Reviewer's report

Title: Evidence for the different physiological significance of the 6MW and the 2MW tests in MS

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Reviewer: Emilio Portaccio

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In this study the Authors assess physiological changes in terms of oxygen consumption during the 6-minute walk (6MW) ambulation test in a group of 95 multiple sclerosis (MS) patients. Oxygen consumption increases over the first half of the test, whereas a steady-state of oxygen consumption is reached over the second half of the test. These findings widen the usefulness of 6MW test in comparison with the 2-minute walk test, recently proposed as a reliable alternative to the 6MW.

The paper deals with an up-to-date issue in MS, since the measurement of ambulation ability has gained growing attention over the past few years. The study is well conducted, and its main limitations are correctly addressed in the discussion.

I found a few issues:

- The study sample is poorly described. 82% of subjects had a relapsing-remitting course: which is the clinical course of the remaining 18% patients? Which were the disease-modifying therapies the patients were taking? A Table could be included depicting the characteristics of the study sample.
- Were all the patients free from relapses or steroid use? A recent relapse or steroid administration might affect the study findings and should be considered as an exclusion criterion.
- There is no information on fatigue levels and symptomatic therapies that could affect ambulation performance. This issue should be at least commented in the discussion.

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 interest in relation to this paper