

Evaluation of muscle activation in bench press exercises with different types of barbells

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Bench Press exercise (BP) is generally used to induce adult muscle hypertrophy and it is based on the use of barbells to lift weights. During exercise performance the range of motion, the grip strength and the speed of the exercise represent factors that can be affected during training. Moreover, BP is a multiarticular exercise that involves several muscle groups [1]. For example, involved muscle groups include the large pectoral (GP), the elbow extensors represented by the brachial triceps (TB), the deltoid front bands (DA), the serratus anterior muscle (GD) and the elbow flexors represented by the biceps brachialis (BB) as well as all the peri-articular shoulder muscle. Several studies reported that muscle kinematic and electromyographic parameters have been correlated to specific rockers [2, 3]. Here we studied, by electromyography, the muscle activation during the performance of the bench press exercise with a traditional rocker and a variable inter-handle distance (IHD) rocker. The aim of using the IHD rocker is to increase the muscle activation regardless the external loads and reduce the articular stress.

Surface electromyography data were collected from healthy adult subjects who performed the exercise with both barbell types to reduce inter-individual variability. Moreover, data were normalized to obtain a mean value of contraction for each analyzed muscle. Data distributions were evaluated using the Kolmogorov-Smirnov test. For GP, DA and TB statistical significance was calculated using Wilcoxon test, while for BB Student t test was applied.

Results showed a significant increase in GP (19,5%) and BB (173%) muscle activity using the IHD rocker. For DA and TB differences in electromyographic signals were not significant.

Although several research points still to remain to be analyzed we think that the new concept rocker represents a valid method to make more efficient the training in the bench press exercise.

References

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Key words

Bench press, inter-handle distance barbell.