

ORIGINAL RESEARCH

CORE MUSCLE ACTIVITY DURING THE CLEAN AND JERK LIFT WITH BARBELL VERSUS SANDBAGS AND WATER BAGS

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ABSTRACT

Purpose/Background: While the traditional clean and jerk maneuver implies simultaneous participation of a large number of muscle groups, the use of this exercise with some variations to enhance core muscle activity remains uninvestigated. The purpose of this study was to compare the muscle activity during clean and jerk lift when performed with a barbell, sandbag and a water bag at same absolute load.

Study Design: Descriptive, repeated-measures study

Methods: Twenty-one young fit male university students (age: 25 ± 2.66 years; height: 180.71 ± 5.42 cm; body mass: 80.32 ± 9.8 kg; body fat percentage: 12.41 ± 3.56 %) participated. Surface electromyographic (EMG) signals were recorded from the anterior deltoid (AD), external oblique (OBLIQ), lumbar erector spinae (LUMB), and gluteus medius (GM) and were expressed as a percentage of the maximum voluntary isometric contraction (MVIC).

Results: There were no significantly significant differences for AD muscle activity between conditions, whereas muscle activation values for OBLIQ (60% MVIC), GM (29% MVIC) and LUMB (85% MVIC) were significantly higher during the water bag power clean and jerk maneuver when compared with the other conditions.

Conclusions: The clean and jerk is an exercise that may be used to enhance core muscle activity. Performing the maneuver with water bags resulted in higher core muscle activity compared with sandbag and standard barbell versions

Level of Evidence: 3

Keywords: Muscle activation, olympic lift, resistance training, weight lifting

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