Reviewer’s report

Title: Influence of recovery strategies upon performance and perceptions following fatiguing exercise: a randomized controlled trial

Version: 1 Date: 28 Mar 2017

Reviewer: Brett Comstock

Reviewer’s report:

have thoroughly reviewed this manuscript for scientific content, manuscript construction, and general impact. This manuscript aimed to assess the effects of mouthguard use vs no mouthguard use in the cortisol, lactate, and performance responses to a heavy acute resistance exercise protocol. The following should be addressed to strengthen the manuscript.

Major Issues:

This was a well-designed study, so the bones are good. However, the write up of the manuscript has several over-arching issues that need to be addressed.

1. Data Reporting: It is good practice to report some of the following for i) clear and complete description of your data, as well as ii) possible use in future meta-analyses. Not reporting some of the values could keep your data from being useful to others. First, when reporting p-values, do so with specific p-values. A smaller p-value doesn't make your findings any more or any less practically significant, but describes strength of evidence against the null-hypothesis. Also, it would be good to see mean differences, confidence intervals, as well as effect sizes for your primary variables. This would give us an idea of the magnitude of the difference, which is more useful for practice than simple directional findings. Also, revise manuscript for usage of "significant" or "non-significant" this indicates importance, and that is simply not the case. If you insist on using these terms, then add "statistically significant" as again, this is not biological/physiological significance.

Also, consider for clarity reporting your findings as you do on page 10 line 15 for someone else's study ("found 51% greater salivary cortisol 10 minutes post-ex"). This not only allows you to indicate statistical significance, but give a magnitude as well). Further, readers typically understand percentages better than anything else (to get percentages, use mean differences).

Other comments on data reporting:

a. Consider Tables with the values as opposed to figures (these figures are not terribly instructive (and consider the other data items from above). Also, if you insist on figures, report your most important finding with a figure, put the rest in a table. Further, revise the colors on the figure for clarity (I see grey and grey, perhaps black and grey would work better)
b. The values are strange in your Abstract. Revise for mean±SD.

2. Is a sample of 15 individuals sufficient for this question? If a power analysis was done, please add this in the manuscript. If no power analysis was done, how did you decide on 15 men as the sample size? I understand a within group design aids with power, but 15 seems low.

3. The paper is about comparing the effects of mouthguard use on metabolic stress and performance of a resistance exercise protocol. Your Introduction should focus on this. The Introduction is not written in a way where your purposes are clearly filling a gap in the body of knowledge. Why would we expect your variables to be explanatory to this phenomenon? You need to build up info on cortisol and lactate, and build a case for the importance and need for your study. Currently, this is not the case. See Introduction comments for more on this.

Other Suggested Revisions:

Introduction

1. Review this section to underscore the novelty AND importance of your findings. Currently, this is not the case.

2. This section reads as a tour of studies, in no particular order. Revise to put supporting evidence relative to your purposes (in order of primary to tertiary purposes).

3. Cortisol and Lactate are not variables that can give mechanistic insight. These are response variables to the given stimulus. Basically, you are describing a piece of the physiological footprint of resistance exercise response with or without a mouthpiece. How would Cortisol etc be able to explain this? What would the mechanism of reduced Cortisol concentrations with a mouthguard be? This should be fleshed out in both the Introduction & Discussion.

4. Review this section for grammatical errors, run-on sentences, and clarity, so you communicate as best you can to our readership.

Methods

This section is well done.

1. Is 16% interassay CV acceptable? This seems high.

Results.

1. See above for suggestions on tables/figures, data reporting.
Discussion.

1. Here you should drive home your important findings, and why they are novel and impactful, in the context of current and population specific literature. Please revise this entire section for this point. Also revise for continuity with other sections of the manuscript as well as your purposes.

Practical Applications

1. There is no Practical Applications section in this journal, per the Author Guidelines. This should be the Conclusions sections, and revised as such (Not written like the Practical Applications section of the JSCR).

Instead, the Conclusions section should "state clearly the main conclusions and provide an explanation of the importance and relevance of the study to the field."

It is prudent to mention that the entire manuscript should be reviewed and revised to focus on communicating the findings in a clear concise manner and removing unnecessary language that hinders clear communication of the findings, as well as grammatical or spelling errors.

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?
If not, please explain in your comments to the authors.

No

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.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:
Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

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