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Day 1. Posters – Sport and Performance

D1.P36. Previous dynamic and ballistic conditioning contractions can enhance subsequent throwing performance

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Previous muscle activity can potentiate subsequent muscle performance, a phenomenon known as post-activation potentiation (Tillin and Bishop, 2009, *Sports Medicine*, 39, 147–166). Although the effect of heavy load dynamic and plyometric conditioning contractions on enhancing subsequent explosive performance acutely has been examined (Esformes, Cameron, and Bampouras, 2010, *Journal of Strength and Conditioning Research*, 24, 1911–1916), little information exists on using a ballistic activity as conditioning contraction. The purpose of this study was to determine whether throwing performance could be enhanced if preceded by heavy dynamic or ballistic conditioning contractions. Following institutional approval, 11 male, competitive rugby players (mean ± SD: age 21.0 ± 1.1 years; body mass 91.3 ± 10.2 kg; height 1.80 ± 0.04 m) performed a ballistic bench press throw (BBPT) at 40% of 1RM (pre-BBPT) followed by a 10-min rest and one set of three repetitions of either (a) bench press at ~85% of 1RM (dynamic) or (b) BBPT at 30% of 1RM (ballistic), on separate days and in counterbalanced randomised order. After a 4-min rest, another BBPT (post-BBPT) was performed. Peak power (P_{peak}), maximum force (F_{max}), maximum distance (D_{max}), peak velocity (V_{peak}), rate of force development (RFD), force at peak power ($F@P_{peak}$) and velocity at peak power ($V@P_{peak}$) were measured using a linear position transducer. Friedman's test was employed to examine for differences within each variable, followed by Wilcoxon's test when significant differences were identified. Significance level was set at 0.05. Significant differences were revealed for ballistic D_{peak} (0.20 ± 0.05 m and 0.25 ± 0.05 m for pre- and post-BBPT, respectively, $P < 0.05$), and for both interventions' V_{peak} (ballistic 1.1 ± 0.4 and 1.2 ± 0.3 m · s^{-1}, dynamic 1.0 ± 0.5 and 1.3 ± 0.2 m · s^{-1} for pre- and post-BBPT, respectively, $P < 0.05$) and $V@P_{peak}$ (ballistic 1.0 ± 0.4 and 1.2 ± 0.2 m · s^{-1}, dynamic 0.9 ± 0.5 and 1.2 ± 0.2 m · s^{-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 (Cormie, McBride, and McCaulley, 2009, *Journal of Strength and Conditioning Research*, 23, 177–186), future studies should explore different loads and rest intervals, as power-curve changes have been shown to be of great importance in monitoring and performance.

D1.P37. Visual disorders are prevalent in two groups of high-level sports people

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It has been claimed that excellent vision ("eyesight") may contribute to elite sporting performance, particularly in sports with fast-moving targets (Sillero, Refoyo, Lorenzo, and Sampedro, Perceptual and Motor Skills, 2007, 104, 547–561). However, while vision is clearly important in sport, claims that better vision contributes to elite sporting potential have not been well supported (Barrett, 2009, *Ophthalmic & Physiological Optics*, 29, 4–25) . We have received funding from a UK Research Council (BBSRC) to examine this issue and here we present results of standard eye examinations conducted with high-level sports players. We examined prevalence of visual problems amongst two groups of high-level players, and assessed whether eye examinations are accessed at recommended