Reviewer's report

Title: Wrist flexion and extension torques measured by highly sensitive dynamometer in healthy subjects from 5 to 80 years

Version: 1 Date: 18 September 2014

Reviewer: Peter Hamer

Reviewer's report:

A) Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

1. I found the manuscript easy to read, was appropriate in management and analysis of the data collected and did not overstate the results. However, I do question whether the data can be considered as norms. While the total number of healthy people tested initially looks admirable, review of Table 1 indicates relatively small numbers per age grouping and often a different proportion between genders than is found in the general population. There is no indication of the demographics of the sample of the population e.g. socio economic status, blue or white collar workers, metropolitan versus rural or other descriptions related to how well the sample represented the population from which the participants were recruited. The sample is a sample of convenience and may be affected by self-selection bias and it is unclear whether those who volunteered may have different attributes than those who did not volunteer.

2. Were the data tested for normality? This would be important if the values reported in Table 1 or predictive equations in Table 3 & 4 are intended to be used as norms (as indicated in the manuscript) allowing the reader the confidence to use the mean (±SD) as the best measure of central tendency. Data representation using confidence Intervals (CI) would also be of value – particularly if the data in Table 1 are to be considered as norms. I have calculated some of the confidence intervals and this reveals that many of the age groupings have overlapping CI. As CI are affected by the size of the sample, it may be possible to analyse the different age groups and determine different age groupings based on clear separation of results – if the values presented in Table 1 are intended to be used by readers. I make this comment as the data for torque are presented in Table 1 for different age groups and it is likely that the clinician is more likely to use the values in this Table 1 rather than calculate the predicted value from the equations presented in Tables 3 & 4.

B) Minor Essential Revisions (such as missing labels on figures or the wrong use of a term which the author can be trusted to correct)

1. With the addition of line numbers the Reference list has been difficult to follow as the number reference has been overtyped by the line number. This will not be a problem once the manuscript is finalised.
2. Anthropometric measures – sentence 1 – line 95. The SI correct terminology is Body Mass (kg) rather than weight (SI measurement in Newtons). However, it is acknowledged that the term of weight is commonly used. My preference is to use Body Mass (kg). Please search the manuscript and change each use of weight to mass, including Table 1 and Table 6.

3. Delete “ in line 98 – Anthropometric measurements

4. In Statistical analyses, line 4 (line 153 in manuscript) change was to were

5. Normative data, line 6 (line 193 of manuscript) change systemically to systematically

6. Figure 4, please change Nm to N.m as has been done in all other figures eg. Figure 3

C) Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)

1. Reliability assessment, line 6 (line 221 of manuscript). Suggest change brought out to revealed

2. To encourage the use of the predication equations rather than direct use of numbers presented in the Table, the authors could include a discussion of the value of using the predictive equations (and even consider an example calculation) as I suspect most clinicians will use the table. As the predictive equations have been shown by the authors to have a better fit for children than adults there may need to be further discussion on the limitations of the generalizability of the results from either the torque values in Table 1 or the values obtained from the predictive equations in Table 3 & 4.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.