

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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Potential competing interests: No potential competing interests to declare.

The work examines the relationship between neuromuscular EMG activity and cardiovascular stress. The aim of the study was to demonstrate the changes in EMG amplitude and fatigue of the cardiovascular system using a maximal fatigue test. Based on the article, the study was carefully conducted.

However, the following points are unclear:

- -Which subjects could be evaluated, and how many of them were female and male?
- -The increase in EMG activity may also be due to impaired coordination between agonist and antagonist. Was this taken into account?
- Komi et al. showed that the frequency spectrum changes with fatigue. Has such an analysis been considered? (Komi PV, Tesch P. EMG frequency spectrum, muscle structure, and fatigue during dynamic contractions in man. *Eur J Appl Physiol Occup Physiol*. 1979 Sep;42(1):41-50. doi: 10.1007/BF00421103. PMID: 499196.)
- Furthermore, the question arises based on the measurements of Wakeling whether the increase in RMS due to fatigue does not lead to synchronization of the muscle fibres and therefore to a greater amplitude. Do you have any information on this point?
(Wakeling JM, Pascual SA, Nigg BM, von Tscharner V. Surface EMG shows distinct populations of muscle activity when measured during sustained sub-maximal exercise. *Eur J Appl Physiol*. 2001 Nov;86(1):40-7. doi: 10.1007/s004210100508. PMID: 11820321.),
- Furthermore, the question of neuromuscular fatigue (Piper rhythm) is not addressed. (e.g., Stirling LM, von Tscharner V, Kugler P, Nigg BM. Piper rhythm in the activation of the gastrocnemius medialis during running. *J Electromyogr Kinesiol*. 2011 Feb;21(1):178-83. doi: 10.1016/j.jelekin.2010.06.007. Epub 2010 Jul 22. PMID: 20655246.)

Further points to note in the article:

- Fig. 1: Explanation of the two-colored curves (blue and red) is missing.
- In the section "Critical Power":
"and tests were administered across 3 days as follows; day 2, one trial; day 3, two trials; day 4, one trial. *For day 2, participants lay supine for 15 mins between trials to mitigate carryover effects from fatigue.*"
This should be day 3 and not day 2.



Please update the article and consider the points made above.