

12th Annual Pediatric and Adolescent Sports Medicine Update for Primary Care

Youth Resistance Training: From Science to Practice

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Overview

In addition to improving cardiorespiratory fitness with running games and endurance activities, the importance of developing and maintaining muscular fitness should not be overlooked. Yet misperceptions surrounding youth resistance training still persist and the potential health- and fitness-related benefits of resistance training for youth are often overlooked. Global trends in muscular fitness indicate that modern day children and adolescents are weaker than previous generations. Since muscle weakness at any age predisposes individuals to functional limitations, activity-related injuries, and adverse health outcomes, targeted interventions are needed to enhance muscular fitness and alter physical activity trajectories. If children are not exposed to an environment with regular opportunities to enhance their muscular fitness, they will be less likely to develop the prerequisite skills and abilities that are needed for ongoing participation in active games and sport activities.

Without interventions that include strength- and skill-building exercises, current trends in physical inactivity among youth will likely continue and the gap between those with higher and lower levels of muscular fitness will likely widen across developmental time. In the long run, children who participate regularly in resistance training will be better prepared for physical activities and more eager to learn more complex movements and sport skills. The objectives of this lecture are to synthesize the current research related to youth resistance training, discuss the “dose” of resistance exercise that is needed to optimize training-induced adaptations in youth, and provide evidence for incorporating resistance training into long-term athletic development programs.

Outline

- I. Youth resistance training: Why now?
 - a. Resistance training terminology: Beyond sets and repetitions
 - b. Myths that won't quit
 - c. Contemporary trends in muscular fitness

- II. Survival of the strongest
 - a. Trainability of youth
 - b. Special considerations for females
 - c. Resistance exercise is medicine

- III. Potential benefits of youth resistance training
 - a. Increase muscular strength and power
 - b. Improve fundamental movement skills
 - c. Increase bone mineral density
 - d. Improve body composition

- e. Improve cardiometabolic health
 - f. Enhance sports performance
 - g. Reduce sports-related injuries
 - h. Long term athletic development
- IV. Risks and concerns associated with youth resistance training
- a. Inherent risks of resistance training
 - b. Qualified supervision and instruction
 - c. Resistance training skill competency
- V. Program design considerations: Build a strong foundation
- a. Selection and order of exercises
 - b. Training intensity and volume
 - c. Integrative neuromuscular training
 - d. Long term athletic development

Selected references

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