

Responses (R) to reviewers' comments and suggestions (C)

Reviewer 1

Thanks to the authors for submitting this interesting paper, which describes and evaluates a mindfulness intervention with two soccer teams. I feel that the paper adds something to the picture of mindfulness-based interventions conducted in sport settings worldwide. I have a few comments that I hope could help to improve the final contribution of the paper.

C. Overall, I think the authors have done a good job. One strength of the study is that stress was recorded with both questionnaires and physiological markers. My main concerns relate to grouping, data analysis and interpretation of the data.

Please excuse grammatical and spelling errors in this review, English is not my first language. Having said this, I cannot rate the quality of the English language of the paper. I suggest that the authors have the paper proofread by an English native.

R: Thanks for the comments and suggestions. We followed the indications and regrouped the information as below is indicated.

Introduction

C. Lines 33ff.: I feel “attacked” is a very strong word and the word “pressures” does not describe the mentioned aspects accurately. I suggest to use something like “professional athletes have to deal with various forms of sport-specific stressors, such as....”. Also, I suggest to also mention the high training load as a central feature of an athletes’ life. Overtraining (as mentioned by the authors) would not occur without a lot of training.

R: The wording was modified as suggested: Lines 33-34.

C. Line 40.: I suggest to not speak of “psychotherapeutic” techniques but of “psychological interventions”. In my opinion, psychotherapy describes a therapeutic treatment and MSPE does not fall under it.

R: Psychotherapeutic was changed for psychological interventions. Lines 41, 46, 78.

C. Line 48ff: I would not focus on the questionnaire here (the RESTQ), but on the concept, namely stress-recovery balance. In my opinion, this section should focus on the potential impact of mindfulness interventions on the stress-recovery balance, rather than on how stress-recovery balance is assessed. The questionnaire is a means to grasp the concept, it is sufficient if the questionnaire is first mentioned and described in the methods section.

R. The information described in the introduction and discussions was restructured as suggested, reinforcing the importance of mindfulness on the stress-recovery balance. Lines 47-61.

C. Line 63: Please state your hypotheses at the end of the introduction. Something like “We expect the intervention group (MSPE) to improve stress-recovery balance and physiological stress markers (HRV) compared to the control group”.

R. The suggested study hypothesis was added: We expect the intervention group (MSPE) to improve stress-recovery balance, and HRV like physiological stress markers compared to the control group. Lines 83-84.

Method

C. Line 66: please indicate what kind of briefing you talk about.

R. The first method paragraph was restructured by adding the requested information: lines 87-94.

C. Line 70: Please indicate whether the excluded subjects differed from the rest of the intervention group in terms of demographic data or stress parameters.

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R. The first method paragraph was restructured by adding the requested information: lines 87-94.

C. Line 71ff: It would be important to explain here in more detail how the grouping came about. Were the athletes in each team free to make their own decisions and was there an intervention group in each of the two teams? Or did the team as a whole have to decide? Could both teams have decided to participate in the intervention? What happened to the players who would have (not) wanted to participate but were outvoted by the majority of the team?

R. The first method paragraph was restructured by adding the requested information: lines 87-94.

C. Is there a reason why no randomized grouping was made? These points are central for the interpretation of the results.

R. The requested information was added: lines 97-98; 290-291.

C. Please also indicate here whether the two groups differed in terms of demographic data.

R. The first method paragraph was restructured by adding the requested information: lines 90-91.

C. Line 108: I suggest to report Cronbach Alpha values of the scales at baseline (maybe it is possible to integrate this information in Table 1).

R. The requested information was added. Lines 251-259:

C. Line 128:... and the Levene test to check for homoscedasticity.

R. We do not understand the question well, however, in the Statistical analysis section (lines 176-188) the normality and homoscedasticity analyzes performed are mentioned. Lines 156-

159. The Shapiro-Wilk test was applied to analyze the data distribution in each group, and the Levene test for homoscedasticity. Due to the violations in the mentioned parametric assumptions, the variables were examined by non-parametric analyzes...

Results

C. Lines 142ff: The differences between the groups at baseline support my previous comments on grouping. It seems that athletes who have a worse stress-recovery balance are more likely to choose to participate in the intervention. The improvements in stress parameters in the intervention group may therefore be due to regression to the mean. It is therefore somewhat misleading, in my opinion, to equate the baseline of the two groups and to assess changes from there as it is easier to improve if the balance is poor. I would therefore suggest to report the absolute values and check whether the stress-recovery balance of the intervention group balances out over time.

R. Due to the differences noted, the absolute values were first analyzed (Table 1), then the baseline values (delta values) were subtracted. This information was added to the methods, results, and tables. Lines...162-163

Discussion

C. Line 184ff: I suggest to move the description of how much the teams train and play to the methods section.

R. As the reviewer suggests, the information was moved to the methods section. Lines 92-94.

C. Line 188ff: I would be more cautious in interpreting the results due to the above mentioned points regarding grouping and differences at the beginning of the intervention. It seems that the participants of the intervention group rebalance their stress-recovery balance over time, this could be due to the intervention or due to regression to the mean.

R. The statistical analysis performed to correct for differences in baseline conditions was clarified in the methods section. In addition, the limitations section is added. Lines 162-163.

C. Lines 196ff: In this section the current state of knowledge is described and gaps in research are pointed out, this usually happens in the introduction. I recommend that the authors consider moving this section to the Introduction.

R. As suggested by the reviewer, the information was moved to the introductory section. Lines 52-61.

C. Lines 220ff: The same applies to this section as in the previous commentary. This section explains why MSPE favors recovery of athletes, which would be better addressed in the introduction.

R. As suggested by the reviewer, the information was moved to the introductory section. Lines 47-51.

C. Lines 225ff: Here the authors make an important point. Since it was a waiting list control group, it is not possible to judge which aspects of the intervention are relevant. Was it mindfulness? Was it the possibility to discuss things in a group? Was it a placebo effect?

R. We agree with the reviewer on the possible placebo effects of psychological interventions such as MSPE, which was discussed in this manuscript. Lines 246-250.

C. I recommend that the authors include a section in which they discuss the limitations of the study. Some aspects I have already mentioned. Another limitation, in my opinion, is that no manipulation check was performed for the intervention. It would be important to know whether mindfulness interventions actually lead to more mindfulness.

R. The limitation section was added.

C. I propose that the authors revise the conclusion again after the adjustments in the article.

R. According to results, the conclusions stand and remain unchanged.