Reviewer’s report

Title: Limb symmetry during double-leg squats and single-leg squats on land and in water in adults with long-standing unilateral anterior knee pain; a cross sectional study

Version: 0 Date: 10 Oct 2017

Reviewer: Boyi Dai

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The researchers quantified lower extremity kinematics during squats in adults with or without unilateral anterior knee pain. This study was novel and well designed and implemented. I only have several minor suggestions.

Line 83. It will be beneficial to review previous studies on kinematic asymmetries during squats on land in individuals with anterior knee pain.

Line 92. I suggest adding a hypothesis after the purpose statement.

Line 106. Could you briefly describe the data used to calculate joint angles? Inertial sensors can measure angular velocities in the global reference frame. Angular displacement can be integrated from velocity, but how can these angles be related to anatomical joint angles? Is there a specific way to place the sensors so that if can measure the orientation of segments?

Line 122. I wonder whether the results would be different if the participants were instructed to squat as deep as possible.

Line 179. I could not find consistent increase in peak knee and hip flexion for the regular squats between the land and pool. Can you explain what were the causes of increase squat depth for the regular squats.

Line 181. Peak knee and hip flexion angles did not increase for the affected side for the regular squats.

Line 187. Please revise the references 9,37. Only a total of 33 references were included in this study. The researchers may consider the following articles, which found similar kinematics but different kinetics during jump-landing in patients following ACL injury. Changes in landing mechanics in patients following anterior cruciate ligament reconstruction when wearing an extension constraint knee brace. Sports Health. 2014 May;6(3):203-9 Lower Extremity Movement Differences Persist After Anterior Cruciate Ligament Reconstruction and When Returning to Sports. Clin J Sport Med. 2016 Sep;26(5):411-6.

Line 270. A lack of kinetic measurements was another limitation of this study.
Line 281. Based on the findings, the researchers may suggest that clinicians should pay close attention to the potential asymmetries in water and perhaps provide verbal or visual feedback to minimize this compensatory strategy.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

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