

LETTER TO THE EDITOR

COMMENTS ON “EFFECTIVENESS OF MOTOR IMAGERY COMBINED WITH STRUCTURED PROGRESSIVE CIRCUIT CLASS TRAINING ON FUNCTIONAL MOBILITY IN POST-STROKE INDIVIDUALS”

Yuki NAKASHIMA, PT, PhD¹, Keisuke IWASAKI, PT² and Shunsuke TAITO, PT, PhD^{1,3}

From the ¹Division of Rehabilitation, Department of Clinical Practice and Support, Hiroshima University Hospital, Hiroshima, ²Department of Physical Therapy, Fukuyama Vocational College of Medicine, Hiroshima and ³Scientific Research WorkS Peer Support Group (SRWS-PSG), Osaka, Japan

J Rehabil Med 2022; 54: jrm00340

DOI: 10.2340/jrm.v54.4511

Correspondence address: Yuki Nakashima, Division of Rehabilitation, Department of Clinical Practice and Support, Hiroshima University Hospital, Kasumi 1-2-3, Minami-ku, Hiroshima 734-8551, Japan. E-mail: ynakashi@hiroshima-u.ac.jp

We read the article “Effectiveness of motor imagery combined with structured progressive circuit class training on functional mobility in post-stroke individuals: a randomized controlled trial” with great interest (1). This study tried to clarify the clinical benefits of structured progressive circuit class therapy (SPCCT) with motor imagery (MI) for functional mobility in patients with stroke. However, we would like to point out 2 concerns that we have regarding the study.

First, the results of the study have a high risk of spin bias (2). The authors mentioned the effectiveness of rehabilitation with the addition of SPCCT with MI in patients with stroke based on the 6-minute walk test (6MWT), but the primary outcomes in the study registry were gait speed and step length by motion analysis (3). Therefore, the authors should provide the results of gait speed and step length by motion analysis to clarify the true clinical benefits of SPCCT with MI for functional mobility in patients with stroke.

Secondly, the authors did not describe factors that could affect the 6MWT results. A previous study published in this journal indicates that lower limb muscle strength may influence the 6MWT results in patients with stroke (4). The authors also specify that muscle strength and tone will be investigated as secondary outcome measures in the trial registry (3). If the baseline muscle strength was higher, it could affect the 6MWT

results. For readers to accurately understand the results of this study, it is necessary to clarify the accurate effects of MI by excluding factors that may influence the 6MWT results.

Conflicts of interest

This letter has not been published or presented elsewhere in part or in entirety and is not under consideration by another journal. We have read and understood your journal’s policies, and we believe that neither the manuscript nor the study violates any of these. There are no conflicts of interest to declare.

Author contributions

The first draft of the manuscript was written by Yuki Nakashima and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

REFERENCES

1. Aung N, Heinkel V, Tretriluxana J, Bryant MS, Bovonsunthonchai S. Effectiveness of motor imagery combined with structured progressive circuit class training on functional mobility in post-stroke individuals: a randomized controlled trial. J Rehabil Med 2022; 54: jrm00297. DOI: 10.2340/jrm.v54.1390
2. Mahtani KR, Chalmers I, Spin Bias Nunan D. Catalogue of bias collaboration; 2019. Catalogue of bias. [accessed 2022 Aug 25]. Available from: <https://catalogofbias.org/biases/spin-bias/>
3. ClinicalTrials.gov.Identifier: NCT03436810. [accessed 2022 Aug 25]. Available from: <https://www.clinicaltrials.gov/ct2/show/NCT03436810>
4. Pradon D, Roche N, Enette L, Zory R. Relationship between lower limb muscle strength and 6-minute walk test performance in stroke patients. J Rehabil Med 2013; 45(1): 105–108. DOI: 10.2340/16501977-1059. PMID: 23095981.

RESPONSE TO LETTER TO THE EDITOR COMMENTS ON “EFFECTIVENESS OF MOTOR IMAGERY COMBINED WITH STRUCTURED PROGRESSIVE CIRCUIT CLASS TRAINING ON FUNCTIONAL MOBILITY IN POST-STROKE INDIVIDUALS”

Nilar AUNG, PhD, Vimonwan HIENGKAEW, PhD, Jarugool TRETRILUXANA, PhD, Mon S. BRYANT, PhD, and Suneer BOVONSUNTHONCHAI, PhD

We thank Yuki Nakashima et al. for their comments and questions on our recent article “Effectiveness of motor imagery combined with structured progressive circuit class training on functional mobility in post-stroke individuals: a randomized controlled trial” (1).

The first question related to the details of variables entered in the clinical trial registration system not corresponding to the variables being reported in the article. Because the system only allows the authors to enter only a few primary variables and clearly specify the units used for each variable. We, therefore, entered two variables from the temporospatial gait variables in the primary variable section, and the others were put as the secondary variables. In this research project, we collected three groups of the outcomes; (i) the temporospatial gait variables, which were assessed by a two-dimensional motion method using a video camera, (ii) functional mobility including the six-minute walk test (6MWT), step test, and Timed Up and Go (TUG), and (iii) clinical outcomes including the lower extremity muscle strength (hip flexor, hip extensor, knee flexor, knee extensor, ankle dorsiflexor, and ankle plantarflexor muscles) using a hand-held dynamometer and lower extremity muscle spasticity assessed by the Modified Ashworth Scale (MAS). All variable groups being used in this research project were listed as shown in the summary protocol submitted to the registration system (2). There were many variables being investigated in this research project which indicated the effect of treatment on multiple domains in post-stroke individuals. The details related to the temporo-spatial gait variables and lower extremity muscle strength were reported in our previous article (3). For this recent article (1), the effect

of motor imagery and structured progressive circuit class training was investigated based on functional mobility for post-stroke individuals.

For the second question, we agree with the authors’ comment that the difference in muscle strength at baseline could affect the results, especially in 6MWT, which represented endurance and has been reported to be correlated with muscle strength in post-stroke individuals (4). However, in the current study, there was no significant difference in lower extremity muscle strength between the experimental and control groups, as also shown in our previous study (3). Therefore, functional mobility between the 2 groups of participants was not likely to be influenced by such a factor. We hope that this reply has clarified all the raised points by readers.

REFERENCES

1. Aung N, Hiengkaew V, Tretriluxana J, Bryant MS, Bovonsunthonchai S. Effectiveness of motor imagery combined with structured progressive circuit class training on functional mobility in post-stroke individuals: a randomized controlled trial. *J Rehabil Med* 2022;54:jrm00297.
2. ClinicalTrials.gov [Internet]. Bethesda (MD): U.S. National Library of Medicine; 2000 Feb 29-. Identifier NCT03436810. Effect of structured progressive task-oriented circuit class training with motor imagery on gait in stroke; 2017 Jan 18 [2022 Sep 24]. Available from: https://www.clinicaltrials.gov/ProvidedDocs/10/NCT03436810/Prot_000.pdf
3. Bovonsunthonchai S, Aung N, Hiengkaew V, Tretriluxana J. A randomized controlled trial of motor imagery combined with structured progressive circuit class therapy on gait in stroke survivors. *Sci Rep* 2020; 10 (1): 6945.
4. Pradon D, Roche N, Enette L, Zory R. Relationship between lower limb muscle strength and 6-minute walk test performance in stroke patients. *J Rehabil Med* 2013; 45 (1): 105–108.