Reviewer's report


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Reviewer: Mauro Lombardo

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The response of the hypothalamic-pituitary-adrenal (HPA) axis to ITT is exacerbated in healthy athletes compared to healthy sedentary subjects. ITT can be a tool to assess whether the athlete is well conditioned and to predict performance once the exacerbation of HPA axis responses can play an important role in the progressive improvement of sports performance.

In this cross-sectional study healthy athletes (ATL) and nonphysically active healthy controls (NPAC) have been selected to describe the theory of the novel hormonal conditioning mechanism using the findings from another study.

I think the selection criteria for patients should be reviewed. The two small groups have a large numerical difference: 25 healthy athletes (ATL) versus 12 non-physically active healthy controls (NPAC), the age range is very wide: 18-50 years old, and the BMI range (20-30 kg/m2) should be restricted. These criteria means to include young and old people; healthy and overweight patients, these differences could effect HPA as demonstrated in other papers. The selection of athletes with unclear criteria is another limitation of the study. Mixing strength and endurance exercises and not registering the trainer's load systematically does not allow to be sure of the degree and type of physical activity.

The suggestion is to change the inclusion criteria: restrict the subjects' BMI range and limit age differences. It would also be useful to reduce the difference in the number of subjects between the two groups. The criterion of selection of subjects considered "athletes" should also be better investigated.

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.

No

**Are the conclusions drawn adequately supported by the data shown?**
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No

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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

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

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