Reviewer’s report

Title: Stimulating injury-preventive behaviour in sports: the systematic development of two interventions

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Reviewer: Marizen Ramirez

Reviewer's report:

This manuscript provides an important view into the process of developing sports injury interventions, particularly in two sports (skiing and running) which are popular and also "do not automatically rely on coaches/trainers." A good process for developing interventions is provided. A main limitation of this paper is that procedures (lit review, expert meetings, surveys and focus groups) are not detailed enough in terms of the methods, analysis and results. Particularly, the role of athletes (target population) in developing the intervention is not described in much detail, although the process includes focus groups and surveys of athletes. Other critiques are offered below.

ABSTRACT

1. Results should be expanded to include results from the lit review, expert meetings, and survey/focus groups with target athletes. In addition, a summary of the intervention content should be provided.

BACKGROUND

2. Provide more background literature on existing evidence-based interventions used in skiing and running, if any.

3. Provide information on the use of broad (not injury-specific) interventions in sports.

4. Provide background on intervention development procedures, and most specifically the IM/KTS strategies as these are used by the authors.
5. A contrast between sports that require compulsory injury prevention strategies (e.g., bicycling and football) versus the sports of interest (skiing and running) that require behavior change is offered. That may be a simplistic view, since even policy interventions require behavior change although the enforcement/penalties are motivating factors. It should also be noted that the intervention developed for skiers also include a policy education piece (the authors reference the FIS ski slope regulations).

METHOD

6. Describe how all participants (i.e., experts, survey participants, focus group participants) were identified/recruited, enrollment rates (if applicable) and incentives (if any). How long were expert meetings and focus groups? How long was the online survey administered? Was there follow-up? More details are needed about these procedures.

7. It seems that the Fogg Behavior Model would have been selected after the procedures (lit review, expert meetings, surveys, focus groups) were conducted. It may be more reasonable to present this in the results section as part of step 3 (selection of theory) rather than the methods.

8. How were focus group and survey data analyzed?

RESULTS

9. The actual results from the lit review, expert meetings, quantitative surveys and focus groups are as clearly presented and perhaps provided more as overall summaries, but more detail should be provided. For example, in the assessment results, it seems that all results were summarized in a simplistic fashion. To increase the rigor of this paper, it would help to present specific findings from each piece (lit review, expert meeting, survey, focus groups). Themes should be presented from focus groups and expert meetings. Quantitative results should be presented as well as summary findings from the lit review. All this would help frame how and why decisions were made for the intervention content and development.

10. The use of quadrants to classify athletes is interesting. Tell us more about this approach, how it was decided upon and the background literature (if any) on this.
11. Please describe more the use of co-creation sessions. It comes up in the results but it is not clear what this was, and who it involved. Sounds like it was promising and maybe involved athletes? Does this need to be added in the methods?

12. The short questionnaire that was developed needs to be described more - did this result from the expert feedback, did athletes review? There are very subjective questions - example, "how sensitive are you to injuries" which may be less specific than a more direct question like "how many injuries have you ever sustained while running/skiing". The scales are not described.

13. Tell us more about the content of the FIS ski slope regulations. This again suggests that there is some integration of policy that became part of the intervention. This is relevant to point 5 above.

DISCUSSION

14. Discussion indicates that actual athletes provided feedback. It is hard to glean this from the results.

15. If there were decisions to focus on falls/collisions and broad injuries, again, this is hard to glean from the results.

CONCLUSION

16. Expand the conclusion a bit more to tell the story of the rigorous process of intervention development. That seems to be a key aspect of this study - the process.

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?**
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Unable to assess

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