Reviewer's report

Title: Systematic review of chronic ankle instability in children

Version: 1
Date: 9 December 2013

Reviewer: Cynthia Wright

Reviewer's report:

Overall, and exceptionally well written manuscript. This is one of the best manuscripts I’ve had the opportunity to review, and the authors should be commended. The topic is original and interesting within the field of Chronic Ankle Instability. The methods are appropriate, results clearly reported and discussion relevant to the objectives of the systematic review.

There are no major flaws in either methodology or reporting. I’ve detailed several minor revisions, which I believe would serve to enhance the strength and readability of the manuscript. Despite need for minor revisions, this is overall a very sound manuscript and an important addition to the literature.

Major Compulsory Revisions: NONE.

Minor Essential Revisions: 1-30

1. Page 4, Inclusion criteria: The first sentence reads like a fragment, consider rewording to: “To be eligible for inclusion studies must have focused on…” The last sentence in this paragraph uses the term “author/s”, I believe the correct way to write this is “author(s)”, consider revising.

2. Page 5, paragraph 2, sentence 1: This is insufficient information for another researcher to recreate your methods. Please give the references for the 3 manuscripts for which you solicited additional information from the author. Also, it’s not clear why these 3 were selected (e.g. did you request this information only from articles that appeared to report the variables of interest but did not separate children from adults in their analysis?). Please tell the reader what about these articles triggered these requests.

3. Page 5, paragraph 2: In numbered citation formats, the citation for “Hiller et al. (2008)” should read “Hiller et al. [16]” so that the reader is able to identify the correct reference from the reference list. This same citation error occurs a few times throughout the manuscript, including: Page 5 Downs and Black’s; Page 11 for Hiller et al. and Hollwarth

4. Page 5, Paragraph 3: The writing of “Two independent examiners (MM and AS/FP) screened…” is unclear because you’ve stated 2 and then listed 3 examiners. If what is meant is “(MM and either AS or FP)” then it may be more clear to use this revised wording. Revise in the final paragraph on page 5 as well.

5. Page 5, final paragraph: The authors state that 2 independent examiners rated
the studies, then jump to what happened when consensus could not be reached. Between these 2 final sentences, it should be added that “After independent review, discrepancies were settled by consensus” (or some other wording to the same effect).

6. Page 6, Results: The reporting of the results of the search strategy should be improved. Reporting in Figure 2 is adequate, but the written paragraph feels incomplete. Specifically, it is written, “14,263 papers were screened”. It appears from figure 2 that this would be more appropriately stated, “the title and/or abstract of 14,263 papers were screened for potential eligibility.” Then the intermediate process (narrowing to 219) isn’t described at all. Consider something to the effect of, “Following initial screening, 219 articles were identified as potentially eligible and full text sought. Following full text review, nine articles were included in the review.”

7. Page 6, Quality paragraph: Grammatically the final sentence “and loss of number of participants at follow up” reads awkwardly and should be revised. Is there a word missing? Consider, “and the number of participants lost to follow up”.

8. Page 7, paragraph 2, final sentence: the superscript for degrees is incorrect. Please use the degree symbol rather than the number 0.

9. Page 8, paragraph 2: The phrase “…with re-injuries of the ankle ranging from 16-100%” is not clear. Do you mean, of the injuries reported, 16-100% were re-injuries? Or, was the prevalence of re-injury following an acute sprain between 16-100%? Please add detail to clarify.

10. Page 9, paragraph 1: The sentence, “The reported prevalence in adults is lower than results of children in this review” needs a citation. I’m assuming the citation is the same as is given in the next sentence. Consider rewording to combine the sentences, or add a citation here.

11. Page 9, paragraph 2, sentence 2: Has “AP” been previously defined? If not, please define.

12. Page 9, paragraph 2, sentence 3: This sentence is not well connected to the ideas above or below. At a minimum consider adding some joining words such as, “In previous reports, 25% of adults…..with an anterior drawer test [26], whereas symptoms of …”.

13. Page 10, paragraph 2, sentence 1: There appears to be a typo here in the word “alike”. Do you mean unlike adults, or like adults? Sentence 2: please add an “and” prior to “11% are unstable…”

14. Page 10, paragraph 2: Have you thought about the age of first sprain of the adults recorded in the literature? The age at first sprain is rarely recorded in studies of adults with CAI. But these adults with long term disability or increased re-sprain rate may have incurred their initial sprain as children, or as adults (it’s unknown). So the consequences we see in adults may be unique to adults, or
they may be the exact same as these adolescents will experience if they were followed forward into adulthood. When comparing and contrasting the prevalence of long term symptoms or re-injury between these 2 groups, it would strengthen the discussion to include this possible connection and how that might affect our understanding of CAI.

15. Page 11, paragraph 1, sentence 2: As written this sentence is conflicting, it appears to give a published reference for unpublished data. From your methods, it sounds like you were able to get additional data from this study. This could be made more clear here, consider rewording to the effect of, “An analysis of additional, unpublished data collected as part of a study by Hiller et al. [16]…” Also, sentence 3 states, “This finding highlights a relationship between perceived and mechanical aspects of ankle instability”…however the proceeding sentence talks about a relationship among 3 factors, not between these 2 only.

16. Reference list #17: Was this the article obtained in German? I believe it's most appropriate to cite the title in German, with the translation in brackets. An example I found: Janzen, G., & Hawlik, M. (2005). Orientierung im Raum: Befunde zu Entscheidungspunkten [Orientation in space: Findings about decision points]. Zeitschrift für Psychologie, 213(4), 179–186.

17. Table 1: Overall, a very helpful table, well-structured and efficient in displaying information, however there are several small inconsistencies and formatting errors which need revision. Column header row: the abbreviation CAI is not defined at the end of the table.

18. Table 1, Row for Hiller et al.: (1) it might be helpful to the reader to include the reference # in the Author & Year column, for example “Hiller et al. 2008 [16]”. (2) There is an asterisk after 13 months, yet I don’t see this defined at the end of the table.

19. Table 1, Row for Hollwarth et al.: The age range is 9-21, which exceeds the limit of 18 that appears to be set in your methods. It’s not clear in your inclusion criteria that a study which self-defines as of adolescents but includes youth up to 21 would still be allowable. In the exclusion criteria, it states that papers with a “mixed sample” would be excluded. What was your boundary line? Also, ligaments avulsions are reported. Perhaps I’m not clear, but with a ligament avulsion I’m envisioning an avulsion fracture. Fractures were to be excluded based on your methodology. The two additional variables reported are also unclear, “pathologic clinical findings” and “abnormal” are very broad terms, can any additional detail be added to their description here.

20. Table 1, Row for Marchi et al.: It’d be helpful for the reader if you could report whether the percentages given here were at the 3year or 12 year follow-up point.

21. Table 1, Row for Soderman et al.: If this is a prospective cohort, why is the length of time the cohort was tracked not reported? This information would be helpful, as 56% of sprainers had recurrent sprain within 1 year would have very different implications than if this were a lifetime recurrence rate.
22. Table 1, Row for Steffen et al.: Abbreviations PI & NH are defined in the results column, rather than the end of the table. Additionally, the abbreviation “mean diff” is used but not defined at the table end. Since each line wraps around due to length anyways, consider eliminating the abbreviation entirely. Please check spacing as well and maintain consistency, for 95%CI is written both with and without a space between 95% and CI. Why is the last variable reported (ankle-related quality of life) formatted differently than all the others? Personally, I prefer this formatting to the formatting of the previous lines but either way revise to maintain consistency. Also, maintain consistency with abbreviations (here “mean difference” is spelled out).

23. Table 1, Row for Tyler et al.: In all the previous studies reported in this table, variables are reported as percentages or percentage plus n. Here only the n is reported. It’s aid comparison to convert to report n plus percent. Also, the sentence “9 sprained the same ankle (incidence 2.1)” is unclear. Does this mean, “9 of the 15 were recurrent ankle sprains”? What is being compared to come up with the incidence, first time sprains to recurrent sprains?

24. Table 1, Row for Weir & Watson: Again, why is the length the cohort was tracked not reported?

25. Table 2: Author column: consider including the reference number, e.g. Hiller et al. [16], for additional clarity.

26. Table 2: Outcome column: Row for Hollwarth et al. in mechanical instability section: is there any way to further describe the outcome terms “total abnormal” or “pathologic clinical findings”? Row for Hiller et al. in recurrent sprain section: typo writing greater than 2 sprains. Row for Tyler et al. under recurrent sprain section: Again consider adding a percent or incidence rather than purely raw numbers.

27. Table 2: Abbreviations: Add CAI to the abbreviation key, as well as “mean diff”.

28. Figure 1: The formatting of this figure is not sufficiently clear. Please revise. Specifically, consider reformatting to a table that more closely mimics a Medline search (at least as conducted in Medline/Pubmed). For example, interpreting from your current figure I believe the search strategy you used was as shown below:

   #4 #1 AND #2 AND #3
   #3 Children OR Child OR Paediatric OR…
   #2 Instability OR “Ankle Instability” OR “Chronic instability” OR…
   #1 “The ankle” OR ankle OR “ankle joint” OR …

The specific format example above is a personal preference, if the authors decide to leave the figure in the current format altered borders and more description would help increase clarity. For an example of this table format, see “Systematic Review of Eversion Force Sense Characteristics in Individuals with

29. Figure 2: Very nice figure. Under “records screened”, please add further description by stating (here and/or in the methods) what they were screened for. If the authors mean “Title and/or abstracts screened for preliminary eligibility” that might be a more precise way to report what actions were taken at this step.

30. Figure 2: Under reasons for exclusion of full-text articles, one reason is “abstract only”. Since it’s impossible to have a full-text article which only has an abstract, it’d be more clear to rephrase. If the box to the left stated “Full text articles retrieved and assessed for eligibility”, the first bullet in the box giving reasons for exclusion could be Abstract only, followed by description of the reasons for exclusion of articles with full text. Also, 17 is a fairly large number under the “other reasons” category—can any more description be given?

Discretionary Revisions: 31-35

31. Page 5, final paragraph: consider adding a comma after “…the representativeness and groupings of participants” to enhance readability. With multiple uses of the word “and” in this sentence it would help the reader.

32. Page 6, results paragraph final sentence: This statement about no pediatric-specific measures of CAI seems a little out of nowhere—the background or rationale for looking at this isn’t included in the introduction. The discussion section about pediatric-specific measures is very interesting and well connected. I’m not sure how this first mention of the topic could be better connected, but it might be worth considering.

33. Page 8, paragraph 1: Consider adding a “0” before the decimal place so the correlation reads, “r= -0.484”. Especially with a negative sign it’s hard to read a partial number without the 0 to hold the space prior to the decimal point. This could also be done on page 7, paragraph one for the “p=.01”.

34. Page 12, paragraph 1: Sentence 2 reads awkwardly, consider revising. Sentence 3 doesn’t appear to flow well with the previous sentence. Consider connecting to the rest of your limitations by rewording to “Additionally, numerous studies…” Or consider eliminating this limitation entirely—I’m not sure it’s a limitation that acute instability (an entirely different phenomenon) has been studied but had to be excluded from this review because the scope was only chronic pathology.

35. Table 3: The definition for “1” could be revised to increase clarity. It appears that the best label for “1” that fits with all columns might be simply “criteria met”. The other descriptors which are currently used do not apply to all columns, and thus have a potential to confuse the reader.

Level of interest: An article of outstanding merit and interest in its field
Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests.