Reviewer’s report

Title: The influence of long-term treadmill exercise on bone mass and articular cartilage in ovariectomized rats

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Reviewer: Jun Iwamoto

Reviewer’s report:

Chang et al. investigated the influence of long-term treadmill exercise on changes in bone mass and articular cartilage in ovariectomized rats. They suggested that long-term exercise had a beneficial effect on articular cartilage for the rats after ovariectomy, but appeared to have few improvements on bone mass. This study seems to be interesting because the effect of long-term exercise on bone and articular cartilage was examined. However, I have several concerns in this paper.

Comments

1. Although the authors obtained a positive result regarding articular cartilage in ovariectomized rats, the assessment of BMD and bone mass may not be enough to conclude nonsignificant effect of exercise on bone tissue.

2. Why didn’t the authors examine femoral or tibial BMD as well as lumbar spine BMD? There are a lot of papers showing the positive effect of treadmill running exercise on femoral or tibial BMD and bone mass.

3. Please show initial and final body weight, and also show some parameters related to bone size (growth), because the authors used young growing rats. Muscle weight and body composition are also important parameters in this study.

4. In figures, the order of bars should be CON, RUN, OVX, and OVX-RUN from the left side. Please show the results of statistical analysis in the figure or figure legend.

5. The method of trabecular BV/TV measurement may not be adequately described. Please detail it.

6. Please refer the intensity of exercise. Was it mild or moderate?

7. Bone formation and resorption parameters need to be shown, if they were measured.

8. In the abstract, results, and discussion, the following sentence needs to be revised: The results showed that rats in groups without ovariectomy (CON and RUN) have significant higher BMD and bone mass than in the groups with ovariectomy (OVX and OVX-RUN). This may be right: The results showed that rats in groups with ovariectomy (OVX and OVX-RUN) had significant lower BMD and bone mass than in the groups without ovariectomy (CON and RUN).

9. English needs to be corrected by native speakers.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

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'