

Title: Dietary reference intakes for military operations: a scoping review

Overall: Your manuscript is interesting and can value-added to the military community. A scoping review is a tedious process, so thank you for your efforts to illustrate the current evidence and areas for future research. The introduction and methodology sections were easy to read; however, much of your results and discussion were confusing and required re-reading several times while comparing to the tables (including supplementary tables) in order to understand. I recommend seeking an editorial service to improve concision and clarity of your sentence structure and cohesion of thoughts. But I've provided suggestions to assist revision and reduce the ambiguity for the reader. The number of recommendations may seem discouraging, but they are meant as constructive feedback to strengthen your manuscript and improve readability and translation into more meaningful information for the reader.

Abstract:

Lines 39-40: For concision and clarity, I recommend revising to "The PAL range for the military was set as high as 1.5-3.2, as opposed to the civilian upper PAL set at 1.2-2.2."

Line 40: Grammatically, I recommend inserting "of" between "outside the".

Introduction:

Line 100: when stating "this review", the reader may think "this" refers to your current scoping review. To clarify, I recommend changing to "their" or "Collins et al."

Lines 114-115: For concision, I recommend revising the sentence to "A recent study reported using the 2017 version of the MRDI (...) to assess dietary intake of military personnel."

Line 127: For concision, I recommend grammatical edits (removing commas) and revise to "... who perform high physical activity levels similar to military personnel."

Methodology:

Line 138: I recommend a colon after "was" before starting your list, and adding a semicolon or a period after each listed sentence.

Line 147: I recommend doing a quick search using the terms "air force", "navy", and "marines" to ensure these services are represented as they are distinct military services of the US Department of Defense. The AR 40-25 is jointly published with Navy (OPNAVINST 10110.1), Air Force (AFI 44-141), and Marines (MCO 10110.49), but there may be other reports or documents of relevance that you missed by limited your search terms to "army".

Line 161: The term 'dietary reference intake' is missing the end apostrophe.

Line 178: I recommend removing the parenthesis symbol to read, "In Step 2, we..."

Line 181: You mention DRI for the civilian population but don't mention how you acquired them. I assume this was actually part of your search strategy to identify the most up-to-date relevant civilian-based DRIs to compare with the military operation DRIs that you found. Please address.

Results:

Overall: I struggled with several areas of your results for several reasons:

1) As a reader I often had to scan several lines to find the end of your sentence. For example, line 240 you pause the sentence to add cited referenced before finishing your thoughts on line 247 with “were organized (Table 1).” Please move up those last few words to complete the sentence prior to the listing your references. Consider this throughout your results/discussion.

2) There is a lack of explanation regarding the transition between supplementary raw data to the finished consolidated tables. After rereading a few times, and reviewing your supplementary tables, the content made more sense. I recommend that you add a short paragraph to describe the transition from your raw data supplementary tables to your finished consolidated tables at line 263. For example, “Physical activity levels (PAL) category definitions and estimated energy requirement calculations vary among nations/organizations by age, sex, height, weight, and activity level (Supplementary Tables S2-S3). Specific energy and nutrient DRIs for civilian and military populations by nation/organization are depicted in Supplementary Tables S4-S18. These supplementary tables were used to develop the consolidated framework needed to illustrate differences in DRIs between civilian and military populations provided in Table 3 and PAL categories in Table 4.”

3) Consider deleting supplementary Table S1 as it does not add much value and is just another way to organize the information, of which Table 2 is better. I found Supplementary Tables S2-S18 very helpful to understand your results/discussion and thus throughout section 3 you should consistently include the Supplementary Table number that is associated with the consolidated data discussed.

Line 234: I’m assuming that you are referring to the nations/organizations who published the DRIs. To reduce confusion throughout the paper, I recommend when discussing 4 DRI that you specify “four nation/organizations DRI” or “four published DRIs” to make clear that you are not discussing the DRIs for four specific nutrients (especially considering that your abstract summarizes 4 nutrient-based results. Please review all areas where you state “four DRI” to ensure the correct context (i.e., line 238, 262, 263, and beyond).

Line 261: What does “Basic matters for” mean? I am wondering if by ‘formulating’ you mean organizing information. Please consider word choice for clarity. I was very confused with your topic sentence (lines 263-267). As mentioned above inserting a short paragraph to explain how supplementary data was used to develop your Tables 3-4 would be helpful to the reader.

Line 271: I recommend replacing “corps” with “military” because not all military services are organized by corps. For example, the Air Force organizes their airman in flights, squadrons, and wings.

Line 273: My interpretation of Table 2 is not that the countries differ in intakes between military and civilian, but that the nomenclature of indicators used varies. Please clarify.

Line 275: You state indicators are important. How so? I’m not sure this sentence adds value and could be deleted or Lines 275-277 should be revised. Perhaps you mean to say: “Research depicts that energy and nutrient indicators are formulated and displayed in a variety of ways. Table 3 present the difference in indicator nomenclature to better compare each across the four organizations.” But referring back to my earlier comment about describing how the supplementary tables are precursors to consolidated tables, may rectify the problem here. Either way, please clarify for the reader.

Lines 280-281: I am not sure what this sentence means or the implications. Please clarify what the difference is and why it matters. Also, as mentioned early, the list of citations added in the middle of a sentence is very burdensome to the reader. In this case, moving the only word remaining in your sentence (“index”) to immediately following “NRV” allows the reader to complete the thought.

Line 284: As written this statement is ambiguous and a bit confusing with the 2 concepts blended together. The first half of the topic sentence on line 285 leads the reader to believe you will talk about Table 3 - do you mean “The estimated energy requirements for military operations among 3 countries and NATO are congruent with their civilian DRI for total energy and the three macronutrients (protein, fat, and carbohydrates) as depicted in Table 3”(?). Then the 2nd half of the sentences (line 287) jumps right into PAL levels in relation to energy DRI difference. I recommend splitting Energy requirements and PAL categories into 2 separate sections. If my interpretation is incorrect, please clarify.

Line 299: For clarity, I recommend inserting “of the four nation/organizations” after “...operations” and “ranges from similar...” to clarify that you are contrasting the four published DRIs.

Line 314: your examples (Soldier, Sailors, Airmen, and Marines) are not considered occupations, but instead they are descriptors of what each services calls their members. The military has many occupations that mirror that of the civilian sector (healthcare, administrative, management, supply chain, education, police, firefighters, etc.) but also has occupations with higher physical that may not translate well to a civilian occupation (i.e., infantry, cavalry). To prevent confusion, I recommend revising your sentence to something similar to “energy expenditures measured in 424 military members across all four military services, in a variety of occupations, climates, and environments (field vs. garrison) ranged from ...” and I recommend deleting the end of the sentence: “with a wide range that the range of MJ/day was very wide” as this statement is circular and the reader can see the huge variability with the values presented for males/females in lines 316-317.

Lines 321-322: the end of the sentence “... it is assumed that...” is speculative and inconsequential to the content. It is more accurate to state that these special operators are trained to function for short periods of time with reduced sleep and intense physical exertion.

Line 328-330: please define the variables that correspond to “cut-off values” earlier in the sentence. For example, “...environmental cut-off values...were used”.

Line 334: Grammatically, “differs” should be “differ”.

Line 335: You state “William et al.” but cite Tharion et al. Please double check and revise.

Line 337: You state “Linda et al.” but then cite Gan et al. Please double check and revise.

Line 344: You state four conditions but five are listed. Please double check and clarify.

Line 354-5: This is a good place to add “(Supplementary Table S3)” at the end of one of these two sentences.

Line 368: The sentence is awkward to read. Consider revising to something similar to “The UK uses the same equation to estimate energy requirements for both civilian and military populations; although the aim is to derive an equation specific for military DRI once sufficient data are available.” If I missed your intent, please clarify.

Line 373: As you continue to discuss each nutrient, I recommend that you provide the specific Supplementary Table # somewhere in each section. This prompts the reader if needed.

Line 385: There is no need to capitalize “Value” and a word or two is missing in this phrase “whereas for military values 1.2 to 4.8 times higher than RDA for...”

Line 395: Since protein also provides energy, this is a little confusing. Perhaps rename this heading to “Macronutrient Energy Distribution” because you address all three macronutrients that provide energy.

Line 410: Recommend replacing the colon with a semicolon.

Line 414: It is not accurate to say “Carbohydrates were considered in PAL”. Instead, do you mean, carbohydrate intake is important when considering optimal performance at varying levels of physical activity and within environmental extremes?

Line 415: To ensure clarity for the reader, ensure that you specify that you are talking about carbohydrate (not just DRI). For example, “Therefore, the carbohydrate DRI for military operations was set at 1.0 to 5.2 times higher than that of the civilian population.” Again, as noted earlier, in many cases by moving most citations to the end of the sentence you will dramatically improve reading flow and content synthesis for the reader.

Line 428: As mentioned on line 395, I recommend simplifying “energy-producing nutrient balance” to “macronutrient energy distribution” as this is the accepted terminology in the nutrition field.

Line 430: To clarify, I recommend revising to “such that as PAL category increased, the proportion of energy from protein decreased while carbohydrate increased, and fat changes were minimal.”

Lines 436-439: The sentence is awkward to read. To clarify: “Based upon these results, the energy ratio from each macronutrient should consider the PAL for optimal energy balance, with specific recommendations as follows: ...”

Sections 3.14-3.16. I noticed that for some nutrients you provided thoughts about the relevance or role of that nutrient to the military when considering why the DRI values differed from civilians (energy, protein, carbs, fat, sodium), but not for all (i.e., no discussion for fiber or the B vitamins), except where you state there is limited evidence.

Line 516: I recommend deleting (WBSR) because it is only used once. Too many acronyms can be tedious for the reader. Additionally, this sentence is very long with many commas. Consider breaking into 2 sentences.

Line 525: You mentioned that iron, zinc, and copper DRIs were considered for military operations. What was the result? Were their difference or not? The reader can refer to the supplementary tables for specific detail, but will look to the authors to provide a statement.

Lines 528-542 (Section 3.2): This paragraph was unclear. Partially due to citations in the middle of the sentence disrupting the flow and partially due to the structure of thoughts within the sentences. There is circular logic that does not make sense on line 536: “needed added nutrients formulated were as need-added as DRI”). As the reader, I am unable to paraphrase the intent of this information. Please reread, consider your intent and revise this section.

Limitations and Perspectives:

Line 545: I recommend flipping your sentence clauses for clarity: “The aim of this study was to provide consolidated data on military operation DRIs from four nations/organizations.”

You discuss your perspective but need to address the limitations of your methodology. I mentioned earlier, one limitation incomplete search terms to ensure all US military services are

represented. Consider other potential limitations based upon your assumptions when extracting and consolidating the extensive information.

Lines 555-56: These sentences are better suited earlier in the paragraph. Consider organizing thoughts: 1) Purpose of study; 2) DRIs already in use when designing rations; 3) DRIs considered in research / reports to assess the quality of dietary intake in a variety of military operations; 4) differences in how DRIs are formulated, many of which mirror that of the civilian population without accounting for PAL of military operations; lack of evidence for all nutrients; 5) lack of evidence/research for all nutrients to promotion military performance; and future research can fill this gap.

Conclusions:

Line 566: I recommend removing “its outline with” and replacing with “against the”.

Line 568: Again I recommend revising “3) Energy-providing nutrient balance” to “Macronutrient energy distribution” (as well as in your abstract).

Line 569-570: Please clarify this circular logic “... when it becomes necessary formulating these stands, it is necessary to review the standard...” I think your intent is: “As the DRI recommendations continue to evolve, it is necessary to include dietary fiber, the B vitamins, and other micronutrients currently lacking evidence.”

Table 1:

Title: The table is not an overview of the DRIs but instead the timeline of development and updates to DRIs. Recommend changing the title to something more accurate, i.e., “Overview of the development and update timeline for civilian and military DRI.”

Footnote: “DRI for civilians based on each DRI for military operations” is inaccurate. This reads as if the civilian DRIs are derived from those set from military operations. Do you mean, “The civilian DRIs were used as the precursor for DRI development for military operations”? Please clarify.

Table 2:

Title: The overview is not only for USA and Canada (by the way, this is the first time that I’ve seen Canada included), but for Australian, UK and NATO. Consider a title that captures all nations / organizations included.

Column headings: I recommend revising your main column heading “Dietary Reference Intakes; DRI” to improve the tables ability to stand alone. For instance, “Dietary Reference Intake (DRI) Indicator Acronym and Description”

Description: Because the acronym is in the preceding column, you can delete “The EAR is”, “The RDA is”, etc for each row. You can simply start with “An average daily...”, etc.

Not applicable row: Because you have plenty of room in the “Other” box, I recommend inserting those three acronyms with a symbol to direct reader to the footnote for a definition. “SDT+, LRNI++, DRV+++”

Abbreviations: As written, it is difficult for the reader to searching for a specific acronym in your list due to its organization. I recommend: 1) list them all in alphabetical order; and 2) put the acronym first followed by a comma, with a semicolon signifying the next acronym. For

example, “AI, Adequate Intake; AMDR, Acceptable Macronutrient Distribution Range; BMI, Body Mass Index;, etc.”

titles: As tables are stand alone, it is recommended that you spell out any acronyms in the title (i.e. PAL should be spelled out).

Table 3:

Title: For accuracy, I recommend replacing “different from” with “comparison to”.

Footnote: You state “the nutrients organized in this review were assumed to be common to...”
What does that mean?

Table 4:

Title: Please spell out PAL in the title in order to improve its ability to stand alone (same for any of your supplementary tables).

UK: Are you able to discern what is the difference between Military Training Courses A & B. I assume it is the intensity, such as initial vs. advanced training. If available, I recommend adding to the footnotes.

Footnotes: I recommend that symbolled be arranged in the order they appear: UK *, USA +, NATO ++