

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Accuracy of Recall of Musculoskeletal Injuries in Elite Military Personnel: a Cross-sectional Study
AUTHORS	Lovalekar, Mita; Abt, John; Sell, Timothy; Lephart, Scott; Pletcher, Erin; Beals, Kim

VERSION 1 – REVIEW

REVIEWER	Dan Rhon Center for the Intrepid, Brooke Army Medical Center, USA
REVIEW RETURNED	07-Jun-2017

GENERAL COMMENTS	<p>Thank you for the opportunity to review this important contribution to the literature, evaluating recall validity of injury history in military service members. Overall this is a well written manuscript.</p> <p>I have a couple questions/comments about the methodology.</p> <p>1) Were injuries from medical records linked to a specific visit, regardless of diagnosis codes present? In other words, if the same medical visit included 3 different diagnosis codes, did that count as 3 separate injuries? If so, this may reflect provider coding patterns more than the ability of the individual to recall 3 separate injuries.</p> <p>2) Medical documentation confirms the injury took place, however, rarely if ever is there a measure of severity that accompanies that diagnosis. Also, it is unknown if these diagnoses in the medical records were primary or secondary complaints, and may have just been mentioned in passing, depending on the variability of thoroughness with documentation by each individual provider. In addition, as has been noted by the authors, more severe injuries had greater recall. This makes sense intuitively, as a more impactful injury will likely leave more impactful memory on the individual. It may be that injuries which are not remembered, had little to no impact on the function and disability of the individual. Most people, in any setting or population, will sustain a musculoskeletal injury of some kind during their life time. In majority of cases, these will be inconsequential to function and disability. I mention these comments more to provide additional food for thought, for other potential interpretations of the impact of this poor recall. It may be a key component to identifying injuries, or it may be inconsequential. Likely the values lies somewhere in between, but the discussion should be fair to incorporate a balanced argument.</p> <p>3) Finally, electronic healthcare utilization databases were not discussed, and are often used for injury surveillance and</p>
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	<p>epidemiology (TAIHOD, MDR, M2). These databases offer more robust capabilities than a plain records review, and have their pros and cons. One of the pros is that ALL healthcare utilization that took place with TRICARE as the payor will be captured, whether in a military facility or out in the network, anywhere around the world.</p> <p>The rest are just minor comments:</p> <p>Page 2, Line 12: remove “active” at the end of this sentence.....should read “precluded them from full duty”.</p> <p>Page 3, Line 15 – if performed in elite military personnel, then it may also not be generalizable to the regular military population.</p> <p>Page 4, Line 22-23: Partially correct if only doing a medical records review. Outpatient data (AHLTA) is typically available across the entire MHS, regardless of location. There are instances when some variables are missing. However if abstracting data from MDR or M2, which AHLTA feeds into, then care will be pulled from all locations, both military and civilian, anywhere in the world. as long as TRICARE was the payor.</p> <p>Page 6, line 18: Remove “recall” before “recall time”to further analyze the effect of time on recall.</p> <p>Page 11, line 45: Replace “general purpose” with “regular” or “military personnel not in elite units”, etc</p>
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REVIEWER	Anna Schuh Army Public Health Center, United States
REVIEW RETURNED	16-Jun-2017

GENERAL COMMENTS	<p>This is a well-written paper, but unfortunately has many flaws that are not currently addressed as limitations in the Discussion section. I have major concerns about the sample size (only 101 injuries to 132 Soldiers were considered) and the allowed recall time (average of 4 years). Clearly a much larger sample size is needed to draw conclusions about recall accuracy in any population, especially if respondents were allowed to report injuries dating back up to 20 years, so I find these to be major weaknesses in the study. However, I think some useful conclusions and suggestions for future work can still be drawn, as long as these weaknesses are acknowledged and discussed.</p> <p>Page 4, L20-22: This statement doesn't make sense, I think “especially if recall time is long” is not needed since you are stating in the rest of the sentence that memory decreases with time.</p> <p>Page 4, L33: Martin et al. (2016) have also validated self-reported APFT and BMI data, may be worth the citation to a more recent effort. Martin RC, Grier TL, Canham-Chervak M, et al. Validity of self-reported physical fitness and body mass index in a military population. The Journal of Strength & Conditioning Research 2016; 30:26-32.</p> <p>Page 4, L42-44: Please cite the previous studies being referred to</p>
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	<p>here.</p> <p>Page 4, L49-50: “It was hypothesized that recall would be influenced by injury type, injury anatomic location, and recall time.”</p> <p>1) By ‘recall time’ do you mean the amount of time in the past for which respondents were expected to recall injuries? Please adjust language so this is more obvious.</p> <p>2) 2) And won’t injury severity effect recall as well (e.g., more severe injuries are more likely to be remembered/reported by participants)? You bring this up later in the paper, so it would be good to mention it here as a preview.</p> <p>3) 3) Rather than stating the effects of injury type/injury anatomical location/recall time/injury severity as hypotheses, please cite literature that has indicated this (example: Landen and Hendricks, 1995, ref #21 discussed recall and injury severity).</p> <p>Page 5, L9: Why were only 132 subjects used? Was this a targeted military population (trainees, infantry, deployed)? What was the purpose of the original study? 132 people seems like a small population, so perhaps answering these questions upfront would explain to the reader why a limited sample size was studied.</p> <p>Page 5, L29-30: What ICD-9 diagnosis codes were included in the medical record search? Were injury-related musculoskeletal conditions (ICD-9 700s) included? How many years back were injuries reviewed in the medical record?</p> <p>Page 5, L34-36: How was injury defined to the participants? What injury types were included? Did all of the athletic trainers ask the question in the same way? Were they only asked to recall those injuries for which they sought medical care?</p> <p>Page 5, L45-47: I’m not sure I fully understand your matching methods.</p> <p>1) Could a self-reported knee injury be theoretically matched to ankle injury in the medical records, since they were both lower extremity injuries? Or a nose injury matched to a concussion since they were both head/face? If so, this is a huge limitation and needs to be discussed as such in the Discussion section, as you might be overestimating the match percentage.</p> <p>2) Likewise, injuries were matched by calendar year? So a self-reported injury from January 2009 could be matched to a medical record from December 2009, since they were both in 2009? Again, this allows for a very broad definition of “matching” that could lead to false matches. There may be practical reasons why this was necessary – but those reasons should be acknowledged and presented as justification, and the potential resulting limitations should be addressed in the Discussion.</p> <p>Page 6, L18-20: The median recall time should not be stated here. You present it as appropriate in the Results.</p> <p>Page 8, L30-32: Traumatic fractures had a higher recall because severity influences recall. I don’t think it’s fair to say that the injury type necessarily affects recall, I think you’re really trying to get at severity here.</p> <p>Page 9, L32 and Figure 2: I would not consider a 4-year recall to be “recent.” Jenkins (ref #15) found two months to be a recommended recall window, and even 12 months has been widely criticized for</p>
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	<p>contributing to recall bias. Ideally, you would break this down by month and compare recall within a few months to longer recall - at the very least, narrow your definition of “recent” to those with “0 years” between incident and recall.</p> <p>Page 12, L4-5: define your recommendation to use recent injuries. How recent? “0 years”? A specific number of months? Again, previous authors like Jenkins have made these recommendations in the past – so your recommendations can be in accordance with theirs.</p> <p>Pages 10-12: Need a much stronger discussion of limitations in the Discussion, with clear suggestions for future work.</p>
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REVIEWER	Konstantinos Havenetidis Hellenic Army Academy, Greece
REVIEW RETURNED	17-Jun-2017

GENERAL COMMENTS	<p>Thank you for the opportunity to review this paper related to Accuracy of Recall of Musculoskeletal Injuries in Elite Military Personnel: a Cross-sectional Study. The manuscript is well written, and the results are clear and concise. The reviewer found few minor editorial revisions in the Methods and Discussion section. Overall, this is an interesting study that when published will contribute useful insights into this area of investigation.</p> <p>Methods</p> <p>Page 5 line 11 Subjects were considered “elite military personnel” due to the fact that they were active duty military personnel, but no additional information was given. Please specify if they were SOF (SEALS, Marines, etc.) or not (Branch of the Army, Navy, Air Force). This information will help the reader to comprehend how self-reported recalls relate to the specific occupational tasks of the present sample group.</p> <p>Page 5 lines 29 and 34 Why subjects were interviewed by a certified trainer and not a physiotherapist or a medical doctor which are considered more relevant for managing injury data?</p> <p>Discussion</p> <p>Page 10 line 9 Did medical records included treatment data? Such information [treatment methods (physiotherapy, pharmacological agents, taping, cryotherapy, etc.) rehabilitation period, usage of functional tests] would have been valuable for explaining the low percentage of self-reported recalls, or emerging potential relationships.</p> <p>Page 10 line 27 Since title refers to musculoskeletal injuries in the military, the authors could also mention musculoskeletal injury data form other armies around the world to support if underreporting of injuries is a common phenomenon. This will also enable the reader to compare and evaluate the advantages/disadvantages of medical records for foreign sample groups which might comprise different operational tasks, roles and</p>
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	<p>needs. Some, but not all, are presented below:</p> <ul style="list-style-type: none"> • Boroujeni, AM; Yousefi, E; Moayednia A; Tahririan, MA. Effects of 8 weeks of military training on lower extremity and lower back clinical findings of young Iranian male recruits: A prospective case series, <i>Adv Biomed Res.</i> 2014; 3: 20. • Havenetidis, K; Kardaris, D; Paxinos, T (2011). Profiles of musculoskeletal injuries among Greek Army officer cadets during Basic Combat Training, <i>Mil Med</i> 176(3): 297-303. • Heir, T; Glomsaker, P (1996). Epidemiology of musculoskeletal injuries among Norwegian conscripts undergoing basic military training, <i>Scand J Med Sci Sports</i>, 6: 186-91. • Rosendal, L; Langberg, H; Skov-Jensen, A; Kjaer, M. (2003). Incidence of injury and physical performance adaptations during military training. <i>Clin J Sport Med.</i> May; 13(3):157-63.
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Dan Rhon

Institution and Country: Center for the Intrepid, Brooke Army Medical Center, USA Competing

Interests: None declared

Thank you for the opportunity to review this important contribution to the literature, evaluating recall validity of injury history in military service members. Overall this is a well written manuscript.

Thank you. The authors thank the reviewer for suggestions and questions for the manuscript. We have addressed them and made corresponding updates to the manuscript.

I have a couple questions/comments about the methodology.

1) Were injuries from medical records linked to a specific visit, regardless of diagnosis codes present? In other words, if the same medical visit included 3 different diagnosis codes, did that count as 3 separate injuries? If so, this may reflect provider coding patterns more than the ability of the individual to recall 3 separate injuries.

Response: Injury data used in this study were obtained from hard copy medical records. The injuries were not linked to a specific visit. No diagnosis codes were available, and injuries were not coded or extracted using the ICD-9 or ICD-10 system. Each injury was counted only once. Individual visits were not counted as separate injuries. The medical records that were reviewed for the purposes of this project, were a chronological record of medical care, and narrative descriptions were available and reviewed.

2) Medical documentation confirms the injury took place, however, rarely if ever is there a measure of severity that accompanies that diagnosis. Also, it is unknown if these diagnoses in the medical records were primary or secondary complaints, and may have just been mentioned in passing, depending on the variability of thoroughness with documentation by each individual provider. In addition, as has been noted by the authors, more severe injuries had greater recall.

This makes sense intuitively, as a more impactful injury will likely leave more impactful memory on the individual. It may be that injuries which are not remembered, had little to no impact on the function

and disability of the individual. Most people, in any setting or population, will sustain a musculoskeletal injury of some kind during their life time. In majority of cases, these will be inconsequential to function and disability. I mention these comments more to provide additional food for thought, for other potential interpretations of the impact of this poor recall. It may be a key component to identifying injuries, or it may be inconsequential. Likely the values lies somewhere in between, but the discussion should be fair to incorporate a balanced argument.

Response: Thank you for the detailed comments. We agree with the reviewer that medical documentation may not include a measure of severity of the injury, and could include secondary complaints. Most people will sustain a musculoskeletal injury during their lifetime; many of these injuries may have no impact on function and disability. The discussion section of the manuscript has been revised to include this additional explanation of the poor recall observed in the current study, as the reviewer suggested.

3) Finally, electronic healthcare utilization databases were not discussed, and are often used for injury surveillance and epidemiology (TAIHOD, MDR, M2). These databases offer more robust capabilities than a plain records review, and have their pros and cons. One of the pros is that ALL healthcare utilization that took place with TRICARE as the payor will be captured, whether in a military facility or out in the network, anywhere around the world.

Response: We agree with the reviewer. Material about electronic healthcare databases and their advantages, has been added to the discussion section.

The rest are just minor comments:

Page 2, Line 12: remove “active” at the end of this sentence....should read “precluded them from full duty”.

Response: The word “active” has been removed from this sentence.

Page 3, Line 15 – if performed in elite military personnel, then it may also not be generalizable to the regular military population.

Response: This sentence has been updated. The updated sentence is: “This study was conducted among a sample of elite military personnel, and the results of this study may not be generalizable to the regular military population, and the non-military general population.”.

Page 4, Line 22-23: Partially correct if only doing a medical records review. Outpatient data (AHLTA) is typically available across the entire MHS, regardless of location. There are instances when some variables are missing. However if abstracting data from MDR or M2, which AHLTA feeds into, then care will be pulled from all locations, both military and civilian, anywhere in the world. as long as TRICARE was the payor.

Response: The sentence has been updated to “Data about injuries will be contained in medical records only if medical help was sought”.

Page 6, line 18: Remove “recall” before “recall time”.....to further analyze the effect of time on recall.

Response: This sentence was removed from the methods section. Information about median time since injury, and related further analyses, has been included in the results section.

Page 11, line 45: Replace “general purpose” with “regular” or “military personnel not in elite units”, etc

Response: The phrase “general purpose” has been replaced with “regular”.

Reviewer: 2

Reviewer Name: Anna Schuh

Institution and Country: Army Public Health Center, United States Competing Interests: None declared

This is a well-written paper, but unfortunately has many flaws that are not currently addressed as limitations in the Discussion section. I have major concerns about the sample size (only 101 injuries to 132 Soldiers were considered) and the allowed recall time (average of 4 years). Clearly a much larger sample size is needed to draw conclusions about recall accuracy in any population, especially if respondents were allowed to report injuries dating back up to 20 years, so I find these to be major weaknesses in the study. However, I think some useful conclusions and suggestions for future work can still be drawn, as long as these weaknesses are acknowledged and discussed.

Response: Thank you. We would like to thank the reviewer for comments and suggestions for the manuscript. We have updated the manuscript accordingly.

We agree that the sample size was small (132 participants). A statement about the small sample size has been included in the limitations part of the discussion section in the manuscript. Of the 132 participants who met these criteria, 101 had at least one injury recorded in their medical charts. A total of 374 medical record reviewed injuries were considered in the analysis.

These data were collected as a part of a larger performance optimization and injury prevention research study. The self-reported injury data were collected during participants' visit to the laboratory for maximal effort exercise testing, which took a considerable amount of time. So, we tested an average of 4-6 subjects per week, though sometimes the rate of testing was higher. The medical record reviewed injury data was also collected from study participants. This analysis included Special Operations Forces (SOF) personnel. Only those participants who were assigned to a team/unit were included in the study, to ensure that the study sample was homogenous, with participants having similar occupational characteristics. Also, we included only those subjects whose self-reported injury history and medical record review were conducted during the same year, so that injuries that occurred during the same time frame could be matched between the two sources of data. This led to a further reduction in the number of participants.

Page 4, L20-22: This statement doesn't make sense, I think “especially if recall time is long” is not needed since you are stating in the rest of the sentence that memory decreases with time.

Response: The phrase “especially if recall time is long” has been removed.

Page 4, L33: Martin et al. (2016) have also validated self-reported APFT and BMI data, may be worth the citation to a more recent effort. Martin RC, Grier TL, Canham-Chervak M, et al. Validity of self-reported physical fitness and body mass index in a military population. *The Journal of Strength & Conditioning Research* 2016; 30:26-32.

Response: Thank you for the suggestion. This reference has been added to the manuscript.

Page 4, L42-44: Please cite the previous studies being referred to here.

Response: The previous studies have been cited.

Page 4, L49-50: "It was hypothesized that recall would be influenced by injury type, injury anatomic location, and recall time."

1) By 'recall time' do you mean the amount of time in the past for which respondents were expected to recall injuries? Please adjust language so this is more obvious.

Response:By "recall time", we mean "time since injury". The sentence has been updated to "It was hypothesized that recall would be influenced by injury type, injury anatomic location, and time since injury.". The word "type" was changed to "severity" in response to another suggestion by the reviewer.

The phrase "recall time" has been updated to "time since injury" in relevant places in the manuscript.

2) 2) And won't injury severity effect recall as well (e.g., more severe injuries are more likely to be remembered/reported by participants)? You bring this up later in the paper, so it would be good to mention it here as a preview.

Response: Thank you for the suggestion. We agree. Injury severity has been added.

3) 3) Rather than stating the effects of injury type/injury anatomical location/recall time/injury severity as hypotheses, please cite literature that has indicated this (example: Landen and Hendricks, 1995, ref #21 discussed recall and injury severity).

Response: Literature about injury type/severity, time since injury, and injury anatomic location affecting recall of injuries has been added to the introduction section.

Page 5, L9: Why were only 132 subjects used? Was this a targeted military population (trainees, infantry, deployed)? What was the purpose of the original study? 132 people seems like a small population, so perhaps answering these questions upfront would explain to the reader why a limited sample size was studied.

Response: This was a targeted military population. The participants in this study were Special Operations Forces (SOF) personnel, who were assigned to a team/unit. This study was part of larger comprehensive performance optimization and injury prevention research study, which included maximal effort exercise testing in a research laboratory, and collection of self-reported and medical record reviewed injury data. Due to the amount of time required to test participants in the laboratory, our ability to include more participants was limited. Also, we included only those subjects whose self-reported injury history and medical record review were conducted during the same year, so that injuries that occurred during the same time frame could be matched between the two sources of data. These two factors limited the number of participants included in the current study.

Information about this has been added to the methods section of the manuscript.

Page 5, L29-30: What ICD-9 diagnosis codes were included in the medical record search? Were injury-related musculoskeletal conditions (ICD-9 700s) included? How many years back were injuries reviewed in the medical record?

Response:Injuries were not coded or extracted using the ICD-9 or ICD-10 system. Data about participants' injuries were extracted from hard copy medical records. Both injuries and injury-related musculoskeletal conditions (tendonitis, tenosynovitis, bursitis, plantar fasciitis, musculoskeletal pain, etc.) were included in the analysis.

All available injuries in the medical records were included in the analysis. Medical record reviewed injuries were not used as the criterion measure, but accuracy of recall was expressed as the percent of medical record reviewed injuries correctly recalled in the self-report.

Page 5, L34-36: How was injury defined to the participants? What injury types were included? Did all of the athletic trainers ask the question in the same way? Were they only asked to recall those injuries for which they sought medical care?

Response: The participants were asked about their history of musculoskeletal injuries, which were operationally defined as an injury to the musculoskeletal system (bones, ligaments, muscles, tendons, etc.). This included conditions such as sprains, strains, and fractures (broken bones), but not contusions or lacerations (bruises and cuts). All musculoskeletal injury types were included (injuries and injury-related musculoskeletal conditions). All athletic trainers asked the question the same way. Self-reported injuries were not limited to those for which medical care was sought.

Page 5, L45-47: I'm not sure I fully understand your matching methods.

1) Could a self-reported knee injury be theoretically matched to ankle injury in the medical records, since they were both lower extremity injuries? Or a nose injury matched to a concussion since they were both head/face? If so, this is a huge limitation and needs to be discussed as such in the Discussion section, as you might be overestimating the match percentage.

Response: We agree with the reviewer. Since injuries were matched by gross anatomic location, the match percentage was likely overestimated. This limitation has been added to the discussion section of the manuscript.

2) Likewise, injuries were matched by calendar year? So a self-reported injury from January 2009 could be matched to a medical record from December 2009, since they were both in 2009? Again, this allows for a very broad definition of "matching" that could lead to false matches. There may be practical reasons why this was necessary – but those reasons should be acknowledged and presented as justification, and the potential resulting limitations should be addressed in the Discussion.

Response: Injuries were matched by calendar year. The reason for matching by calendar year was that the exact date of injury was missing for a large proportion of self-reported injuries, and only the injury year was known.

Justification for this method of matching injuries from the two sources, and the resulting limitations have been added to the discussion section of the manuscript.

Page 6, L18-20: The median recall time should not be stated here. You present it as appropriate in the Results.

Response: Data about median recall time has been removed from the methods section.

Page 8, L30-32: Traumatic fractures had a higher recall because severity influences recall. I don't think it's fair to say that the injury type necessarily affects recall, I think you're really trying to get at severity here.

Response: We agree with the reviewer. Injury "type" has been changed to "severity" here, and at other relevant locations in the manuscript.

Page 9, L32 and Figure 2: I would not consider a 4-year recall to be “recent.” Jenkins (ref #15) found two months to be a recommended recall window, and even 12 months has been widely criticized for contributing to recall bias. Ideally, you would break this down by month and compare recall within a few months to longer recall - at the very least, narrow your definition of “recent” to those with “0 years” between incident and recall.

Response: Due to the small sample size, it was difficult to conduct an analysis of recall percent by year, as the estimates were likely unstable. For the analysis of recall for each year since the onset of injury, for both types of matching (matching by anatomic location and year; and matching by anatomic location, year and injury type), injury recall percent for time since injury of 0 years, was 14.3%. There were fluctuations in recall over the range of time since injury. But overall, there was a tendency towards reduction in recall percent with increase in time since injury.

On matching by location and year, recall percent by time since injury for the remaining injuries was: 1 year – 46.9%, 2 years – 23.9%, 3 years – 20.6%, 4 years – 19.6%, 5 years – 9.1%, 6 years – 18.2%, 7 years – 6.3%, 8 years – 23.1%, 9 years – 31.8%, 10 years – 9.1%, 11 years – 13.3%, 12 years – 20.0%, 14 years – 11.1%, 18 years – 12.5%, and 19 years – 14.3%. For years 15–17, and 20, recall percent was 0.0%.

On matching by location, year and type, recall percent by time since injury for the remaining injuries was: 1 year – 24.5%, 2 years – 13.4%, 3 years – 12.7%, 4 years – 2.2%, 5 years – 6.8%, 6 years – 13.6%, 7 years – 3.1%, 8 years – 19.2%, 9 years – 27.3%, 10 years – 9.1%, 11 years – 6.7%, 12 years – 10.0%, and 19 years – 14.3%. For years 13–18, and 20, recall percent was 0.0%.

Page 12, L4-5: define your recommendation to use recent injuries. How recent? “0 years”? A specific number of months? Again, previous authors like Jenkins have made these recommendations in the past – so your recommendations can be in accordance with theirs.

Response: We have added recommendations to the discussion section of the manuscript.

Pages 10-12: Need a much stronger discussion of limitations in the Discussion, with clear suggestions for future work.

Response: We would like to thank the reviewer for this suggestion. The limitations part of the discussion section has been revised extensively, and a more in-depth discussion of the limitations and suggestions for future work have been added.

Reviewer: 3

Reviewer Name: Konstantinos Havenetidis

Institution and Country: Hellenic Army Academy, Greece Competing Interests: None declared

Thank you for the opportunity to review this paper related to Accuracy of Recall of Musculoskeletal Injuries in Elite Military Personnel: a Cross-sectional Study. The manuscript is well written, and the results are clear and concise. The reviewer found few minor editorial revisions in the Methods and Discussion section. Overall, this is an interesting study that when published will contribute useful insights into this area of investigation.

We would like to thank the reviewer. We have addressed the reviewer’s comments, and made suggested changes to the manuscript.

Methods

Page 5 line 11 Subjects were considered “elite military personnel” due to the fact that they were active duty military personnel, but no additional information was given. Please specify if they were SOF/NSW (SEALS, Marines, etc.) or not (Branch of the Army, Navy, Air Force). This information will help the reader to comprehend how self-reported recalls relate to the specific occupational tasks of the present sample group.

Response: The participants in the study were Special Operations Forces (SOF) personnel, assigned to a team/unit. This information has been added to the methods section.

Page 5 lines 29 and 34 Why subjects were interviewed by a certified trainer and not a physiotherapist or a medical doctor which are considered more relevant for managing injury data?

Response: The research team was multidisciplinary, and included physiotherapists, athletic trainers, physician, registered dietitians, exercise physiologists, software engineer, and epidemiologist. The research team was in the Department of Sports Medicine and Nutrition at the University of Pittsburgh, and the premise of this research was to apply sports medicine principles, to injury prevention and performance optimization in military personnel. This study was part of a larger study, that included collection of laboratory data. Given the sports medicine focus of the study, research associates who collected laboratory and injury data were athletic trainers, and they were supervised and trained by the researchers.

Discussion

Page 10 line 9 Did medical records included treatment data? Such information [treatment methods (physiotherapy, pharmacological agents, taping, cryotherapy, etc.) rehabilitation period, usage of functional tests] would have been valuable for explaining the low percentage of self-reported recalls, or emerging potential relationships.

Response: It is likely that recall could be affected by the type, intensity and duration of treatment received, and injuries that received more intense treatment were more likely to be remembered. Interesting, in the current study, severe injuries were more likely to be remembered as compared to less severe injuries. This could be due to severe injuries requiring prolonged and more intense treatment. The medical records did include information about treatment received. Since medical record reviewed injury data was obtained from hard copy medical records, it was a chronological record of medical care, and data about all treatment received for each injury was often not complete. So, it was not analyzed for the current study.

Page 10 line 27 Since title refers to musculoskeletal injuries in the military, the authors could also mention musculoskeletal injury data from other armies around the world to support if underreporting of injuries is a common phenomenon. This will also enable the reader to compare and evaluate the advantages/disadvantages of medical records for foreign sample groups which might comprise different operational tasks, roles and needs. Some, but not all, are presented below:

- Boroujeni, AM; Yousefi, E; Moayednia A; Tahririan, MA. Effects of 8 weeks of military training on lower extremity and lower back clinical findings of young Iranian male recruits: A prospective case series, *Adv Biomed Res.* 2014; 3: 20.
- Havenetidis, K; Kardaris, D; Paxinos, T (2011). Profiles of musculoskeletal injuries among Greek Army officer cadets during Basic Combat Training, *Mil Med* 176(3): 297-303.
- Heir, T; Glomsaker, P (1996). Epidemiology of musculoskeletal injuries among Norwegian conscripts undergoing basic military training, *Scand J Med Sci Sports*, 6: 186-91.

- Rosendal, L; Langberg, H; Skov-Jensen, A; Kjaer, M. (2003). Incidence of injury and physical performance adaptations during military training. Clin J Sport Med. May; 13(3):157-63.

Response: We thank the reviewer for the suggestion. These references have been added to the manuscript.

VERSION 2 – REVIEW

REVIEWER	Dan Rhon Center for the Intrepid Brooke Army Medical Center USA
REVIEW RETURNED	27-Aug-2017

GENERAL COMMENTS	A very well written paper, clear and easy to read, and has adequately addressed all the concerns raised during peer review. I have no further concerns.
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REVIEWER	Anna Schuh-Renner Army Public Health Center, United States
REVIEW RETURNED	29-Aug-2017

GENERAL COMMENTS	The revision is much improved. The reason for the small population is now clear, and significant limitations have now been acknowledged. Because written medical records were used, perhaps another sentence/paragraph can be added to the limitations acknowledging that comparing to electronic medical records and ICD codes could improve data collection (and therefore sample size) in future studies. Please review draft again for awkward word choice, grammar, and punctuation use.
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REVIEWER	Konstantinos Havenetidis Hellenic Army Academy, Greece
REVIEW RETURNED	26-Aug-2017

GENERAL COMMENTS	The authors have not made all changes recommended. There are still some issues, as described below: METHODS Please give more details on the specific SOF personnel (SEALS, Marines, etc.) as well as their occupational tasks. Why subjects were interviewed by a certified trainer and not a physiotherapist or a medical doctor which are considered more relevant for managing injury data?
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VERSION 2 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Dan Rhon

Institution and Country: Center for the Intrepid, Brooke Army Medical Center, USA Competing

Interests: None declared

Comment: A very well written paper, clear and easy to read, and has adequately addressed all the concerns raised during peer review. I have no further concerns.

Response: Thank you.

Reviewer: 2

Reviewer Name: Anna Schuh-Renner

Institution and Country: Army Public Health Center, United States Competing Interests: None declared.

Comment: The revision is much improved. The reason for the small population is now clear, and significant limitations have now been acknowledged. Because written medical records were used, perhaps another sentence/paragraph can be added to the limitations acknowledging that comparing to electronic medical records and ICD codes could improve data collection (and therefore sample size) in future studies.

Please review draft again for awkward word choice, grammar, and punctuation use.

Response: The authors would like to thank the reviewer for the suggestions for the manuscript.

We have added material to the limitations to acknowledge that comparing to electronic medical records and ICD codes could improve data collection and sample size in future studies. The manuscript has also been reviewed for grammar, word choice, etc. and updated as needed.

Reviewer: 3

Reviewer Name: Konstantinos Havenetidis

Institution and Country: Hellenic Army Academy, Greece Competing Interests: None declared

Comment: The authors have not made all changes recommended. There are still some issues, as described below:

Response: Thank you for your suggestions for the manuscript.

METHODS

Please give more details on the specific SOF personnel (SEALS, Marines, etc.) as well as their occupational tasks.

Response: The participants in the study were Special Operations Forces (SOF) personnel, assigned to a team/unit. We do not have permission from Naval Special Warfare, to identify the unit studied for this manuscript or their specific occupational tasks.

Comment: Why subjects were interviewed by a certified trainer and not a physiotherapist or a medical doctor which are considered more relevant for managing injury data?

Response: This study was part of a larger study, that included collection of laboratory data. Laboratory data collected as a part of this research study included sports medicine related performance data, such as musculoskeletal (strength, balance, flexibility), biomechanical, physiological (aerobic capacity, anaerobic power and capacity, body fat measurements) data, which were collected by certified athletic trainers. The certified athletic trainers also interviewed our study subjects.

The interview was conducted using a standardized questionnaire, designed by our research team. Our research team was multidisciplinary, and included physiotherapists, athletic trainers, physician, registered dieticians, exercise physiologists, software engineer, and epidemiologist.

The research study had a medical monitor, who was a MD (physician), and there was access to MDs on location. According to the National Athletic Trainers' Association, the scope of practice of athletic trainers includes the "prevention, examination and diagnosis, treatment, and rehabilitation of emergent, acute, subacute, and chronic neuromusculoskeletal conditions..." (National Athletic Trainers' Association, Scope of Practice: Factors to Consider - <https://www.nata.org/sites/default/files/scope-of-practice.pdf>).

VERSION 3 – REVIEW

REVIEWER	Konstantinos Havenetidis Hellenic Army Academy Greece
REVIEW RETURNED	13-Oct-2017
GENERAL COMMENTS	The reviewer would like to thank the authors for the changes made. The manuscript has undergone a thorough revision and all of reviewer's previous comments have been well addressed.