Reviewer’s report

Title: Effects of a blocked versus an alternated sequence of balance and plyometric training on physical performance in youth soccer players

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Reviewer: Anis Chaouachi

Reviewer's report:

This study examined the acute of a blocked versus an alternated sequence of balance and plyometric exercises on physical performance in young soccer players. Physical qualities were compared and included variables of power, COD, speed and balance. The study reports two main findings: main effects for both protocols after 6 weeks of training and no superiority of one group in comparison to the other.

The study is well written in parts. The design is a replication of a previously not reported study (Chaouachi M et al. 2017. Within Session Sequence of Balance and Plyometric Exercises Does Not Affect Training Adaptations with Youth Soccer Athletes. J Sports Sci Med. 2017 Mar 1;16(1):125-136) but instead of using within session alternated sequence, authors change BT and PT on a weekly basis. The intervention time is short (6 weeks) and the number of players per group is limited (< 10 per group).

I do have suggested a few comments below to consider in improving the paper. I hope my remarks could be as critical as constructive for this and the future studies for this respectful group of researchers.

The introduction section does not provide a clear background of the potential application of week to week changes in the context of training periodization. This has not been clearly stated and backed up by supporting literature and associated evidences. Is that near from the real context of soccer conditioning.

This section is also lacking in describing the physiological and mechanical mechanisms associated to the proposed training mode, which could have a likely role in inducing long-term adaptations.

Methods section. Please add specific details about the time of the study during the season, the soccer training schedule and content, the testing plan and administration procedures.
Can we consider SJ height as a measure of power? How you are sure that there is no counter-movement without force curve?

Training tables are similar. Consider using only one table.

In the first paragraph of the discussion section, you reported three main findings. Discussion paragraph should follow this order. I don't think that safety and feasibility is a main finding. The authors reported also some tendencies towards significantly larger improvements in some parameters of balance and muscle power for the blocked compared to the alternated BTPT group as a main finding. But at the end the results were no significant, it was difficult to conclude any advantage for that method compared to the other as reported in P13. L16. It is possible only to argue the interest of both methods as they are equally effective. You have to modulate or qualify your assertions throughout the manuscript because the statistical were not significantly.

As there is not control group in this study and no main group effect, the results improvements should be also discussed with regards to soccer specific training adaptations.

To facilitate better insight into child–adult differences, the authors are urged to added to the discussion a section where measured effects in the present study would be compared with what has previously been found in other pediatric studies.

**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.

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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