EMG study of the pectoralis major (sternal portion), teres major, latissimus dorsi and deltoid medial muscles in volleyball players

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Introduction
According to Rokito et al. (1998) there is a great incidence of shoulder injuries in volleyball athletes. The sport demands a great number of over-the-head movements with the arms leading to an overload of the ligaments and muscles. For Basmajian (1976) the EMG is the means to know more the muscular neurophysiology.

Methods
8 male individuals who practice volleyball in the youth category, (between 15 to 17 years old; average ± 16, 25 years old), right-handed, and involved with volleyball for, at least, one year. The aim of this study was to analyze the action potential of these muscles during the volleyball movements: service, spike, pass, set and blocking, with and without ball.

Results
None of the studied muscles showed significant difference when compared to the sequence movements with and without the ball.

The following graphic shows the Comparison of the electromyography values observed during the sequential movements of volleyball, with and without the ball, from the pectoralis major-sternal portion (1), deltoid medial (2), teres major (3) and latissimus dorsi (4) expressed in RMS.

Fig. 1: Comparison of the electromyography values during the sequential movements of volleyball

Discussion/Conclusion
The pectoral major / deltoid and latissimus dorsi / deltoid were the only pairs of the muscles which presented significant difference (p<0.05). Nevertheless in the comparison of the movements with the ball, all the muscles compared to the latissimus dorsi presented significant difference. It is interesting to notice that the general average and the standard deviation of the deltoid (medial portion), teres major and latissimus dorsi muscles were higher in the muscle sequential movements executed without ball.

References:

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