Reviewer's report

Title: Universal goniometer and electro-goniometer intra-examiner reliability in measuring the knee range of motion during active knee extension test in patients with chronic low back pain with short hamstring muscle

Version: 2 Date: 03 Jan 2019

Reviewer: Elise Gane

Reviewer's report:

Overall comment 1: I agree with Reviewer 2's comment that the written scientific English could be improved throughout the whole manuscript, and takes away from the reader being able to easily understand the message of the paper.

Abstract conclusion: Why the differentiation between clinical evaluations and laboratory studies?

Background page 4, lines 5-6: Please include references for the several studies that report general risk factors for back pain.

Background page 4, lines 7-8: Poor grammar within the sentence 'So that a short hamstring muscle is usually reported in patients with back pain'. The authors should note that correlation does not equal causation. The presence of short hamstrings in a patient with back pain does not mean the short hamstrings caused the back pain.

Background page 4, lines 5-6: The authors have inserted text to address a comment from Reviewer 2. Patient control over the movement is presented as the justification for using the AKE test over the passive SLR test. I think this is inappropriate as a justification. The presence of patient control over their movements means they can be limited by pain and motivation, which are hard to replicate in a reliability study. A better justification would be if the AKE test was proven to be more reliable than the passive SLR, with statistical support from other studies. The authors state that the AKE test has a very high reliability. What is the specific reliability relative to the passive SLR test?
Methods page 6, lines 8-9: The stated inclusion criteria make no reference to how chronic low back pain was defined. The authors are encouraged to elaborate on how patients with chronic low back pain were considered eligible for this study. What length of time was considered acceptable for chronicity? Was inclusion based on severity of pain, location of pain (lumbar vs sacral vs gluteal)? Were patients with leg pain (i.e. extending below the gluteal fold) included? 

Methods page 6, line 20: Please ensure throughout the text that patients are referred to as 'he/she' or 'his/her', or better yet, 'they' and 'their' to be inclusive of gender non-binary individuals. This is to avoid the use of just 'he' and 'his'.

Methods page 6, line 22: Please reword the sentence for clarity to 'the lower extremity of the other side'.

Results page 7, line 15: Would the authors still consider the repeatability to be 'good' now that ICCs higher than 0.90 (page 7, line 2-3) have been defined as excellent?

Discussion page 8, lines 9-10: This is a very blanket statement, and the cited article only addresses hand range of motion. This should be removed from the text.

Discussion page 11, lines 1-4: The text added to address a comment by Reviewer 2 does not adequately address the comment, nor does it quite make sense. Have the authors considered any other reasons for why there was a difference in mean (SD) angle measured by the two tools, other than the fact that they were different tools? A universal goniometer is also not really considered an observational analysis. It is still a quantitative data collecting tool.

Overall comment about Discussion: Studies are presented that have reported on intra and inter rater reliability of range of motion measurements taken with goniometers and electrogoniometers. However, good critical analysis of these studies and a meaningful comparison to the results of the present study is lacking. Electro-goniometers are described as subject to cross-talk error, but what this means is not clear from the subsequent text. Paragraphs are short or long, and arguments are hampered by this poor writing structure. I acknowledge the challenges associated with writing in English as a second language, and this particularly affects the Discussion.
Table 2: Spelling errors present in the word goniometer in several locations.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
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Quality of written English
Please indicate the quality of language in the manuscript:

Not suitable for publication unless extensively edited

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