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Effects of an Eight Week Periodized Resistance Program in Adolescents

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Resistance training has been shown to positively affect muscular fitness measures in adolescents. However, the effects of periodized approaches in this population are limited. **PURPOSE:** To examine the effects of an eight week periodized resistance program in adolescents. **METHODS:** Fifteen (12 male, 3 female) subjects, aged 14.0 ± 1.5 years and BMI of 24.1 ± 5.0 kg/m² participated in the study. Testing measurements were assessed pre and post and included body fat percentage, lean body mass (LBM), Functional Movement Screening (FMS), broad jump, single leg hops (SLH), limb symmetry, bench press reps at 25% of body weight, leg press reps at 100% of body weight, and pro-agility. Limb symmetry was calculated from SLH scores and used to assess muscular imbalances in lower limb power. Training programs were individualized to each subject based on sport and pre-testing results. Training sessions were three days per week and lasted 90 minutes each including a 5-minute warm up, 50 minutes of resistance training, 25 minutes of agility training, and 10 minutes of flexibility training. A linear periodization approach was utilized by progressing from endurance to hypertrophy to strength/power training over 8 weeks. **RESULTS:** Paired-sample T tests showed significant increases in FMS scores from 16.5 ± 1.9 to 17.7 ± 2.1 ($p=0.003$), left leg SLH from 48.8 ± 12.3 to 52.9 ± 11.2 inches ($p=0.034$), limb symmetry from 88.7 ± 9.6 to $93.3 \pm 5.1\%$ ($p=0.037$), and leg press from 35.2 ± 28.9 to 51.9 ± 36.3 reps ($p=0.03$). Body fat percentage, LBM, broad jump, right leg SLH, bench press reps, and pro-agility times showed no significant changes ($p>0.05$). **CONCLUSION:** Improvements in FMS, left leg SLH, and limb symmetry show potential reduction in injury risk. No change in LBM shows that neurological adaptations may be responsible for the significant improvements in lower limb power, strength, endurance, and symmetry in this population.