Author's response to reviews

Title: A new clinical test for sensorimotor function of the hand - development and preliminary validation

Authors:

Ulrik Röijezon (ulrik.roijezon@ltu.se)
Ragnar Faleij (ragnar@hfc.se)
Petros Karvelis (pkarvelis@gmail.comteiep.gr)
George Georgoulas (geogeo@ltu.se)
George Nikolakopoulos (geonik@ltu.se)

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Author’s response to reviews:

UR: We thank the reviewer and editor for the positive response and for the valuable additional comments to further improve our manuscript. Each comment is addressed point by point below. Have also extracted the numberings of the headings and subheadings, to be in line with other articles published in BMC Muskuloskeletal Disorders.

Reviewer reports:

Helen French (Reviewer 1): I would like to thank the authors to addressing previous reviewer comments- the manuscript is much improved as result. My comments are minor and mainly relate to English language and grammatical errors

Methods

Pg 6, line 102: add the word 'the' between 'for' and 'dominant hand'

UR: Manuscript has been corrected according to comment.

Pg 6, line 104 'trial' should read 'trials'

UR: Manuscript has been corrected according to comment.
Pg 6, line 106: how did you determine that ICC of >0.6 was acceptable. I would consider this quite low if this test is being used in clinical practice e.g. to evaluate change as a result of treatment. This value would imply a substantial measurement error.

UR: I am not sure I completely understand this comment but try to answer from the best of my knowledge. These guidelines/suggestions are based on expected ICC values greater than 0.6. If you expect lower ICC you may need a larger group for the experiment. We did not expect ICC values lower than 0.6 and therefore 50 participants performing three trials each was deemed to be sufficient. Regarding ICC it is well known that it says very little about the reliability by itself. It is a valuable measure for relative reliability, i.e., high ICC values shows that if a person has a relatively high score (compared to the other participants) on the first trial the same person will have a relatively high score on a second trial and vice versa. But this is only relative to the other participants in the same study. This means that if you have a very heterogeneous group (with large variations between participants) you will by default get higher ICC values compared to if you include a more homogenous group with small variations between participants, using the same test. Therefore the acceptability of the ICC values needs to be considered in relation to the heterogeneity/homogeneity of the participant group. Moreover, as also outlined by the COSMIN group and several others, it is important to present some measure of absolute reliability. Standard error of measurement (SEM) has been suggested by the COSMIN group and other researchers, and is included in combination with the ICC in our manuscript. We believe that the ICC combined with the SEM values gives a proper presentation of the intra-session repeatability of the test on the group of participants included in this study, which is in line with our choice of the number of participants in beforehand.

Pg 9, line 164 'choose' should read 'chose'

UR: Manuscript has been corrected according to comment.

Pg 10, line 185 'behavior' should be 'behaviour'

UR: Manuscript has been corrected according to comment.

Pg 10, line 199, add the word 'a' between 'without' and 'musculoskeletal'

Results

UR: Manuscript has been corrected according to comment.

Pg 11, line 212 change 'persons' to 'people'

UR: Manuscript has been corrected according to comment.

Pg 11, line 215 add the word 'a' between 'without' and 'hand'

UR: Manuscript has been corrected according to comment.
Pg 11, line 218 add the word 'a' between 'had' and 'fractured'

UR: Manuscript has been corrected according to comment.

Pg 11, line 221 change 'month' to 'months'

UR: Manuscript has been corrected according to comment.

Pg 11, line 225 change 'altogether' to 'a total of'

UR: Manuscript has been corrected according to comment.

Pg 11, line 227 delete 'altogether'

UR: Manuscript has been corrected according to comment.

Pg 12, line 247 add the word 'the' between 'in' and 'palmar' and in the next sentence before 'dorsal'

UR: Manuscript has been corrected according to comment.

Pg 13, Table 2: legends explaining abbreviations should be placed underneath the table e.g.

RD, Right dorsal; RP, Right Palmar etc.

UR: Manuscript has been corrected according to comment. I looked at some recent random papers (at BMC Musculoskel.) were they used a symbol in superscript before the abbreviation and then used this symbol to explain the abbreviation below the table. I hope this is OK.

Pg 14, Table 13 likewise legend should be underneath table explaining ICC and SEM. I suggest reviewing other papers published in BMC musculoskeletal disorders journal.

UR: Manuscript has been corrected according to comment. I looked at some recent random papers (at BMC Musculoskel.) were they used a symbol in superscript before the abbreviation and then used this symbol to explain the abbreviation below the table. I hope this is OK.

Pg 15, line 292 review grammar in 'was here chosen'. Unclear what you mean here… do you mean 'in the study was chosen..'

UR: Manuscript has been corrected according to comment.

Pg 15, line 298 change 'direction' to 'directions'

UR: Manuscript has been corrected according to comment.

Pg 15, line 300 review the word 'presented'. Do you mean 'developed'
In this section, I would also add construct validity should be ascertained... perhaps by comparing with 3D motion analysis?

UR: Have included a sentence on comparing with a 3D motion system, and also mentioned a suggestion to evaluate responsiveness.

Pg 19, line 383 change the word 'assess' to 'assessed'

UR: Manuscript has been corrected according to comment.

Conclusion

Pg 19, line 389 change 'the test' to 'a test'

UR: Manuscript has been corrected according to comment.