants, trial registries, journals, regulators)	n/a
Consent or assent	#26a Who will obtain informed consent or assent from potential trial participants or authorised surrogates, and how (see Item 32)	6
Consent or assent: ancillary studies	#26b Additional consent provisions for collection and use of participant data and biological specimens in ancillary studies, if applicable	n/a
Confidentiality	#27 How personal information about potential and enrolled participants will be collected, shared, and maintained in order to protect confidentiality before, during, and after the trial	10
Declaration of	#28 Financial and other competing interests for principal	12

1	interests	investigators for the overall trial and each study site	
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3	Data access	#29 Statement of who will have access to the final trial dataset, and disclosure of contractual agreements that limit such access for investigators	11
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11	Ancillary and post trial care	#30 Provisions, if any, for ancillary and post-trial care, and for compensation to those who suffer harm from trial participation	n/a
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18	Dissemination policy: trial results	#31a Plans for investigators and sponsor to communicate trial results to participants, healthcare professionals, the public, and other relevant groups (eg, via publication, reporting in results databases, or other data sharing arrangements), including any publication restrictions	11
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31	Dissemination policy: authorship	#31b Authorship eligibility guidelines and any intended use of professional writers	n/a
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36	Dissemination policy: reproducible research	#31c Plans, if any, for granting public access to the full protocol, participant-level dataset, and statistical code	11
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42	Appendices		
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45	Informed consent materials	#32 Model consent form and other related documentation given to participants and authorised surrogates	n/a
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50	Biological specimens	#33 Plans for collection, laboratory evaluation, and storage of biological specimens for genetic or molecular analysis in the current trial and for future use in ancillary studies, if applicable	n/a
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For peer review only

BMJ Open

Study protocol for a Randomized-Controlled Trial to Test the Effectiveness of a Mobile Approach Avoidance Intervention and to Measure Approach Biases in an Ecological Momentary Assessment context

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2022-070443.R2
Article Type:	Protocol
Date Submitted by the Author:	22-Mar-2023
Complete List of Authors:	Aulbach, Matthias; Paris Lodron Universität Salzburg, Department of Psychology van Alebeek, Hannah; Centre for Cognitive Neuroscience, Department of Psychology Kahveci, Sercan; Centre for Cognitive Neuroscience, Department of Psychology Blechert, Jens; Centre for Cognitive Neuroscience, Department of Psychology
Primary Subject Heading:	Nutrition and metabolism
Secondary Subject Heading:	Public health
Keywords:	Information technology < BIOTECHNOLOGY & BIOINFORMATICS, World Wide Web technology < BIOTECHNOLOGY & BIOINFORMATICS, NUTRITION & DIETETICS, PREVENTIVE MEDICINE, PUBLIC HEALTH

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Manuscripts

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3 **Study protocol for a Randomized-Controlled Trial to Test the Effectiveness of a Mobile Approach**
4 **Avoidance Intervention and to Measure Approach Biases in an Ecological Momentary Assessment**
5 **context**
6
7
8

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52 **Word count:** 4433 words
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Keywords: randomized controlled trial; approach-avoidance training; eating behavior; intervention; ecological momentary assessment; m-health

ABSTRACT

Introduction: Unhealthy eating behavior is a major contributor to obesity and related diseases and is associated with a behavioral bias to approach rather than avoid desired foods, as measured with reaction time tasks. Approach-Avoidance interventions (AAI) have been proposed as a way to modify food evaluations and help people to eat in accordance with their dietary goals. Mobile implementations of AAI might be easily accessible, low threshold interventions, but their effectiveness has not been established yet.

Methods and analysis: Participants who aim to change their eating behavior are randomized to intervention or control groups. They complete six sessions of a smartphone-based AAI, in which they push (i.e., avoid) or pull (i.e., approach) personalized food images. Intervention group participants always avoid foods that they personally want to eat less often and approach foods that they personally want to eat more often. In the control group, images are paired equally often with both response directions. To evaluate contextual and dynamic intervention effects, ecological momentary assessment (EMA) is measured throughout, with questions about food intake, hunger, stress, emotions, eating intentions, food craving, and impulsivity twice a day. Additional EMA pre- and post-intervention measures are administered before and after the intervention phase (4 days each) with a one-day follow-up EMA four weeks after the intervention. Multilevel models will examine the temporal covariance between approach bias and self-reported variables as well as short- and long-term intervention effects on approach bias, food intake, and craving.

Ethics and dissemination: The study was approved by the Ethics Committee of the University of Salzburg. Results will be published in peer reviewed scientific journals and presented at scientific conferences.

Trial registration: This study was registered at the German Clinical Trials Register DRKS, registration number DRKS00030780, and on the Open Science Framework <https://osf.io/yn7kt>.

Strengths and limitations of this study

- The study is a randomized controlled trial testing an m-health intervention to assist participants in implementing their dietary intentions through repeated use of a mobile Approach-Avoidance Intervention (AAI) compared with a closely matched active control task
- It includes ecological momentary before, during, and after the trial in both control and intervention groups, which allows examining both short- and long-term intervention effects
- It measures a range of potentially relevant phenomena like food craving, hunger, emotions, stress, and day-level impulsivity
- Control group data allows examining variability in approach bias and its covariation with data obtained through EMA
- Measures of food intake are restricted to single-item daily self-reports which are prone to underreporting and experimenter demand

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2
3 Humans make several decisions per day about whether, what, and how much to eat [1]. All these
4 decisions have an influence on human health, as overeating can lead to obesity and related diseases
5 [2]. It is therefore important to understand which factors contribute to eating decisions and how we
6 can intervene on them. Traditional psychological models have postulated that people reflect on
7 behavioral options, form intentions, and then translate these into behavior. However, decades of
8 research have shown that intentions are often not successfully enacted, a phenomenon termed the
9 "intention behavior gap" [3].
10
11

12 To investigate why people sometimes fail to transfer their intentions into behavior,
13 researchers have devised a range of indirect measures, typically assessed with computer tasks based
14 on the measurement of reaction times (RT) [4,5], as opposed to direct measures such as self-
15 reported evaluations of stimuli. Under certain conditions, such indirect measures of food preference
16 can increase prediction accuracy of actual behavior, above and beyond questionnaire data [6,7] but
17 see [8] for a critical discussion. One example of such an RT task is the Approach Avoidance Task
18 (AAT). In the AAT, participants usually use a joystick [or in more recent studies, a touch-screen;
19 ,9,10] to perform movements towards or away from different stimulus categories. These categories,
20 such as foods and non-food objects, are compared on how fast they are approached and avoided,
21 and this RT difference is termed the "approach bias" [11]. Herein, we adopt an operational
22 definition, such that we define approach bias as the relative speed with which one can approach the
23 target stimuli (e.g., foods) in the AAT, remaining agnostic to what might be the underlying mental
24 construct [8,12,13]. Food approach biases seem relevant to real-world eating behavior, as they have
25 been found to be higher in people who strongly crave foods [14], and they relate to increased food
26 consumption in impulsive individuals and in people who are prone to external or emotional eating
27 [15,16] (but see [17] for contradictory findings from the alcohol domain and a wider discussion in
28 [18,19]).
29
30

31 So far, it has mostly been ignored that approach biases may fluctuate over time. In most
32 studies to date, approach bias has, at least implicitly, been treated as a relatively stable, trait-like
33 phenomenon, in line with its conceptualization as a (stable) mental construct. Approach bias is
34 typically measured at a single timepoint and then correlated with other phenomena like trait food
35 craving [10], weight status [20], or eating disorder diagnosis [21]. One recent study demonstrated
36 that approach bias was independent of experimentally induced satiety, indicating stability of the bias
37 across situations. However, participants' desire to eat specific foods did explain variance in approach
38 bias, implying that bias might vary across time within individuals depending on their current
39 consumption desires [22]. This is in line with the finding that approach bias for chocolate was
40 positively correlated with current chocolate craving [23–25], craving being an experience of intense
41 desire for a specific food which is temporally variable by definition [26]. Other studies using a mobile
42 version of the AAT indicated that test-retest reliability across eight measurement occasions was low
43 while split-half reliability was high, again indicating temporal fluctuations in approach biases [27].
44 This is in line with findings obtained from other indirect measures that showed modest stability over
45 time [28]. Such within-subject fluctuations in biases are probably not only due to random variation,
46 as approach-avoidance biases have been shown to decrease with after-meal-satiety in normal-
47 weight individuals, and they have been shown to change based on individuals' current affective
48 states [29–33]. In combination, these results raise questions about the temporal and situational
49 stability of approach biases.
50
51

52 Associations between behavioral approach bias and intake-related variables have led to the
53 development of Approach-Avoidance Interventions (AAI). Traditionally, it has been assumed that a
54 stable mental construct thought to underlie the behavioral approach bias, can be changed by
55
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repeatedly pairing unhealthy foods with avoidance and healthy foods (or neutral objects) with approach. This should then affect food intake. How exactly AAIs might work is however a matter of current debate. Based on the idea that the behavioral approach bias operationalizes learned associations between appetitive stimuli and approach, some authors argue that the repeated pairing of appetitive stimuli and avoidance weakens or reverses this association through the formation of new associations between stimuli, movement direction, and evaluative properties inherent to approach and avoidance [23]. Others however argue that stimulus value is updated due to a conflict between evaluation and within-task behavior which then influences intake decisions [34–36], or that altered behavior is due to changed food evaluations, which are caused by cognitive inferences based on task requirements [37,38]. Independent of what might be the exact working mechanism, earlier studies have shown that the behavioral approach bias [39], food choice [40] and subsequent food intake [41] can be reduced by AAIs. The evidence in this domain is mixed, however [42–46], and might have several different reasons.

Firstly, in some studies participants approach and avoid stimuli based on their category (e.g., food vs objects) and in others, based on an irrelevant feature of the stimulus such as the frame color or orientation. Such task differences may affect participants' awareness of the contingencies between stimulus and required response, as well as expectations about training effects. As this awareness could increase the effectiveness of the intervention, especially when AAIs change behavior through cognitive inferences as noted above [47], this study uses a relevant-feature AAT/AI and closely tracks participants' contingency awareness. Secondly, the personal relevance of the trained stimuli may differ between interventions, and this may influence effectiveness [48]. Some interventions specifically try to retrain approach biases to chocolate in individuals reporting high trait-level chocolate craving or consumption [39], while other interventions train responses to a pre-selected set of healthy and unhealthy foods without taking into account if participants actually consume the unhealthy foods or if healthy foods fit to individual needs of the participants (for example in terms of taste, food intolerances). Thirdly, most studies only deliver a single session of AAI (with [49,50] being exceptions), while more sessions might lead to larger effects that would be easier to detect [51]. Finally, the effectiveness of AAIs might depend on when the intervention is delivered. It is easy to see that interventions might be most fruitful in or just before moments when the risk for unhealthy intake is high.

Smartphone-based AATs and AAIs are interesting for a range of research questions that cannot be answered with stationary computer-based AATs and AAIs. Firstly, smartphones allow easy delivery of AAI to participants during their daily routines. This helps participants to perform the intervention repeatedly, and to bring the intervention temporally and spatially closer to "high-risk" situations in everyday life. Assuming a rather fast decay of intervention effects, the closer proximity offered by the smartphone should enhance its effectiveness compared to conducting it on one's personal computer [52] or in a laboratory session [53,54]. Another advantage of repeated intervention through smartphones is the possibility to measure immediate and delayed intervention effects on fluctuating phenomena like food craving. Lastly, smartphones allow to measure bias more easily at any time of the day, and especially at moments when it may be relevant for food consumption. This allows us to examine the temporal and situational variability of approach bias. Combining it with repeated delivery of eating-related questions throughout the day (i.e., ecological momentary assessment, EMA) also allows for correlating fluctuations in approach bias with other temporally variable phenomena like food craving, affect and intake.

Several studies have delivered interventions using computer tasks through the internet [52,53,55–57] and have generally reported good compliance rates and effects on dietary intake.

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3 Smartphone-based interventions using similar RT tasks are much rarer and have reported mixed
4 results on key outcomes [49–51,58]. One of the two studies delivering smartphone-based AAI
5 required participants to tilt the phone to respond, and found positive effects on food choice and
6 approach bias towards unhealthy foods [50]. The other study found neither day-level nor longer-
7 term effects of AAI using swipe movements, as compared to an EMA-only intervention and a sham
8 training group [49]. It is important to note that that study did not find any approach bias in
9 participants to begin with which suggests that the swipe movements did not clearly represent
10 approach and avoidance and that the sample size was small. It is therefore unclear to what degree
11 its results can be taken as evidence against the effectiveness of mobile AAI.
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14 One recent AAT variant does not require swiping movements on the touchscreen, but
15 instead requires participants to physically move the phone towards or away from themselves while
16 viewing food stimuli [27,59–61]. This task has been shown to be a valid tool to measure food
17 approach biases outside the laboratory and to provide relevant information beyond self-report
18 measures [59]. In addition to RTs, it also yields data on the force of the movements, which might
19 contain relevant information not captured by RTs [61].
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22 The study presented here sets out to test its effectiveness as an intervention tool for AAI;
23 that is, when it is programmed to pair the foods that a specific participant wants to eat more often
24 with approach, and to pair the foods that a specific participant wants to eat less often with
25 avoidance responses. Specifically, we will study to what degree the intervention can support
26 participants in their goal of changing their eating behavior. We further examine the reliability and
27 validity of approach bias scores obtained through a phone-delivered AAT. Combining the AAI/AAT
28 with the repeated measurement of related phenomena through EMA allows us to disentangle short-
29 and long-term intervention effects as well as to investigate whether approach bias covaries with
30 intake-related variables over time.
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33 METHODS AND ANALYSIS

34 Study Overview

35 The study uses a two-arm, double-blind randomized controlled trial conducted with German-
36 speaking participants, and is coordinated at the University of Salzburg, Austria. It compares an active
37 Approach-Avoidance Intervention (AAI) to a sham-training (a measurement Approach-Avoidance
38 Task, AAT) in its impact on eating behavior, food liking, food craving, and food approach bias.
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41 Participants

42 Participants will be recruited via university e-mailing lists, social networks, university events, and
43 word of mouth. Participants must be between 18 and 60 years of age, and must not be pregnant or
44 report a diagnosis for an eating disorder. Importantly, participants must have an intention to change
45 their eating behavior (which they indicate upon sign-up), without further specification regarding
46 increased or decreased intake of certain foods or food categories.
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49 To determine the required sample size, we performed a power analysis using pre-existing
50 data from a (so far unpublished) study, wherein we attempted to change participants' approach-
51 avoidance bias and analysed its change from pre- to post-training (see Supplementary file 1 for more
52 information). We opted to use this pre-existing data as the structure of the study is similar to the
53 current study and the correlations and noise therein would be more likely to reflect the findings we
54 will observe than would fully simulated data.
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3 First, group-level differences between the pre-to-post effects of sham and active training
4 were removed such that a time-by-group effect size of 0 was achieved. A new effect size was then
5 applied by increasing the post-treatment group mean of the active training participants by a multiple
6 of 16 between 64 and 244, giving effect sizes around $g = .5$. After this, participants were randomly
7 sampled with replacement such that sample sizes between 80 and 180 in multiples of 10 were
8 achieved. Each combination of sample size and effect size was re-sampled and tested 200 times.
9 After sampling a set of participants, a multilevel analysis was performed where approach-avoidance
10 bias scores were predicted with fixed predictors of treatment group (sham or active) and time (pre-
11 training or post-training), as well as random effects of time grouped by participant and time grouped
12 by stimulus. The p-value of the group by time interaction was recorded. The proportion of p-values
13 below .05 was computed to determine the power at each combination of sample size and effect size.
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16 Based on this power analysis, we determined that a medium effect size ($g = .50$) and a
17 power of .80 would require a sample size of about valid 150 participants. Based on the effect size
18 observed in that other study of $g = 0.56$, 150 participants result in a power of about .88. A table with
19 all power analysis outcomes is depicted in Supplementary file 2. With an estimated recruitment rate
20 of three participants per week and allowing for recruitment difficulties slowing down the process,
21 we expect data collection to last from November 2022 to roughly January 2024. Data collection
22 continues until 150 participants are reached.
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25 Materials and procedure

26 *Baseline questionnaires.* In a web-based questionnaire (see Supplementary file 3),
27 participants give informed consent (consent form see Supplementary file 4) and then indicate their
28 age, gender, nationality, state of employment, highest achieved formal education level, dietary
29 restrictions (vegan, vegetarian, pescatarian, omnivorous, other), height, weight, and possible food
30 allergies or intolerances. Participants identifying as female or diverse are also asked about their
31 menstrual cycle. Further, to assess exclusion criteria, they are asked if they are currently suffering
32 from an eating disorder. This is followed by the stimulus selection (see below for details).
33 Participants then complete the German versions of the following questionnaires: subscales
34 restrained eating and external eating from the Dutch Eating Behavior Questionnaire [62]; the
35 Salzburg Emotional Eating Scale [63]; the Salzburg Stress Eating Scale [64]; Perceived Self-Regulatory
36 Success in Dieting [65]; the short version of the UPPS Impulsivity Scale [66].
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39 *Stimuli.* We pre-selected 90 food and drink pictures from the food.pics [67] and CROCUFID
40 [68] databases, and from freely available online resources based on typical availability in Austria and
41 Germany as the main recruitment sites. At the beginning of the study, participants rated these 90
42 images on two scales: "In the last three weeks, on how many days have you eaten/drunk this
43 food/drink?" (recent intake) and "In the next three weeks, on how many days would you like to
44 eat/drink this food/drink?" (intended intake). We select the six foods with the most negative
45 difference between past and intended consumption as "increase foods" (eaten less often than
46 intended). Then, among the foods that were eaten at least on six days in the past three weeks, we
47 select six with the most positive difference between past and intended future consumption (eaten
48 more often than intended = "decrease-foods"). A randomly selected four of these six images are
49 then used in the intervention phase in both groups while the other two were left untrained to test
50 whether the intervention would be specific to the foods used in the task. A random selection of 8
51 out of a set of 12 images of office items serves as control stimuli. Figure 1 displays the selection of
52 stimuli. The food stimuli were not categorized as "healthy" or "unhealthy", giving participants full
53 flexibility for choosing "increase-foods" and "decrease-foods".
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3 *Setup call.* Within a few days of filling out the online questionnaire, a member of the study
4 team contacts participants to schedule a setup call via phone or a video conferencing tool. In this
5 call, the member of the research team explains the procedure of the study. They further help
6 participants install the necessary apps onto their smartphone (m-path; KU Leuven, 2022 for EMA
7 and the AAT app¹) and then confirm the correct selection of approach and avoidance foods as
8 determined by the rating task. After the call, participants receive a manual for the study via e-mail,
9 which summarizes the study procedures and the use of the smartphone applications and includes
10 participants' individual three-digit identification code as well as contact information of the study
11 team.
12

13
14 *Approach-Avoidance Task (AAT).* We use the smartphone-based AAT as introduced by Zech
15 and colleagues [61]. In this version of the task, participants see stimuli on their horizontally held
16 phone screen and they perform approach or avoidance movements by physically moving the phone
17 towards/away from themselves (see Figure 2 and two short introductory videos here:
18 https://osf.io/4k3q9/?view_only=4db6431fd5ee4148a97f3be7f799ea4a). Each trial starts with a
19 fixation dot in the middle of a white screen, which is followed by either one of the food or object
20 stimuli after a 1500 ms delay. While correct approach or avoidance responses make the picture
21 disappear and trigger the start of a new trial, incorrect responses are followed by a 2000 ms display
22 of a black error-cross. If a participant does not respond for 2000 ms, a clock icon is displayed
23 indicating timeout.
24

25
26 The active and sham AAT trainings feature 4 out of 6 approach-foods, 4 out of 6 avoid-foods,
27 as well as 8 out of 12 control object stimuli. The training sessions consist of four training blocks of 16
28 trials each, and each training block is preceded by 4 practice trials, yielding a training session of 64
29 training trials and 16 practice trials, or 80 trials total. The pre-, post- and follow-up bias assessment
30 AATs similarly consist of four blocks preceded each by four practice trials but feature all selected
31 images (6 "increase-foods", 6 "decrease-foods" and 12 objects). All 24 images are presented one
32 time per block, yielding 96 test trials and 16 practice trials, or 112 trials total. In all AATs, the
33 instructions of the blocks alternate such that participants are instructed to approach foods while
34 avoiding objects in the first block (approach-food blocks) and avoid foods while approaching objects
35 in the second block (avoid-food blocks). This order is the same for all sessions and all participants.
36 Crucially, in the active training AATs, only approach-foods are shown in the approach-food blocks,
37 while only avoid-foods are shown in the avoid-food blocks; sham training instead features both
38 approach- and avoid-foods during both approach-food and avoid-food blocks. Completing one
39 session of the AAT/AAT takes about five minutes.
40

41
42 *Ecological Momentary Assessment (EMA).* Participants follow the EMA schedule for a total of
43 20 days. During the whole period, participants receive two prompts per day (delivered through the
44 smartphone application m-path [69]), one just before the time a participant usually eats lunch and
45 the other in the evening (prompted at an individualized time agreed-upon with the participant to
46 represent an end-of-day signal). Table 1 shows the questions that participants answer on those
47 prompts and Figure 3 displays the temporal sequence of the study. EMA prompts on days 1-3 of the
48 study only contain the listed questions. On day 4 (the day before the start of the intervention) and
49 day 17 (the day after the end of the intervention), participants receive an instruction to open the
50 AAT application and complete a measurement AAT. On every second day during the intervention
51 phase (days 5 through 16), participants receive an instruction to open the AAT application and
52 complete a training AAT after completing the midday prompt. 30 minutes after completing the
53 midday prompt, participants receive a notification asking whether they conducted the training. On
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58 ¹The app can be downloaded on Android devices from this address:
59 <https://play.google.com/store/apps/details?id=com.eatlabsbg.eatapp>

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3 replying “yes”, they receive positive feedback; on replying “no”, they are asked to now open the AAT
4 app to conduct the task. The number of sessions was chosen based on earlier, similar studies
5 [50,52], balancing participant burden, compliance, and intervention intensity.
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Table 1: overview of EMA questions (own translations from German). All items are answered on a slider from 0 to 100 unless indicated differently in parentheses. Midday prompts remain the same across the entire study duration. Evening prompts differ depending on the study phase as indicated:

* These items are asked alongside a food image and are repeated for each image (six “increase-food” and six “decrease-food” images).

[†]This item is only asked after the first and the last AAT session (day 5 and 15).

Item	Midday (all study phases)	Evening Days 1-4 and 17-20	Evening Days 5-16	Evening - follow-up
When was the last time you ate something?	X			
What type of meal was it? (breakfast, lunch, dinner, snack)	X			
How hungry are you right now?	X	X	X	
Do you feel like you have everything under control?	X			
Do you feel like you are on top of things?	X			
How optimistic do you feel right now?	X			X
How happy do you feel right now?	X			X
How lonely do you feel right now?	X			X
How depressed do you feel right now?	X			X
How angry do you feel right now?	X			X
How mad do you feel right now?	X			X
How tense do you feel right now?	X			X
How anxious do you feel right now?	X			X
How much do you want to stick to your dietary goals <i>for the rest of the day</i> ?	X			
How much do you want to stick to your dietary goals <i>tomorrow</i> ?		X		X
How strong has your craving for this food been <i>today</i> ? *		X		X
How much of this food have you eaten <i>today</i> ? *		X		X
Have you said things today without thinking?	X	X	X	X

Have you spent more money today than you wanted to?	X	X	X	X
Have you felt impatient today?	X	X	X	X
Have you made a spontaneous decision today?	X	X	X	X
How strong has your craving for this food been since the midday questionnaire? *			X	
How much of this food have you eaten since the midday questionnaire? *			X	
How much do you expect that this task will help you reach your dietary goals? +	X ⁺			
Throughout the whole study, how often did you push this food away from yourself? *				X
Please indicate the day your last period started.				X

6/bmjopen-2022-070443 on 25 April 2023. Downloaded from <http://bmjopen.bmjjournals.org/> on April 9, 2024 by guest. Protected by copyright.

In addition, on day 6 and day 16 (the first and the last day including an AAT/AI session), participants further indicate their expectancy of how much the task will help them reach their dietary goals. Four weeks after the end of the initial 20-day EMA period, participants receive one additional EMA questionnaire and a measurement AAT in the evening. After performing this final AAT, participants indicate how often they believed they pushed or pulled each of their “decrease-foods” and “increase-foods”.

Procedure. The procedure for study participation is as follows: after interested participants contact the study team, they receive an individual participant code and a weblink to the baseline questionnaire. At this point, an R-script² randomizes participants to either the intervention or control group with the condition unknown to the study team. After a setup call with a member of the research team within a few days of filling out the questionnaires, participants start receiving EMA prompts and AAT as described above. Figure 3 shows the timeline of the whole study. Throughout the study period, participants can contact study personnel who also monitor compliance to the EMA and AAT schedule and contact participants in case of low compliance: participants receive an e-mail if they miss more than one of the first three AAT/AI sessions.

Outcomes

Main outcomes. This study uses three main outcome measures. The first outcome measure is participants’ self-reported intake of “increase” and “decrease” foods according to the EMA schedule outlined above, on a slider from 0 (labelled “nothing”) to 100 (“very much”). The second outcome measure is participants’ self-reported craving for those same foods in the same manner. Simple, single-item measures reduce participant burden but might negatively affect reliability. To ameliorate this, measures are applied for each food separately. Time trends that might indicate changes in participants’ perceptions of amounts as “much” or “little” will be checked in the control group and, if present, controlled for in analyses.

The third outcome measure is the approach bias for all selected foods based on the RT and force in the AAT. The RT is defined as the time from picture onset to movement onset. Force is defined as the peak acceleration in the correct direction during a trial, standardized within participant by dividing every individual’s measurement of force by the participant-specific standard deviation. Separately for approach and avoidance trials as well as for sessions, the RT and the force will be averaged across the four AAT blocks for each specific food stimulus. For objects, we will also average across the different stimuli. The average approach or avoid response for objects on a session will be subtracted from stimulus-specific food approach or avoidance response on that session to achieve food-specific *single-difference* approach and avoidance scores according to these formulas:

$$\text{Stimulus-specific approach} = [\text{food-specific approach}] - [\text{average object approach}]$$

$$\text{Stimulus-specific avoidance} = [\text{food-specific avoidance}] - [\text{average object avoidance}]$$

Double-difference scores will be used as a full bias score per food stimulus and session, according to the formula: $([\text{food-specific avoidance}] - [\text{food-specific approach}]) - ([\text{average object avoidance}] - [\text{average object approach}])$.

² The function *sample* randomly outputs the number “1” or “2” which correspond to the conditions.

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3 *Secondary outcomes.* Dietary intentions are measured according to the outlined EMA
4 schedule.
5

6 **Data analysis plan**
7

8 Data analysis will serve to investigate a series of research questions relating to different aspects of
9 the study. In this section we will provide a brief description. Full details on the data analysis,
10 including the exact multilevel analysis formulas, are available in the pre-registration at
11 <https://osf.io/yn7kt>.
12

13 *Data exclusion.* For analyses regarding the effectiveness of the AAI, we exclude participants
14 who did not conduct any of the AATs during the intervention phase, as we regard them as “not
15 treated”. For the remaining participants, sensitivity analyses are performed to test whether the
16 number of completed training sessions affects intervention effectiveness. For analyses of approach
17 bias, we exclude error trials and trials with RTs that deviate more than +/-3SD from the individual
18 mean of the participant in that AAT session. If more than 25% of trials must be excluded based on
19 these criteria, the whole AAT session is excluded from further analysis. This post-hoc session
20 exclusion does not affect whether a participant is counted as “not treated” or not in the analyses
21 regarding the effectiveness of the AAI.
22

23 *Overall intervention effectiveness.* The first set of research questions relates to the
24 effectiveness of the intervention as compared to the control condition from pre- to post-training. To
25 this end, we use multilevel models to predict intake of trained “increase” and “decrease” foods as a
26 function of timepoint (three days pre- vs post-intervention), condition (intervention vs control), and
27 their interaction. Equivalent models test the intervention effect on approach biases towards - and
28 craving for - the two food categories. To test to what degree the effect of the training intervention is
29 specific to trained foods, we then use data from trained and untrained stimuli and add a variable
30 that indicates whether a food appeared in the training or not (trained vs untrained) and all
31 interaction terms to the model. This is followed up with tests to determine whether changes in the
32 approach bias are mainly driven by changes in approach- or avoidance RTs. We further test the
33 moderating role of intentions, baseline stimulus craving, and person-level variables obtained from
34 the questionnaires, as well as contingency awareness and expectancy by adding the relevant
35 variable and its interaction terms to the equations. Finally, we examine the mediating effect of
36 craving for changes in intake.
37

38 *Immediate intervention effectiveness.* The second set of research questions concerns the
39 short-term effects of the intervention during the intervention phase (days 5-16). Multilevel models
40 predicting food intake and cravings, respectively, include the factors group (intervention vs control)
41 and (off-)training day (training day vs no training day) as predictors. In another pair of multilevel
42 models, we use group and the number of days since the beginning of the intervention and their
43 interaction as predictors of craving and food intake, respectively. The force applied during the
44 training is used as a predictor for the change in craving and intake from before the start of the
45 training.
46

47 *Trait and state components of approach bias.* The third set of research questions relates to
48 the state and trait components of approach bias and is examined within the control group only. This
49 is because only participants in the control group receive measurement AATs throughout the study
50 period. Multilevel models test whether bias size and negative emotions are related on both a
51 between-subjects and a within-subjects level and to what degree this depends on the strength of the
52 desire for these foods. A separate model tests equivalent research questions for the relation
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3 between bias strength and craving, as well as bias strength and intake, respectively. The latter
4 analyses testing how bias strength is related to subsequent food intake are expanded by including
5 trait and day-level impulsivity and day-level intentions of regulating food intake.
6

7 **Patient and public involvement**
8

9 Patients and the public are not involved in study design, data collection, data analysis, or
10 dissemination.
11

12 **Ethics, dissemination, and data handling.**
13

14 The study has received ethical approval from the ethics board of the University of Salzburg and is
15 conducted in accordance with the declaration of Helsinki. Results of the trial will be disseminated
16 through a series of articles in appropriate scientific journals and conference presentations.
17

18 Data is handled confidentially and stored in a pseudonymized manner. Neither m-path nor
19 the AAT application collect personal data but work through three-digit identification codes assigned
20 to participants. The identification key linking personal data to the identification codes will be kept in
21 password-protected files separately from the pseudonymized data and will be destroyed one year
22 after termination of the study. Deidentified data will be archived for at least ten years and consent
23 forms as documentation of participation will be archived for 30 years. The deidentified data will be
24 made public on the Open Science Framework after the completion of planned publications.
25
26

Contributorship statement

MBA: conceptualisation, methodology, writing first draft of the protocol, revising the protocol.
HvA: conceptualisation, methodology, analysis plan, reviewing drafts of the protocol. SK:
conceptualisation, methodology, analysis plan, reviewing drafts of the protocol. JB:
conceptualisation, methodology, supervision, reviewing drafts of the protocol. All authors read and
approved the final version of the protocol.

Competing interests

All authors report no competing interests.

Funding

This work was supported by the Austrian Science Fund FWF grant number P 34542-B. Sercan Kahveci
and Hannah van Alebeek were supported by the Doctoral College “Imaging the Mind” (FWF; W1233-
B). Hannah van Alebeek was additionally supported by the project: Mapping neural mechanisms of
appetitive behaviour (FWF; KLI762-B). The funder plays no role in the study design; collection,
management, analysis, and interpretation of data; writing of the report; and the decision to submit
the report for publication.

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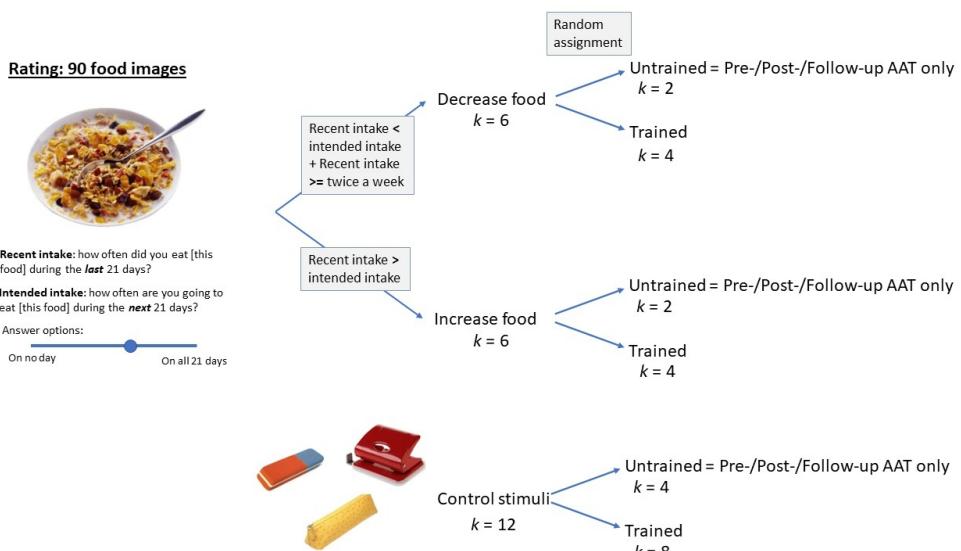
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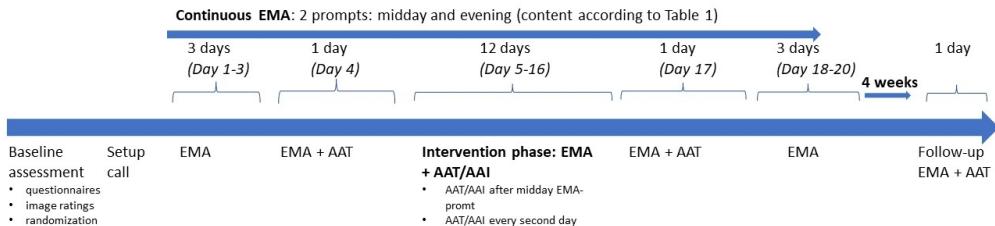
Selection of food personal food stimuli.

338x190mm (96 x 96 DPI)



Illustration of the task. On approach trials, participants move the phone closer to themselves (central image), on avoidance trials, they move it away from themselves (Figure reproduced from Zech et al., 2020).

274x89mm (120 x 120 DPI)



Time schedule of the whole study period.

338x110mm (96 x 96 DPI)

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3 **Supplementary material for the manuscript “Study protocol for a Randomized-Controlled Trial to**
4 **Test the Effectiveness of a Mobile Approach Avoidance Intervention and to Measure Approach**
5 **Biases in an EMA context”**
6

7 In this study, 219 valid German-speaking participants performed a single-session online
8 approach-avoidance training where they were trained to avoid chocolate and approach fruit;
9 their approach biases towards chocolate and fruit were measured before and after.
10 Participants performed one of two variants of the AAT, both as a training and as an approach
11 bias measurement. The irrelevant-feature AAT involved moving stimuli towards or away
12 from oneself on the basis of the shape of a frame around them. The dual-feature AAT
13 involved moving stimuli towards or away from oneself on the basis of the combination of
14 stimulus content and frame type, such that one of the frames meant that foods were
15 approached and objects avoided, while the other frame meant that foods were avoided and
16 objects approached. Half of all participants in each training group received active training,
17 and the other half received sham training. The pre- and post-training approach bias
18 measurements each included 112 trials, of which half involved trained stimuli and half
19 untrained stimuli, and in which all stimulus categories were approached and avoided equally
20 often. The training involved 224 trials, of which 64 featured fruit stimuli, 64 featured
21 chocolate stimuli, and 96 featured object stimuli. Control stimuli were always approached
22 and avoided equally often. In the sham trainings, chocolate and fruit stimuli were
23 approached and avoided equally often as well (32 times each). In the active training,
24 chocolate stimuli were approached 56 times and avoided 8 times; vice versa for fruit stimuli.
25 Our power analysis focused on the effect of the dual-feature AAT training on approach
26 biases towards trained fruit stimuli. This training included 52 participants in the active
27 training condition and 55 participants in the sham training condition.
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Supplementary Table 1: Statistical power for a range of effect sizes and sample sizes.

Sample size	Effect size (Hedges' g)										
	.28	.36	.43	.5	.57	.65	.72	.79	.86	.93	.1.01
80	.19	.28	.38	.52	.64	.72	.82	.90	.94	.98	.98
90	.24	.34	.43	.58	.70	.76	.89	.94	.96	.96	.99
100	.17	.32	.46	.65	.69	.83	.86	.94	.98	.98	1
110	.24	.42	.57	.66	.82	.85	.92	.97	.99	1	1
120	.23	.41	.62	.66	.81	.89	.94	.97	1	1	.99
130	.34	.36	.62	.78	.86	.90	.97	.99	.99	1	.99
140	.32	.49	.56	.77	.88	.97	.97	.99	1	.99	1
150	.36	.52	.63	.78	.88	.94	.97	1	1	1	1
160	.35	.57	.68	.82	.90	.96	.98	.99	.99	1	1
170	.41	.54	.72	.83	.92	.97	.98	.99	1	1	1
180	.37	.54	.70	.90	.92	.98	.99	.99	1	1	1



1 2 3 4 **Teil A: Zahlencode**

5 **A1. Bitte geben Sie hier Ihren Zahlencode aus der Mail ein:**



1 2 **Teil B: Demografische Variablen**

3
4 Bitte beantworten Sie zunächst einige Fragen zu Ihrer Person.

5
6 Leider keine Teilnahme möglich

7 Eine der Apps, die für die Studie benötigt wird, funktioniert momentan nur mit Android-Betriebssystemen. Deshalb können Sie leider ohne ein entsprechendes Smartphone nicht an der
8 Studie teilnehmen. Falls Sie an einer anderen psychologischen Studie teilnehmen wollen, finden Sie eine Studienliste unserer Abteilung auf dieser Seite:
9 <https://sites.google.com/site/eatingandxietylab/mitmachen>

10 Sie können diesen Fragebogen jetzt schließen.

11 Leider keine Teilnahme möglich

12 Leider erfüllen Sie nicht die Einschlusskriterien für diese Studie. Falls Sie an einer anderen psychologischen Studie teilnehmen wollen, finden Sie eine Studienliste unserer Abteilung auf
13 dieser Seite: <https://sites.google.com/site/eatingandxietylab/mitmachen>

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17 dieser Seite: <https://sites.google.com/site/eatingandxietylab/mitmachen>

18 Sie können diesen Fragebogen jetzt schließen.

19
20 **B1. Um an der Studie teilnehmen zu können, benötigen Sie ein Smartphone mit einem Android-Betriebssystem. Bitte
21 geben Sie daher hier die auf Sie passende Antwort an:**

22 Ich habe ein Smartphone mit Android-Betriebssystem zur Verfügung (ein eigenes, oder für die Dauer der Studie aus meinem Umfeld organisiert).

23 Ich habe kein Smartphone mit Android-Betriebssystem, wäre aber bereit, mir für die Studie eines von der Uni Salzburg auszuleihen.

24 Ich habe kein Smartphone mit Android-Betriebssystem zur Verfügung und wäre nicht bereit, mir für die Studie eines von der Uni Salzburg auszuleihen.

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26 **B2. Bitte geben Sie Ihr Alter an.**

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												<p>6/bmjopen-2022-070443 on 25 April 2023. Downloaded from http://bmjopen.bmjjournals.org/ on April 25, 2024 by guest. Protected by copyright.</p>																																	
B3. Bitte geben Sie Ihr Geschlecht an.												<input type="checkbox"/> weiblich <input type="checkbox"/> männlich <input type="checkbox"/> divers																																	
B4. Sind Sie schwanger?												<input type="checkbox"/> Ja <input type="checkbox"/> Nein																																	
B5. Bitte wählen Sie alle auf Sie zutreffenden Optionen bezüglich Ihres Menstruationszyklus und/oder das von Ihnen aktuell verwendete Verhütungsmittel aus.												<input type="checkbox"/> Trifft nicht zu <input type="checkbox"/> Natürlicher Menstruationszyklus <input type="checkbox"/> Verwendung der Kupferspirale, Kupferkette, Goldspirale <input type="checkbox"/> Verwendung der Hormonspirale <input type="checkbox"/> Verwendung der Pille <input type="checkbox"/> Verwendung der Pille, die IMMER eingenommen wird <input type="checkbox"/> Dreimonatsspritze <input type="checkbox"/> Hormonimplantat <input type="checkbox"/> Verhütungspflaster <input type="checkbox"/> Hormonersatztherapie <input type="checkbox"/> Menopause																																	

Sonstiges
Sonstiges

11 **B6. Bitte geben Sie den Starttag Ihrer letzten Menstruation an.**

<input type="text"/>														
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15 **B7. Bitte geben Sie den Starttag Ihrer vorletzten Menstruation an.**

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19 **B8. Bitte geben Sie den Starttag Ihrer drittletzten Menstruation an.**

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B9. Bitte tragen Sie Ihre Nationalität ein.



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2 **B10. Was ist Ihr höchster erreichter Bildungsabschluss?**

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- Ohne Schulabschluss
- Hauptschulabschluss
- abgeschlossene Lehre
- mittlere Reife
- Abitur / Matura
- abgeschlossenes Bachelorstudium
- abgeschlossenes Masterstudium
- Sonstiges ▾

Sonstiges



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B11. Welcher Berufsgruppe gehören Sie an?

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B12. Wie ernähren Sie sich?

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- Vegan (Ernährung ohne von Tieren stammenden Nahrungsmittel)
- Vegetarisch (fleisch- und fischfreie Ernährung)
- Pescetarisch (fleisch- aber nicht fischfreie Ernährung)
- Omnivor (kein Nahrungsmittelverzicht)
- Sonstiges

Sonstiges

Sonstiges



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B13. Bitte geben Sie Ihre aktuelle Körpergröße an.

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Angabe in Zentimetern.

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B14. Bitte geben Sie Ihr aktuelles Gewicht an.

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Angabe in Kilogramm.

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B15. Haben Sie eine Nahrungsmittelunverträglichkeit?

Ja

Nein

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B16. Welche Nahrungsmittelunverträglichkeit haben Sie?

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B17. Haben Sie aktuell (d.h. innerhalb der letzten 12 Wochen) eine diagnostizierte Essstörung?

Ja

Nein

29 30 **Teil C: Konsumziele 1/9**

31 Auf den nächsten 9 Seiten bekommen Sie Bilder von insgesamt 90 Nahrungsmitteln angezeigt und die Aufforderung, jeweils Ihren vergangenen und zukünftigen Konsum der abgebildeten
32 Nahrungsmittel anzugeben. Die Anpassung der Studie auf Ihre Ernährungsziele erfolgt aufgrund Ihrer Antworten in diesem Teil des Fragebogens. Für eine möglichst gute Individualisierung
33 ist es daher wichtig, dass Sie die Fragen möglichst genau beantworten.

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C1. Erdnussflips

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An wie vielen Tagen haben Sie in den letzten drei Wochen Erdnussflips gegessen? an keinem Tag an allen 21 Tagen

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Erdnussflips essen? an keinem Tag an allen 21 Tagen

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**C2. gemischtes Müsli**

An wie vielen Tagen haben Sie in den letzten drei Wochen gemischtes Müsli gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen gemischtes Müsli essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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C3. Nussmischung

An wie vielen Tagen haben Sie in den letzten drei Wochen Studentenfutter gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Studentenfutter essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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C4. Fisch

An wie vielen Tagen haben Sie in den letzten drei Wochen Fisch gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Fisch essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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C5. salziger Snackmix

An wie vielen Tagen haben Sie in den letzten drei Wochen salzigen Snackmix gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen salzigen Snackmix essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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C6. Pizza

An wie vielen Tagen haben Sie in den letzten drei Wochen Pizza gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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1
2 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Pizza essen?lan keinem Taglan allen 21 Tagen
3
4

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5 **C7. Honig**
6
78 An wie vielen Tagen haben Sie in den letzten drei Wochen Honig gegessen?lan keinem Taglan allen 21 Tagen
9
10

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11 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Honig essen?lan keinem Taglan allen 21 Tagen
12

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13 **C8. Chicken Nuggets**
14
1516 An wie vielen Tagen haben Sie in den letzten drei Wochen Chicken Nuggets gegessen?lan keinem Taglan allen 21 Tagen
17
18

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19 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Chicken Nuggets essen?lan keinem Taglan allen 21 Tagen
20
21

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22 **C9. Tofu**
23
2425 An wie vielen Tagen haben Sie in den letzten drei Wochen Tofu gegessen?lan keinem Taglan allen 21 Tagen
26
27

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28 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Tofu essen?lan keinem Taglan allen 21 Tagen
29

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30 **C10. Paprika**
31
3233 An wie vielen Tagen haben Sie in den letzten drei Wochen Paprika gegessen?lan keinem Taglan allen 21 Tagen
34
35

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36 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Paprika essen?lan keinem Taglan allen 21 Tagen
37
38

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1 2 3 4 **Teil D: Konsumziele 2/9**

5 **D1. Tee**

6
7
8
An wie vielen Tagen haben Sie in den letzten drei Wochen Tee getrunken? (an keinem Tag an allen 21 Tagen)

.....
.....

9
10
11
12 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Tee trinken? (an keinem Tag an allen 21 Tagen)

.....
.....

13 **D2. Fischstäbchen**

14
15
16
17 An wie vielen Tagen haben Sie in den letzten drei Wochen Fischstäbchen gegessen? (an keinem Tag an allen 21 Tagen)

.....
.....

18
19
20
21 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Fischstäbchen essen? (an keinem Tag an allen 21 Tagen)

.....
.....

22 **D3. Pilze**

23
24
25
26 An wie vielen Tagen haben Sie in den letzten drei Wochen Pilze gegessen? (an keinem Tag an allen 21 Tagen)

.....
.....

27
28
29 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Pilze essen? (an keinem Tag an allen 21 Tagen)

.....
.....

31 **D4. salziges Gebäck**

32
33
34
35 An wie vielen Tagen haben Sie in den letzten drei Wochen salziges Gebäck gegessen? (an keinem Tag an allen 21 Tagen)

.....
.....

36
37
38 An wie vielen Tagen wollen Sie in den nächsten drei Wochen salziges Gebäck essen? (an keinem Tag an allen 21 Tagen)

.....
.....

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**D5. Gurke**

An wie vielen Tagen haben Sie in den letzten drei Wochen Gurke gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Gurke essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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D6. Quinoa

An wie vielen Tagen haben Sie in den letzten drei Wochen Quinoa gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Quinoa essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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D7. Kartoffelbrei

An wie vielen Tagen haben Sie in den letzten drei Wochen Kartoffelbrei gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Kartoffelbrei essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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D8. Schokonüsse

An wie vielen Tagen haben Sie in den letzten drei Wochen Schokonüsse gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Schokonüsse essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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D9. Hummus

An wie vielen Tagen haben Sie in den letzten drei Wochen Hummus gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Hummus essen? (an keinem Tagplan allen 21 Tagen)

2022-0

D10. Kiwi

An wie vielen Tagen haben Sie in den letzten drei Wochen Kiwi gegessen? (an keinem Tag/auf allen 21 Tagen)

April 2

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Kiwi essen? an keinem Tag an allen 21 Tagen

2023. □

Teil E: Konsumziele 3/9

E1. Lasagne

An wie vielen Tagen haben Sie in den letzten drei Wochen Lasagne gegessen? (an keinem Tag/auf allen 21 Tagen)

open..

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Lasagne essen? (an keinem Tag an allen 21 Tagen)

www.mj.com

E2. Nüsse im Teigmantel

An wie vielen Tagen haben Sie in den letzten drei Wochen Nüsse im Teigmantel gegessen? an keinem Tag an allen 21 Tagen

2024 |

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Nüsse im Teigmantel essen? an keinem Tag an allen 21 Tagen

guess

E3. Zucchini

An wie vielen Tagen haben Sie in den letzten drei Wochen Zucchini gegessen? an keinem Tag/aan allen 21 Tagen

by copy

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Zucchini essen? (an keinem Tag an allen 21 Tagen)

right.



E4. Wassereis

An wie vielen Tagen haben Sie in den letzten drei Wochen Wassereis gegessen? (an keinem Tag/aus allen 21 Tagen)

443 0

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Wassereis essen? an keinem Tag an allen 21 Tagen

1
25 A

E5. Linsen

An wie vielen Tagen haben Sie in den letzten drei Wochen Linsen gegessen? an keinem Tag/aan allen 21 Tagen

winload

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Linsen essen? an keinem Tag an allen 21 Tagen

E6. Avocado

An wie vielen Tagen haben Sie in den letzten drei Wochen Avocado gegessen? an keinem Tag an allen 21 Tagen

en.bm

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Avocado essen? (an keinem Tag/ an allen 21 Tagen)

j.com/

E7. Möhren

An wie vielen Tagen haben Sie in den letzten drei Wochen Möhren gegessen? an keinem Tag an allen 21 Tagen

2024 by

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Möhren essen? an keinem Tag an allen 21 Tagen

gues

E8. Cappuccino

An wie vielen Tagen haben Sie in den letzten drei Wochen Cappuccino getrunken? (an keinem Tag an allen 21 Tagen)

copyrig



An wie vielen Tagen wollen Sie in den nächsten drei Wochen Cappuccino trinken? an keinem Tag an allen 21 Tagen

2022-0

An wie vielen Tagen haben Sie in den letzten drei Wochen Cracker gegessen?lan keinem Taglan allen 21 Tagen

April 2

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Cracker essen? (an keinem Tag) an allen 21 Tagen

023. D

E10. Milch

An wie vielen Tagen haben Sie in den letzten drei Wochen Milch getrunken? (an keinem Tag/aus allen 21 Tagen)

om ht

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Milch trinken? (an keinem Tag/auf allen 21 Tagen)

www.mq.com

Teil F: Konsumziele 4/9

F1. Karamellriegel

An wie vielen Tagen haben Sie in den letzten drei Wochen Karamellriegel gegessen? an keinem Tag/a) allen 21 Tagen

2024

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Karamellriegel essen? (an keinem Tag/an allen 21 Tagen)

y que:

F2. Marmelade

An wie vielen Tagen haben Sie in den letzten drei Wochen Marmelade gegessen? [an keinem Tag/auf allen 21 Tagen]

by cop

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Marmelade essen? (an keinem Tag an allen 21 Tagen)

right.



F3. Frühlingsrollen

An wie vielen Tagen haben Sie in den letzten drei Wochen Frühlingsrollen gegessen? (an keinem Tag/aus allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Frühlingsrollen essen? an keinem Tag an allen 21 Tagen

1
25 A

F4. Butter

An wie vielen Tagen haben Sie in den letzten drei Wochen Butter gegessen? an keinem Tag an allen 21 Tagen

wnload

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Butter essen? an keinem Tag an allen 21 Tagen

ed from

F5. Mandarine/ Orange

An wie vielen Tagen haben Sie in den letzten drei Wochen Mandarine/ Orange gegessen?lan keinem Taglan allen 21 Tagen

en bme

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Mandarine/ Orange essen? an keinem Tag an allen 21 Tagen

www.jj.com/

F6. Müsliriegel

An wie vielen Tagen haben Sie in den letzten drei Wochen Müsliriegel gegessen? (an keinem Tag/an allen 21 Tagen)

24 by

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Müsliriegel essen? (an keinem Tag/auf allen 21 Tagen)

guest.....

F7. Weingummis

An wie vielen Tagen haben Sie in den letzten drei Wochen Weingummis gegessen? (an keinem Tag) an allen 21 Tagen

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1
2 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Weingummis essen? (an keinem Tag an allen 21 Tagen)
3

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4
5 **F8. Schnitzel**
67
8 An wie vielen Tagen haben Sie in den letzten drei Wochen Schnitzel gegessen? (an keinem Tag an allen 21 Tagen)
9

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10
11 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Schnitzel essen? (an keinem Tag an allen 21 Tagen)
12

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13
14 **F9. Chips**
1516
17 An wie vielen Tagen haben Sie in den letzten drei Wochen Chips gegessen? (an keinem Tag an allen 21 Tagen)
18

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19
20 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Chips essen? (an keinem Tag an allen 21 Tagen)
21

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22
23 **F10. Gemüsesuppe**
2425
26 An wie vielen Tagen haben Sie in den letzten drei Wochen Gemüsesuppe gegessen? (an keinem Tag an allen 21 Tagen)
27

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28
29 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Gemüsesuppe essen? (an keinem Tag an allen 21 Tagen)
30

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31 **Teil G: Konsumziele 5/9**
3233
34 **G1. Ei**
3536
37 An wie vielen Tagen haben Sie in den letzten drei Wochen Eier (in jeglicher Zubereitungsform) gegessen? (an keinem Tag an allen 21 Tagen)
38

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39
40 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Eier (in jeglicher Zubereitungsform) essen? (an keinem Tag an allen 21 Tagen)
41

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G2. Tortellini

An wie vielen Tagen haben Sie in den letzten drei Wochen Tortellini gegessen? an keinem Tag an allen 21 Tagen

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Tortellini essen? an keinem Tag an allen 21 Tagen

1
25 A

G3. Bratwurst

An wie vielen Tagen haben Sie in den letzten drei Wochen Bratwurst gegessen? an keinem Tag an allen 21 Tagen

wnload

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Bratwurst essen?lan keinem Taglan allen 21 Tagen

ed from

G4. Schokoladencornflakes

An wie vielen Tagen haben Sie in den letzten drei Wochen Schokoladencornflakes gegessen? (an keinem Tag/auf allen 21 Tagen)

en bme

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Schokoladencornflakes essen? an keinem Tag an allen 21 Tagen

www.IELT.com/

G5. Hähnchenfleisch

An wie vielen Tagen haben Sie in den letzten drei Wochen Hähnchenfleisch gegessen? (an keinem Tag/auf allen 21 Tagen)

24 by

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Hähnchenfleisch essen? an keinem Tag an allen 21 Tagen

guest.

G6. Softdrinks

An wie vielen Tagen haben Sie in den letzten drei Wochen Softdrinks getrunken? an keinem Tag an allen 21 Tagen

copyr

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Softdrinks trinken? (an keinem Tag/ an allen 21 Tagen)

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An wie vielen Tagen haben Sie in den letzten drei Wochen Popcorn gegessen? an keinem Tag an allen 21 Tagen

April 2

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Popcorn essen? (an keinem Tag) an allen 21 Tagen

023. □

G7. Popcorn

An wie vielen Tagen haben Sie in den letzten drei Wochen Popcorn gegessen? an keinem Tag an allen 21 Tagen

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Popcorn essen? (an keinem Tag) an allen 21 Tagen

G8. Pfannkuchen/ Palatschinken

An wie vielen Tagen haben Sie in den letzten drei Wochen Pfannkuchen/ Palatschinken gegessen? an keinem Tag an allen 21 Tagen

om ht

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Pfannkuchen/ Palatschinken essen? an keinem Tag an allen 21 Tagen

www.mq.com

G9. Banane

An wie vielen Tagen haben Sie in den letzten drei Wochen Banane gegessen? An keinem Tag/a) allen 21 Tagen

u /u/ oo

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Banane essen? (an keinem Tag/auf allen 21 Tagen)

April 9,

G10. Käse

An wie vielen Tagen haben Sie in den letzten drei Wochen Käse gegessen? (an keinem Tag an allen 21 Tagen)

t. Prot.

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Käse essen? (an keinem Tag an allen 21 Tagen)

ected to



Teil H: Konsumziele 6/9

H1. Knödel

An wie vielen Tagen haben Sie in den letzten drei Wochen Knödel gegessen? (an keinem Tag/aus allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Knödel essen? an keinem Tag an allen 21 Tagen

23. Dokumentation

H2. Pralinen

An wie vielen Tagen haben Sie in den letzten drei Wochen Pralinen gegessen? (an keinem Tag/auf allen 21 Tagen)

<http://>

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Pralinen essen? (an keinem Tag an allen 21 Tagen)

//bmjo

H3. Burger

An wie vielen Tagen haben Sie in den letzten drei Wochen Burger gegessen? An keinem Tag/an allen 21 Tagen

on April 1, 2013.

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Burger essen? (an keinem Tag allein 21 Tagen)

H4. Weintrauben

An wie vielen Tagen haben Sie in den letzten drei Wochen Weintrauben gegessen? (an keinem Tag/aus allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Weintrauben essen? an keinem Tag an allen 21 Tagen

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H5. Gnocchi

An wie vielen Tagen haben Sie in den letzten drei Wochen Gnocchi gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Gnocchi essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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H6. Pommes

An wie vielen Tagen haben Sie in den letzten drei Wochen Pommes gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Pommes essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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H7. Waffeln

An wie vielen Tagen haben Sie in den letzten drei Wochen Waffeln gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Waffeln essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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H8. Käsespätzle

An wie vielen Tagen haben Sie in den letzten drei Wochen Käsespätzle gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Käsespätzle essen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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H9. Speiseeis

An wie vielen Tagen haben Sie in den letzten drei Wochen Speiseeis gegessen? (an keinem Tag an allen 21 Tagen)

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Speiseeis essen? (an keinem Tag) an allen 21 Tagen

022-0

H10. Sushi

An wie vielen Tagen haben Sie in den letzten drei Wochen Sushi gegessen? (an keinem Tag) an allen 21 Tagen

April 2

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Sushi essen? an keinem Tag an allen 21 Tagen

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Teil I: Konsumziele 7/9

II. Äpfel

An wie vielen Tagen haben Sie in den letzten drei Wochen Äpfel gegessen? (an keinem Tag an allen 21 Tagen)

...jøren

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Äpfel essen? An keinem Tag an allen 21 Tagen

mj.co

I2. Salat

An wie vielen Tagen haben Sie in den letzten drei Wochen Salat gegessen?lan keinem Taglan allen 21 Tagen

2024

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Salat essen? an keinem Tag/a) allen 21 Tagen

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I3. Fruchtsaft

An wie vielen Tagen haben Sie in den letzten drei Wochen Fruchtsaft getrunken? (an keinem Tag/an allen 21 Tagen)

by copy

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Fruchtsaft trinken? (an keinem Tag/auf allen 21 Tagen)

right...

1 **I4. Kartoffeln**2
3
4 An wie vielen Tagen haben Sie in den letzten drei Wochen Kartoffeln gegessen? (an keinem Tag an allen 21 Tagen)

<input type="checkbox"/>																					
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5
6 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Kartoffeln essen? (an keinem Tag an allen 21 Tagen)

<input type="checkbox"/>																					
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9 **I5. Leberkäse**10
11 An wie vielen Tagen haben Sie in den letzten drei Wochen Leberkäse gegessen? (an keinem Tag an allen 21 Tagen)

<input type="checkbox"/>																					
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12
13 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Leberkäse essen? (an keinem Tag an allen 21 Tagen)

<input type="checkbox"/>																					
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18 **I6. Nachos**19
20 An wie vielen Tagen haben Sie in den letzten drei Wochen Nachos gegessen? (an keinem Tag an allen 21 Tagen)

<input type="checkbox"/>																					
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21
22 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Nachos essen? (an keinem Tag an allen 21 Tagen)

<input type="checkbox"/>																					
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27 **I7. Vollmilchschokolade**28
29 An wie vielen Tagen haben Sie in den letzten drei Wochen Vollmilchschokolade gegessen? (an keinem Tag an allen 21 Tagen)

<input type="checkbox"/>																					
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30
31 An wie vielen Tagen wollen Sie in den nächsten drei Wochen Vollmilchschokolade essen? (an keinem Tag an allen 21 Tagen)

<input type="checkbox"/>																					
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35 **I8. Nudeln**36
37 An wie vielen Tagen haben Sie in den letzten drei Wochen Nudeln gegessen? (an keinem Tag an allen 21 Tagen)

<input type="checkbox"/>																					
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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Nudeln essen? an keinem Tag an allen 21 Tagen

022-0

I9. Nougatcreme

An wie vielen Tagen haben Sie in den letzten drei Wochen Nougatcreme gegessen?lan keinem Taglan allen 21 Tagen

April 2

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Nougatcreme essen? an keinem Tag an allen 21 Tagen

23. D

I10. Wraps

An wie vielen Tagen haben Sie in den letzten drei Wochen Wraps gegessen? an keinem Tag an allen 21 Tagen

com <http://www.english-test.net>

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Wraps essen?lan keinem Taglan allen 21 Tagen

<http://bmj.com>

Teil J: Konsumziele 8/9

J1. Kekse

An wie vielen Tagen haben Sie in den letzten drei Wochen Kekse gegessen? (an keinem Tag) an allen 21 Tagen

2024 | Page

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Kekse essen? an keinem Tag an allen 21 Tagen

My guess is _____.

J2. Beerentelling

An wie vielen Tagen haben Sie in den letzten drei Wochen Beeren gegessen? (an keinem Tag/aus allen 21 Tagen)

by copy

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Beeren essen? (an keinem Tag an allen 21 Tagen)

right.



J3. Ofenbaguette

An wie vielen Tagen haben Sie in den letzten drei Wochen Ofenbaguette gegessen? (an keinem Tag/aus allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Ofenbaguette essen? (an keinem Tag an allen 21 Tagen)

J4. Muffin

An wie vielen Tagen haben Sie in den letzten drei Wochen Muffins gegessen? (an keinem Tag/auf allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Muffins essen? an keinem Tag an allen 21 Tagen

J5. süßes Gebäck

An wie vielen Tagen haben Sie in den letzten drei Wochen süßes Gebäck gegessen? (an keinem Tag/aus allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen süßes Gebäck essen? (an keinem Tag/aus allen 21 Tagen)

J6. Wurst

An wie vielen Tagen haben Sie in den letzten drei Wochen Wurst gegessen? (an keinem Tag/auf allen 21 Tagen)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Wurst essen? an keinem Tag/a) allen 21 Tagen

J7. Kuchen

An wie vielen Tagen haben Sie in den letzten drei Wochen Kuchen gegessen? (an keinem Tag/aus allen 21 Tagen)

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Kuchen essen? an keinem Tag an allen 21 Tagen

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J8. Kichererbsen

An wie vielen Tagen haben Sie in den letzten drei Wochen Kichererbsen gegessen? (an keinem Tag) an allen 21 Tagen

April 2

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Kichererbsen essen? an keinem Tag an allen 21 Tagen

23. D

J9. Bitterschokolade

An wie vielen Tagen haben Sie in den letzten drei Wochen Bitterschokolade gegessen? (an keinem Tag/a) allen 21 Tagen

com <http://www.english-test.net>

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Bitterschokolade essen? an keinem Tag an allen 21 Tagen

<http://bmj.com>

J10. Bratnudeln

An wie vielen Tagen haben Sie in den letzten drei Wochen Bratnudeln gegessen? (an keinem Tag/aus allen 21 Tagen)

W on *A*

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Bratnudeln essen?lan keinem Taglan allen 21 Tagen

April 9, 2012

Teil K: Konsumziele 9/9

K1. Baguette

An wie vielen Tagen haben Sie in den letzten drei Wochen Baguette gegessen? an keinem Tag an allen 21 Tagen

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Baguette essen? (an keinem Tag an allen 21 Tagen)

right.



K2. Döner

An wie vielen Tagen haben Sie in den letzten drei Wochen Döner gegessen? (an keinem Tag/auf allen 21 Tagen)

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Döner essen? (an keinem Tag/auf allen 21 Tagen)

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K3. Toast

An wie vielen Tagen haben Sie in den letzten drei Wochen Toast gegessen? (an keinem Tag/aus allen 21 Tagen)

wnload

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Toast essen? (an keinem Tag/an allen 21 Tagen)

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K4. Rindfleisch

An wie vielen Tagen haben Sie in den letzten drei Wochen Rindfleisch gegessen? an keinem Tag an allen 21 Tagen

en.bm

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Rindfleisch essen? an keinem Tag an allen 21 Tagen

j.com/

K5. Joghurt

An wie vielen Tagen haben Sie in den letzten drei Wochen Joghurt gegessen? (an keinem Tag an allen 21 Tagen)

24 by

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Joghurt essen? an keinem Tag an allen 21 Tagen

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uest.

K6. Schokoladenwaffeln

An wie vielen Tagen haben Sie in den letzten drei Wochen Schokoladenwaffeln gegessen? (an keinem Tag an allen 21 Tagen)

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An wie vielen Tagen wollen Sie in den nächsten drei Wochen Schokoladenwaffeln essen? an keinem Tag an allen 21 Tagen

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K7. Fleischpflanzerl/ Fleischfrikadellen

An wie vielen Tagen haben Sie in den letzten drei Wochen Fleischpflanzerl/ Fleischfrikadellen gegessen? an keinem Tag an allen 21 Tagen

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Fleischpflanzer/ Fleischfrikadellen essen? an keinem Tag an allen 21 Tagen

b23. D

K8. Gemüselaibchen/ Gemüsefrikadellen

An wie vielen Tagen haben Sie in den letzten drei Wochen Gemüseläbchen/ Gemüsefrikadellen gegessen? an keinem Tag an allen 21 Tagen

on [ht](#)

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Gemüseläbchen/ Gemüsefrikadellen essen? an keinem Tag an allen 21 Tagen

<http://bmj.com>

K9. Vollkornbrot

An wie vielen Tagen haben Sie in den letzten drei Wochen Vollkornbrot gegessen? an keinem Tag/a) allen 21 Tagen

/n/
on,

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Vollkornbrot essen? (an keinem Tag/auf allen 21 Tagen)

April 9,

K10. Schokoladenriegel

An wie vielen Tagen haben Sie in den letzten drei Wochen Schokoladenriegel gegessen? (an keinem Tag/auf allen 21 Tagen)

1. Project

An wie vielen Tagen wollen Sie in den nächsten drei Wochen Schokoladenriegel essen? an keinem Tag an allen 21 Tagen

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1
2 **Vielen Dank für Ihre Teilnahme an der ersten Befragung. Wir werden die erhobenen Daten zu Ihren Konsumzielen nun**
3 **auswerten und uns bei Ihnen melden, um Sie über die weitere Studienteilnahme zu informieren und einen Termin für die**
4 **Besprechung der Hauptstudienphase zu vereinbaren.**

5
6 **Sie können dieses Fenster nun schließen.**



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Fax.: +43 / (0) 662 / 8044 - 5126

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A-5020 Salzburg – Austria

TeilnehmerInneninformation und Einwilligungserklärung

zur Teilnahme an der Studie:

,Kognitiv-Affektive Mechanismen von Essregulationstrainings‘

Interne Bezeichnung: Cognitive-affective mechanisms of food biases trainings (AAI)

Liebe/r Interessent/in,

wir laden Sie ein an der oben genannten Studie teilzunehmen.

Im Folgenden finden Sie einige Informationen, die für Sie von Bedeutung sind, wenn Sie sich für eine Teilnahme interessieren.

Bitte unterschreiben Sie diese Einverständniserklärung nur

- wenn Sie Art und Ablauf der Studie verstanden haben
- wenn Sie bereit sind, einer Teilnahme zuzustimmen und
- wenn Sie sich über Ihre Rechte als Teilnehmer im Klaren sind.

Allgemeine Informationen und Ziele der Studie

Die Ernährungspsychologie beschäftigt sich mit Grundlagen und Behandlungsmöglichkeiten von ungesunden Essensentscheidungen sowie mit Ess- und Gewichtsstörungen. Da das Verlangen nach schmackhaften Nahrungsmitteln das Essverhalten im Alltag beeinflusst, ist es wichtig, dass wir ein besseres Verständnis für diese Zusammenhänge gewinnen, auch um Abhilfe verschaffen zu können. In dieser Studie geht es speziell darum, wie automatische Annäherungstendenzen zu Essensreizen optimal erfasst werden können, was die zugrundeliegenden Mechanismen sind und wie das Annäherungsverhalten reduziert werden kann.

Ablauf der Studie

Bei Ihrer Studienteilnahme werden wir Sie bitten, verschiedene Fragebögen zum psychischen Befinden auszufüllen. Des Weiteren wird Ihre Teilnahme nachfolgende Prozeduren beinhalten:

- *Betrachten von Bildern von Nahrungsmitteln:* Sie werden verschiedene Nahrungsmittel am Bildschirm betrachten und bewerten.
- *Reaktionszeitmessung via Smartphone:* Sie werden gebeten, mit schnellen Bewegungen des Smartphones auf Bilder von Nahrungsmitteln zu reagieren.
- *Fragebögen via Smartphone:* Zweimal pro Tag werden Sie gebeten über das Smartphone verschiedene Fragen zu Ihrem momentanen Empfinden und Ihrem vergangenen Essverhalten zu beantworten.
- *Reaktionszeittraining in einer von zwei Gruppen.* Ergänzend zu den oben beschriebenen Studienteilen werden Sie zudem per Zufallsauswahl *einer von zwei Studiengruppen zugewiesen*. Aus wissenschaftlichen Gründen ist eine zufällige Gruppenzuteilung notwendig, Sie können sich also nicht eine der Gruppen aussuchen. Beide Gruppen beinhalten die Bearbeitung von Reaktionszeitaufgaben am Smartphone über mehrere Termine hinweg, jedoch unterscheidet sich die Art der Reaktionszeitaufgabe geringfügig. Am Ende der Studie erklären wir Ihnen ausführlich die Hintergründe der Trainings.

Freiwilligkeit der Teilnahme

Ihre Teilnahme an dieser Erhebung ist freiwillig. Sie können diese jederzeit, ohne Angabe von Gründen, beenden. Die Ablehnung Ihrer Teilnahme oder ein vorzeitiges Beenden kann mündlich oder schriftlich (siehe Kontaktdaten am Ende des Dokuments) erfolgen, hat keine nachteiligen Folgen und Sie werden anteilig kompensiert. Sie können Ihre Einwilligung zur Speicherung der Daten bis zum Ende der Datenerhebung widerrufen, ohne dass Ihnen daraus Nachteile entstehen.

Ausschlusskriterien

Sie können an unserer Studie teilnehmen, wenn Sie zwischen 18 und 60 Jahren alt sind und ausreichende Deutschkenntnisse besitzen, um die Instruktionen während der Studie zu verstehen. Nicht teilnehmen können außerdem Personen, die schwanger sind, in ihrer Entscheidungsfähigkeit eingeschränkt sind oder wenn eine diagnostizierte Essstörung vorliegt.

Pflichten bei einer Teilnahme

Als Studienteilnehmer/-innen werden Sie gebeten, den Anweisungen der Studienleitung so weit wie möglich zu folgen und die Fragebögen aufrichtig zu beantworten. Sollten sich während der Studie Probleme und Schwierigkeiten ergeben, informieren Sie bitte die Studienleitung darüber.

Rechte bei einer Teilnahme

Ihre Teilnahme erfolgt freiwillig und Sie können sich jederzeit, auch ohne Angabe von Gründen, aus der Studie zurückziehen, und/ oder eine Löschung der erfassten Daten verlangen, ohne dass Ihnen daraus Nachteile irgendwelcher Art entstehen.

Nutzen bei einer Teilnahme

Ihre Teilnahme an dieser Studie dient der klinisch-psychologischen Wissenschaft. Neue Erkenntnisse sollen zum besseren Verständnis der Ursachen von Überessen und starkem Verlangen nach schmackhaftem Essen beitragen. Außerdem profitieren Sie durch die Teilnahme an dem Reaktionszeittraining bezüglich Ihres

1 selbstgesteckten Ernährungsziels. Nach Studienende erhalten Sie auf Wunsch
2 ausführliche schriftliche Informationen über Sinn und Zweck der Studie sowie eine
3 individualisierte Rückmeldung und Erklärung ihrer Ergebnisse. Des Weiteren erhalten
4 Sie eine Aufwandsentschädigung.
5
6

7 **Aufwandsentschädigung**

8

9 Während wir davon ausgehen, dass Ihr Essverhalten vom Reaktionszeittraining
10 profitieren wird, entsteht durch die Beantwortung der Fragebögen jedoch zusätzlicher
11 zeitlicher Aufwand, für den wir sie finanziell kompensieren. Abhängig von der
12 Vollständigkeit ihrer Daten erhalten Sie sechs bis acht VP-Stunden beziehungsweise
13 zwischen 40 und 60 Euro.
14
15

16 **Mögliche Risiken und Unannehmlichkeiten**

17

18 Die oben beschriebenen Prozeduren sind nicht gesundheitsschädlich und
19 entsprechen wissenschaftlichen Standards. Sie können vorübergehend negative
20 physische und emotionale Empfindungen hervorrufen. Diese Empfindungen sowie
21 spätere diesbezügliche Erinnerungen sind jedoch erfahrungsgemäß vorübergehender
22 Natur. Sollten Sie unerwarteter Weise unter anhaltenden Belastungen aufgrund Ihrer
23 Studienteilnahme leiden, so melden Sie sich umgehend bei einer der unten
24 aufgeführten Kontaktpersonen.
25
26

27 **Vertraulichkeit und Schutz der Daten**

28

29 Bei den Daten ist zu unterscheiden zwischen personenbezogenen Daten, mit denen
30 Sie direkt identifizierbar sind (z.B.: Name, Telefonnummer, Adresse), und
31 pseudonymisierten (verschlüsselten) Daten, bei denen alle Informationen, die direkten
32 Rückschluss auf Ihre Identität zulassen, durch einen Teilnahmecode ersetzt werden.
33 Der ‚Schlüssel‘ (Abgleich von Pseudonym mit personenbezogenen Daten) ist nur der
34 Studienleitung zugänglich, wird nach dem Stand der Technik in passwort-geschützten
35 Dokumenten geschützt und getrennt von den verschlüsselten Datensätzen
36 aufbewahrt. Sämtliche Personen, die Zugang zu personenbezogenen Daten erhalten,
37 unterliegen im Umgang mit den Daten dem österreichischen und europäischen
38 Datenschutzrecht und sind dem Datengeheimnis verpflichtet.
39
40

41 Im Rahmen dieser Studie erfolgt die Verarbeitung von folgenden Daten:
42

- 43 - *Personenbezogenen Daten:* Name, E-mail, Telefonnummer. Diese Daten
44 erleichtern uns die Studienadministration und die Sicherstellung einer hohen
45 Datenqualität.
- 46 - *Pseudonymisierte Daten:* Alle Eingaben, die Sie über die App ‚m-Path‘ machen,
47 werden dort unter einem selbstgewählten Teilnahmecode („Pseudonym“) auf
48 Servern der Universität Leuven (Belgien) gespeichert. Ihre Daten sind also
49 innerhalb der App nicht Ihrer Person zu zuordnen. Auch die Daten in der App
50 ‚Picture Game‘ werden nur über einen pseudonymisierten Teilnahmecode
51 gespeichert und über einen Account der Studienleitung von Google firebase
52 übertragen. Für beide Apps gilt: Eine Zuordnung zu Ihrer Person ist nur mit
53 zusätzlichen Daten möglich, die ausschließlich Mitarbeitenden der PLUS
54 vorliegen (‚Schlüssel‘, siehe oben).

Ihnen steht bezüglich Ihrer bei uns gespeicherten pseudonymisierten Daten grundsätzlich das Recht auf Auskunft, Richtigstellung, Löschung und Einschränkung zu. Sie können Ihre Einwilligung auch jederzeit widerrufen. Ein Widerruf hat zur Folge, dass wir Ihre Daten ab diesem Zeitpunkt zu den oben genannten Zwecken nicht mehr verarbeiten. Für einen Widerruf wenden Sie sich bitte an die unten angeführte Studienleitung. Wenn Sie glauben, dass wir gegen datenschutzrechtliche Vorschriften verstößen, können Sie sich bei dem Datenschutzbeauftragten der Universität Salzburg (datenschutz@sbg.ac.at) oder bei einer Datenschutzbehörde beschweren. Weitere Informationen finden Sie unter www.uni-salzburg.at/impressum.

Wir weisen darauf hin, dass wissenschaftliche Publikationen geplant sind und dabei Studienergebnisse in ausschließlich anonymer Weise veröffentlicht werden.

Die personenbezogenen Daten und der zugehörige Schlüssel wird **1 Jahr nach Studienende gelöscht**. Ebenso werden alle Daten in der App zu dem Zeitpunkt gelöscht. Damit erlöschen auch ihre Möglichkeiten der Einsicht/Berichtigung/Export/Lösung dieser Daten, da wir Sie ihren Daten dann nicht mehr zuordnen können (da der ‚Schlüssel‘ gelöscht wurde). Wir behalten einzig ihren Namen und diese Einverständniserklärung als Dokumentation ihrer Studenteilnahme für **30 Jahre**.

Welche Kontaktpersonen stehen zur Verfügung?

Bei anfälligen Fragen, die während oder nach Abschluss der Studie auftreten, können Sie sich unter gesundheitspsychologie07@plus.ac.at oder der +43 677 616 767 07 melden und jederzeit an die Studienleitung wenden:

- Hannah van Alebeek, MSc., Fachbereich Psychologie, Universität Salzburg, Hellbrunnerstrasse 34, 5020 Salzburg, hannah.vanalebeek@plus.ac.at

Wir freuen uns auf die Zusammenarbeit!

Diese Studie wurde von der Ethikkommission der Universität Salzburg evaluiert.

Kontaktperson: Mag.^a Clara Gröblacher, Kapitelgasse 4, A-5020 Salzburg, Tel: +43-662-8044 2391, clara.groebacher@sbg.ac.at

Einverständniserklärung

Ich habe die oben beschriebenen Informationen vollumfänglich gelesen und verstanden.

Meine Teilnahme erfolgt freiwillig und ich weiß, dass ich mich jederzeit, auch ohne Angabe von Gründen, von der Studie zurückziehen kann, ohne dass mir daraus Nachteile irgendwelcher Art entstehen.

Ich bin bereit, an dieser Studie teilzunehmen und bin mit der Erhebung und Verwendung persönlicher Daten nach Maßgabe der TeilnehmerInneninformation einverstanden.

Ort/Datum _____

Name TeilnehmerIn _____

Unterschrift TeilnehmerIn _____

Unterschrift _____

Studienverantwortliche Person _____

1
2 **– Dieses Dokument bleibt bei der Versuchsleitung –**
3
4
5

6 **Einverständniserklärung**

7 Ich habe die oben beschriebenen Informationen vollumfänglich gelesen und verstanden.
8 Außerdem nehme ich zur Kenntnis, dass ich für Wege zum/vom Untersuchungsort, nicht
9 wege-/unfallversichert bin.

10 Meine Teilnahme erfolgt freiwillig und ich weiß, dass ich mich jederzeit, auch ohne Angabe
11 von Gründen, von der Studie zurückziehen kann, ohne dass mir daraus Nachteile
12 irgendwelcher Art entstehen.

13 *Ich bin bereit, an dieser Studie teilzunehmen und bin mit der Erhebung und Verwendung
14 persönlicher Daten nach Maßgabe der TeilnehmerInneninformation einverstanden.* Eine
15 Kopie dieser Studieninformation und Einverständniserklärung wurde mir ausgehändigt.

16 Ort/Datum _____

17 Name TeilnehmerIn _____

18 Unterschrift TeilnehmerIn _____

19 Unterschrift
20 Studienverantwortliche Person _____

1 2 Reporting checklist for protocol of a clinical trial. 3 4 5 6

7 Based on the SPIRIT guidelines.
8
9
10

11 Instructions to authors 12

13 Complete this checklist by entering the page numbers from your manuscript where readers will find
14 each of the items listed below.
15
16

17 Your article may not currently address all the items on the checklist. Please modify your text to
18 include the missing information. If you are certain that an item does not apply, please write "n/a" and
19 provide a short explanation.
20
21

22 Upload your completed checklist as an extra file when you submit to a journal.
23
24

25 In your methods section, say that you used the SPIRIT reporting guidelines, and cite them as:
26
27

28 Chan A-W, Tetzlaff JM, Gøtzsche PC, Altman DG, Mann H, Berlin J, Dickersin K, Hróbjartsson A,
29 Schulz KF, Parulekar WR, Krleža-Jerić K, Laupacis A, Moher D. SPIRIT 2013 Explanation and
30 Elaboration: Guidance for protocols of clinical trials. BMJ. 2013;346:e7586
31
32

33 Page

34 Number

35 Reporting Item

36 Administrative 37 information 38

39 Title	40 #1	41 Descriptive title identifying the study design, population, 42 interventions, and, if applicable, trial acronym	43 1
44 Trial registration	45 #2a	46 Trial identifier and registry name. If not yet registered,	47 2

		name of intended registry	
1	Trial registration: data set	#2b All items from the World Health Organization Trial Registration Data Set	n/a
2	Protocol version	#3 Date and version identifier	n/a
3	Funding	#4 Sources and types of financial, material, and other support	12
4	Roles and responsibilities: contributorship	#5a Names, affiliations, and roles of protocol contributors	12
5	Roles and responsibilities: sponsor contact information	#5b Name and contact information for the trial sponsor	1
6	Roles and responsibilities: sponsor and funder	#5c Role of study sponsor and funders, if any, in study design; collection, management, analysis, and interpretation of data; writing of the report; and the decision to submit the report for publication, including whether they will have ultimate authority over any of these activities	12
7	Roles and responsibilities: committees	#5d Composition, roles, and responsibilities of the coordinating centre, steering committee, endpoint adjudication committee, data management team, and other individuals or groups overseeing the trial, if applicable (see Item 21a for data monitoring committee)	n/a

Introduction

Background and rationale	#6a	Description of research question and justification for undertaking the trial, including summary of relevant studies (published and unpublished) examining benefits and harms for each intervention	3-5
Background and rationale: choice of comparators	#6b	Explanation for choice of comparators	3-5
Objectives	#7	Specific objectives or hypotheses	5
Trial design	#8	Description of trial design including type of trial (eg, parallel group, crossover, factorial, single group), allocation ratio, and framework (eg, superiority, equivalence, non-inferiority, exploratory)	5-7
Methods:			
Participants, interventions, and outcomes			
Study setting	#9	Description of study settings (eg, community clinic, academic hospital) and list of countries where data will be collected. Reference to where list of study sites can be obtained	5-8
Eligibility criteria	#10	Inclusion and exclusion criteria for participants. If applicable, eligibility criteria for study centres and individuals who will perform the interventions (eg,	5

		surgeons, psychotherapists)	
1	Interventions:	#11a Interventions for each group with sufficient detail to allow	6
2	description	replication, including how and when they will be	
3		administered	
4	Interventions:	#11b Criteria for discontinuing or modifying allocated	n/a
5	modifications	interventions for a given trial participant (eg, drug dose	
6		change in response to harms, participant request, or	
7		improving / worsening disease)	
8	Interventions:	#11c Strategies to improve adherence to intervention protocols,	5
9	adherence	and any procedures for monitoring adherence (eg, drug	
10		tablet return; laboratory tests)	
11	Interventions:	#11d Relevant concomitant care and interventions that are	n/a
12	concomitant care	permitted or prohibited during the trial	
13	Outcomes	#12 Primary, secondary, and other outcomes, including the	9-10
14		specific measurement variable (eg, systolic blood	
15		pressure), analysis metric (eg, change from baseline, final	
16		value, time to event), method of aggregation (eg, median,	
17		proportion), and time point for each outcome. Explanation	
18		of the clinical relevance of chosen efficacy and harm	
19		outcomes is strongly recommended	
20	Participant timeline	#13 Time schedule of enrolment, interventions (including any	9
21		run-ins and washouts), assessments, and visits for	
22		participants. A schematic diagram is highly recommended	
23		(see Figure)	

1 Sample size [#14](#) Estimated number of participants needed to achieve study
2 objectives and how it was determined, including clinical and
3 statistical assumptions supporting any sample size
4 calculations
5

6
7 Recruitment [#15](#) Strategies for achieving adequate participant enrolment to
8 reach target sample size
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10
11 **Methods: Assignment**
12
13 of interventions (for
14 controlled trials)
15

16 Allocation: sequence [#16a](#) Method of generating the allocation sequence (eg,
17 generation computer-generated random numbers), and list of any
18 factors for stratification. To reduce predictability of a
19 random sequence, details of any planned restriction (eg,
20 blocking) should be provided in a separate document that is
21 unavailable to those who enrol participants or assign
22 interventions
23

24 Allocation [#16b](#) Mechanism of implementing the allocation sequence (eg,
25 concealment central telephone; sequentially numbered, opaque, sealed
26 mechanism envelopes), describing any steps to conceal the sequence
27 until interventions are assigned
28

29 Allocation:
30 implementation [#16c](#) Who will generate the allocation sequence, who will enrol
31 participants, and who will assign participants to
32 interventions
33

1	Blinding (masking)	#17a	Who will be blinded after assignment to interventions (eg, trial participants, care providers, outcome assessors, data analysts), and how	9
2				
3	Blinding (masking):	#17b	If blinded, circumstances under which unblinding is emergency unblinding	n/a
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17	Methods: Data collection, management, and analysis			
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26	Data collection plan	#18a	Plans for assessment and collection of outcome, baseline, and other trial data, including any related processes to promote data quality (eg, duplicate measurements, training of assessors) and a description of study instruments (eg, questionnaires, laboratory tests) along with their reliability and validity, if known. Reference to where data collection forms can be found, if not in the protocol	6-10
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43	Data collection plan:	#18b	Plans to promote participant retention and complete follow-up, including list of any outcome data to be collected for participants who discontinue or deviate from intervention protocols	6-10
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53	Data management	#19	Plans for data entry, coding, security, and storage, including any related processes to promote data quality (eg, double data entry; range checks for data values).	10
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1	2	3	4	5	Reference to where details of data management	
6	7	8	9	10	procedures can be found, if not in the protocol	
11	12	13	14	15	Statistics: outcomes #20a Statistical methods for analysing primary and secondary	9-10
16	17	18	19	20	outcomes. Reference to where other details of the	
21	22	23	24	25	statistical analysis plan can be found, if not in the protocol	
26	27	28	29	30	Statistics: additional #20b Methods for any additional analyses (eg, subgroup and	9-10
31	32	33	34	35	adjusted analyses)	
36	37	38	39	40	Statistics: analysis #20c Definition of analysis population relating to protocol non-	9-10
41	42	43	44	45	adherence (eg, as randomised analysis), and any statistical	
46	47	48	49	50	methods to handle missing data (eg, multiple imputation)	
51	52	53	54	55	Methods: Monitoring	
56	57	58	59	60	Data monitoring: formal committee #21a Composition of data monitoring committee (DMC); summary of its role and reporting structure; statement of whether it is independent from the sponsor and competing interests; and reference to where further details about its charter can be found, if not in the protocol. Alternatively, an explanation of why a DMC is not needed	n/a
					Data monitoring: interim analysis #21b Description of any interim analyses and stopping guidelines, including who will have access to these interim results and make the final decision to terminate the trial	n/a
					Harms #22 Plans for collecting, assessing, reporting, and managing solicited and spontaneously reported adverse events and other unintended effects of trial interventions or trial	n/a

	conduct	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	Auditing #23 Frequency and procedures for auditing trial conduct, if any, and whether the process will be independent from investigators and the sponsor	n/a
Ethics and dissemination		
Research ethics	#24 Plans for seeking research ethics committee / institutional review board (REC / IRB) approval	2
Protocol amendments	#25 Plans for communicating important protocol modifications (eg, changes to eligibility criteria, outcomes, analyses) to relevant parties (eg, investigators, REC / IRBs, trial participants, trial registries, journals, regulators)	n/a
Consent or assent	#26a Who will obtain informed consent or assent from potential trial participants or authorised surrogates, and how (see Item 32)	6
Consent or assent: ancillary studies	#26b Additional consent provisions for collection and use of participant data and biological specimens in ancillary studies, if applicable	n/a
Confidentiality	#27 How personal information about potential and enrolled participants will be collected, shared, and maintained in order to protect confidentiality before, during, and after the trial	10
Declaration of	#28 Financial and other competing interests for principal	12

1	interests	investigators for the overall trial and each study site	
2			
3	Data access	#29 Statement of who will have access to the final trial dataset, and disclosure of contractual agreements that limit such access for investigators	11
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11	Ancillary and post trial care	#30 Provisions, if any, for ancillary and post-trial care, and for compensation to those who suffer harm from trial participation	n/a
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18	Dissemination policy: trial results	#31a Plans for investigators and sponsor to communicate trial results to participants, healthcare professionals, the public, and other relevant groups (eg, via publication, reporting in results databases, or other data sharing arrangements), including any publication restrictions	11
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31	Dissemination policy: authorship	#31b Authorship eligibility guidelines and any intended use of professional writers	n/a
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36	Dissemination policy: reproducible research	#31c Plans, if any, for granting public access to the full protocol, participant-level dataset, and statistical code	11
37			
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42	Appendices		
43			
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45	Informed consent materials	#32 Model consent form and other related documentation given to participants and authorised surrogates	n/a
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50	Biological specimens	#33 Plans for collection, laboratory evaluation, and storage of biological specimens for genetic or molecular analysis in the current trial and for future use in ancillary studies, if applicable	n/a
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For peer review only