

## GUIDE TO PREVENTING OVERUSE INJURIES

By Alexie Montaland, D.C.

**W**ant to stay in the game without getting hurt? It's as simple as taking the appropriate steps. Make sure you have everything you need to participate safely in the sport. Do you know how to play it properly? Do you understand its physical demands? Do you have the right equipment—and is it still in good condition?

Exercise regularly and have a pre-season conditioning program to gradually build up strength, duration and fitness for specific disciplines; build your base. Take time to warm up before each session, either by stretching or just starting out at a slower, easier pace.

Even if you've been injured, don't just sit there. Reduce your sessions by about 50 percent and cross-train with other sports or exercises that don't irritate the injured area. If you're given physical rehabilitation exer-

cises, keep doing them even after the injury has healed to maintain strength and conditioning.

When "weekend warrior" activities get the best of you, reassess the intensity and form of your workout. Consider consulting and taking advice from someone more experienced than you are. Include in your season goals a plan to avoid injuries. Overuse injuries are not random and can frequently be prevented. Overuse injuries, also called cumulative trauma disorder, is a category of sports-related injuries that result from repetitive use. Overuse syndromes are common orthopedic problems characterized by chronic irritation to a body part. Here is an overview of the most common overuse injuries, their causes and possible strategies to address them and get back to your training program.

### ANKLE AND FOOT PAIN

**ANKLE SPRAIN:** A number of factors can lead to ankle sprains, including poor technique and uneven terrain. Having the right footwear for your sport is paramount.

**PLANTAR FASCITIS:** This is an inflammation ("itis") of the plantar (bottom of the foot) fascia. The most common symptom is pain in the bottom of the heel first thing in the morning or after being seated for a period of time. The pain usually subsides fairly quickly after some activity and, in some cases, may return later in the day after standing for a long time. Many people describe the first symptoms as feeling like a "stone bruise" on the bottom of the foot. Left untreated, these symptoms may accelerate to the point

where acute pain is present with nearly all activity.

The plantar fascia is a tough fascia, much like a ligament, that spans the arch of the foot attaching at one end to the heel bone and at the other end to the ball of the foot. When your foot contacts the ground, your arch is "unlocked" so that your foot can absorb shock and adapt to uneven terrain. As your arch drops, the plantar fascia is stretched. If your calf muscle is a little tight, it places additional stress on the plantar fascia as your heel comes off the ground. Micro-trauma occurs and this sets the stage for the inflammatory process to begin. The most probable causes can be tight weak calf muscles (other leg muscles may also be involved), inadequate support from the running shoe/insole,

training errors (too many hills, too much speed too soon), or biomechanical (excessive or prolonged pronation).

Some strategies to alleviate the problem are stretching the calf muscles (three to five times per day is helpful), examining shoes for wear and replace frequently, icing (10 minutes, two to three times/day if possible), adjusting the training schedule (decrease speed work and hills), and seeing a Biomechanical specialist for a full assessment, gait analysis and treatment.

**ACHILLES TENDONITIS:** This is an inflammation of the Achilles tendon. This large tendon attaches your calf muscle group to your heel and is a common site of injury in runners. The first symptoms are a vague, dull, ach-

ing in the tendon after running. There can also be stiffness and aching frequently in the tendon first thing in the morning. If ignored, the symptoms usually worsen to the point where pain is present on the beginning of the run and increases with sprinting. Untreated, symptoms eventually become constant and running becomes impossible due to acute pain, and it may become difficult to walk without pain.

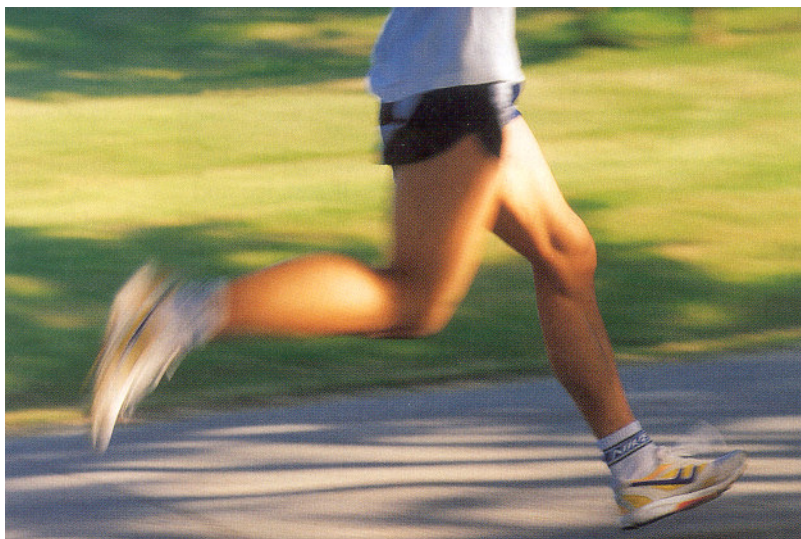
The primary cause of Achilles tendonitis is lack of strength and flexibility in the calf muscle group. A thickening and scarring of the Achilles tendon, making it weaker and at greater risk of rupture in the future, often accompany symptoms that persist for eight or more weeks. The probable causes are tight calf muscles (as well as hip flexors and others), excessive shoe wear, allowing for excessive pronation, too much

speed or hill work too soon or biomechanical faults.

The strategies to heal are using small heel lifts until symptoms subside, and stretching, resting, reducing speed work and hills, ice after training and seeing a biomechanical specialist for a comprehensive assessment, a gait analysis and treatment

## KNEE PAIN

**KNEE PAIN:** Knee injuries are often caused by improper technique, lack of conditioning and poor flexibility. While it's important to build up training gradually to avoid overuse, the mechanics of a runner's feet can also come into play. Do you have flat feet or high arches? Or do you tend to be a pronator (very common), neutral or a supinator (rare, less than 10 percent of the people)? All of these factors can contribute to knee pain. Appropriate footwear or orthotics—shoe inserts to improve body alignment—can be helpful in reducing injury risk.



**ILIOTIBIAL BAND SYNDROME:** This syndrome is due to inflammation of the iliotibial band, a thick band of fibrous tissue that runs down the outside of the leg. The iliotibial band begins at the hip and extends to the outer side of the shin bone (tibia) just below the knee joint. The band functions in coordination with several thigh muscles to provide stability to the outside of the knee joint.

Iliotibial band syndrome (ITBS) occurs when there is irritation to this band of fibrous tissue. The irritation usually occurs over the outside of the knee joint, at the lateral epicondyle—the end of the femur (thigh) bone. The iliotibial band crosses bone and muscle at this point; between these structures is a bursa, which should facilitate a smooth, gliding motion. However, when inflamed, the iliotibial band does not

glide easily, and pain associated with movement is the result. The function of the iliotibial band is both to provide stability to the knee and to assist in flexion of the knee joint. When irritated, movement of the knee joint becomes painful. Usually the pain worsens with continued movement and resolves with rest. People who suddenly increase their level of activity, such as runners who increase their mileage, often develop iliotibial band syndrome. Others prone to ITBS include individuals with mechanical problems of their gait, such as people who over-pronate, have leg-length discrepancies or are bowlegged.

Treatment of this begins with proper footwear, icing the area of pain and a stretching routine. Limiting excessive training, resting for a period of time and incorporating low-impact cross-training activities may also help.

**RUNNER'S KNEE:** This refers to pain in and around the kneecap or “patella,”

and is a very generic term. This odd-shaped bone is an active “part” of the quadriceps muscle on the front of the thigh. This large muscle is very active in running, especially when going downhill. The patella rests in a groove on the femur and acts as a fulcrum to improve the angle of pull of the quadriceps muscle, which attaches to the tibia through a thick tendon called the patellar tendon.

The early symptoms are usually a dull aching in and around the patella, after running. There may be stiffness in the knee as well, partly due to a swelling of the inflamed tissues. Depending on the biomechanics of the individual runner, the pain may be localized to one area or another of the patella. If the pain is localized to the patellar tendon, it is often referred to as patellar tendonitis. If the biomechanics of the runner are such that the patella does not sit properly in its femoral groove, the underside of the patella will wear down over time and become rough and deteriorated. This condition is known as chondromalacia patella. As in most cases of inflammatory processes, left untreated the symptoms generally get worse and over time deterioration and/or scarring of the involved tissues takes place. The probable causes are tight/weak quadriceps muscles, tight calf muscles (hamstrings may also be tight), biomechanical faults (usually excessive or prolonged pronation), worn or im-

proper shoes and training errors (too much hill work too soon).

The strategies to heal include stretching and strengthening tight and weak muscles (quadriceps and calf muscles), examining shoes for wear and replacing them frequently, icing several times a day for 10 minutes, resting, and reducing hill work and speed work. You may also wish to see a biomechanical specialist for comprehensive assessment, gait analysis and treatment.

**SHIN SPLINTS:** Posterior and anterior shin splints are really an inflammation of the tendons that attach to the front of the shin. One muscle, the tibialis anterior, is primarily responsible for keeping your toes from dragging when you swing your leg through to take a step, and acts to gently lower the forefoot to the ground when the heel strikes. It also is responsible to help decelerate the pronation of the foot that occurs shortly after heel strike. This muscle acts in opposition to the larger calf muscle group in the back, and hence a primary cause of irritation is a lack of adequate flexibility and strength in the calf muscles.

Early symptoms usually consist of aching in the muscle on the front outer part of the shin during running, and gradually persisting until there is a defined and sham pain along the front outer shinbone even with walking. Posterior shin splints are an inflammation of the tendons that attach to the inner side of the shinbone. It involves

the tibialis posterior muscle. This muscle is quite active in decelerating the pronation (inward rolling) motion of the foot. Symptoms usually consist of an aching that occurs along the inner front surface of the shinbone and may progress down to the arch of the foot. The pain generally occurs when you first run and may subside later in the run only to return later. As the inflammation worsens, the symptoms are present with walking and may also be present as a tenderness and stiffness first thing in the morning. In either case, there may be localized tenderness to the touch and there may also be some swelling. If there is acute tenderness, warmth, redness and swelling, a stress fracture should be ruled out by a health-care provider using X-ray or bone scans.

The most common causes for both of these syndromes are lack of adequate calf muscle flexibility and faulty biomechanics. If rest, ice and stretching don't give substantial relief fairly quickly, you should definitely pursue the advice of a biomechanical specialist. Some probable causes are tight/weak calf muscles, biomechanical faults (excessive or prolonged pronation), increasing mileage too fast, excessive shoe wear, training errors (too much hill work or speed work too soon).

The strategies for improvement include stretching tight calf muscles (several times a day is good), decreasing mileage and hill work/speed work, assessing shoe wear and replacing shoes frequently, and seeing a biomechanical specialist for a hill gait analysis and treatment as needed.

**Lower Back Pain**

Lower back pain is a common complaint—and inactivity is the biggest factor.

As we get older and less active, we lose the balance in the deep abdominal and lower back muscles. They're weakened and easily fatigued, and fail to offer accurate joint stability. Consistent activity is the best way to protect your lower back, including regular exercise and stretching. If you start an exercise regimen and do not work on back strengthening, it will fast become the "weakest link" and you will experience pain.

Overuse injuries can be prevented most of the time. Be reasonable, smart and patient, and you will have the perfect season: pain-free!

If you would like to know more about overuse injuries and how to treat or prevent them, Alexie Montaland and Gentry McGrath will be hosting a free workshop at the Bellevue Club. The workshop will be on Tuesday, April 18 at 6 p.m. in the multipurpose room. There is no charge and no registration is necessary; just show up.



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