

Excerpt from *Sports Injuries Guidebook*

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INJURY PREVENTION STRATEGIES FOR YOUNG ATHLETES

Like adults, teenage athletes are at risk for repetitive use and traumatic injury. Unlike adults, teenagers have the additional concern of physical growth and development. Although many fears exist regarding intense athletic participation in teenagers, few of these are validated by scientific study. That said, it is important to address issues that logic dictates are particular to the not-yet-mature athlete. For the discussion here, children who are younger than 12 are considered preadolescent, and young people from 12 to 19 are considered adolescents.

At What Age Is Strength Training Okay?

Many adults intuitively believe that strength training places undue stress on the growth plates of young athletes and might lead to premature closure or injury with resulting growth disturbance. But with proper supervision and appropriate program design, there has been no adverse effect in growth, flexibility, motor performance, or development documented in maturing athletes who participate in weight-training exercise. In fact, weight training can begin in preadolescence so long as it is adapted for this age group and supervised by a knowledgeable adult. Athletes in this age group use lighter weights and do increased repetitions and





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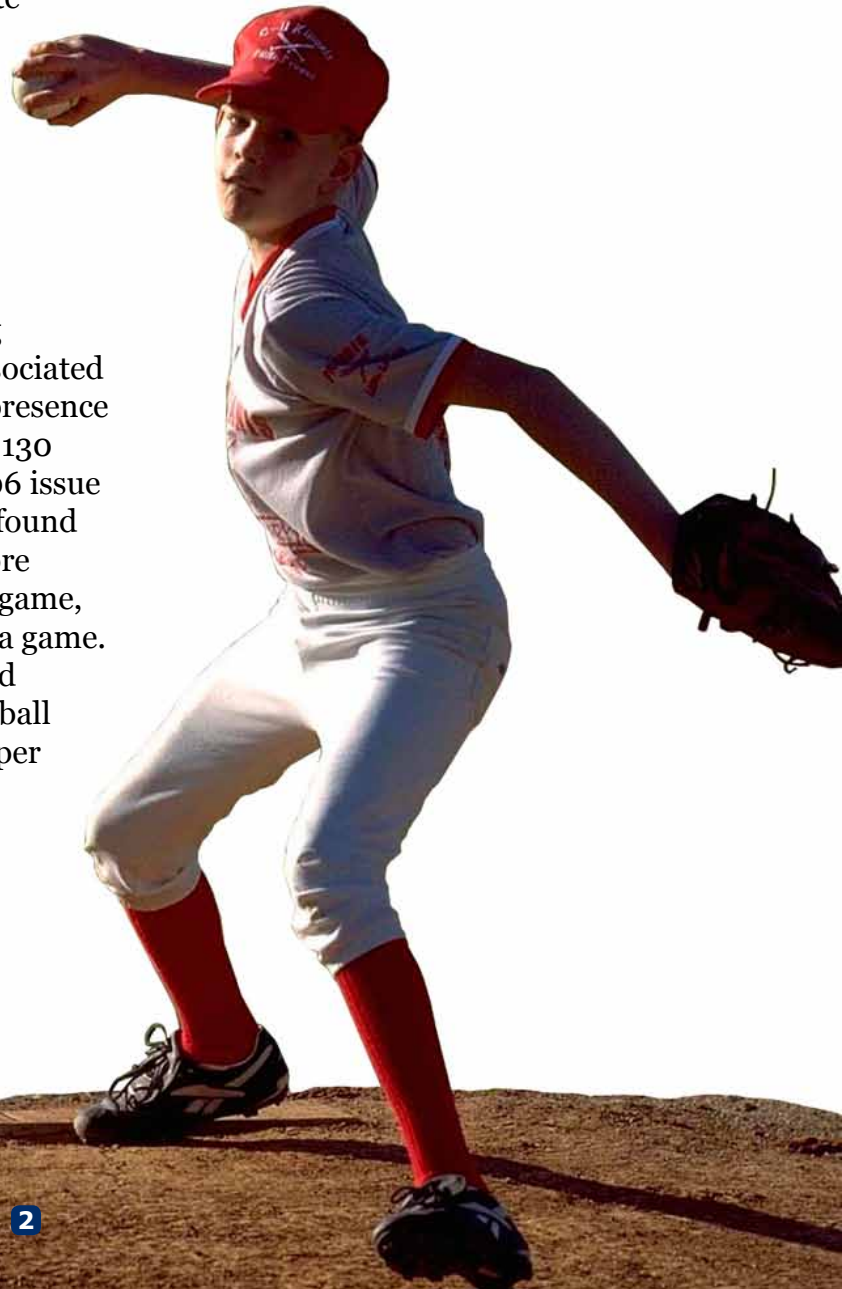
sets. For instance, preadolescents would use a weight load that they can successfully (with proper mechanics) lift 12 to 15 times (repetitions) without undue stress or alteration in form. Before young athletes begin resistance training, they should visit a pediatrician for a full medical exam and be forewarned of the risks associated with anabolic steroids.

Teenagers who lift weights must be monitored closely and should adhere to established principles. For starters, Olympic-style and competitive weightlifting are dangerous for any age group and should be avoided. The American Orthopaedic Society for Sports Medicine recommends two or three weight-training sessions per week. The program should include 20 to 30 minutes of training with warm-up and cool-down periods. Weight resistance that allows three sets of 6 to 15 repetitions is a good starting point. Once a teen athlete has mastered three sets of 15 repetitions with appropriate

technique and good control, weight can be increased slowly to allow for progression.

Can Overuse Injuries Affect Young Athletes?

With other types of training, appropriate allowances should be made for the developing adolescent body. The lack of excessive risk associated with growth plate injury does not negate the presence and prevalence of overuse injuries. A study of 130 adolescent pitchers published in the June 2006 issue of *The American Journal of Sports Medicine* found that injured throwers pitched significantly more months per year, games per year, innings per game, pitches per year, and warm-up pitches before a game. With this information, Dr. James Andrews and coauthors recommended that adolescent baseball pitchers avoid pitching more than 80 pitches per game, avoid pitching competitively more than eight months per year, and avoid pitching more than 2,500 pitches in competition per year. Some organizations now require monitoring of pitch counts and periods of rest.



Is Dehydration an Issue for Children?

A concern to any athlete is malnutrition and its possible effects on training. An adolescent athlete has the additional risk of delayed maturation. The energy cost of activity in an adolescent is considerably higher than that in an adult. Dependence on adult recommendations may lead to a gross underestimation of the needs of the athlete. It should be noted that if any short-term discrepancy in training and nutrition is corrected, maturation will usually not be compromised. If there is doubt about an athlete's nutritional needs, he or she should consult a professional. An implication of the elevated energy required by teenage athletes is the production of more metabolic heat and a faster increase in core body temperature caused by dehydration. Sweating effectively cools the body but also leads to fluid and electrolyte loss. Dehydration can be exacerbated by sports that promote voluntary fluid loss to make weight (e.g., wrestling). Both athletes and coaches should be educated on the effects of dehydration.

Children should arrive fully hydrated for a practice session or competition, and drink breaks should occur every 15 to 20 minutes during prolonged activities. Flavoring the drink and adding sodium chloride or carbohydrate to the beverage might prompt athletes to drink more fluids and will help prevent hyponatremia. Fluid consumption can be monitored by weighing the athlete before and after training.

Athletes who do not drink enough to restore body weight to normal between practices or competitions should be required to rehydrate before being allowed to participate.



Children should arrive fully hydrated for a practice session or competition.

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Drink breaks
every 15-20
minutes

GO
TROJANS!

Stress warm-up
and cool-down
periods!

About the Editor

Dr. Robert Gotlin, DO, is the director of orthopaedic and sports rehabilitation in the department of orthopaedic surgery and the coordinator of the musculoskeletal and sports rehabilitation fellowship training program at Beth Israel Medical Center. He is also an assistant professor of physical medicine and rehabilitation at the Albert Einstein College of Medicine of Yeshiva University.

Gotlin hosts the *Dr. Rob Says . . . Sports Health and Fitness Show*, which airs every Saturday from 7 to 8 a.m. on 1050 ESPN Radio. He has been a guest host for television's *ABC Now*, *Healthy Living*, a daily television program that features breaking medical news and practical health advice. As a consultant, he has served on the medical team with Dr. W. Norman Scott, team physician for the New York Knicks (NBA) and New York Liberty (WNBA), and as physiatric consultant to Dr. Michael Kelly, team physician for the New Jersey Nets (NBA), and to Dr. Stuart Hershon, team physician for the New York Yankees (MLB). He is also a team physician for U.S. Women's Rugby and the chief medical officer for the JCC Maccabi Games.

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