Reviewer's report

Title: The associations of leg lean mass with foot pain, posture and function in the Framingham Foot Study

Version: 2 Date: 29 June 2014

Reviewer: Karen Mickle

Reviewer's report:

This paper aimed to determine whether there is any association between the lean mass of the leg and the presence of foot pain, foot posture and foot function. The time difference between the DXA scans and the foot assessment is a major limitation. It is plausible individuals with foot pain are less active which may mean that muscle mass decline with aging may be greater than average. Although mentioned in the methods section, this needs to be raised in the limitation section of the discussion. My other concern is the use of the terms planus/cavus foot types. These have been defined using quintiles from the population based sample, however, there is no clinical association with these terms (i.e. they may not be pathological). The clearest example of this is the extremely high proportion of participants classified as having a cavus foot type (30%), when this a fairly uncommon pathology in the general population. Therefore I feel that this explains some of the lack of associations with leg mass and foot types.

Minor issues not for publication (e.g. typos)
1. In the 2nd paragraph of the introduction, reference is made to the “long muscles of the leg”. This is not a typical anatomical reference, and I am assuming that the authors mean long muscles of the foot i.e. muscles that control the foot, but originate in the lower leg.
2. In the 2nd sentence of the results, please remove the word “marginally” (p value is very small).

Major Compulsory Revisions
1. Please clarify the definition of the leg for the DXA scans. Is just the lower leg (below the knee), does it include the foot?
2. It is not clear why the models were adjusted for BMI. Leg mass was already normalised to height.
3. The Authors should also include the study by Angin [1], who found an association between muscle size of the foot/leg and pes planus foot types.

Minor Essential Revisions
1. Please confirm what pressure variable was used to calculate MAI: i.e. mean?
2. Please include the sample size for which the MAI quintile cut-points are based.
3. Please report the age range of the participants.

4. The authors should refer to the articles by Wearing [2, 3] about the influence of body composition on footprint parameters in the discussion. Were there any associations between BMI and foot type in the current study?

Discretionary Revisions

1. In the opening sentences of each results section, insert the 1SD leg mass value in parentheses.

References


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

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests