

Changes in Power Output in NCAA Football Linemen During Competitive Season

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ABSTRACT

Measuring power is a practice currently being developed by researchers. An available tool is the TENDO Weightlifting Analyzer (TWA). Although the TWA is a common research tool, there is little published research. The purpose of this study is to analyze OL and DL power output during in-season football. Seventeen NCAA division II football players in the Lone Star Conference were monitored during organized in-season weight training workouts. TWA measured and recorded their last set of squat. Bio feedback provided by the TWA was used to analyze each group. Seventeen NCAA division II football players (Age 21.1 ± 4.6 yrs, Ht. 1.6 ± 0.01 m, Wt. 123.1 ± 7.4 kg , BMI 35.3 ± 3.2 kg·m²), volunteered for the study, and had previously trained at least twice per week for 12 weeks. Subjects were familiarized with the TWA and squat protocol during pre-season. All subjects were required to lift four times a week. On the third workout of every week subjects back-squatted. All subjects completed a standardized warm-up. Subjects determine their own lifting weight. Researchers monitored squats and emphasized bar speed. The TWA was attached to the outside of the bar and measured average power (AP) and peak power (PP) output. Measurements were uploaded from the TWA into TENDO Sports Machine computer program and exported to Microsoft Excel®. Repeated measures ANOVA revealed no change in AP ($F(3,45)=0.996$, $p>.05$), change in overall PP ($F(3,45)=15.3$, $p<.001$) across 4 measures of the competitive season. No group interaction for AP ($F(3,45)=.488$, $p>.05$), but PP by group interaction ($F(3,45)=6.07$, $p=.001$).

Table 1. Average (AP) and Peak Power (PP) of Offensive (OL) and Defensive Linesmen (DL) During Competitive Season.

	AP 1 (W)	AP 2 (W)	AP 3 (W)	AP 4 (W)	PP 1 (W)	PP 2 (W)	PP 3 (W)	PP4 (W)
OL	911 ± 136	910 ± 124	850 ± 89	893 ± 19	1507 ± 251	1775 ± 258	1207 ± 141	1690 ± 142
DL	947 ± 214	905 ± 184	904 ± 184	880 ± 110	1605 ± 343	1728 ± 487	1637 ± 317	1801 ± 215

The competitive football season produced normal bumps, bruises, and sprains which impacted the results obtained from bi-weekly measures of AP and PP. The observed changes in PP were attributed to the changes in peak bar velocities for this instantaneous measure, whereas the stability of AP was explained by the less volatile factor of average bar velocities. Organized in-season weight training activities are effective at maintaining power output of offensive and defensive linemen.