

Epidemiology

30-45 million U.S. children between the ages of 6-18 participate in organized sports

Why Injuries Happen

Children are prone to sport-specific trauma to the growth plates. For example, dancers, skaters and cheerleaders are vulnerable to ankle damage, while baseball players and swimmers tend to injure their shoulders. Runners suffer shin pain, knee, and foot/ankle difficulties, while gymnasts are prone to wrist damage from repetitive weight bearing. Children and adolescent need time to recover from activity. If not, trauma will build up resulting in injury.

Types of Overuse Injuries

- Little League Shoulder & Elbow
- Gymnast's Wrist
- Apophyseal Hip Injuries
- Osgood-Schlatter Disease (Knee)
- Sinding Larson Johansson (Knee)
- Osteonecrosis of bone
- Osteochondritis Dissecans (knee & ankle)
- Fractures at Growth Plates
- Stress Fractures (Runners)

Warning Signs of Potential Overuse Injuries:

- Pain
- Fatigue
- Decreased Performance
- Discomfort that lingers for more a few days after activity

Recommendations for Prevention

1. **Injury surveillance** – The National Athletic Trainers Association (NATA) urges parents, coaches, athletic trainers and others in charge of young athletes to be vigilant in the surveillance and reporting of all injuries.
2. **Pre-participation physical exams (PPEs)** – Student athletes are urged to undergo a physical examination prior to beginning a new sport (or prior to the start of a new sports season), in order to screen for potential risk factors.
3. **Identification of physical risk factors** – Parents and coaches should also learn to recognize the anatomical factors that may predispose an athlete to overuse injuries, including bowed legs, knock knees, pelvic rotation and hypermobility.
4. **Moderation** – The *volume of sports activity* is the most consistent predictor of overuse injury. Efforts should be made to limit the total amount of repetitive sports activity engaged in by pediatric athletes so as to prevent/reduce overuse injuries.

5. **Training and conditioning programs** – NATA’s position statement advocates incorporating a pre-season or in-season preventative program to reduce the risk of overuse injuries. Additionally, young athletes should only participate in one team of the same sport per season. Training intensity, load, time and distance should only increase by 10 percent each week, in order to allow the child’s body to adapt and avoid overloading muscles and joints.
6. **Delayed sports specialization** – Youth athletes are encouraged to participate in multiple sports and recreational activities throughout the year, to enhance general fitness and aid in motor development. They should also take time off between sports seasons and take two to three non-consecutive months away from a specific sport, if they participate in a single sport year-round.

Sources: Valovich McLeod TC, et al. National Athletic Trainers’ Association Position Statement: Prevention of Pediatric Overuse Injuries. *Journal of Athletic Training* 2011;46(2):206–220.

Guidelines

Play smart

Athletes should avoid specializing in one sport before they reach puberty. Children should be encouraged to try a variety of sports. Participation in a particular sport should be limited to 5 days per week. Athletes should sign up for one team and one sport per season.

Rest up

- Athletes should take at least **1 day off per week** from organized activity to recover physically and mentally.
- Athletes should take a combined **2 to 3 months off per year** from a specific sport (may be divided throughout the year [that is, 1 month out of every 6 months off]).

Training

- Increases in weekly training time, mileage, or repetitions should be no more than 10% per week. For example, if running 10 miles this week, increase to 11 miles the next week.
- Cross train. Athletes should vary their endurance workouts to include multiple different activities.
- Perform sport specific drills in different ways. For example, running in a swimming pool instead of only running on the road.

How to prevent burnout

To help prevent burnout in your child, follow the guidelines in this handout and the following:

- Keep your child's practice fun and age appropriate.
- Focus on your child's overall wellness, and teach them how to listen for problems with their bodies.
- The American Academy of Pediatrics has stated that young athletes who participate in a variety of sports tend to have fewer injuries and play longer, thereby maintaining a greater level of physical activity than those who specialize before puberty.
- Specialization in one sport may be associated with potentially burnout.
- Safety and success for younger athletes should be for children to play different sports and develop athleticism (versus sports-specific skills) and love of sports.

What to do if you suffer an injury

Encourage your child or athlete to contact his or her parent, coach, or athletic trainer to get evaluated by a sports medicine provider.

References:

- American Academy of Pediatrics Committee on Sports Medicine and Fitness. Intensive training and sports specialization in young athletes. *Pediatrics* 2000;106:154-157.
- Mountjoy M, Armstrong N, Bizzini L, et al. IOC consensus statement on training the elite child athlete. *Clin J Sports Med* 2008;18:122-123.

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