Reviewer's report

Title: Effects of home-based resistance training and neuromuscular electrical stimulation in knee osteoarthritis: a randomized controlled trial

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Reviewer: Marco Alessandro Minetto

Reviewer's report:

This is an interesting study on the muscle adaptations following resistance training vs neuromuscular electrical stimulation training in patients with knee osteoarthritis.

The manuscript presents clear rationale and experimental design and adopts precise investigating techniques. The data are clearly presented and discussion consistently integrates the experimental data with the different aspects governing muscle adaptation to training. The length is appropriate as well as the reference list.

I would suggest only the following minor changes.

Abstract.
Please, change “CSA” with “cross sectional area of the QFM”.

Methods, page 6.
“Four reusable adhesive hydrogel electrodes (…) are attached to the deep surface of the garment and conduct impulses to the vastus medialis and vastus lateralis”.

The multi-path arrangement enables to stimulate the rectus femoris also. I would change the last part of the sentence with “vasti and rectus femoris muscle”.

“Subjects were instructed to utilize the maximum stimulation intensity comfortably tolerated”.

The level of force developed during each training session (also known as “NMES dose” that can be calculated as peak force of each electrically-elicited contraction divided by the MVC of the day and expressed as a percentage) (Maffiuletti, 2010) was not controlled in this study since it consisted in home-based training sessions. However, were the subjects instructed to record the stimulation intensities? Could the Authors report the average values of stimulation intensities for the first and last week of training?

Results.
Magnetic resonance imaging represents the gold standard for evaluating soft tissue dimension (and properties). Could the Authors integrate the Result section with the addition of other data that can be obtained by MRI? It is well established that NMES training performed with commonly available (2-channel) stimulators
mainly activate the muscle portions close to electrodes (that is, vastus medialis and lateralis). As the Author used a novel type of garment-based stimulator, it could be interesting to assess if the different muscles of the anterior thigh (vastus medialis, vs vastus lateralis vs rectus femoris) underwent similar increases in CSA (or thickness) following NMES training. Consistently, it could be interesting to assess if these increases were different between the two types of training.

Tables 2 and 3.
The unit of measurement of the peak torque should be Nm. Please, correct.

**Level of interest:** An article of importance in its field

**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.