Review of: "Sustained Muscle EMG Activity to Contractile Failure During Incremental Exercise and Intense Constant Load Cycling: No Evidence of a Central Governor"

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Thank you for giving me an opportunity to review this paper, and I am so sorry for taking a long time to review it. This study has some major and minor concerns before considering publication.

Major comments:

First, the authors would need to rewrite the introduction part because the present introduction part is a bit choppy and too long. This study investigated changes in EMG activity and cycling load, not biochemical changes.

Second, the authors need to follow the rules for writing. Some abbreviations were used without spelling out. Additionally, after using an abbreviation, the author needs to use that abbreviation consistently. For example, the authors spelled out "the central nervous system" in the fourth paragraph of the introduction.

Third, the study protocol is complicated; thus, can you provide a figure to explain the study protocol?

Fourth, why were the age ranges of the participants different between males and females? Did age have any potential effect on the present results?

Fifth, although sEMG data were mainly discussed using VL and Gmax, why did the authors measure sEMG activity from the biceps femoris and gastrocnemius?

Sixth, the authors also would need to reconsider the conclusion part. You may need to lead reasonable conclusions based on the present findings. You did not measure intracellular metabolic conditions.

Minor comments:

Abstract

which is inconsistent with the predictions made from the CGM.

This sentence is not understandable because there is no explanation regarding the prediction from the CGM.

Methods

Surface electromyography (sEMG) was employed to record muscle activity throughout all exercise bouts. Muscle activity was recorded from the gluteus maximus, vastus lateralis, biceps femoris, and medial gastrocnemius. Data was collected using a Trigno Avanti wireless biofeedback system (Sensor model SP-W06; Base station model SP-W02,7,8; System model DS-T03Delsys, Boston, MA, USA,) which was sampled at 2000 Hz using LabChart software (AD Instruments, Colorado Springs, CO, USA).

Prior to application of the sEMG sensors, participants were prepared by shaving the hair covering applicable locations (if required), rubbing the sensor locations with fine sandpaper for skin abrasion, and finally wiping and cleaning the sites with alcohol wipes. Sensors were placed with direction from the SENIAM (sEMG for Non-Invasive Assessment of Muscles) guidelines over skin locations for the vastus lateralis, biceps femoris, gastrocnemius, and gluteus maximus muscles.

There may be no need to repeat the names of the muscles twice.

Critical power was fully spelled out many times after it was abbreviated.

What are "peakFbr" and "peakVt"?

The authors have no need to repeat "Statistical significance was accepted at p≤0.05 and sphericity was assumed to be equal across all levels of each factor" twice in the statistical analysis section.

This can be coupled with another study by Camata et al.[12], who also demonstrated significantly greater sEMG rms data from the VL, VM, and RF muscles at the end stage of an incremental protocol.

What are the VM and RF?

To continue, a strong correlation between sEMG rms data and the changes in muscle metabolites was observed and was consistent with the concept that greater central mechanisms are required to compensate for the development of peripheral fatigue. [31]

What are the "greater central mechanisms"?