Reviewer's report

Title: Effect of standing posture during whole body vibration training on muscle morphology and function in older adults: a randomised controlled trial

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Reviewer: Stephen R Stannard

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Effect of standing posture during whole body vibration training on muscle morphology and function in older adults: a randomised controlled trial

Monica Mikhael et al.

Summary
This randomized controlled trial was undertaken to compare the effects of three months of vibration platform therapy with bent and straight knee on upper and lower body skeletal muscle function. The results showed that upper body contraction velocity increased with flexed knee exercise and lower body strength increased with locked knee exercise. The (only) novel finding pertaining to the hypothesis was that locked knee vibration exercise improved upper body contraction velocity.

This was a carefully written paper, free from spelling and grammatical errors.

Major Revisions
The experiment is reported as being a 6 month randomized controlled trial, yet only the three month data is included. It is my opinion that if the research team waited and published both 3 and 6 month data the resulting publication would have considerably more impact and represent more robust scientific reporting. There are two reasons for this:

1) When subsequently reporting the 6 month data, you must again report the pre-training data and/or the 3 month data for comparison. Normally it is not acceptable to report the same data set twice within the literature.

2) If you chose not to report the 3 month data when publishing the entire (6 month) study you may miss important difference in training response which occur in the first 3 months compared to the second three months. Indeed it is possible that functional improvements may occur in the first three months, but disappear in the second three month period. If you then only report pre-training and 6 month data, you would miss any improvements all together. If you DID report the 3 month data again when publishing the entire study, you would be presenting the data twice. Furthermore, reporting the entire study would allow body composition data to be included.
The authors need to clarify what they mean by “lateral acceleration” (pg 19) when describing the vibration platform used. Normally the force (and thus acceleration) would be vertical in nature when applying WBV to a person in a standing or squatting position so that the force being applied at the feed directly opposes that of gravity. If the acceleration produced IS lateral, I can’t understand how the intervention would work!

It is not clear how you set a pneumatic resistance machine to produce percentages of 1RM; perhaps this is a characteristic of the Keizer machines, but this should be mentioned. Also, power is a product of force and velocity so if you set the resistance, you are measuring velocity and calculating (not measuring) power. Also, if speed of muscle shortening is increased (e.g. upper body) with LK for the same resistance, this means power is increased. However, to increased speed from a stationary position when resistance is the same, means that either acceleration was for a longer period, or force (strength) was also increased.

Given that the novel aim of the study was to compare locked and flexed knee vibration, the result that only upper body contraction velocity was different between these two treatment groups is a little disappointing, but interesting nevertheless.

Minor revisions
You should include participant numbers in each table description.
Pg 21: I don’t think you need note twice that the study was probably underpowered.

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 interest