



The American Orthopaedic
Society for Sports Medicine

SPORTS TIP

Running and Jogging Injuries

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What causes running injuries?

There are four periods of time when runners are most vulnerable to injury:

- During the initial 4 to 6 months of running
- Upon returning to running after an injury
- When the quantity of running is increased (distance)
- When the quality of running is increased (speed)

Most running injuries are caused by recurring factors that runners can often prevent or avoid themselves:

Training errors are the most common source of injury, particularly lack of adequate stretching; rapid changes in mileage; an increase in hill training; interval training (going from slow speeds over long distances to faster over less ground); and insufficient rest between training sessions.

When selecting a running shoe, the athlete should look for a style that will fit comfortably and that will accommodate his or her particular foot anatomy. When a shoe's mileage exceeds 500–600 miles, it should be replaced.

Runners should keep also in mind potential anatomic abnormalities:

Hip disorders typically manifest themselves as groin pain. Back discomfort that radiates down the leg is cause for referral to a sports medicine specialist.

The patella (kneecap) is a common site of overuse injuries that can benefit from a 20 minute ice massage, a program of stretching and strengthening of the hamstring and quadriceps muscles, and a short course of an over-the-counter anti-inflammatory medication. Surgery is rarely indicated.

Ankle laxity can lead to frequent ankle sprains and pain. Beneficial treatment includes muscle strengthening to increase stability, shoe modification to alter gait, and change of a running surface. Foot problems in runners are related to foot types. Nonoperative treatment such as orthotics and shoe modifications should be used if necessary.

The ideal surface on which to run is flat, smooth, resilient, and reasonably soft. Avoid concrete or rough road surfaces. If possible, use community trails that have been developed specifically for jogging and running. Hills should be avoided at first because of the increased stress placed on the knee and ankle.

During warmer, humid weather, increase fluid intake; in cool weather, dress appropriately. It is often helpful to weigh yourself before and after running on a hot, humid day. One pint of water should be consumed for every pound of weight lost. Avoid running during extremely hot and cold temperatures or when the air pollution levels are high. When running at higher altitudes, the runner should gradually acclimate to the lower oxygen levels by slow, steady increases in speed and distance.

How are running injuries treated?

The basic approach to treating running injuries includes rest or modification of activity to allow healing and reduction of inflammation. To avoid overuse injuries, or to allow for a safe return to running after a break, a runner should follow the 10-percent rule (limit the increase in weekly mileage or pace by 10% per week). Thus, if you are running 10 miles per week and want to increase your training regimen, run 11 miles the next week, and 12 miles the week after that. This program should be followed while flexibility, strength, and endurance are restored. When severe pain, swelling, loss of motion, and/or other alterations in running form are present, immediate medical treatment is advised (see reverse for specific injuries).

The goal of rehabilitation is to safely return the runner to the desired level of running. Remember, training errors constitute the most common cause of injuries. A well-planned program prevents injury while benefiting the athlete.



Running and Jogging Injuries

Common Running and Jogging Injuries

Injury	Cause/Description	Symptoms	Treatment
Foot			
Plantar Fasciitis	Inflammation of fibrous connective tissue in sole of foot	Low-grade, insidious heel pain	Activity modification, non-steroidal anti-inflammatory medication, heel/foot stretching, ice massage, soft heel pad
Metatarsalgia	Excessive pressure on ball of foot, abnormality, stress fractures	Pain in five long bones of the foot	Use of orthotics, activity modification, change to softer running surface
Stress Fractures	Fatigue or stress from frequent, repeated physical activity (overuse)	Localized pain over affected bone	Rest/immobilization; resume running gradually after 4–6 weeks
Leg			
Stress Fractures	Complete or hairline break in fibula or tibia	Localized pain over affected bone	Rest/immobilization; resume running gradually after 4–6 weeks
Exertional Compartment Syndromes	Decrease of blood supply to leg muscles; caused by overuse	Leg pain, numbness, tightness and weakness in leg muscles	Surgery or cessation of running
Achilles Tendonitis	Repetitive overuse of Achilles tendon (hill running or increasing mileage too rapidly); may become chronic	Pain and tightness in calf, especially with uphill running	Rest, Achilles stretching, ice massage, anti-inflammatory medication, shoe appliances such as heel lifts
Medial Tibial Stress Syndrome (Shin Splints)	Inflammation of muscles, tendons, or bone coverings caused by imbalance in calf muscles and shin muscles	Pain along inner side of lower leg	Discontinuing exercise until pain subsides, icing of affected area, stretching, occasionally taping of the leg
Knee			
Patellofemoral Joint Pain	Increased mileage, change in terrain change in running shoe	Pain centering on kneecap	Anti-inflammatory medication, change running terrain (avoid hills), strengthen quadriceps
Meniscal Tear	Tearing of internal structures such as the meniscus	Pain, swelling, joint locking, buckling	Surgery to repair or remove torn cartilage
Tendonitis	Inflammation; can become chronic if not treated	Pain and tenderness in one of tendons surrounding knee	Rest until acute symptoms subside, icing, stretching, anti-inflammatory medication
Thigh/Pelvis			
Bursitis	Bursa (fluid-filled sac between a tendon or muscle and bony prominence) becomes inflamed from chronic, repetitive use	Pain, superficial swelling	Rest until acute symptoms subside, icing, stretching, anti-inflammatory medication
Hamstring Strains and Tendonitis	Overstretching involved muscle/tendons	Pain, tenderness, swelling in hamstring muscles in back of thigh	Rest, ice massage, stretching, nonsteroidal anti-inflammatory medication
Back			
Sciatica	Irritation of nerve(s) in lower back caused by lumbar disc herniation	Sharp, burning pain radiating down sciatic nerve into buttock and down back of leg	May indicate ruptured disk and should be evaluated and treated promptly by a physician
Lumbosacral Strain	Abnormal strain of lower back muscles	Pain, spasms, and tenderness in lower back	Rest, stretching, and ice massage
Spinal Stenosis	Gradual narrowing of spinal canal	Back and hip pain, particularly in the older runner	Lying down usually relieves symptoms in minutes; can be treated by activity modification, stretching, and (occasionally) cortisone injections or surgery