

The Young Athlete

Young athletes have special needs. Because their bodies are growing, they often require more age-specific coaching, conditioning, and medical care than mature athletes. An awareness of the special requirements of young athletes can better prepare them for the competitive pressures and physical injuries that can come with increased sports activity.

More young people are participating in sports today than ever before. Athletic participation has increased in grade schools, high schools, and community programs: 50% of boys and 23% of girls between the ages of 8 and 16 years compete in organized sports programs sometimes during the year. Beyond organized sports programs, millions more young people participate in physical education classes, church and community intramural programs, and other recreational athletic activities.

A host of factors has contributed to the growing interest in the health and athletic conditioning of young athletes. The media impact on youth has elevated talented college and professional athletes to heroic levels. The media's representation of these sport heroes may confuse young athletes by creating unrealistic expectations. For example, the early return to competition by professional athletes following injury creates the impression that athletes often heal faster than the rest of us. Peer pressure and the economic and social forces exerted on school coaches to win may lead to decisions that are not truly in the best interests of a child's health, growth, and development are other factors that have spurred interest in the health of young athletes.

Young Athletes Are Different

The growing athlete is not merely a smaller version of the adult. There are marked differences in coordination, strength, and stamina. In young athletes, bone-tendon-muscle units, growth areas within bones, and ligaments experience uneven growth patterns, leaving them susceptible to injury. Increases in body size may be the result of additional fat instead of muscle, causing marked differences in strength. Too often, unfair competition occurs between boys of 100 pounds of baby fat and boys of 150 pounds of muscle.

Grade school students are less likely to experience severe injuries during athletic activities because they are smaller and slower than older athletes.

When they collide or fall, the forces on their bodies are usually not high enough to cause injury. They simply do not generate enough kinetic energy. However, high school athletes are bigger, faster, and stronger and are capable of producing high enough kinetic energy to sustain serious injuries.

The Importance of Good Coaching

Although athletic coaches often recognize severe injuries because of signs of pain and the inability to continue playing, they should also watch for early signs of physical problems (such as pain or limp) in young athletes. Coaches may have more difficulty spotting less severe injuries, however, because the pain is low grade and the athlete often ignores it. Repeat injuries may turn into overuse conditions, which can put the athlete on the sidelines for the rest of the season.

Because many sports injuries in young athletes, particularly elbow and knee injuries are caused by excessive, repetitive stress on immature muscle-bone units, coaches should provide protection for the young athlete through proper conditioning, prompt treatment of injuries, and rehabilitation programs. Conditioning programs usually strive to make the young athlete physically fit by improving muscle strength, endurance, flexibility, and cardio respiratory fitness. Conditioning, prompt treatment of injuries and rehabilitation are particularly important because repetitive overuse injuries can lead to fractures, muscle tears, or bone deformities. Fortunately, such injuries are uncommon in young athletes, and prolonged pain is usually an early warning sign.

Coaches as well as parents also are responsible for creating a psychological atmosphere that fosters self-reliance, confidence, cooperation, trust, and a positive self-image. Young athletes must learn to deal with success and defeat in order to place events in a proper perspective. Some coaches and parents go too far in analyzing player performance. The promotion of the "win at all costs" ethic can have both short-term and long-term detrimental effects on impressionable young athletes.

Soft-Tissue Injuries

Major sports-related injuries are rare in young athletes. Approximately 95% of sports injuries are caused by minor trauma involving soft tissues-bruises, muscle pulls, sprains (ligament injuries), strains (muscle and tendon injuries), and cuts or abrasions. Little sports time is lost as a result of these injuries. Moreover, sports injuries occur more frequently in physical education classes and free-play sports than in organized team sports. Minimal safety precautions and supervision can prevent many injuries

Sprains

Almost one-third of all sports injuries are classified as sprains. A sprain is a partial or complete tear of a ligament, which is a tough band of fibrous connective tissue that connects the ends of bones and stabilizes the joint. Symptoms include the feeling that a joint is loose or unstable, the inability to bear weight because of pain, loss of motion, hearing the sound or feeling the sensation of a "pop" or "snap" when the injury occurred, and swelling. Not all sprains produce pain.

Strains

A strain is a partial or complete tear of a muscle or tendon. Muscle tissue is made up of cells that contract and make the body move. A tendon consists of tough connective tissue that attaches muscles to bones.

Contusions

The most common sports injury, contusions (bruises), rarely causes a young athlete to be sidelined. Bruises result when a blunt injury causes underlying bleeding in a muscle or other soft tissues.

Prompt treatment for soft-tissue injuries usually consists of rest, applying ice, wrapping with elastic bandages (compression), and elevating the injured arm, hand, leg, or foot. This usually limits discomfort and reduces healing time. Proper first aid will minimize swelling and help the physician establish an accurate diagnosis.

Spinal Cord Injuries

Although spinal cord injuries in sports are rare, 10% of all spinal injuries occur during sports, primarily diving, surfing, and football. Spinal cord injuries can range from a sprain to paralysis in the arms and legs to death. Participants in contact sports can minimize the risk of minor spinal injuries (neck sprains and pinched nerves) by doing exercises to strengthen the neck muscles.

Skeletal Injuries

A sudden, violent collision with another player, an accident with sports equipment, or a severe fall can cause skeletal injuries in the growing athlete.

Fractures constitute 5% to 6% of all sports injuries. Most fractures occur in the arms and legs. Spine and skull fractures are rare.

More common, however, are stress fractures and ligament-bone disruptions that occur because of continuing overuse of a joint. The main symptom of a stress fracture is pain. Frequently, initial x-rays do not show any signs of a stress fracture and athletes are permitted to return to the same activities. As a result, the pain often returns or continues, but the athlete keeps playing. Stress fractures most often occur in the tibia (the larger leg bone below the knee), the fibula (the outer and thinner leg bone below the knee), and the foot.

Little League elbow can occur when a baseball pitcher's repetitive throwing puts too much pressure on the growth centers of the elbow bones. This painful condition results from overusing muscles and tendons or from an injury to the cartilage surfaces in the elbow.

In the growing athlete's musculoskeletal system, pain from repetitive motion may appear somewhere besides the actual site of the injury. For instance, a knee ache in a child or adolescent may actually be pain caused by an injury to the hip.

Diagnosis

Diagnosis of any sports-related orthopedic injury should be made promptly by orthopedic surgeons, physicians who specialize in the care of the musculoskeletal system. The physician usually will ask the young athlete how the injury occurred, where the pain is located, in which sport the athlete participates, and then follow with questions about the type of pain to determine whether it is a stabbing pain, a dull ache, or a throbbing.

During the physical examination, the orthopedist will ask the young athlete to move the affected area to determine whether the normal range of motion has been affected. The orthopedist will gently touch the area to observe for obvious skeletal abnormalities. X-rays or other radiographic tests may be ordered, depending on the young athlete's condition and the doctor's need for additional information.

Treatment

Orthopedic surgeons have been in the forefront of treating musculoskeletal system injuries and have a long tradition of caring for young athletes. They have analyzed and clarified the psychological needs of young athletes, researched the susceptibility of young athletes to physical injury, and made recommendations regarding conditioning and training. Orthopedic surgeons

provide early and comprehensive care of orthopedic injuries that can help young athletes heal and return to athletic activities with less risk of repeated injury.

Treatment varies according to the young athlete's condition, but it may include rest, elevation, compression bandages, crutches, cast immobilization, or physical therapy.

Female Athletes

In the past 15 years, female involvement in sports has increased by more than 700% at the high school level. Although early studies indicated that female athletes needed to train at lower levels of intensity than male athletes, it appears that this was more a social than a physiological problem. Female athletes are able to train and frequently compete at levels that rival many of the best male athletes. Although there are differences in performance that are sex-related, athletic injuries are related more to an athlete's specific sport than his or her sex.

Risk and Benefits

Athletic activity by young people is generally safe with low risks and high benefits. The major goal should be enjoyable participation. Exposure to competitive and noncompetitive sports encourages the development of fitness, motor skills, social skills, and a life-long appreciation for sports.

Your orthopedist is a medical doctor with extensive training in the diagnosis, and non-surgical and surgical treatment of the musculoskeletal system, including bones, joints, ligaments, tendons, muscles and nerves.

This material has been prepared by the American Academy of Orthopaedic Surgeons and is intended to contain current information on the subject from recognized authorities. However, it does not represent official policy of the Academy and its text should not be construed as excluding other acceptable viewpoints.