Reviewer's report

Title: Static foot assessments do not predict medial longitudinal arch motion during running

Version: 1 Date: 12 May 2015

Reviewer: George S Murley

Reviewer's report:

This study investigated the relationship between static foot type and position and range of motion of the arch during running. The paper is topical/of interest to the JFAR readership.

However, the paper is lacking focus and I feel the authors have tried to apply (their very limited) data across too many areas (i.e. footwear, biomechanics, injury). Because of this, some sections feel speculative and there are some instances where the authors are showing a lack of understanding in some of these areas. I hope that my comments below may assist the authors with improving their paper and getting it published.

Major revisions

The start of the background section in its current form reads as an after-thought. The authors have emphasized the relevance of this study in the context of the ‘running community’ and the associated footwear industry. Perhaps this relates to the involvement of ASICS in funding the lead author?

The authors give the impression here that the key problem is footwear retailers are selecting shoes for clients based on static measures of foot type, and that this might not be valid. However, it is well known that one of the largest footwear retailers worldwide (The Athletes Foot) now uses plantar pressure and video analysis in their pre-amble to selling shoes. Therefore, this aspect of the paper seems speculative and detracts from the importance of their study.

Later in the discussion section, the authors temper their findings because of the small sample size, limited range of foot postures (etc), but recommend ‘a move away from static foot assessment’ based on their findings. It seems that they believe their finding/s of a lack of association between static foot type and range of motion is more important than the significant and relatively strong correlation/s between static foot type and MLAA. Is range of motion a risk factor for injury but MLAA is not? Is more or less motion better? This needs to be teased out in the paper. This is an example of where the authors could be more focused rather than dabbling into topics such as footwear, which is an under-researched and poorly understood area.

Background
1. Opening paragraph needs to be more focused. Is static foot type a risk factor for injury — yes — based on a recent systematic review and meta-analysis published in JFAR (Neal et al 2014). Therefore sentence 2 (line 47) and line 50 need revision as the statement is no longer ‘opinion’ but instead based on meta-analysis. The wording in lines 50-51 ‘hypothetical needs of runners’ would also need clarification (not sure what this means).

Discussion

2. The authors have cited two systematic reviews related to foot type and injury (Neal et al; and Tong), however a third review by Dowling et al., 2014 [JFAR] (related to dynamic foot posture and injury) may assist with parts of the discussion on page 10 (lines 226 -228).

3. Line 234. ‘…advocates moves away….’

Limitations

4. There seem to be more sophisticated means of measuring foot kinematics than what is presented – does this need some discussion?

5. The issue of sample size and foot type is mentioned, however the lack of cavoid foot types might deserve an explicit statement (especially since those with cavoid foot type probably more likely to represent those with musculoskeletal injury).

Conflict of interest statement

6. Could the authors re-consider the conflict of interest statement since the lead author is receiving an ASIC scholarship and the practices and importance of the footwear industry is currently a key aspect of the paper?

Table 2.

7. Please clarify if Rasch transformed values are presented here for FPI-6

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

'I declare that I have no competing interests'