Reviewer’s report

Title: The paediatric flat foot and basic anthropometry in 140 Australian school children. Fatter children not found to have flatter feet.

Version: 2 Date: 16 December 2010

Reviewer: Karen J Mickle

Reviewer’s report:

Minor issues not for publication (e.g. typos)
1 Abstract, final sentence: replace ‘indicated’ with warranted.
2 Methods, 2nd paragraph: Describe 12 point continuum as “supinated-normal-pronated”. Appendix 1: is WHO growth chart and nothing to do with the FPI.

Major Compulsory Revisions

Many of the concerns that I raised during the 1st review were not addressed in the revised version, therefore I still feel that they need to be addressed.
1. Abstract: Implications, shouldn’t be listed under results.
2. Methods, 1st paragraph: Please confirm the reason behind using a FPI score # 6 to classify a child has having flat feet. Based upon the normative values for minors provided by Redmond et al., [1], a FPI of 6 is in the normal range, while a FPI of 12 would be potentially abnormal.
3. Data analysis: What statistical tests were used to compare variables for the flat foot group to the remaining children? I would suggest non-parametric due to the large sample size difference between groups. Similarly, was the FPI normally distributed (doesn’t appear to be in the histograms)? If not, Spearman correlation coefficients or logit transformations (see comment above) would be more appropriate.
4. The use of BMI in children should not be used as a continuous variable, as a higher BMI does not necessarily indicate greater adiposity. BMI should be used to classify whether a child is overweight or obese using the age and gender cut-off points proposed by the International Obesity Task Force [2]. For example, two children could have the same BMI of 21.0, however of one child is 7 years old, they would be classified as obese, whereas a 8.5 year old child would be classified as overweight. Therefore the relevance of the relationship between BMI and FPI is questionable. A correlation between BMI z-scores and FPI would be more appropriate.
5. Results: Please report the mean age of the subjects in the flat foot and non-flat foot groups. Age is an important cofounding factor of medial longitudinal arch development in this age group. It is likely that it has not fully developed in the younger children, but may be completed in the oldest children assessed. It may be necessary to add age as a covariate into the statistical analysis.
6. Discussion, 2nd paragraph: Give further details of the similarity of findings between the current study and that of the children with growing pains (ref #11).

7. Discussion: It is consistently mentioned throughout the manuscript that all other previous studies have found that overweight and obese have flatter feet and the finding of this study conflict the prior studies. The current study design is completely different from all the other studies and this should be discussed, as it is probably the main reason for the conflicting results.

Minor Essential Revisions

1. Results, paragraph 2: “descriptive statistics” are described, when no outcome of the analyses performed has been reported.

2. Table 1: Indicate the variables that differ significantly between groups (e.g. *). What does the Variance row refer to? Name the groups rather than the ‘n’.

3. Figure 2: It is difficult to differentiate the symbols in black and white, please use different symbols for the right and left scores.

4. How many children were classified as overweight or obese? Did these children have flatter feet than the children in the normal BMI category?

**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