



GUIDELINES FOR PEDIATRICIANS Jogging & Competitive Running

Online Issue 4



Visit the Sports Shorts Website at www.aap.org/family/sportsshort.htm

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Common Injuries in Runners include:

Hip	Iliac crest apophysitis
Femur	Bursitis of the greater trochanter, Stress fracture
Thigh	Quadriceps strain, Hamstring strain
Knee	Anterior: patello-femoral pain, Osgood-Schlatter's disease Antero-medial: SCFE, pes anserinus bursitis Lateral: iliotibial (IT) band syndrome Posterior: gastrocnemius strain, patello-femoral pain, popliteal tendinitis
Lower Leg	Exertional compartment syndrome, postero-medial tibial stress syndrome ("shin splints"), stress fracture of tibia or fibula
Ankle/heel	Calcaneal apophysitis, Achilles tendinitis
Foot	Plantar fasciitis, metatarsal stress fracture, metatarsalgia, sesmoiditis

History: Is the pain associated with activity or present all the time? Ask about duration, frequency, intensity, & location. Training schedules should be reviewed, in terms of frequency, volume (how many miles), intensity (intervals, hill running), type of surface, any change in training (different types of drills, & coaching advice). Shoes should be evaluated for suitability (shoes specifically designed for running should be worn, incorporating shock absorbing heels & midsoles, a semi-rigid arch pad, a wide toe box & a strong inflexible heel counter). Examination of the shoe may reveal an abnormal wear pattern (shoes should be worn slightly on the outside heel & sole area; inside wear suggests overpronation which causes foot & medial knee pain) or over wear (most shoes are built for about 300 miles after which cushioning & support decrease).

Physical Examination:

1. Observe the patient's gait, looking for lower extremity malalignment, excessive foot pronation and functional leg length discrepancy
2. Check for asymmetric muscle bulk during contraction, looking especially at the quadriceps, hamstrings, gastrocnemius, and peroneals
3. Genu valgum (knock kneed) may lead to patellofemoral pain & medial knee pain
4. Genu varum (bow legs) can produce lateral knee pain & iliotibial band syndrome
5. High arched feet can develop plantar fasciitis or Achilles tendonitis
6. Pes planus (flat feet) can lead to posteromedial shin pain

Treatment:

1. Identifying & correcting the cause
2. Decrease of activity, alteration of training routine, relative rest, ice, & anti-inflammatory treatment may be useful
3. Cross-training with non-impact activities such as swimming or biking/elliptical
4. A program to improve strength & flexibility will be needed for return to full activity as may supplement conditioning & rehabilitation
5. Biomechanical running analysis with a therapist, coach or athletic trainer may identify training errors
6. New or different shoe styles and/or custom orthotic shoe inserts may relieve the pain associated with a running injury
7. Exertional compartment syndrome does not respond to conservative therapy & may require specialty consultation

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GUIDELINES FOR PARENTS, COACHES, & ATHLETES

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Jogging & Running have become extremely popular activities/sports. Besides providing an opportunity for youth to participate in competitive events they are aerobic exercises that can be continued into adulthood. Unfortunately, this broad interest has led to an increasing number of injuries (primarily “overuse”). Runners can directly prevent the majority of running & jogging injuries.

Occurrence of running injuries (four periods of time when most likely to happen)

1. During the initial 4 to 6 months of running
2. Upon returning to running after an injury
3. When the quantity of running is increased (distance)
4. When the quality of running is increased (speed or terrain)

Causes of running injuries

A. Improper Training Techniques (Too much, Too fast, Too soon):

1) Rapid changes in mileage, 2) Insufficient rest between training, sessions 3) Inadequate/improper stretching, 4) Interval training or increase intensity, 5) Change in running form or technique

B. Anatomic abnormalities (pre-existing structural or biomechanical problems):

1) High-foot arch or flat feet, 2) One leg shorter than the other (leg length difference), 3) Excessive muscle tightness, ligament laxity, or unequal muscles, 4) Inappropriate kneecap tracking (movement), 5) Stiff or loose-jointed

C. Environmental: Terrain, Adding trail/hill running, or Running on count

D. Footwear: Excessive shoe wear (over 300 miles) or Change in shoe type

E. Initial poor conditioning, or prior injury:

Managing running injuries

1. Basic principles includes R.I.C.E. (rest, ice, compression, elevation) & modification of activity to allow healing and reduction of inflammation
2. Gradual return to running can be allowed after pain has resolved and flexibility, strength, and endurance have returned
3. Correct biomechanical problems—may require work with therapist, athletic trainer or coach
4. Notify your pediatrician or sports medicine specialist for severe pain or pain persistent after resting from running; also for limping or swelling

Avoiding running injuries

1. Gradually increase mileage (increasing mileage more than 10% per week results in a greater risk of injury)
2. Monitor training (ideal surface flat, smooth, resilient & reasonably soft-- concrete, hills and sloping surfaces should be avoided if possible)
3. Footwear: Should provide shock absorption, motion control & stability (Sports Shorts Issue 15)
4. Cross train & include rest days in your training schedule
5. Include strength training in your running program

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