

The Effect of Post Activation Potentiation on the Vertical Jump

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ABSTRACT

Post-activation potentiation (PAP) refers to short-term improvement in performance (i.e., jumping and running) immediately following a heavy resistance exercise. PAP can provide improvement to explosive performance with the main goal being to maximize your body's ability to generate power. **PURPOSE:** The purpose of this study was to determine the effect of post activation potentiation on the vertical jump. **METHODS:** The participants in this study consisted of twenty members of the Texas Lutheran University (TLU) football team. The study was conducted in the TLU Fitness Center on two different testing days. On the first testing day, the subject's reach was recorded, and they walked on the treadmill for five minutes. Next, a static and dynamic stretching routine was provided. Subjects performed a pre-test with three maximal jumps using the Vertec Vertical Jump Tester. One week later, subjects returned to the fitness center and performed the same warm-up and stretching routine. The participants were then instructed to load the squat bar with 75% of their one repetition maximum (RM). One RM had been performed prior to this study in football practice under the supervision of the TLU football coaches. Subjects performed two sets of five repetitions of squats with a three minute rest period between sets. Immediately following the three sets of squats, subjects were retested on their vertical jump. A paired t-test was conducted to determine if there was a significant difference between the pre and posttest. **RESULTS:** The study resulted in a mean height of 21.9 inches with a SD of 4.2 for the pre-test and a mean height of 22.9 inches with a SD of 4.18 after performing squats. A one-tailed t-test concluded with a t statistic of 2.99 and a t-critical of 1.73 indicating a significant difference between the two testing sessions. In addition, the p-value was 0.004 indicating that this data likely did not occur by chance. **CONCLUSION:** This study accepted the hypothesis of improved performance following resistance exercise. This study can be used to better understand the phenomenon of PAP and show athletes and coaches how to implement it into their training to help maximize power. PAP is becoming increasingly popular due to the way training is always evolving with technology. The whole purpose of training is to gain an edge over your opponent, so why not get the best advantage possible?