



Letter to the Editor regarding Overbeek et al: “Increased co-contraction of arm adductors is associated with a favorable course in subacromial pain syndrome”



To the Editor:

We read with great interest the article by Overbeek et al,³ “Increased co-contraction of arm adductors is associated with a favorable course in subacromial pain syndrome,” recently published in the *Journal of Shoulder and Elbow Surgery*.

We congratulate the authors for their work. They provide interesting data about co-contraction of the latissimus dorsi and teres major muscles and long-term clinical improvement in patients with subacromial pain syndrome. Few studies have investigated arm adductor co-contraction in this condition. We agree that co-contraction of arm adductors is a factor in clinical improvement and should be considered in physical therapy for subacromial pain syndrome. We previously showed in a randomized trial that physiotherapy consisting of co-contraction of the latissimus dorsi and pectoralis major muscles—a physiotherapy modality named “dynamic humeral centering”—reduces shoulder pain in patients with subacromial impingement.² Dynamic humeral centering also improves pain-free active range of motion of the shoulder in these patients.¹

However, Overbeek et al³ indicated that co-contraction of the latissimus dorsi and teres major muscles but not the pectoralis major muscle is associated with clinical improvement. Their study had the merit of assessing the 3 muscles individually. On the basis of their results, they suggested that the contribution of the pectoralis major in glenohumeral stability and subacromial impingement could have previously been overestimated and may not be so crucial.

We suggest another axis of discussion. We think that another hypothesis could be related to an incorrect conclusion owing to the unsuitable modality of muscle assessment. First, Overbeek et al³ assessed muscle activation with the arm in external rotation, which is not the rotation associated with subacromial impingement. The

results of pectoralis major activation could have been quite different in internal rotation. Second, activation of depressors of the humeral head, preventing subacromial impingement, is expected during elevation but not adduction of the arm.⁴ Such activation is considered an antagonistic action for adductors of the arm. Therefore, some information on muscle activation specifically during elevation of the arm would have been interesting. Unfortunately, the authors presented statistical analysis only for activation ratios mixing agonistic and antagonistic activations.³

Finally, we thank Overbeek et al³ for their work, and we agree with the need for further investigations to explore the clinical implication of adductor co-contraction in patients with subacromial pain syndrome.

Disclaimer

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References

1. Beaudreuil J, Lasbleiz S, Aout M, Vicaut E, Yelnik A, Bardin T, et al. Effect of dynamic humeral centring (DHC) on painful active elevation of the arm in subacromial impingement syndrome. A secondary analysis of data from an RCT. *Br J Sports Med* 2015;49:343-6. <https://doi.org/10.1136/bjsports-2012-091996>
2. Beaudreuil J, Lasbleiz S, Richette P, Seguin G, Rastel C, Aout M, et al. Assessment of dynamic humeral centering in shoulder pain with impingement syndrome: a randomised clinical trial. *Ann Rheum Dis* 2011;70:1613-8. <https://doi.org/10.1136/ard.2010.147694>
3. Overbeek CL, Kolk A, Nagels J, de Witte PB, van der Zwaal P, Visser CPJ, et al. Increased co-contraction of arm adductors is associated with a favorable course in subacromial pain syndrome. *J Shoulder Elbow Surg* 2018;27:1925-31. <https://doi.org/10.1016/j.jse.2018.06.015>
4. Revel M, Amor B, René-Corail P, Anctil R. Electrokinésiologique study of sub-scapularis, latissimus dorsi and pectoralis major during abduction. In: Simon L, Rodineau J, editors. *Shoulder and rehabilitation medicine*. Paris: Masson; 1984. p. 333-8 [in French].