Reviewer’s report

Title: Effects of motor imagery training of gait in Parkinson’s disease: a protocol for a randomized clinical trial

Version: 0 Date: 08 Jun 2019

Reviewer: Heidemarie Zach

Reviewer’s report:

The authors plan to investigate an interesting topic by comparing objective gait outcomes and EEG changes between an intervention group using motor imagery and physiotherapy and a control group only receiving physiotherapy. The intervention and follow up period with 4 weeks and a frequency of 3x/week for at most 90min and follow ups at week 5, 6 and 10 and the sample size of 40 seem to be reasonable.

The topic is innovative and the method promises to add to the field of rehabilitation in Parkinson's disease in the future.

The proposal is well written, although some points need minor improvement.

General comments:

Is the EG group instructed to continue motor imagery on their own in daily life and after the 4 weeks as well? Are the authors assessing this fact? It might be possible that patients would try this at home as well if they experience satisfying results during the Physiotherapy sessions.

Page 6, line 152: Inclusion criteria: why is the maximum age 75 years and not higher?

Page 6, line 153: Antiparkinson medication is an inclusion criterion. Are the authors monitoring medication changes? How would the authors deal with possible medication changes or are the patients instructed to do not adapt medication during the course of the study?

Page 6, line 161 ff: Exclusion criteria: Is there a special reason for testing and excluding hemodynamic instability, especially defined by hypertension? I would rather expect orthostatic problems. Please comment on that.

Page 7, Line 179. Maybe a typo: EEC? Not EEG?

The method, using Emotiv EPOC+ is in line with the innovative approach of the project, however a more extensive explanation of the expected findings would be valuable.

Page 9, line 237 ff: Is 'showing the gait cycle' comparable 'to action observation therapy'? (Caligiore, 2016). If so, this should be commented as it could add a therapeutic effect.
Page 10, line 250: How do the patients compare their own gait to the presented videos? Are videos also made from the patient's gait?

Page 10, line 257: I assume only the EG group, will perform the progressive relaxation? For completeness, the authors might clarify in the manuscript within this paragraph.

Page 10, line 272: The authors report "3 sessions" of MI. This is confusing for readers, as I understood the patients will always do MI prior to physiotherapy sessions?

Page 12: The exact role of the physiotherapists in the CG is not entirely clear. Will the CG only receive advices from physiotherapists as well? It might be good to comment on that more extensively.

Page 11, Line 282-289: I wonder, if this paragraph might fit better into the paragraph "MI of Gait".

Page 11, line 324: Will the EG group do the MI prior to the gait testing/analysis as well? Or do the authors aim to test the longer lasting effect of MI?

Figure: I suggest to add the training period (such as week 1-4) to the boxes 'Control group' and 'MI group' (week 1-4). Furthermore, "Baseline measures" are confusing in the boxes 'Post-intervention' and 'Follow-up measures'. The authors might add "Repetition of baseline measures". An explaining figure's legend is missing as well.

Level of interest
Please indicate how interesting you found the manuscript:

An article of importance in its field

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

Quality of figures
All images and figures within the manuscript should be genuine i.e. without evidence of manipulation. No specific feature within an image may be enhanced, obscured, moved, removed, or introduced. If you have concerns about the veracity of the figures you should choose the first option below.

Statistical review
Is it essential that this manuscript is seen by an expert statistician? If so, please give your reasons in your report.
**Declaration of competing interests**

Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

No

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license ([http://creativecommons.org/licenses/by/4.0/](http://creativecommons.org/licenses/by/4.0/)). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal

Were you mentored through this peer review?

No