Author’s response to reviews

Title: The effects of textured insoles on quiet standing balance in four stance types with and without vision

Authors:
Ryan Patrick William Kenny (R.P.W.Kenny@tees.ac.uk)
Daniel Eaves (D.Eaves@tees.ac.uk)
Denis Martin (D.Martin@tees.ac.uk)
Anna Hatton (a.hatton1@uq.edu.au)
John Dixon (john.dixon@tees.ac.uk)

Version: 2 Date: 27 Nov 2018

Author’s response to reviews:

Thank you to both reviewers for taking their time to review our submission again. We appreciate the further comments from reviewer 2 to improve the article’s quality. Please find the revised manuscript attached with suggested revisions made (as outlined below). There are two copies available, one with changes highlighted for your convenience, and another version without changes marked.

---

Editor
E.1 Please include a 'Conclusions' section/section heading in the main text.

Response: Thank you for highlighting this formatting error. A conclusion section (section 5) has been included at the end of the manuscript to state the following:

“Overall our results support TI use in healthy young adults for reducing postural sway measures. This is represented by a significant decrease in the APSD; an index of spatial variability, where a decrease is associated with improved balance. Placing a novel texture in the shoe presumably modulated somatosensory inputs arising from the soles of the feet. It is important to understand the underlying mechanisms by which TIs influence postural sway. To this end, utilising a healthy young adult group allows for the investigation of such mechanisms. Future research could investigate the potential underlying mechanisms of TI effects at a neuromuscular and cortical level, in healthy young adults.”
Reviewer 2.
2.1 They have barely made any changes to the manuscript, that I can see, in response to comments from either reviewer. They have merely provided a rationale for their initial approach.

Response: We would like to express our sincere regret that the reviewer feels this way. This was despite our best attempts to address the helpful reviewer’s comments in our initial response document. We would like to point out that we feel the reviewer’s input has been extremely valuable for the development of our manuscript, and the paper is much improved as a result. In the present response document, we take on board the reviewer’s new comments and try to adapt the manuscript accordingly. For completeness, we also try to further clarify and articulate the nature of our initial responses, in terms of how we have considered and responded to the initial set of comments.
With guidance from the reviewers, we have made the following changes to the manuscript:

Reviewer 1
1.1 Deleted term ‘kistler’ from abstract and included appropriate acronyms for textured and smooth insoles.

1.2 We provided a rationale for why we studied immediate effects and not longitudinal effects to the reviewers. In addition, we included the sentences below to explicitly state that all data was collected during a single testing session:
“All data was collected within a single testing session to assess acute effects of insole usage. Acute effects are important and commonly used because they provide the opportunity to assess the body’s initial response to changes in sensory input during balance [c.f., 3-5; 7, 9]. They also afford the groundwork for future studies to assess longitudinal effects. In addition, safety of participants must be considered. By assessing acute effects in a laboratory setting we can monitor participants responses to an unfamiliar device, prior to exploring any longitudinal effects, whereby participants are not within the constraints of a supervised laboratory setting.”

1.3 Included measurement units on table 1 (mm).

Reviewer 2
2.1 Based on the reviewer’s comment regarding the link between AP sway reduction and injury prevalence, we adapted our manuscript so that we did not mention reduced injury prevalence.

2.5 The manuscript was re-assessed for grammatical errors and a good number of changes were made accordingly. If the article is accepted, we are happy for the work to be referred to a copy editor.

Whilst we did not make all the changes recommended by the reviewers we did carefully consider each point, before providing our rationale as to why these changes were not met. One concern was the novelty of our study. We therefore provided an explanation to the reviewers regarding how our study differed from previous textured insole studies; as we thought this was a good reflection of the comments we had included on this point in the manuscript. The reviewers highlighted that whilst force platforms are relevant, they are not as clinically important as functional balance measures. To this end we provided reasoning for the use of force platforms to the reviewers. Finally, table 2 was described as cumbersome due to the amount of available information provided. As we felt the content of this table was important for clarity, we originally provided a rationale for keeping this intact, however, we have adapted the table thanks to the reviewer’s recent comments (please see further response below). In the
most recent manuscript we have tried our best to adhere to the reviewer’s further requests to improve the quality of the paper. We sincerely hope this new response document sufficiently satisfies the reviewer’s concerns.

2.2 For example, they argue that Table 2, despite being cumbersome, includes critical data that must all be included. However, the final column of p values shows that nearly every item was <0.001. So this is essentially redundant, and the entire column could be eliminated. Instead, a brief note could indicate "all p-values <0.001 except those noted with an asterisk" or something along those lines. It seems they argued the point rather than actually reflecting and considering how the table could be more concise, or how the formatting could be improved to communicate the findings more clearly.

Response: Based on the reviewer’s feedback we have reduced the content of table 2 as requested. Indeed, we accept the point that the p-value column could be seen as redundant due to the consistency of the alpha levels. To this end we have removed the column, and included a sentence above stating the following:

“with the majority of the associated alpha levels < p = 0.001, those results that were above this threshold were non-significant”

In addition, we altered the table heading to not include the alpha levels and provided non-significant findings as an asterisks symbol for identification. This symbol is now included in the legend of table 2. Providing mean (SD) and mean differences with 95% CI is important for clarity within the results. For example, this information is typically required by authors when creating a meta analyses of previous studies like ours. The table is adequately formatted, in line with APA guidelines, providing clear distinctions between each variable and their respective means, etc.

2.3 Another example - I believe they should specifically state that using healthy young adults is a study limitation and their findings may not apply to older adults or clinical populations. They’ve provided rationale for using this population in their response to reviewers, but have not addressed formally in the paper. It only requires 1-2 sentences, but is important to include. 

Response: We agree with the reviewer that it is imperative to not extend healthy participants findings to those of clinical groups. We apologise for this oversight in our initial revised document. Previously we were careful to not fully extend our findings to such populations, however, we see the value of explicitly stating this for clarity. To this end we have included sentences at the beginning of the final paragraph in the discussion. This sentence explicitly states our findings may not be fully extended to such populations:

“It is important to note that our findings are derived from a young healthy population, therefore the results cannot be fully extrapolated to inform on the balance abilities in those populations at greater risk of falls; such as older adults or clinical populations with known balance impairments. We recommend further work to be completed in clinical populations, such as people with either neurodegenerative diseases or sensory deficits”