Mid Atlantic Regional Chapter
of the
American College of Sports Medicine

46th Annual Scientific Meeting, November 3rd - 4th, 2023
Conference Proceedings
International Journal of Exercise Science, Issue 9, Volume 12

The Effect of Post-Activation Potentiation on Barbell Bench Press Velocity and Power

Nathaniel R. Chabak[1], Carrie E. Ellis[2], Diane M. Babbitt[1]. [1]Cedar Crest College, Allentown, PA. [2]DeSales University, Center Valley, PA.

Post-activation potentiation (PAP) has been demonstrated to increase power output for single repetition activities with proper load and optimal rest time. There is limited research on upper body PAP with multiple repetitions. **PURPOSE:** To examine the effect of post-activation potentiation on barbell bench press velocity and upper body power output in a group of college students. **METHODS:** Subjects included 10 DeSales University Students (5 male, 5 female, 18-21 years old) who participated in the research study on 4 separate days. Day 1 consisted of an orientation meeting. Day 2 consisted of one repetition maximum (1RM) testing for the bench press exercise. Days 3 & 4 consisted of a brief warm-up with randomized testing protocols (control and PAP). The control session included three repetitions at 60% 1RM as fast as possible. The PAP session included three sets of 3 repetitions at 80% of 1RM with a 6-minute rest period after the last set, followed by three repetitions at 60% of 1RM as fast as possible. Mean barbell velocity and average power were measured using a linear position transducer. Paired sample t-tests were used to compare differences between average measurements of barbell velocity pre and post potentiation and upper body power output pre and post potentiation. **RESULTS:** There was a statistically significant difference in mean barbell velocity was 0.76 ± 0.096 m/s pre-potentiation and 0.71 ± 0.087 m/s post-potentiation. There was a statistically significant difference in average velocity ($p=0.028$). Average power output was 277.2 ± 100.2 W pre-potentiation and 272.4 ± 106.1 W post-potentiation. There was no statistically significant difference in average power output ($p=0.562$). **CONCLUSION:** The present study did not demonstrate that a high-intensity potentiating exercise improved barbell velocity or upper body power output with multiple repetitions. Further research should be conducted to understand the full effects of post-activation potentiation for optimal performance on multiple repetition activities. **SIGNIFICANCE/NOVELTY:** This research was intended to determine if PAP would affect power output in multiple repetitions of the barbell bench press exercise exercises. Fatigue appeared to be a crucial factor in testing and resulted in the PAP testing day producing a lower power output compared to the control. This information plays an important role in the field of strength and conditioning as professionals are always looking at what optimizes or hinders athlete performance.