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## **Youth Sports Injuries**

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### **Overview**

The Centers for Disease Control and Prevention (CDC) estimate that approximately 40 million children (age 6-18) participate in organized sports each year, and these numbers are increasing yearly. Organized sports are the leading cause of injury in adolescents, and 50% of these injuries in children are preventable and caused by overuse.

### **Physiology**

It is important to remember that children are NOT simply small adults. While their ability to adapt to and heal injuries is increased as compared to adults, their developing bones and soft tissues (muscles, tendons, etc...) are more sensitive to overuse. Chronic overuse injuries, once the domain of aging adult athletes, are occurring more frequently in children. The reasons for this are multiple and include longer competitive sports seasons, multiple team participation, and year-round single sport specific training. This increased focus on sport training and success is fueled in part by the prominent role that sports occupy in our society, and an increased desire for athletes (and their parents) to compete at a collegiate or professional level.

### **Common Questions**

An overuse injury is defined as microtraumatic damage to a bone/muscle/tendon that has been subjected to repetitive stresses without sufficient time to heal. They are more common in children who play one sport continuously and on multiple teams, and/or in children who have poor sports biomechanics (example: baseball pitcher with poor throwing mechanics which subjects his/her shoulder and elbow to high forces).

Many parents want to know how much training is too much. While there are no specific scientific guidelines, injuries tend to be more common during children's peak growth velocity (i.e. when the bones are growing their fastest and are most susceptible to injury; ages 10-14 in girls, and 12-16 in boys), and if underlying poor sport biomechanics are present. I recommend that children should have at least 1 off day/week and 2 off months/year. In addition, playing different sports during the course of a year encourages muscle cross-training and lessens the risk of overstressing a particular joint or muscle.

### **At Risk Athletes and Tips to Avoid Problems**

The easiest way to know if your child is at risk is to listen for consistent symptoms of pain, particularly pain at rest and which restricts performance. This is especially true in single sports athletes with year-round and/or multi-team participation or



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those who participate in sports which stress a particular joint (ex. baseball pitcher and quarterback; volleyball hitter and swimmer).

There are many ways to help lessen your child's risk. The first is to avoid year-round, multi-team single sport participation. Encourage your child to play different sports throughout the year if they are interested. Parents should be particularly attuned to potential problems during high intensity sport participation (ex. multiple games over a weekend tournament or the end of an extended playing season). Finally, parents and coaches should education themselves on proper sport biomechanics, particularly in repetitive sports such as pitching or volleyball, and proper equipment wear.

Below is a list of some common overuse injuries, their anatomic location, and any common names associated with these injuries. For more information or those with questions, please consult your physician.

Common Injury Locations and Diagnoses

- Bone: growth plates
  - Upper arm (humerus): Little Leaguer's Shoulder
  - Inside elbow (medial epicondyle): Little Leaguer's Elbow
  - Wrist (radius): Gymnast wrist
- Bone: stress fractures
  - Shin (tibia)
  - Back (vertebral column): Pars fracture
  - Hip (femoral neck)
- Tendon Insertion into Bone (apophysitis)
  - Kneecap: Jumper's knee/Sinding-Larsen disease
  - Top of shin (tibial tubercle): Osgood-Schlatter disease
  - Heel (calcaneus): Sever's disease