Author’s response to reviews

Title: Prediction of grip and key pinch strength in 978 healthy subjects.

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Author’s response to reviews:

Comments to the revision

Reviewer 1: Richard Bohannon
Thank you for your positive comment.

Major compulsory revisions

1. More descriptive data.
We agree with this remark and provided the most important grip and pinch strength data out of the tables of the original study (Werle S et al., old ref. 22, new 25). Since these data can be found in the original report and are not results of the current article, the data have been listed as an appendix at the end of the article. To be directly comparable to the meta-analysis of Bohannon RW et al. 2006 (as listed below in the reviewer’s report), the data were also stratified by sex and 5-year age groups. All underlying descriptive data have been outlined in greater extent in the 3rd paragraph of Methods, Data collection. In addition, the present data were compared to those of this meta-analysis in the 6th paragraph of the discussion.

2. Elaboration of description how grip strength was measured.
We agree to that and have outlined this description in Methods, Data collection, 1st paragraph (is also an extract of ref. 25).

Minor essential revisions

1. Numerous publications provide normative data...
Bohannon RW et al. 2006 has been cited as requested.

2. Grip strength as surrogate for overall strength – with caution.
We agree with that and have included this remark and the reference of
Discretionary revisions.

1. Discussion: State that the equations provide a more precise standard...
   We completely agree to this remark, thank you. This has already partly been discussed in the 3rd paragraph of the discussion. We have now outlined this issue in greater detail in this paragraph, see especially the last sentence.

2. Formula in Excel.
   Programming has been explicitly indicated for grip strength in the 5th paragraph of the discussion.

Reviewer 2: Joy C MacDermid
Thank you for your very positive comments.

Minor suggestions.

1. Sampling procedure.
   The remark that sampling was not really randomly performed is correct. This has been corrected and stated as a limitation in the Discussion. Volunteers were also examined at senior residences where also immobile subjects could be found.

2. Stepwise regression?. Order of variables.
   Both has been clarified in Analysis, 2nd paragraph.

3. Jamar was calibrated.
   This has been specified in Methods, Data collection, 1st paragraph.

4. Speak to body being reflected ... BMI?
   See Background: "Strong predictors are sex, age, body height and mid-forearm circumference (20,21)."
   The BMI=weight/height^2 has been included into the model by height and weight and by the models which included all possibilities of linear, quadratic and inverse terms.
   This remark has been added into the 1st paragraph of Analysis.

5. Programming calculation of the norm
   This has been done as already suggested by reviewer 1, see Discretionary revisions, item 2. This has been outlined indicated for grip strength in the 5th paragraph of the discussion.

Reference
   Has been discussed and cited in the Background (Ref. 21), see item 4.