Reviewer's report

Title: Effects of high intensity interval training on exercise capacity in people with chronic pulmonary conditions: a narrative review

Version: 0 Date: 19 Dec 2019

Reviewer: Jenna Taylor

Reviewer's report:

Thank you for the opportunity to review this manuscript. I believe this topic is of interest to clinicians and researchers. I like the way this review has covered a broad range of respiratory conditions, not just COPD. However I do have a few concerns with the review in it's current form. I have outlined these general concerns below but also attached the manuscript pdf highlighting specific sections relating to these general comments.

Firstly, the review needs to be clearer whether this is a narrative review or systematic review. I would recommend a narrative review based on the limited number of studies since the previous systematic reviews

* If it is a narrative review then the manuscript does not require a methods or results sections, and can just discuss the previous systematic reviews and studies that have been published since. However for a narrative review the authors should not include meta-analyses and forest plots as a systematic review process is then required.

* If this is a systematic review, the methods section requires significant improvement. For systematic reviews and/or meta-analyses the authors should reference and adhere to The PRISMA (preferred reporting items for systematic reviews and meta-analyses) statement. Methods should include eligibility criteria, search strategy (even in brief if also referencing to supplementary material), how data was extracted (i.e. single or multiple assessors), how study quality was assessed, how meta-analyses were performed (i.e. software, based on Cochrane guidelines). Meta-analyses and forest-plots should only be updated if a systematic approach has been used to include studies.

The authors should also make it clearer what this review adds to previous work. Is the aim to update previous systematic reviews and meta-analyses? Did this previous work only look at COPD and you are adding other respiratory conditions? The abstract seems to have important information that is not included in the methods section.

Secondly, a clear definition should be made relating to high intensity interval training (HIIT) (e.g. &gt; a % of maximal heart rate or % workload). The title of the paper states HIIT, and thus should make sure that the studies included in the review are in fact HIIT. For example, some studies included in the previous systematic review (Beauchamp et al), as well as new studies included in this manuscript, are interval training studies, but not necessarily of a high intensity.
Some of the interval training studies even report lower intensities than the moderate intensity continuous training comparison. Therefore if you are making recommendations regarding HIIT and/or conducting a systematic review and meta-analyses comparing HIIT and moderate intensity continuous training, only studies with HIIT protocols (and not other interval training protocols) should be included. This is why a systematic process (with eligibility criteria) to reviews and meta-analyses are important. The authors should be very clear about what protocols are HIIT and what protocols are just interval training. If the authors did wish to undertake a systematic review, then selecting on HIIT studies from the previous reviews and new studies, in comparison to moderate intensity continuous training, would be novel. The authors would then need to go through the systematic review process as outlined above.

Thirdly, the authors should outline what is the most important outcome for respiratory conditions, as some studies (particularly those with the shorter intervals) show improvement in muscle adaptation and exercise capacity (workload or exercise duration) but not cardiorespiratory fitness (VO2peak). Therefore, if improvement in cardiorespiratory fitness is more important, perhaps the shorter interval protocols are less optimal. Another important distinction to make is between exercise capacity and cardiorespiratory fitness, as they are not measuring the same physiological adaptation.

Finally, the layout of the article could use some adjustment. There is currently a very large introduction, and no discussion section. I've also found some passages in the results section that would be more appropriate to include in the methods section. So I would recommend that the methods explain what you intended to do, and the results just include what you found. However, if you decide on a narrative review, then you no longer need these section headings.

I hope the authors find these comments constructive and are able to enhance the article.

**Quality of written English**

Please indicate the quality of language in the manuscript:

Acceptable

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