

Abstract

Title: The effect of shoulder girdle stabilization exercises on muscle activity during direct impact in rugby players with sub-acromial impingement syndrome

Objectives: Comparison of muscle activity during direct impact while performing the rugby tackle to tackle bag and to player using amplitude analysis of electromyographic signal (EMG) before and after intervention programme for players with subacromial impingement syndrome (SIS). Application of intervention programme consisting stabilization exercises for shoulder complex and activation of deep stabilization muscles of the spine.

Methods: Theoretical part contains topics about shoulder girdle, rugby and rugby injuries, mainly subacromial impingement syndrome and electromyography. Mentioned issues are included into the thesis due to the research of current literature from international sources and studies. Practical part regards the application of three-months long intervention programme for eight rugby players at junior national level with diagnosis of SIS, when pre-testing a post-testing is realized by clinical tests and EMG measurement.

Results: Intervention programme was sufficient for changes of EMG amplitude values expressed as percentage of maximal voluntary isometric contraction (MVIC) in some of rugby players with SIS only for some muscle groups, results were individually specific. Hypothesis, comparing the EMG amplitude measurement of tackle to the player and to the tackle bag, was refused, there was not markable difference between both types of tackles. Hypothesis concerning the approach of EMG values closer to the optimal zone of selected dynamic stabilizers was confirmed only in case of m. trapezius lower part. Improvement of stabilizing the shoulder was remarkable from clinical examination for SIS and from intraindividual comparison.

Keywords: Shoulder girdle, Rugby, Subacromial impingement syndrome, Tackle, Electromyography, Stabilization exercises.