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**PREVIOUS DYNAMIC AND BALLISTIC CONDITIONING CONTRACTIONS CAN ENHANCE
SUBSEQUENT THROWING PERFORMANCE**

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Previous muscle activity can potentiate subsequent muscle performance (postactivation potentiation). Although heavy load dynamic exercise has been successfully used to acutely enhance subsequent explosive performance, little information exists for ballistic activity as a conditioning contraction (CC). The purpose of this study was to determine whether throwing performance could be enhanced if preceded by heavy dynamic (DYN) or ballistic (BAL) CCs. Eleven male, competitive rugby players (mean±SD: age 21.0±1.1; body mass 91.3±10.2 kg; height 179.7±3.7 cm) performed a ballistic bench press throw (pre-BBPT) at 40% of 1 repetition maximum (1RM) followed by a 10-min rest and one of the CCs. The CCs, applied on separate days and in counterbalanced randomized order, were 1 set of 3 repetitions of bench press (DYN) at ~85% of 1RM or BBPT at 30% of 1RM (BAL). After a 4-minute rest, the subjects performed another BBPT (post-BBPT). Peak power (Ppeak), force (Fpeak), distance (Dmax), and velocity (Vpeak), and rate of force development (RFD), force at peak power (F@Ppeak), and velocity at peak power (V@Ppeak) were measured using a linear position transducer. As some data were not normally distributed, Friedman's test was employed to examine for differences within each variable, followed by Wilcoxon's test when significant differences were identified. No correction for pairwise comparisons was applied and significance level was set at 0.05. No significant differences were found for Fpeak, F@Ppeak, Ppeak, and RFD (P>0.05) for any CC. However, significant differences were revealed for Dpeak for the BAL only (0.19±0.05 and 0.25±0.05 m, for pre- and post-BBPT, respectively; P<0.05), and for Vpeak (DYN: 0.95±0.53 and 1.32±0.22 ms⁻¹, BAL: 1.06±0.42 and 1.24±0.26 ms⁻¹, for pre and post-BBPT, respectively; P<0.05) and V@Ppeak (DYN: 0.91±0.50 and 1.24±0.20 ms⁻¹, BAL: 1.01±0.40 and 1.17±0.24 ms⁻¹, for pre and post-BBPT, respectively; P<0.05). Our findings indicate that ballistic conditioning contractions can improve subsequent throwing performance, while performance improvements that relate to velocity can be enhanced by both ballistic and dynamic contractions. Although, on this occasion, the change in velocity was not sufficient to cause a change in power or indeed a shift of the power curve, future studies should explore different loads and rest intervals, as power-curve changes have been shown to be essential in monitoring and performance.

Λέξεις κλειδιά: explosive performance, postactivation potentiation, power

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