

# A GUIDE TO SPORTS INJURIES IN CHILDREN

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The benefit of sports participation in children has become evident with the explosion of kids in organized activities. Psychologically, improved self-esteem and self-image are the natural by-products of increasing confidence as skills are gained. Physically, most studies stress that activity is important for skeletal growth and development in children.

According to the American Academy of Pediatrics, habitual exercise begins in childhood, and children who participate in sports are more likely to be active adults. Although not directly proven in children, the health-related benefits of exercise in adults are well established. Cardiovascular fitness is the key to reducing the risk of coronary artery disease, hypertension, obesity, and non-insulin dependent diabetes mellitus.

Inherent to challenging competition is the risk of exceeding the limits of the body and thereby causing injury. An acute extraordinary stress to the immature skeleton can lead to unique fracture patterns adjacent to growth plates. As we push children to maintain high intensity participation through overlapping seasons, we run the risk of overloading the reparative capacity of the body and causing sports-specific overuse injuries in the child.

### Risk of Injury

- A. Injury rates rise dramatically when participants reach puberty because athletes are bigger, stronger, faster, and more aggressive.
- B. The majority of injuries (75%) are minor causing the athletes to miss less than 5 – 7 days.
- C. Most high school sports injuries occur in practice (60%).
- D. 

<u>Etiology</u>	<u>%</u>
Chance event	35
Inadequate rehab	24
Equipment	18
Recklessness	8
Environment	8
Inadequate supervision	8
- E. Contributing Factors
  - Facilities/Equipment
  - Coaches/Parents
  - Multi-sport participation/Endless seasons

## Fractures in Children

Fractures are a common reason for sports-related injury in children. As you might expect, a child's bone is very different compared to an adult's bone. This difference is due largely to the fact that the child's bone is still growing. In addition, the child's bone is softer and tends to break in a different way than the adult's bone. Injuries to the growth plate (or physis) can occur in children. Permanent injury to the growth cells can occur. Injuries to the physis must be protected well during healing and must be monitored for a disturbance of normal bone growth for a long time after healing is complete.

## Overuse Injuries in Children

Overuse injuries are being seen with increasing frequency in the pediatric or adolescent athlete. Ligament, tendon, bone, and growth plate injuries can result from chronic repetitive stress that does not exceed the mechanical threshold for acute rupture or fracture. Paying attention to symptoms of pain is important. A child should never play through the injury as chronic irreversible damage can lead to prolonged recovery and retard return to full participation.

Common complaints with overuse injuries:

- Pain returns quickly with activity
- No pain at rest
- Recurrent swelling of the joint with activity
- Limp or weakness that appears after consistent period of activity

<u>Body Region</u>	<u>Common Sport</u>	<u>Overuse Injury</u>
Shoulder	Tennis	Proximal humeral growth plate
Elbow	Little League	Medial epicondylar growth plate
Wrist	Gymnastics	Wrist growth plate
Spine	Weightlifters, Gymnastics	Stress fracture of the spine (Spondylolysis)
Hip/Pelvis	Track	Ischial/Iliac crest growth plate
Knee	Running/Jumping	Osgood-Schlatter disease (shin bone) Sinding-Larsen-Johannsen disease (knee cap)
Ankle/Heel	Soccer	Sever's disease (heel bone growth plate)
Foot	Dancing	Iselin disease (little toe metatarsal)

## Injury Prevention & Rehabilitation

Education – Instruct our keiki on appropriate risk-taking and that we want to know if they feel pain.

Recognizing Risks – Recognize situations that place our children at risk for heat injuries or fracture.

Supervision – Provide well-trained personnel to monitor sports activity.

Rules – Implement rules that prevent recognized risks of severe injury (such as spearing in football).

Protective Gear – Select appropriate gear to prevent injury that does not significantly impair play.

Reconditioning – Prepare our keiki to return to sport after sufficient rehabilitation to prevent reinjury.

## Summary:

The pediatric athlete is susceptible to growth plate and apophyseal injuries. Recovery is excellent for most injuries with prompt attention. Prevention of reinjury is accomplished by appropriate recovery before returning to sports and by correcting factors contributing to original injury. Most overuse injuries can be treated effectively by scheduling appropriate rest periods into the annual sports schedule (i.e. 2 periods of 6 weeks each year when the child does not participate in competitive sports). Evaluation by your doctor is necessary for significant pain or swelling, difficulty using the affected part, suspected fracture, or continued pain or swelling after appropriated rest.