

Reviewer's report

Title: Repeatability and agreement of ultrasonography with computed tomography for evaluating forefoot structure in the coronal plane

Version: 0 **Date:** 25 Nov 2016

Reviewer: Lindsey Cherry

Reviewer's report:

Summary: Overall, this is a well-presented concise report which will be of interest to foot health practitioners and sonographers. However, the use of the term validity throughout needs to be addressed; arguably this work has shown both intra-rater agreement of US for key anatomical measurements and agreement between US and CT for these measures. Please can the authors remove reference to validity throughout. It may be appropriate in the discussion to note that CT is considered to be the gold standard method for obtaining these measurements and therefore agreement between the modalities means that validity of US can be inferred.

Title: Arguably, the title does not reflect the scientific nature of this work - please reconsider the use of the term validity and replace with agreement or repeatability.

Abstract: As per previous comments, please reconsider the use of the term validity throughout. Please separate the final conclusive statement into 2 sentences, making more explicit the findings of this paper and the authors suggested future relevance.

Keywords: suggest removal of 'validity'

Background:

p2, line 2: please provide a reference for this sentence.

P3, line 78: please provide a reference for this sentence.

P3, line 91: please provide a reference for this sentence.

Method:

Reference to obtaining of ethical approval and consent is included.

P4, line 112: Please provide additional detail regarding the nature of US training undertaken; was this part of a formal course or in-house; if so who provided the training?

P4, line 114: Suggest removal of the term 'neutral position' and replace with 'resting position'?

P4, line 119: Did the US examiner leave the drawn line visible on the patients' foot prior to both scans? If so, arguably, this will change the nature of the repeatability experiment and I would suggest that this is referred to explicitly in the discussion. Probe placement relative to clinical palpation and bone landmarks alone is inferred however, replacement of the probe over a drawn line may falsely elevate the intra-rater agreement findings.

Please specify the estimated time between obtaining the second image; e.g. was this repeated immediately with less than 1 minute gap? Please consider the impact of this on the potential repeatability findings.

P4, line 122: Suggest removal of the term 'neutral position' and replace with 'resting position'?

P4, line 124: If possible, please add further detail of how the coronal plane slice was oriented - slice orientation is likely to affect the relative comparative alignment with the US probe placements; presumably where possible the researchers would like these to be as close as possible - how was this achieved?

Statistical analysis: Please see comments in general feedback regarding use of the term validity throughout.

The rationale for BA-plot and ICC use is given. Please provide rationale for the inclusion of PCC.

Results:

Table 1 is clearly presented.

Suggest table 3 should be table 2 and labelled as 'Intra-rater agreement of US measures'. This structure mirrors the analysis and narrative structure throughout the rest of the paper.

Suggest removal of the term validity from Table 2 title; this table shows agreement scores between modalities and should be labelled as such.

Discussion: As per previous comments please address the use of the term validity throughout.

Level of interest

Please indicate how interesting you found the manuscript:

An article of importance in its field

Quality of written English

Please indicate the quality of language in the manuscript:

Acceptable

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Please complete a declaration of competing interests, considering the following questions:

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