Author's response to reviews

Title: Modeling early recovery of physical function following hip and knee arthroplasty

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Author's response to reviews: see over
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Dear Dr Le:

RE: Revision of Manuscript Based on Reviewer Feedback
“Modeling early recovery of physical function following hip and knee arthroplasty”

Enclosed please find our final revised manuscript for consideration of publication in
BMC Musculoskeletal Disorders. As requested, we have addressed the reviewer’s
comments in a point by point list including our response and the corresponding changes
in the manuscript.

We have also reviewed the journal style to ensure that our manuscript conforms to the
outlined requirements. Thank you for all of your assistance.

Yours sincerely,

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Responses to Reviewers

Reviewer: Jos W Twisk

Major Compulsory Revisions: None

Minor Essential Revisions:

Suggestions

The model building process is still questionable. The authors state on page 11 that “at each stage, terms introduced earlier in the equation remained if there were significant”. I don’t understand. Did the authors perform some forward prediction modeling? What do they mean by each stage?

The paragraph describing the modeling process on page 11 has been modified to hopefully make the process clearer. Please refer to the rewritten paragraph at the top pf page 11 beginning with the following sentence: “Predictors were explored one at a time, sequentially”.

According to my suggestion the authors included two tables with regression coefficients. Unfortunately, the tables were not very informative. For instance, when an interaction term between two continuous variables is in the model, the regression coefficients are hardly interpretable. Maybe the authors should report only the model without interactions and discuss the interactions in the results section. Secondly, the magnitudes of variance estimates are also not informative; they should be left out of the table. The reason why I wanted to see a table with regression coefficients is to get some idea of the magnitude of the relationship instead of only significant versus not significant! Another possibility is to give a table with the regression coefficients for each of the separate predictor variables (also the non-significant ones). That will provide the reader with more information regarding the observed relationships.

Further revisions have been made to Table 4 and 5 to hopefully make the findings clearer for the readers. The authors of this manuscript felt that Dr Twisk’s original suggestion to include tables with regression coefficients was a good idea. However, we believe that it would be misleading to remove the interaction terms from the tables, all of the pertinent coefficients from the model need to be included. In an effort, to provide further understanding to interpreting interaction terms, an explanation is provided on page 14, paragraph 1 beginning with “To further clarify the interpretation of the interaction terms…..”. Although Dr Twisk feels that the magnitudes of the variances estimates are not informative, in our opinion information about unexplained variation is essential for understanding clinical variability. Therefore, to improve the usefulness of this information, an example of interpreting the standard deviation from the variance estimate
for the 6MWT intercept has been added on page 13, paragraph two. In addition, in both Tables 4 and 5, the variance estimates are now reported as standard deviations.

In table 5, the site of the arthroplasty is in the model, while the p-value is not significant. According to your statement in the methods section, this is rather strange (maybe site of arthroplasty is forced in the model???).

We had originally left this in the table to further emphasize that site of arthroplasty was not a significant predictor in the self-report measures, in this case the physical function subscale of the WOMAC. However, we see Dr Twisk’s point and have therefore removed this estimate and left only the significant predictors in the model.