Reviewer's report

Title: Cardiorespiratory responses to 6-minute walk test in interstitial lung disease: not always a submaximal test

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Reviewer: Véronique Pepin

Reviewer's report:

This manuscript presents original data on the cardiorespiratory response to the 6-minute walk test (6MWT) and cardiopulmonary exercise (cycling) test (CPET) in 47 participants with interstitial lung diseases (ILD). Overall, the results suggest that the 6MWT elicits on average, a high but submaximal cardiorespiratory response in ILD patients. However, the physiological load varies greatly across patients and approaches maximum in those with more severe disease (more desaturation and parenchymal destruction). Furthermore, exertional desaturation was more pronounced during 6MWT than CPET.

The paper is well written and to the point. The research question posed by the authors is well defined. The methods are appropriate and generally well described. The data are sound. The discussion and conclusion are well balanced and adequately supported by the data. The limitations of the work are clearly stated. Lastly, the abstract reflects the findings well.

Below are some comments to consider to improve the paper.

Minor essential revisions:

1. I did not find any mention of the number of patients that were screened to achieve the sample size. The addition of a flowchart or summary in text form of the screening process should be considered.

2. Pilot work is mentioned in the sample size determination subsection of the statistical analyses section, but there is no reference to this work. If it was presented at a conference, perhaps the reference to the abstracts could be added.

3. Abstract, page 2, 2nd sentence (lines 28-30): this sentence seems to be a bit of an overstatement in its current form. Consider specifying that this is referring to ILD patients.

4. Background, page 4, 1st sentence (line 54): consider removing the word "the" before "interstitial lung diseases"

5. Methods, page 5, subsection entitled "Cardiopulmonary responses to exercise" (line 98): I think that this subsection should be entitled "Study Design and Procedure" and should include additional information, such as the time of day for testing (same for all participants?), management of medications (especially those know for impacting exercise tolerance), instructions that were
given to participants prior to testing, etc. The title used here should replace the next one ("Metabolic Monitoring"), in my opinion.

6. Methods, page 6: I believe that the "Metabolic Monitoring" subsection should appear after the next two subsections describing the testing procedures.

7. Methods, page 6: were inspiratory capacities measured during exercise tests? This would provide interesting information, I would think. Likewise, was locus of symptom limitation (main reason for stopping the test) obtained from participants? It sometimes provides valuable complementary information to the typical symptoms scales.

7. Discussion, page 10, 1st paragraph (lines 207-212): I believe that another potential explanation for this finding is that in participants with a better preserved VO2peak, the inability to further increase walking pace (for morphological reasons) may have been a limiting factor, making the 6MWT physiologically submaximal in those circumstances. I would suggest adding a sentence to that effect.

8. Discussion, page 10, 2nd paragraph, 3rd sentence (lines 216-219): this sentence provides accurate information, but does not explain why walking leads to greater desaturation than cycling. I would suggest replacing it with a sentence explaining the effects of the two different exercise modes on the respiratory centres.

9. Discussion, page 11: this paragraph is very long. Consider cutting it in subparts.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.