Reviewer’s report

Title: Reliability of a two-probe ultrasound imaging procedure to measure strain in the Achilles tendon

Version: 0 Date: 31 May 2019

Reviewer: Lindsey Cherry

Reviewer's report:

Many thanks for submitting an interesting piece of work that is of relevance and interest to those working in the field of both foot health and imaging technologies. Overall, this is a well presented study and I have only minimal comments. Significantly however, please consider adding a clear statement about to whom your paper is targeted; e.g. is this a technical paper for researchers or are you suggesting that this is a method that could be developed for clinical use - if the latter please expand on this, including discussion of current limitations, within your discussion section.

Abstract:

Well-written, concise and accurate representation of the work presented. No further comment.

Background:

Paragraph 1, line 73: suggest inclusion of a linking sentence here to explain the relationship between your initial mention of strain and then statement about Achilles injury prevalence - this link is inferred but as this is your central hypothesis it may be useful to state this explicitly here.

You clearly explain the previously reported association between strain and injury of the Achilles. However this was demonstrated using different methodological approaches - does this mean that you are questioning the validity of this association? Please could you clarify.

Methods:

Please provide justification for your sample size.
Please provide brief overview of other participant demographic details if available (e.g. ethnicity or smoking status and how these may relate to your primary outcome). If not available please provide brief mention within your discussion section.

Inclusion/exclusion criteria are included; Please provide brief justification for the upper age restriction to recruitment.

Confirmation of ethical approval is included - no further comment.

The experimental protocol is clearly explained with good use of imagery - no further comment.

Ultrasound image acquisition: Overall this is a well presented section. However, it would add further clarity if you could outline how you ensured that the probe was placed accurately within medial/lateral movement away from the central tendon region if possible.

Image acquisition: use of randomisation of participants to achieve the inter-session sample is mentioned - please provide detail about how these participants were randomised or selected.

Please justify your reduced sample size for inter-session analysis.

Please provide a supporting reference for your strain calculation or make explicit that this is provided for the first time by yourselves.

Analysis - line 205: please review this sentence for grammatical accuracy.

Analysis - line 210: this is the first mention of a reduced sample for inter-rater analysis - please review all sections were sample size is mentioned and consider consolidation of information into one clear section.

Results:

Line 220 - spelling error - amend 'trail' to 'trial'

Inter-rater within session reliability - line 258: The way the data is presented is a little confusing - this line suggesting that there was a significant difference between raters and yet the previous lines reporting the agreement between raters was excellent - please consider revising to aid clarity.

Discussion:

Overall this is a well-written section. However, it would be of use if you could include outline discussion about to whom this paper would be use - e.g. are you proposing that this is a viable
method for future researchers? Is this an approach that should be further developed for use in clinical practice?

**Level of interest**
Please indicate how interesting you found the manuscript:

An article whose findings are important to those with closely related research interests

**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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