Reviewer's report

Title: Effects of simultaneous cognitive and aerobic exercise training on dual-task walking performance in healthy older adults: Results from a pilot randomized controlled trial

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Reviewer: Angela Marie Abbatecola

Reviewer's report:

Raichlen et al. investigated the effects of simultaneous aerobic exercise and cognitive training intervention on cognitive performance during dual-task walking test (DTWT) in healthy older adults over a 12 week period. They performed a pilot randomized clinical trial for their investigation. In order to test their hypothesis participants (n=74 at baseline) were randomized into four groups: Participants were randomized into one of four groups (n=74): 1) cognitive training (COG), 2) aerobic exercise (EX), 3) combined aerobic exercise and cognitive training (EXCOG), and 4) video-watching control (CON). They found that there was a significant improvement in cognitive performance in all 3 intervention groups over the 12 week period. However, this improvement was double in the EXCOG group and was already significant at the 6th week of follow-up. They did find any improvements on gait variables. I found the study interesting, however I have some comments.

1) The authors use cognitive performance measure during DTWT as their main outcome. The authors themselves state in the discussion section that previous works have shown improvements in executive and memory functioning following exercise and cognition training. However, their study does not provide any additional cognitive performance measures. This is an important limitation in the study.

2) The study does not take into consideration any chronic diseases present. In the methods section, they included older persons without any disorder that would affect cognition. They do not specify these disorders. Also if patients did have a chronic condition, this information is needed along with any drug medication.

3) An important limitation is the large number of participants that did not finish the study.

4) There is a typographical/visual error/s in Figure 2 regarding p values.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

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