Impact of Spring Break on a Strength Endurance Phase of Resistance Training Among Division III Women’s Soccer Players

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Introduction

- The purpose of this study was to examine the effects of an interrupted strength endurance resistance training period on vertical jump performance.
  - Training is a process that requires considerable forethought and planning and should attempt to take the athletes as close as possible to their genetic limits (DeWeese, Hornsby, Stone, & Stone, 2015).
  - Training may be unintentionally interrupted but if implemented skillfully, the athlete’s performance capabilities rebound by virtue of a delayed training effect phenomenon, allowing new levels of movement speed and technical execution to be achieved (Plisk & Stone, 2003).
Methods

Seventeen Division III female college soccer players completed three resistance training sessions per week (Monday, Tuesday, and Thursday) for four weeks during the spring offseason.

- These training sessions consisted of both push and pull exercises
- Countermovement jumps were assessed prior to training on the Mondays of weeks 1, 2 & 4
  - No measurements were taken during week three due to spring break
- Flight time was measured using a contact mat while athletes performed maximal CMJs with a 20kg bar placed across their shoulders
Results

Figure 1 shows the vertical countermovement jump performance, which increased with each week of resistance training.

Figure 1. CMJ flight time across the 4-week period.
As shown in Table 1, analysis of the data depicted significant increases between the first two weeks of training and between the first and fourth week of training.

Table 1. Repeated measure ANOVA and Cohen’s d comparison statistics.
Discussion

The main findings from this study were that with each week of resistance training the countermovement jump height increased, including between the second and fourth week.

- This occurred even though there was no training.
- Other studies show that accumulated fatigue from high volume resistance training leads to a decrease in CMJ height.
- Strength gain cannot occur without neural adaptations:
  - Increase motor unit recruitment
  - Increase of stimulation frequency
- We were able to manage fatigue.

Figure 2. Stimulus-fatigue-recovery-adaptation theory, (Haff 2012).
Practical Applications

Four weeks of resistance training (9 sessions) resulted in a 7.0% increase in CMJ flight time.

- Provides evidence of a delayed training effect
- Strength and conditioning professionals should be sure to implement deload weeks in order to manage fatigue and promote training adaptations
References


