Reviewer’s report

Title: Pain relief is associated with decreasing postural sway in patients with non-specific low back pain

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Reviewer: Masood Mazaheri

Reviewer’s report:

Major Compulsory Revisions

While your study aims to answer an interesting and relevant research question regarding postural sway in patients with low back pain (LBP), two major concerns need to be addressed in your manuscript for improving the quality.

First of all, your study seems to be not the first one that “investigat(e) the association of altering pain levels and postural sway”. Below you can see a list of 5 articles assessing body sway following recovery of back pain and/or disability:


Irrespective of the type of intervention, the results are inconsistent. Three studies [1-3] report no effects of successful treatment on postural sway although other indicators of motor performance such as psychomotor reaction times and reflex delays of back muscles are found to improve. Two studies [4,5] do find a decrease in postural sway after successful treatment of LBP.

Therefore, the literature does not always support your results indicating decreased sway following reduced intensity of pain. You should discuss
extensively about the conflicts between your findings and those of other researchers. Furthermore, based on this controversy, your statement about the stronger cause and effect relationship between pain and sway compared to impaired proprioception and sway is not always true.

Secondly, you have founded your research question on the proposition that “increased center of pressure excursions are well documented in patients suffering from non-specific low back pain”. This is based on the results of the following review:


However, more detailed analysis of the literature shows that postural deficit in patients suffering from LBP may not be consistent as you found in your review and it depends on experimental conditions (e.g. sensory manipulation) in which patients with LBP have been assessed. The finding of your study also verifies this notion since there is no significant difference between LBP patients and healthy reference group, even at the baseline where no intervention has been delivered. When COP excursion has not been changed in patients with LBP compared to control subjects, why we should think of recovery of sway in this group of patient? Please provide some lines of discussion.

**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 declare that I have no competing interests