Reviewer's report

Title: Improvements in maximal strength are not associated with improvements in sprint time or jump height in high-level female football players. A cluster-randomized controlled trial.

Version: 0 Date: 13 Jun 2019

Reviewer: Thomas Muehlbauer

Reviewer's report:

Comments to the manuscript "Improvements in maximal strength are not associated with improvements in sprint time or jump height in highly trained female football players. A cluster-randomized controlled trial" (Manuscript No.: SSMR-D-19-00026)

Abstract

Fine. No comment.

Introduction

Please provide a scientific (evidence-based) rationale why maximal strength training (MST) should result in improved sprint time or jump height? With respect to the concept of training specificity one would assume that training must attempt to closely mimic the demands of the respective sport-specific activity. In other words, sprint training and/or plyometric would be more suitable to improve sprint time or jump height compared to MST. What was your rationale to perform MST?

In my opinion, it is not satisfactory to say that studies in male soccer player showed favorable effect on both 1RM, sprint and jumping performance following MST and now we would like to investigate this for female soccer players.

Why do you expect similar effects in females as those shown in males? Are there any information on sex-specific training-induced mechanism following MST available?

Methods

Concerning your notion: "The training group (TG) performed MST training [...] in addition to the planned pre-season training, while the control group (CG) was instructed to perform their
originally planned pre-season training." How can you differentiate between the general effect of a higher training volume in the TG vs. CG and the specific effect of MST?

How did you define "highly trained"? What about years of playing experience, frequency and/or amount of training per week?

Page 5: There is a typo "kne"

Statistical analysis:

Please additionally run a 2 (group: TG, CG) x 2 (test: pretest, posttest) ANOVA with repeated measure on test for the normally distributed data to see whether there are group by test interaction effects.

I suggest to perform a correlation analysis for the delta-values (i.e., post-test minus pre-test values) between 1RM and sprint times / CMJ height to see whether improvements in muscle strength are related to enhancements in speed, muscle power.

Results

Did you observe any baseline performance differences between the two groups?

Did you consider to split your data in responder and non-responder? Maybe some players already reached a quite large strength value in the pretest leaving a small room for further improvements.

Did you consider to allometric scale your CMJ data?

Discussion

Page 10: The last sentence: "Previous […]" is hard to understand. Please revise.

Please add a section stating the strengths and limitations of your study.

Figure 1

Y-axis: the unit is missing

Figure 2
The figure shows percent change values but in the Results section you refer to absolute/relative values only. Thus, please add information on percentages.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**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.

I am able to assess the statistics

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

Acceptable

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