Reviewer's report

Title: Factors affecting dynamic foot function in older adults: the Framingham Foot Study

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Reviewer: Julia Potter

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Factors Affecting Dynamic Foot Function in Older Adults: The Framingham Foot Study

This is a well written paper which confirms some findings already in the literature, but also contributes new knowledge.

1. Is the question posed by the authors new and well defined? Yes

2. Are the methods appropriate and well described, and are sufficient details provided to replicate the work? The methods are appropriate; the authors have acknowledged the compromise between having a large sample and collecting/analysing more data per participant. The authors justify which foot (if data were present for both feet) was used in the analysis.

To note the sampling frequency of the Tekscan, at 40Hz is quite low in comparison with some studies, therefore sampling at 40 times per second rather than, for example, 100 times per second, the data collected to generate the line of centre of pressure is not going to be as detailed.

3. Are the data sound and well controlled? Yes

4. Does the manuscript adhere to the relevant standards for reporting and data deposition? Yes

5. Are the discussion and conclusions well balanced and adequately supported by the data? Yes

6. Do the title and abstract accurately convey what has been found? Yes

7. Is the writing acceptable?
Yes

Minor Essential
1. Typographical error in Abstract – after (p<0.001 – there needs to be ‘..),..’ inserted
2. The age and BMI range needs to be in Results, and Abstract ideally. As it stands it they are only mentioned in the Discussion
3. To include a justification of why CPEI was used as the measure of foot function rather than other measures
4. To include a justification of why the age ranges analysed were under and over 65.
5. To include the exclusion criteria for a collected footstep – that is what would cause a ‘footstep’ not to be saved for later analysis and result in another footstep being collected. Footstep data can range enormously for each individual, so it is inevitable that some of the collected footsteps were not suitable.
6. Table 1 – presumably the values are mean values for age, BMI and PASE, so this needs to be stated. It would be useful to include ranges too for these variables.

Discretionary Revisions
- It would be useful to further stratify the sample into smaller age groups (albeit with smaller sample sizes) to see when these changes to CPEI were beginning to occur
- Re-word on p7, 3rd paragraph down “However, the effects of high heels on barefoot gait...”. Suggested wording “However, the effects of habitual high heel wearing on barefoot gait...”

**Level of interest:** An article of importance 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