Counter Movement Vertical Jump Force and Power Differs By Gender and Sport
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The counter movement vertical jump (CMVJ) is a popular measure of athletic performance, having utility in identifying strength deficits and predicting lower extremity injury risk. Integration of force platforms enables true peak force and power generation to be assessed. Normative values in the collegiate athlete population are needed to assist in test interpretation with consideration of sport- and gender-specific scores. **Purpose:** To determine if differences in peak force (PF) and power (PP) generation during the CMVJ exist between sports and gender in NCAA Division 1 student athletes. **Methods:** 184 men from six sports (basketball, football, golf, ice hockey, soccer, wrestling) and 127 women from six sports (basketball, golf, ice hockey, soccer, softball, volleyball) participated. Exclusion criteria included lower extremity injury in the prior year. Each athlete performed three maximal effort CMVJ while vertical forces were recorded. PF (N/kg) and PP (W/kg) prior to take-off were normalized to body mass and compared between genders and sport using 2-factor ANOVAs with post-hoc testing as appropriate. The trial with the highest PF was analyzed. **Results:** No significant interactions were found for sports which included both genders, while a gender main effect was present for PF (men 23.7 ± 2.4, women 22.0 ± 2.6; p<0.001) and PP (men 52.0 ± 5.7, women 41.4 ± 4.5; p<0.001). Among men, a significant sport main effect was found with football (PF: 26.1 ± 3.4; PP: 57.9 ± 8.1) having greater PF than soccer (23.8 ± 2.3), wrestling (23.8 ± 3.3) and ice hockey (23.2 ± 1.7), and greater PP than soccer (51.2 ± 4.3), wrestling (50.5 ± 5.4) and golf (51.3 ± 7.0). Among women, only PP showed a significant main effect for sport (p=0.03), with volleyball (44.8 ± 6.4) greater than golf (39.4 ± 4.8). **Conclusions:** PF and PP generation during the CMVJ was greater among male student athletes compared to females, despite normalizing for body mass. Both PF and PP differed across male sports demonstrating the need for sport-specific normative values. Female student athletes, however, displayed similar PF regardless of sport.