



Letter to the Editor

Hold-relax and contract-relax stretching for hamstrings flexibility: A systematic review with meta-analysis: Letter to the editor

Dear Editor

I read with great interest and would like to congratulate Cayco et al. for their very interesting study that contributes to the understanding of both short and long-term effects of Hold-relax (HR) and contract-relax (CR) stretching for hamstring flexibility. We would like to emphasize the importance of the study since stretching is still a widely used strategy in both training and rehabilitation programs. Despite the popularity of stretching, it remains unclear which variation is better. The findings of this systematic review with meta-analysis contribute to stretching prescription of physical therapists and conditioning coaches. Precisely because of the significant influence that these findings may have on clinical practice, we would like to raise some topics that we believe might complement the discussions provided by the authors and enhance the interpretation of the study results. Specifically, in what follows, we discuss the (1) Definition of randomized clinical trial, (2) Meta-analyses, (3) Chronic effects of stretching, and (4) Comparison of HR and CR with dynamic/ballistic stretching.

1. This is a minor issue in the paper, and it does not harm the quality of the work. However, I find important to clarify the difference between a randomized clinical trial (RCT) and a controlled clinical trial (CCT). According to the Cochrane definitions, when the author(s) state explicitly (usually by some variant of the term 'random' to describe the allocation procedure used) that the groups compared in the trial were established by random allocation, then the trial is classified as an RCT (Higgins & Green, 2008). The authors stated in section 2.2.1 that they have included RCT's. However, most of the included studies did not properly describe the allocation procedure, which makes them CCT's.
2. The systematic review comprised 39 studies, but only ~30% of them were included in the meta-analysis. A reduced number of studies in the meta-analysis is not a rare event (Yuan & Hunt, 2009) since the studies are usually very heterogeneous and cannot be combined in a single analysis. Nevertheless, when that happens the data needs to be carefully analyzed in order to provide more accurate conclusions. It is evident in the study by Cayco et al. (Cayco, Labro, & Gorgon, 2019) that the discussion addressed mostly the data from the meta-analyses, which only contained studies with short-term effects. The authors did not explore the studies that evaluated the long-term effects of CR or HR. It is not clear why the authors chose not to perform any analysis on the matter since there seems to be sufficient data to even perform a meta-analysis with the included studies. Short-

term effects of stretching do not seem as important for function as the long-term effects (Page, 2012). Furthermore, there is a growing body of evidence confirming that acute stretching may impair performance (Behm, Blazevich, Kay, & McHugh, 2016; Kay & Blazevich, 2012), and there is a suggestion that chronic effects of stretching might enhance performance (Medeiros & Lima, 2017). Hence, it seems important to discuss the potential long-term effects of CR and HR on flexibility. Four studies compared the effects of CR to a control group; all studies found that CR stretching is effective to chronically improve hamstring flexibility. Therefore, this strategy can be used as an alternative when the goal is to improve hip flexion range of motion with active participation of the patient/athlete.

3. The review included several studies that compared the long-term effects of CR and HR with static stretching (SS). However, it is not clear why the authors opted not to address the results of those studies. Five studies did not find any difference between the two stretching techniques, three studies favored CR over SS, and one study favored SS over CR. Regarding the evidence presented in the review, CR and HR do not seem to have an advantage over SS. Considering that CR and HR usually need supervision and assistance, as the authors emphasized in the paper, it is reasonable to suggest that SS might be more appropriate, especially for home-based training, which also has benefits on patients' autonomy (Chan, 2002).
4. Another issue that seems to be missing in the discussion section is any mention about the comparison between CR/HR and dynamic/ballistic stretching. Four studies compared these two types of stretching, and it seems that some discussion would be appropriate. As previously mentioned, there is evidence that CR/HR and SS impair performance when performed prior to exercise (Behm et al., 2016). Therefore, dynamic/ballistic stretching could be a worthwhile alternative to be used, especially during warm-up routines (Behm & Chaouachi, 2011).

Overall, I trust that considering the topics raised in this letter might be helpful while interpreting the findings of the present study. I acknowledge the difficulties in performing several analyses in a single review and again congratulate the authors for their hard work.

Ethical statement

The present study is a letter to the editor. Hence, there is no need for approval from an ethical committee.

Declaration of interest

The author declare no conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ptsp.2019.03.003>.

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Diulian Muniz Medeiros*

Federal University of Health Sciences of Porto Alegre, Graduate Program of Rehabilitation Sciences, Physical Therapy Department, Porto Alegre, Brazil

* Rua Sarmento Leite 245, Centro Histórico, 90050170 Porto Alegre, Rio Grande do Sul, Brazil.
E-mail address: diulian@ufcspa.edu.br.

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