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Strength Training in Adolescents and Children

With sports becoming more competitive, athletes are always looking for ways to create an edge over opponents.¹ Training for sport has become more advanced and is taking place at younger ages. One aspect of training that is being used in younger age groups is strengthening. Parents may be wondering: “Is this safe for my child?” or “Do the advantages of strengthening outweigh any potential for harm?” This article will explore the current research on strength training in children and adolescents.

In the past it was believed that children should not participate in strength training. Clinicians believed that the additional stresses on the muscles, bones, ligaments, and other structures could harm a developing child.¹ One of the main concerns was damage to a child’s growth plate.¹ They were also concerned with muscle strains, low back pain, inhibition of growth, and an early development of chronic overuse injuries.¹ Recent research has shown these previous concerns about the adverse effects of strengthening may not be accurate. With a controlled environment, a trained and properly credentialed exercise professional conducting the program, and education on proper technique, strength training can be of benefit to children and adolescents.¹⁻³ However, an untrained individual leading a child or adolescent through an improper strength training program can cause harm to that child or adolescent. Research has shown children as young as 6 years of age can make gains in strength with properly developed and monitored programs.¹

Strength training programs and weight lifting are not the same. Strength training is safe for children if conducted properly, weight lifting is not. Strength training is

defined as resistance exercises used to help improve strength for a greater ability to generate a force.¹ Weight lifting, on the other hand, is a competitive sport in which a participant attempts to display maximum lifting.¹ Weight lifters train at a high intensity. The American Academy of Pediatrics does not recommend weight lifting or bodybuilding in adolescents until they reach puberty.⁴

Research has found several potential benefits of strength training in adolescents and children. First, it has been shown to improve sport performance.² Strength training is used in rehabilitation injuries and also in preventing injuries.² Physical therapists often use light resistance to strengthen the muscles in children with orthopedic injuries and other appropriate conditions. Finally, strength training can improve overall health by increasing maximal oxygen uptake, alter body composition, increase overall muscle strength and motor performance, enhance bone mineral density, and regulate blood lipid proteins.^{3,5}

Several guidelines should be followed when a child or adolescent chooses to start a strength training program. Although strength training has benefits, it may not be appropriate for all individuals so a medical doctor should be consulted before beginning a program.² The strength training program should be conducted by a qualified instructor or clinician, such as a physical therapist or athletic trainer. The American Academy of Pediatrics has set up the following recommendations for the development of a program. Resistance should be started low and proper technique should be addressed and emphasized.¹⁻² It is important that children and adolescents have proper form to prevent injury and maximize benefit from the exercise. The program should start with 8-15 repetitions and progress as the weight being lifted becomes too easy throughout the set.

^{2,5} Weight increases should recreate a challenge toward the end of the set. It is important for all muscle groups to be strengthened equally to prevent imbalances that could lead to future injuries or orthopedic problems.² It is also important for anyone participating in strength training to stretch muscles between sets and after the exercise.¹ This will encourage flexibility, reduce further muscle strain and tightening associated with strength training, and deter the effects of growth spurts. Strength training should be performed 20-30minutes 2-3 times per week and should not be done more than 4 times a week.² Finally, the child or adolescent should participate in aerobic exercise along with the strength training program.²

References

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