Reviewer's report

Title: Reliability of the use of ultrasound in the assessment of the dorsal Lisfranc ligament

Version: 2 Date: 28 May 2012

Reviewer: Catherine Bowen

Reviewer's report:

The authors present a succinct report of the intra and inter tester reliability of repeated measurements of the length of the Lisfranc ligament using ultrasound (US). The findings from the paper indicate that US is highly reliable in measuring this structure and would be useful to other investigators who wish to further develop this technique.

However, I have a number of queries related to the methodology and discussion which require clarification and major revision:

1. The investigators are clear through the methodology that they have developed a reliable technique to measure the length of the Lisfranc ligament using US. My concern is over the training and subsequent inference of how the technique may be used in future. Two investigators (podiatry students) are trained by a radiologist to measure the Lisfranc ligament using US. There are a number of training issues that are not clear within the report. Can the authors confirm that the radiologist was a specialist in foot and ankle sonography? It is stated that multiple training sessions took place, but how many hours of training did this involve? It would be useful to know what the reliability of the trainees to the radiologist was in this technique. It should be made clear throughout each section as well as within the limitations that the training was targeted at measurement of the ligament only and that no diagnostic US training took place, unless it did, in which case the diagnostics training should be reported.

2. If the training was solely targeted at the measurement of the Lisfranc ligament then the inferences within the discussion should be reviewed. The authors state that this technique will be useful for identification of pathology within the Lisfranc ligament and useful for clinicians and researchers in the future. However the technique reported excellent results for ‘measurement’ of the Lisfranc ligament and not detection of pathology. The technique reported would not identify pathology unless the sonographers were specifically trained in diagnostic sonographic imaging for the foot and therefore this inference cannot be made from the current findings. It would be more appropriate to state that these findings lay the foundation for further work in developing the technique to be applied to diagnostic identification of pathology within this structure.

Other minor revision comments:

1. Introduction, pg6: Change “We would like to determine if ultrasound
assessment of the dorsal Lisfranc ligament can be collected in a consistent manner” to something like “The aim of this study was to determine the intra-rater and inter-rater reliability of measuring the length of the Lisfranc ligament using diagnostic ultrasound”.

2. Methods, pg 6: please explain how the sample of 50 subjects was selected.

3. Methods, pg 6: did you consider osteoarthritis changes within the Lisfranc joint complex as an exclusion?

4. Methods pg 7: please explain why 20 subjects were selected to return 24 hours later for DDR and whether the other set of twenty for (JMJ) were different to those scanned by DDR?

5. Methods pg 8: Under ultrasound technique, please explain how the parallel lines were located? Ie was this by clinical observation or by palpation of anatomical landmarks? Also within this section please reword the phrase “then dives off into the joint space”.

6. Results, pg 9: were the subjects age matched?

7. Discussion, pg 11: Re ‘This suggests that patients analyzed in a single leg stance with the leg externally rotated 15# may give the most meaningful results to a clinician’ Within the experimental design it is stated that the foot is placed in 0# and 15# abducted foot positions with the participant seated. There is a hypothetical leap here to translating the method into this sentence?

8. Discussion, pg 11: please explain/ expand on the term ‘diagnostic block’

9. Figure 3: I am not sure that I understand figure 3 as the figures are currently overlapping and the block lines are obscuring the Lisfranc ligament view (the latter point refers to figure 4 too).

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

**Quality of written English**: Needs some language corrections before being published

**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