Reviewer's report

Title: Possible mechanism underlying the effect of Heshouwuyin, a tonifying kidney herb, on sperm quality of aging rats

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Reviewer: alessio paffoni

Reviewer's report:

In this MS Niu and colleagues report results of specific herbs administration on sperm quality of aging rats. They report an increase in testicular function and sperm quality in treated aging rats compared to controls.

The present work is well designed to supply evidences of a possible role of Heshouwuyin in controlling sperm function and testosterone production. The paper is well written and results are properly described.

The question posed by the authors is well defined and methods are appropriate and well described.

I have only few comments/questions related to minor revisions:

1) The treatment with Heshouwuyin in Groups SWY1G and SWY2G started after 16 and 17 months from birth, respectively. Can one month delay in starting the treatment be responsible for a lower response in SWY2G rats (rather than the length of the treatment)?

2) Given the partially similar composition of Heshouwuyin and Shouwu pills but different results, can you argue the role of specific herbs in the mixture and identify the most important ones?

3) Drug dosage appears to be quite high; the rationale of this choice should be described better

4) Possible side-effects should be described or a comment should be added to the discussion.

5) weight of rats: 350-390g as described in page 3, or 300 g as mentioned in page 4?

6) Figure legends should be checked carefully (for example, fig.7 “# compared to AG and “-compared to SWPG” is not applicable. The number of figures appears to be excessive (discretionary).

7) a comment regarding traditional medicine, limits of the study and future applications would be of interest.

Level of interest: An article whose findings are important to those with closely
related research interests

**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