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EFFECT OF LIMB DOMINANCE ON SHOULDER MUSCLE STRENGTH – A RECOMMENDATION FOR CLINICAL PRACTICE

Foong YK¹, Leonard JH¹, Ayiesha HR¹, Hanif FMR², Amaramalar SN³, Ohnmar H³, Rizuana IH⁴

¹Physiotherapy Program and ²Occupational Therapy Program, Faculty of Allied Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Department of ³Orthopaedic and Traumatology and ⁴Radiology, Faculty of Medicine, UKM Medical Center, Kuala Lumpur, Malaysia

Background:

Strength examination of the shoulder muscles was an essential clinical assessment in management of shoulder disorders. In clinical practice, the strength of the injured shoulder muscles was always compared to the opposite healthy shoulder in order to make a clinical judgment. The prescription of exercises to strengthen shoulder muscles were thus based on identified strength deficits between involved and uninvolved shoulder. However, clinicians always had differences of opinion with regard to the influence of limb dominance on shoulder muscle strength. Some clinicians always believe that the dominant arm might have more strength due to overuse and dominance of central motor cortex. Therefore, this study was carried out to investigate the influence of limb dominance on functional strength of the shoulder muscles during shoulder internal rotation task.

Materials and methods:

A total of 15 right-handed subjects participated in this study. The subjects were positioned in prone lying. Tested shoulder was positioned in 90° abduction with elbow flexed into 90°. Subject performed isometric contraction of shoulder internal rotation and maintained it for five seconds. The strength of shoulder internal rotation strength was measured using a force transducer attached with Tracker software system. The average of three strength measurements was taken. The data was analyzed using SPSS version 16.0.

Results:

The mean functional strength of dominant shoulder was 3.78±1.16lbs and 3.51±1.35lbs for non dominant shoulder. The dominant shoulder had 7.69% more strength than non dominant shoulder. However, Wilcoxon signed rank test showed no significant difference in strength of shoulder muscles between dominant and non-dominant side, $T=17.50$, $z=-1.02$ (corrected for ties), $N\text{-Ties}=10$, $p=0.305$, two tailed.

Conclusion:

This study showed that the limb dominance did not influence the strength of the shoulder muscles between the dominant and non dominant side.

Keywords:

dominant limb, strength, shoulder, muscles