

Reviewer's report

Title: Reliability of measuring Abductor hallucis muscle parameters using two different diagnostic ultrasound machines

Version: 1 **Date:** 1 September 2009

Reviewer: catherine bowen

Reviewer's report:

The study aimed at investigating the reliability of two different ultrasound machines in the measurement of the abductor hallucis muscle. The paper is original and interesting and attempts to address an important issue of inter-machine reliability in the use of ultrasound imaging to assess musculoskeletal structures of the foot and ankle. The most relevant criticism refers to the lack of acknowledgement of investigator recall bias with respect to the same investigator undertaking the scans for both machines immediately one after the other. In addition, the first sentence of the discussion seems confusing. Whilst the discussion focuses on the reliability of both machines, there should be some discussion of the agreement between the two machines or the reliability of the Chison machine against the Philips machine? Was the Philips machine used as the 'gold standard' that the Chison machine was compared to?

A few minor essential revisions are required:

Acknowledge limitations to methodology.

Abstract, paragraph 2, data analysis page 6 and discussion page 10: all have mentioned 'trail to trail'. Should this be trial to trial?

Equipment, page 4: change probe to transducer to be consistent throughout the paper.

Table 2, page 15: the ICC is 0.97 and the confidence intervals are 0.99 – 0.99. One of the figures must be incorrect?

A few further discretionary revisions should be considered:

Introduction, page 3 references an important issue in the musculoskeletal arena is the assessment of inter-scanner variability to Conaghan 2005. The authors should consider citing 'The OMERACT Ultrasound Special Interest Group' which poses inter-machine variability as one of its research questions (Wakefield, D'Agostino et al 2007).

Within the discussion, the authors mention using MRI to assure accuracy of the cross sectional ultrasound measurements. MRI, although more precise than ultrasound, also has limitations on this depending on the resolution of the machine and it maybe that the use of cadaver measurements would also be useful to do this?

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

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