Reviewer's report

Title: Aerobic exercise modulates intracortical inhibition and facilitation in a nonexercised upper limb muscle

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Reviewer: Zhen Ni

Reviewer's report:

This study tested the changes in motor cortical circuits after aerobic exercise at a remote body part. The authors reported reduced short interval intracortical inhibition (SICI) and increased intracortical facilitation in forearm area in the motor cortex after stationary biking. The study was well performed and the manuscript was well written.

I only have a few minor comments.

One merit of this study is that the authors designed to link the changes in cortical circuits with different genotypes. Unfortunately, the results did not show significant difference between Met carrier and val-val subjects. This may be due to small number of subjects tested as the mean values were quite different between two groups and some interactions showed p-values around 0.1. The authors may want to discuss this point extensively.

Page 10 bottom to page 11 top, authors commented that the LTP and LTD-like effects produced by repetitive stimulation may be strengthened by physical training based on the results in the present study. However, it should be noted that the interaction between repetitive stimulation and physical training is complex. It is not necessary to be addictive. There are many studies looking at the metaplasticity in the motor cortex. Huang et al. (Cereb Cortex 18: 563-570, 2008) may be directly relevant as the authors specifically pointed out theta burst stimulation.

Figure 1 does not show essential information. It could be removed.

Errors need to be corrected.

Page 13 line 7: GABAB
Remove color from Figure 7a.

Level of interest: An article of limited interest

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.