Reviewer's report

Title: Does muscle weakness affect plantar pressure in diabetic polyneuropathy?

Version: 1 Date: 29 January 2008

Reviewer: Dieter Rosenbaum

Reviewer's report:

Major Compulsory Revisions:

1) The aim of this study is to identify the cascade of relationships that link muscle weakness to plantar pressure (introduction) or to identify associations between reduced muscle strength, adaptations in gait dynamics and changes in plantar pressure pattern ratios (discussion). However, no correlation analyses were performed to look into the potential relationship between these factors or the respective parameters so that these questions cannot be answered directly.

2) The discussion chapter does not include a clear take-home message. The authors should begin the discussion with a short summary of the most important findings and add the main points in a concluding paragraph to help the reader to appreciate the innovative aspects of this study.

Minor Essential and Discretionary Revisions:

Tables:

3) Significant changes could be written in bold type in order to make the identification easier.

4) I would suggest adding a table with the absolute plantar pressure parameters in the 10 foot regions for all groups.

Abstract:

Page 2, line 3: Please change “induce” to “induced”.

Page 2, line 13-14: Please change “ratio of forefoot-over rear foot” to “forefoot-to rearfoot ratio”.

Page 2, line 16: Please change “associated to” to “associated with”.

Page 2, lines 16-18: The statement of the last sentence is unclear. How about: “The reduced lower leg muscle strength alone did not sufficiently explain this redistribution”?

Introduction (should not be named “Background”):

Page 3, lines 1-3: Please add references to support these general statements.

Page 3, lines 6: Please change “rise” to “increase”.

Page 3, lines 6-9: Long sentence; the authors should divide it into two shorter ones.

Page 3, line 13: Please change “misbalance” to “imbalance”
Page 3, line 21: Please change â##Butâ## to â##However,â##

Page 4, lines 2-3: Please change to â##It remains unclear, however, how abnormalâ##â##

Page 4, line 14: What is meant by the term â##cascade of relationshipsâ##? What does it imply?

Methods:
In general: Please add a space between number and unit; i.e. 25 V, 50 Hz, â##

Page 5, line 12: Please address the issue of potential fatigue after 25 MVC efforts. Furthermore, it remains unclear whether 25 trials were performed in total or in each respective position.

Page 5, line 17: Please change â##sensibilityâ## to â##sensitivityâ## (in the whole manuscript). Furthermore, the verb is incomplete; add â##wasâ##

Page 5, line 20: It should be â##metatarsal boneâ## instead of â##metacarpal boneâ##. You are concerned with the foot!

Page 5, line 20: Please change â##epicondylâ## to â##epicondyleâ##

Page 5, last paragraph: It remains unclear whether only one camera (2D) was used or only the sagittal plane was analyzed (from 3D with multiple cameras). Furthermore, please justify why only one muscle group was recorded and why you chose the glut. med. (Where are the results?)

Page 6, line 2: â##Emedâ## is the name of the measurement device; the company is â##Novel GmbH, Munichâ##.

Page 6, lines 8: Where are the results of the self-selected speed and how did they differ from the imposed speed? So what was the effect (not effort) of the imposed speed?

Data Analysis
Page 7, line 10-13: What was the reason for the 300 N threshold? Please explain.

Page 7, line 22: Please change â##surfaceâ## to â##areaâ##.

Page 8, line 4: Please change â##the third until the fifth metatarsal over heelâ## to â##the third to fifth metatarsal to heelâ##.

Statistical Analysis
- What is the rationale for eliminating the outliers?
- Why did you apply an ANOVA with such a fairly small sample size? I would suggest using non-parametric statistics!
- Please spell out â##LSDâ##.

Results:
Page 9, lines 18-19: No discussion of the results in this chapter. The term â##seemed to result fromâ## should be replaced with â##was accompanied byâ## or something similar.
Page 10, line 1: Please change â##atâ## to â##duringâ##.
Page 10, line 5: Please change â##minimal valueâ## to â##minimumâ##.

Plantar pressure patterns: Please add a Table with the absolute pressure values for the 10 foot regions and show the data for the CoP.

Discussion:
Please add a short summary of the main results when beginning with the discussion.

Page 10, line 20: Please change â##forâ## to â##with respect toâ##.

Page 11, line 1: Please change â## Whereas the relative muscle weakness â## to â## While relative muscle weakness â##

Page 11, line 4: Please change â##Commonly it is believed that retarded nerve function â## to â## It is commonly believed that loss of nerve function â##

Page 11, lines 4-5: Please add a reference for this statement!

Page 11, line 6: What is meant by â##a shift from knee extension to plantar flexionâ##? Please explain.

Page 11, lines 23-24: The title suggests that the main topic of this paper is plantar pressure. However, this sentence is the only part that mentions plantar pressure results. This appears like a quite reduced treatment of the data.

Page 13, lines 19-21: Please add a reference for this suggestion.

Page 13, line 22: Please delete â##studyâ## (repetition).

Page 14, line 3: â##Redistribution of joint moments is a determinant of altered plantar pressure in DPNâ##. Shouldnâ##t this be the title of the paper?

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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