



**DES MOINES
ORTHOPAEDIC SURGEONS, P.C.**

DMOS – West

6001 Westown Parkway
West Des Moines, IA 50266
515-224-1414
800-245-6129

DMOS – East

Penn Medical Plaza
1301 Pennsylvania Ave., Suite 213
Des Moines, IA 50316
515-263-9696
800-688-3980

DMOS – Carroll

405 S. Clark St., Suite 250
Carroll, IA 51404
712-792-2093
877-284-1428

**STRENGTH TRAINING IN THE YOUNG ATHLETE
Jeff Davick, MD
Des Moines Orthopaedic Surgeons, PC**



Parents and coaches of young athletes often ask, "When is it safe to start strength training?" Strength training in young athletes has become a hot topic due to increasing demands in younger age groups. Numerous facilities and programs are now in place specifically to provide strength and conditioning for young athletes. Many youth are becoming more sport specialized at an earlier age which predisposes them to overuse injuries. "Specialized" athletes also tend to be involved in multiple teams, which can also increase the risk of injury.

The push for strength and conditioning is to help improve performance and prevent injuries. The question for younger athletes is whether strength training is safe, helpful or harmful.

Strength training is the use of resistance to increase the muscle's ability to exert a force. Strength training can be achieved with free weights, weight machines or exercises using the athlete's own body weight. Strength training is distinctly different from body building and power lifting. The benefits of strength training are to increase strength and endurance. Strength training can also protect an athlete from injury and improve athletic performance. Strength training will strengthen bones and boost metabolism. It also helps lead to improved self esteem and promote a healthier lifestyle. An appropriate strength and fitness program will include cross training, nutrition, hydration and appropriate rest.



Strength training can be started as early as age 8. It is important for the young athlete to have the balance to perform the strength training activities. The athlete also needs to have the maturity to follow directions. Appropriate coaching is also a must for proper form and technique.

A common misconception in strength training of the young athlete is that preadolescent athletes cannot benefit from strength training because of insufficient circulating levels of androgens. Androgens are hormones that influence growth and development. Puberty is associated with a significant increase in the production of androgens. The onset of puberty varies greatly in children and can range from age 13 to 18 in boys and age 11 through 16 in girls. Prior to reaching puberty, young athletes involved in strength training will not see a significant increase in muscle hypertrophy or size. Strength training in athletes that have not reached puberty results in an increase in the nerve activation of muscle, which results in an increase in muscle adaptation and coordination. This in turn leads to an increase in athletic performance and also helps with the body's ability to protect itself from injury. After puberty when an athlete reaches adolescence, strength training will cause muscle hypertrophy which means that the actual size of the muscle will increase.

Another misconception is that strength training is dangerous in the young athlete. Again, it is important to distinguish strength training from power lifting. In an immature athlete, power lifting heavy weights can lead to problems in the growth plates of growing bones, including the low back. Growth plates are areas of cartilage within bones that allow for growth of the bone. Repetitive stress against a growth plate can lead to a growth plate injury, possible stunting the growth of the bone. Improper training and excessive loading of the immature skeletal system can lead to injuries but needs to be distinguished from a supervised strength training program that demands proper supervision, form and technique. Studies show that supervised strength training is no riskier than sports in causing a growth plate injury. Heavy overhead lifting and squats in an immature athlete can lead to stress fractures in the low back. Supervised strength training, however, can prevent low back injuries, especially when it is focused on core abdominal strength.

In summary, strength training is appropriate for the young athlete. Proper strength training will increase muscle adaptation and coordination and help improve athletic performance as well as protecting the athlete from injury. Power lifting and body

building are not the same as strength training and should be discouraged in the immature athlete. The most important aspect of a strength training program is proper supervision, stressing good form and technique as well as outlining realistic goals. A proper strength training program will increase strength and endurance, improve performance and help promote a healthier lifestyle for the young athlete.

Dr. Davick practice emphasizes the care of sports injuries. Dr. Davick volunteers as a team physician for local school and Simpson College. To reach Dr. Davick or to schedule an appointment please phone 515-224-5218.