

Effect of Hand Grip Strength on Shoulder Muscles Activity in Patients with Subacromial Impingement

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Abstract : Subacromial impingement syndrome (SIS) is a common shoulder disorder. Patients often complain from a decrease in electromyography (EMG) activity of the rotator cuff muscles especially the supraspinatus muscle during glenohumeral elevation. Objective: The purpose of the study is to assess the effect of applying 50% of maximum voluntary contraction of hand grip strength on the EMG activity of the shoulder muscles in patients with SIS. Methods: Thirty male and female patients participated in this study. Their ages ranged from 25 to 40 years. EMG activity of supraspinatus muscle and middle deltoid muscle was assessed without and with applying 50% of maximum voluntary contraction (MVC). Results: A significant difference was found for both supraspinatus and middle deltoid muscles, indicating that the gripping resulted in increasing muscle activity. Conclusion: Applying 50% MVC of hand grip strength could increase the supraspinatus and middle deltoid muscles activity in patients of SIS. This might be useful in the development and monitoring of shoulder rehabilitation strategies.

Keywords : electromyography, supraspinatus muscle, deltoid muscle, subacromial impingement syndrome

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