

Novel Methods for Measuring Upper Body Power

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ABSTRACT

Numerous methods of measuring lower body power exist but few valid measures of upper body power have been reported. **PURPOSE:** To compare two novel methods of measuring upper body power to an accepted method. **METHODS:** Ten female athletes (19.9±1.4 yrs, 72.5±11.7 kg, 163.5±4.2 cm) completed multiple trials of three upper body power tests; Medicine Ball Put (MBP), Supine Medicine Ball Put (SMBP) and Multiple Repetition Bench Press Power Test (BPP). MBP required each participant to throw a 5 kg medicine ball for maximum distance while lying on an inclined bench. Horizontal distance covered by the medicine ball was measured. SMBP required each subject to throw a 5 kg medicine ball for maximum height while lying supine on the ground. Upper body power was computed as the product of the release velocity of throw and the weight of the medicine ball. BPP required each participant to complete in minimum time 10 repetitions of a submaximal bench press exercise using a 245 N bar. Video analysis of each trial was used to determine the average vertical velocity of the bar during the upward portion of each repetition. Upper body power was then computed as the product of bar weight and velocity. Maximum power measures from each test were compared using a nonparametric analysis of variance (Friedman) and association among these measures was assessed using Spearman correlations. Additionally, the reliability of each test was determined using an intraclass r . **RESULTS:** Based on the Friedman test, there were no significant differences among the measures of power from the tests ($\chi^2 = 0.06$, $p = 0.97$). Power measures from BPP were strongly correlated to those from both SMBP ($r = 0.73$, $p = 0.02$) and MBP ($r = 0.70$, $p = 0.03$), and SMBP measures were strongly correlated with those from MBP ($r = 0.75$, $p = 0.01$). Intraclass r values suggested that each method provided highly reliable measures of power ($r = 0.99$, $r = 0.97$, $r = 0.90$, for BPP, SMBP, and MBP, respectively). **CONCLUSION:** The novel methods of assessing upper body power, BPP and SMBP, provided measures similar to those provided by the accepted method (MBP). However, the novel methods offer the advantage of providing a measure of power in Watts while the MBP simply provides a means of comparing participants relative to one another.