Reviewer’s report

Title: Reliability of common orthopaedic tests used to evaluate foot position and foot function in runners

Version: 2 Date: 14 October 2013

Reviewer: Takashi Nagai

Reviewer's report:

Major Compulsory Revisions

I would like to thank the authors for submitting their study to BMC Musculoskeletal Disorders. I feel that the manuscript would require major compulsory revisions before I can make the decision. I hope that the authors would take my comments and recommendations positively to improve the manuscript and submit again.

First, the authors have tried to address several research questions in this manuscript. I would suggest the authors to simplify and focus on a few research questions. For example, if the title is ‘Reliability of…’, why did the authors analyzed differences based on gender (males/females), NDT comparison (stance/single limb-stance), three tests, etc. Based on the writing, the descriptive results and ICC/SEM results included both males, females, and all subjects. The authors should have included the rationale for gender comparisons. It might not be the best manuscript; but, I published one manuscript (Nagai T, Sell TC, Abt JP, and Lephart SM, Phys Ther Sport, 2012, 233p) that combined reliability and gender comparisons. If you have two research questions, it is ok to combine and address both questions systematically in one manuscript.

Second, the interrater and intrarater reliability should be explained in methods. It was confusing to see how the authors actually conducted the reliability. Among the four days (listed in the methods), did they visited three separate days (day 1 with the examiner A, day 2 with the examiner A, and day 1 with the examiner B)? The examiner A performed all tests for all subjects for their day 1 and day 2 for intrarater (and between-day) reliability? If so, the data for day 1 by the examiner A and B can be used to interrater reliability. Please clarify. Some researchers to prefer to measure the same subjects by two examiners in the same day (~30-60mins apart) or separate day.

Minor Essential Revisions

The author can be trusted to make these. For example, missing labels on figures, the wrong use of a term, spelling mistakes.

Here are detailed comments. In my opinion, the manuscript should have major revisions and the change of theme (focusing on the gender difference and reliability). Therefore, some sentences may or may not be included. But, I will list
them for your information for your scholarly work/writing.

Abstract: Methods: line 3 (running minimally…): please remove redundant words and make a clean sentence.

Abstract: Results: please separate intrarater and interrater reliability.

Abstract: Results: line 3 (SEM): please consider one decimal instead of two decimals. Also, please check the SEM for the MTP1 test. The upper range seems to be too large.

Introduction: all references: please check your references. Please try to use the original studies to support your sentences. For example, in the second paragraph (Decreased ankle dorsiflexion, increased…(ref7-10)), these references are not studies that evaluated these three tests for people with and without running injuries, prospective studies, etc.

Introduction: First paragraph: last two sentences (the prevalence…): please be specific on running injuries (acute, chronic, joints, etc). Also, please separate the prevalence and incidence. I think you could expand these sentences.

Introduction: last paragraph: first sentence (Although a physiological amount of pronation…): please specify what are the normative ranges.

Introduction: (However, there are no data in the literature…): Please remove the references. It is your problem statement. Or please reword these sentences.

Introduction: (Moreover, videos on internet, …): please remove the sentence. In general, you won’t need to include any videos.

METHODS: participants: first sentence: Please insert the table for their demographics.

Methods: participants: second sentence: (Potential participants were…): please rewrite. You will not need to state the actual calendar dates. Instead, please focus on what subjects had to do. (if I understand right, they made three visits, correct?

Methods: Examiners: Please remove the section and insert one sentence in the procedures.

Methods: procedures: second sentence: (After giving written informed…): Please remove the Table on running status. It does not address your research questions. As stated earlier, you can simply state about the minimal running frequency, distance, and health (injury free) for inclusion/exclusion criteria.

Methods: procedures: third sentence: (The height, weight, body mass index…): Please remove the body fat measurement. It is not a part of demographics. Also, if you would like to include, you should explain in details why you decided to use impedance and its reliability as a part of study. The demographics table should include their height.
Methods: procedures: 4-7th? sentences: (The runners were randomly assigned…): Please re-write these sentences to make it clear. Were all subjects tested by the first examiner twice for intrarater reliability? If so, how many days (or if it is within-day, how many hours apart?) were separated between the first and second assessments?

Methods: NDT: first sentence: please remove the video and citations.

Methods: NDT: the first sentence: Please remove the figure and replace with the figure with a measuring rod from the side view.

Methods: NDT: as the authors later stated in the discussion, the authors modified measuring tools (measuring rod instead of a note card). Please include statements why the authors chose to use the measuring rod.

Methods: AJD: first sentence: please remove the video.

Methods: MTP1: first sentence: please remove the video.

Methods: Statistical analysis: First sentence: please expand on the rationale and what was performed. Please include reference to support.

Methods: Statistical analysis: the first paragraph: for reliability analyses, this section is not necessary. But, I would strongly suggest the authors to try to incorporate gender comparisons. Please see the previous comments.

Results: participants: Please remove these paragraphs and tables. Table 2 can be inserted in the methods: participants to describe demographics (and please remove the body fat). Table 4 on running frequency, duration, training surface, etc. are not a part of the study.

Results: outcomes: Please remove this section and table 5. It is not a part of the study. If the authors include gender comparisons, it will make more sense.

Results: outcomes: second sentence: (The mean overall difference in NDT stance score…) Please remove. It is not a part of the study. If the authors would include, it would be the paired t-tests and Wilcoxon singed-rank test for stats. But, if you would like to include, it will be another research question. Frankly, why would you like to know the differences in two NDT tests? Would it be critical? Please add your rationale in the intro.

Results: NDT single limb-stance: the second paragraph: (The ICC of the intrarater…) Please state the ICC/SEM and combine with the previous paragraph. Please remove all directional language (higher, lower than…). Instead, simply, please state values and the magnitude of correlation based on your definition of ICC: 0.0-0.25 little, 0.26-0.49 low, 0.50-0.69 moderate, 0.70-0.89 high, and 0.90-1.00 very high correlation.

Results: NDT: the last sentence: (The Bland & Altman plot…). Please remove as it is not a part of quantitative data. Instead, please consider inserting 95% LOAs
for each SEM. (similar to what you did on the ICC with 95%CI).

Results: AJD: Please remove Figure 6 and the last sentence.

Results: MTP1: Please remove Figure 7 and the last sentence. There are inconsistency in reporting. Please be sure to follow the same way throughout the manuscript. Please also check the font size on the first SEM values.

Discussion: NDT: please state SEM and 95%LOA from previous studies and discuss how they differ from the current results and why.

Discussion: NDT: Please remove statements on 2SD or the smallest detectable change (SDC). Instead, please focus on the SEM and 95%LOAs. If the authors were interested in 2SD and SDC, please include rationale in the intro, calculations in the methods, and values in results.

Discussion: AJD: the same comments.

Discussion: MTP1: The authors should have informed readers that the MTP1 protocol by Hopson et al is different from the current protocol. It should be addressed in the intro and methods. Frankly, why did you change the protocol? Please rewrite the section and include rationale in the intro and methods.

Discussion: MTP1: please remove the video.

Conclusion: please include limitations of the study.

References: Please review the format throughout. For example, the second reference contains ‘2007’ three times! The third and fourth references are both from the same journal; but, the one is abbreviated while the another is not. The ref #26 and 28 are books; but, the format is completely different between two.

Table 1: Please remove. It is not a part of the study.

Table 2: Please include height and remove percentage fat.

Table 3-4: Please remove. They are not a part of the study.

Table 5: please explain why the authors decided to combine the right and left limb over three visits. Please be sure to include your rationale in the methods.

Table 6: Please include 95%LOA values. MTP1 SEM values look extremely high. Please rerun the data and check all calculations.

Figure 1: Please replace with the nicer quality picture from the side view using a measuring rod.

Figure 4-7: Please remove.

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published

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