Reviewer’s report

Title: A novel magnet based 3D printed marker wand as basis for repeated in-shoe multi segment foot analysis: a proof of concept

Version: 0 Date: 28 Jun 2017

Reviewer: Andrew Buldt

Reviewer’s report:

Thank you for the opportunity to review this article. The development and initial testing of the reliability of a new marker for testing foot kinematics is very promising indeed. The following are suggestions for the article.

Abstract

- Background - The first sentence is slightly confusing. Not sure if the application of in-shoe multi segment foot kinematic assessment has faced challenges in the past or is currently facing challenges. Could you make a minor amendment to make this clear.

- Results - Can you include the kinematic variables that were the source of the values that you state. Without context it is difficult to ascertain what these results mean.

Background

- line 21. Missing a word - 'in the last ten years'

- line 26 - can you please define the difficulty to apply regular markers. Is it because you cannot easily access the skin directly?

- line 29 - Can you please explain how shoes were modified. Was it by cutting windows to allow access for markers

- line 38 - missing a word? 'the current study'

- line 34 - The aim of the study is not absolutely clear as there was no mention of assessing reliability of the new markers. Can you please make it explicit what the aim of the study was in relation to the new markers

Methods
- line 60. Presumably the usefulness of the new marker is dependent on the strength of the magnets. You provide values for magnetic force but can you please provide some context as to how this strength can withstand force that may be applied during gait.

line 62 - Can you please provide more details about the material used to construct the rod.

line 78 - Can you please explain how the baseplates were fixated to the skin.

line 78 - The method for testing the markers is confusing. Ultimately the base plate is applied and remains in situ for the duration of the testing session while the reliability of kinematic variables was assessed after removing and reapplying the rod to the baseplate. Can you please make this clear.

line 88 - Can you please provide some more information about the amount of time that the trial was conducted. 'Up to 3 times' does not make this clear.

Results

No points raised.

Discussion

Line 132 - Spelling 'with'

Line 137 - Can you please clarify which angular relationship and in which plane recorded the values of 1.29 degrees.

Level of interest

Please indicate how interesting you found the manuscript:

An article whose findings are important to those with closely related research interests

Quality of written English

Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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