Answers to the Editor and Reviewers

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Descending stair walking in patients with symptomatic lower extremity peripheral artery disease: a pilot study

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Dear Prof. Heather L. Gornik,

Thank you for your correspondence dated October 13th. The manuscript has been revised according to the comments of the Editor and reviewers. We hope that the quality of the manuscript has improved and that it is now suitable for publication in Vascular Medicine.

Please find enclosed responses to the Editor and reviewers.

Do not hesitate to contact me for any further queries.
Sincerely,

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Responses to the Editor

Please note that:

[E] = Editor (comments).

[A] = authors (responses/comments).

{...} = text modified in the revised manuscript.

[E]. When describing baseline characteristics, authors should specify that these are age and BMI, 62.0 ± 2.4 yrs, 25.4 ± 1.6 kg·m⁻², respectively.

[A]. As suggested by the Editor, this sentence has been clarified in the new version of the manuscript (page 4, line 12-15).

{Nine patients with symptomatic PAD were included (age: 62.0±2.4 yrs, body mass index: 25.4±1.6 kg·m⁻², ankle-brachial index in the more symptomatic limb: 0.77±0.05, 66% men, 33% type II diabetes, 56% hypertension, 67% current smokers, 78% dyslipidemia, 33% prior arterial revascularization).}
Responses to the Reviewer 1

Please note that:

[R1] = Reviewer 1 (comments).
[A] = authors (responses/comments).
{...} = text modified in the revised manuscript.

[R1]. The authors have done an excellent job of revising the manuscript as advised and it has been strengthened significantly. I am particularly happy with the clarification on the stairs/protocol.

[A]. We thank the reviewer for this positive comment.

Only a couple minor comments remain:
In the comments that follow - page numbers are from VMJ, line numbers are from authors

[R1]. p 26, line 18 ASW and DSW are reversed
[A]. For the sake of clarity, the abbreviations have been deleted in the new version of the manuscript (page 3, line 11).

[R1]. p27, line 2 would say 'depended' instead of depends
[A]. As suggested by the Reviewer, this has been changed in the new version of the manuscript (page 3, line 14).
[R1]. p30, line 1 would say long-term rather than chronic
[A]. As suggested by the Reviewer, this has been changed in the new version of the manuscript (page 6, line 13).

[R1], p30, line 8, would delete the word 'session'.
[A]. As suggested by the Reviewer, this has been changed in the new version of the manuscript (page 7, line 10).
Responses to the Reviewer 2

Please note that:

[R2] = Reviewer 2 (comments).

[A] = authors (responses/comments).

{...} = text modified in the revised manuscript.

[R2]. The authors have, in general, been very responsive to the reviewers' and editor's comments.

[A]. We thank the reviewer for this comment.

[R2]. However, one gap that they haven't addressed is why this form of exercise will help patients with PAD in particular when it doesn't stimulate either of the postulated mechanisms of with exercise improvement: stimulating skeletal muscle ischemia or improving central CV and endothelial function. The authors stated agreement with the comment, but the justification as currently written does not address the concern. Proposing a different mechanism of improvement that makes sense for the pathophysiology of PAD separate from healthy older adults or patients with heart disease, would strengthen the argument. For example, it might be useful to bring in comparisons with the evidence for resistance training in PAD, which often doesn't cause ischemia during training and has less effect on CV conditioning, but has been shown to improve functioning in PAD.

[A]. As suggested by the reviewer, in the new version of the manuscript, we better described how descending stair walking training could be useful to induce positive adaptation in patients with PAD. As suggested by the reviewer, a comparison with evidence for resistance training in PAD was used (page 6, lines 13-20; page 7, lines 1-7).
Indeed, since stimulating skeletal muscle ischemia or improving cardiovascular and endothelial function are the main postulated mechanisms usually linked to improved walking performance, the potential benefits of DSW training on muscle and walking capacities remain to be determined in patients with PAD. Recent investigations showed that resistance training programs, which induce no or less ischemia during exertion and have less effect on cardiorespiratory fitness, are also effective to improve walking performance in these individuals. Notably, the improved walking performance correlates with lower limb strength gain following training. Overall, these findings indicate that muscular adaptations may 1) occur with low levels of ischemia and cardiovascular stimulation during exertion, and 2) play a pivotal role in the improved physical function in patients with PAD. In this context, DSW could be an appealing training modality inducing positive muscular and functional adaptations in these individuals.