Reviewer's report

Title: Angle-torque relationship of the pronators and supinators in younger and elderly men and women

Version: 1 Date: 16 March 2015

Reviewer: Joseph Hamill

Reviewer's report:

Abstract
Page 2, lines 3-7: These sentences could be condensed and presented as a purpose for the study and the hypotheses. (minor)
Page 2, lines 10-14: How were the torques measured? (major)
Page 2, lines 17-25: Avoid using acronyms in an abstract. (minor)
Page 3, lines 28-31: I do not see how you can reach this conclusion based on your data? (major)

Background
Page 4, lines 37-38: You need a reference for this statement. (major)
Page 4, lines 46-49: Are you categorizing these points based on their order of importance? These two points are essentially the same thing since the lever arm changes with the length of the muscle. (minor)
Page 4, lines 53-57: What does the 2nd part of this sentence mean? (minor)
Page 4, lines 58-60: Why should these strength measures be brought into sharper focus? (major)
Page 5, lines 62-64: Do you mean pronation is described as simultaneous calcaneal eversion with FOOT ABDUCTION and dorsiflexion? Your definition of supination I agree with. (major)
Page 5, lines 69-70: If the purpose is to develop a database, why would you have hypotheses and employ statistical procedures? (major)

Methods
Page 5, lines 78-79: Did you do a sample size estimation a priori to determine if your sample size was sufficient to detect true differences? If not then a post hoc power analysis should be included. (major)
Page 5, line 87: Why was the navicular drop test done by a shoemaker? Should this have been done by a clinician of some sort? (minor)
Page 6, line 100: Why only the dominant limb? (minor)
Page 6, lines 103-105: MVIC tests are very unreliable even if done several times. How many MVIC tests did you do and which did you ultimately use? (major)
Page 6, line 104: Even if the apparatus is described elsewhere, a few sentence
here describing what it is would be helpful. (minor)

Page 6, lines 105-107: The sub-talar axis orientation that you have chosen is an average and not a specific orientation for everyone. Did you consider trying to determine the static sub-talar joint axis for each participant? (major)

Page 7, lines 126-129: Were these degrees of calcaneal inversion/eversion or pronation/supination? (major)

Page 8, lines 147-150: You measured maximum pronation and supination yet the measuring system you used seems to measure inversion/eversion. What did you measure? (major)

Page 8, lines 154-155: It is hard to believe that all dependent variables were normally distributed! Did you do any transformation to normalize these data?

Page 8, line 157: An ANOVA will not determine the shape of the torque-length relationship. How did you determine the shape? (major)

Results

Page 9, lines 167-170: In an multi-factorial ANOVA, always discuss the interactions first in the order of: 1) the three-way interaction; 2) the two-ways interactions; and 3) the main effects.

Discussion

Page 11, lines 221-222: This is a difference purpose than was presented in the Introduction. Make them consistent. (major)

Page 11, lines 222-223: You cannot assume that there is a difference in muscle physiology simply based on the peak torques.

Page 11, lines 223-225: Unless you measured the degree of sarcopenia and muscle mass, then you cannot make these statements as derived from your data. You have to qualify these statements suggesting these as reasons for differences in your data. (major)

Page 11, lines 232-245: All you are doing here is repeating your results. How are you going to interpret the meaning of these results? (major)

Page 12, Lines 246-247: This has been known for quite some time.

Page 13, line 274: What do you mean by joint stability?

Page 13, lines 284-289: This paragraph is unnecessary and should be removed.

Conclusions

Page 13, lines 293-295: Why do you recommend isometric testing and not dynamic testing?

Page 14, lines 305-306: What does this sentence have to do with the content in this paper?

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I have no conflict of interest or competing interests.