

Public Abstract

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Title:The APRE vs Linear Periodization in short term time periods

For as long as there has been training, there has been a debate over which training means produced the greatest gains in strength. The gold standard of training has long been the Western Linear Periodization (LP) model of training. Most studies have been done looking at 12 week or longer periods, however in a collegiate athletic setting, 12 week periods are not available. This study compared a different type of training in the form of Autoregulation with the Autoregulatory Progressive Resistance Exercise (APRE) protocol in a 6 week program. The athletes were grouped by year, the 2004 group performed the LP program and the 2005 group performed the APRE program. The athletes were tested on strength in the Bench Press, Squat, 225 Bench Press Repetitions Test and Hang Clean. The athletes were tested in power by the use of vertical jump converted to power by the Sayers power equation. Autoregulatory progressive resistance exercise (APRE) is a method by which athletes increase strength by progressing at their own pace based on daily and weekly variations in performance, unlike traditional linear periodization (LP), where there is a set increase in intensity from week to week. This study examined whether 6 weeks of APRE was more effective at improving strength and power than traditional LP in division 1 FBS college athletes. This study compares 57 division I FBS athletes using either the APRE (n = 31) or LP (n = 26) during six weeks of preseason training in 2 separate years. After 6 weeks of training, improvements

in total estimated 1 repetition maximum (1RM) bench press strength, estimated 1RM squat, estimated 1 RM hang clean, number of 225 bench press repetitions to failure test, and power as derived through the use of vertical jump and the Sayers power equation were found by using percentage difference scores. Also examined was the effect of somatotype of the athlete, which was determined by position, and if it played an effect on the ability to gain strength.

Analysis of variance (ANOVA) was used with a Tukey's HSD post hoc when necessary to determine differences between the groups. Statistical significance was accepted at $p \leq 0.05$. Autoregulatory progressive resistance exercise (APRE) demonstrated greater improvement in estimated 1RM bench press strength (APRE: $1.0507 \pm .018$ N vs LP: $1.0086 \pm .021$ N; $F(1)=5.421$, $p=.024$), estimated squat (APRE: $1.0880 \pm .036$ N vs LP: $.9947 \pm .041$ N; $F(1)=9.299$, $p=.004$), estimated 1RM hang clean (APRE: $1.0927 \pm .039$ N vs LP: $.9765 \pm .044$ N; $F(1)=10.384$, $p=.002$), estimated power (APRE: $1.0809 \pm .050$ N vs LP: $.9758 \pm .057$ N; $F(1)=6.550$, $p=.014$). No Significant difference existed for the 225 bench press repetitions to failure test (APRE: $1.2927 \pm .271$ vs LP: $1.0605 \pm .231$; $F(1)=1.835$, $p=.182$). A significantly different value was found for somatotype on the squat ($F(2)=3.893$, $p=.027$) and a Tukey's HSD Post Hoc test was performed to find the difference, however an only near significant difference existed ($p=.051$) between the big position group and the middle position group.

The findings of this study indicate that the APRE was a more effective means of training than LP over a six week period for developing strength in the bench press, squat, hang clean and power development. No significant
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difference existed for the 225 bench press repetitions to failure test, or differences in ability to gain strength between the groups.