



GUIDELINES FOR PEDIATRICIAN GYMNASTICS

Online Issue 2

Visit the *Sports Shorts* Website at <http://www.aap.org/family/sportsshort.htm>

Gymnastics is a discipline that allows children the opportunity to enjoy all the benefits of aerobic exercise, conditioning, strength and flexibility training. Boys and girls of all ages can pursue it year-round at many levels from recreational to competitive. Proper selection of a program requires a little parental homework, as coaching styles, equipment, and supervision can play an important role in a child's experience.

COMMON INJURIES

Over use and traumatic injuries are common among gymnasts. Common sites of injury include wrist, elbow, low back, knee and ankle. Differentiating between something minor (such as tendinitis) or serious (growth plate fracture) may require careful history taking, examination and radiographic assessment. Medical history of pain "all day" or with activities of daily living may heighten your concern for stress fractures. Loss of range of motion and strength during medical exam is also concerning. Because of the limitations of plain radiographs in helping diagnose overuse injuries such as stress fractures, bone scan, SPECT scan or MRI may be necessary to assess extent of injury.

Common types of injury:

- **Wrist** - injuries to the distal radial growth plate (or "physis") with complication of ulnar overgrowth (radial physis stress syndrome); stress fracture; triangular fibrous cartilage complex (TFCC) tear caused by recurrent impact on the "cartilage pad" of the wrist.
- **Elbow** - osteochondritis dissecans or Panner's Disease of the capitellum with resultant locking, catching and swelling.
- **Low back** - small stress fractures of the neck of the facet joint (spondylolysis) caused by repetitive hyperextension, detectable by observing positive "stork sign" (pain with spine extension while standing on one leg) on exam; and may result in slippage of vertebral bodies (spondylolisthesis) (See *Sports Shorts* #10).
- **Knee** - patello-femoral pain syndrome (See *Sports Shorts* #7) caused by overuse, as well as patellar subluxation and dislocation. Sprains and epiphyseal (growth plate) injuries are also common. Anterior cruciate ligament tears are common among elite gymnasts.
- **Ankle/foot** - sprains, strains, stress fractures, and growth plate injuries are common. Sever's Disease (calcaneal apophysitis) is also very common.
- **Unstable shoulder** - shoulder subluxation/dislocations occur often in this sport. Athletes may develop chronic instability (See *Sports Shorts* #11).

OTHER CONCERNS:

- Emphasis on thinness, leading to disordered eating such as *anorexia* and *bulimia*. Physicians need to be especially sensitive to issues of body image and self-esteem as both parents and children may lose sight of these matters in the pursuit of a high-quality gymnastics training experience.
- Female athlete triad, seen more commonly in this discipline than any other sport (See *Sports Short* #8).
- Intensity of training regimen, including long hours, year-round participation, frequent competition, pressure to increase skills, parents' financial commitment and social isolation can lead to over training, "burnout" and *depression* at a young age.
- A new concept in this sport, especially at older ages (high school) is combination of cheerleading and gymnastics for competition (cheernastics), therefore similar injury risks exist.

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GUIDELINES FOR PARENTS, ATHLETES & COACHES

GYMNASTICS

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SELECTION OF A PROGRAM AND COACH

Competitive vs Recreational

Choose a gymnastic program that will suit your child's and family's needs. Some programs are oriented toward competition and encourage young people to spend many hours in the gym preparing for team events and meets, while other programs, focus on individual development and personal growth and fitness. Well-trained coaches will properly supervise young gymnasts as they progress through an orderly and standardized set of age and skill levels. New maneuvers should be encouraged only when a coach feels the gymnast is ready. A truly professional coach will embody that unique mixture of encouragement, education and expectation to provide a positive experience. Overly ambitious coaches are as common in gymnastics as they are in other sports.

Training and Conditioning

Training and conditioning are critically important in gymnastics. Training sessions should progress gradually in terms of both time and intensity and provide for adequate breaks for drinking and eating during the practice session. Meticulous attention should be paid to the development and maintenance of appropriate strength and flexibility. Aerobic training is also important. Techniques and tricks must be learned only as part of a well-balanced training program. Special attention should be paid to the development of the back, shoulder girdle and abdominal muscles. A quality program will pay close attention to injury prevention and rehabilitation.

Equipment and Supervision

Apparatus must be carefully maintained and checked. Deep, sponge-filled landing areas should be available when new routines are being learned. Spotters should be present for all high-risk maneuvers. Discipline in the gym is essential, as "clowning around" invites accidents. The gym should be clean, with special attention paid to disinfecting mats. Appropriate first aid equipment should be on hand, and trained individuals must be present at all times to handle potential emergencies.

COMMON INJURIES

THIS IS NOT A "NO PAIN....NO GAIN" activity. If an athlete has pain with daily activities (such as combing hair, walking up stairs, writing), he or she should rest and be evaluated by a physician. Evaluation should also take place if symptoms last more than 3 weeks. Common sites of injury include wrist, elbow, low back, knee and ankle. Differentiating between something minor (such as tendinitis) or serious (growth plate fracture) may require consultation from a physician. Sometimes x-rays or other special tests are necessary.

Types of Injuries:

- **Bruise** - bone or soft tissue injury caused by sudden compression, frequently causing a "black and blue mark."
- **Tendinitis** - inflammation of the tough, sinewy tissue that connects muscle to bone.
- **Stress fracture** - tiny, sometimes microscopic, crack in bone resulting from overuse and stress, most common in wrist, low back and ankle.
- **Sprain** - injury to a ligament (the tough, sinewy tissue that holds bones together) consisting of a bruise or tear.
- **Growth plate injury** - potentially serious injury to the growing part of long bones, which are very susceptible to being broken off from rest of bone.

OTHER CONCERNS

Due to the emphasis on thinness, eating disorders such as anorexia and bulimia are common yet often ignored or unrecognized. Female Athlete Triad, the combination of disordered eating, menstrual dysfunction, and osteoporosis is more common in gymnastics than other sports. In addition, "burnout," depression, and "over training syndrome" can occur as a result of the intensity of training regimen, including long hours, year-round participation, frequent competition, pressure to increase skills, and parents' financial commitment.

