**6 common overuse running injuries and how to fix them**

Running, when done properly, is one of the most physically beneficial activities we can do.

Running builds cardiovascular fitness and improves overall muscle strength — not to mention the euphoria or "runner's high" that accompanies a good run. While running has many health benefits, it does subject the musculoskeletal system to a unique level of stress. Most running injuries seen by sports medicine physicians are so called "overuse injuries." These injuries are due to chronic stress on a particular area of the body and not necessarily one acute event.

Overuse injuries are most commonly caused by sudden changes in running mileage and intensity.  An important preventive measure is to reduce intensity and mileage and choose the best running surfaces — grass and soft trails are superior to concrete and hard tracks. It is also important to maintain good running hygiene with proper warm up cool down. Finally, sleep and proper nutrition are vital to allow the body to recover from the demands of running.

Even with proper preventative measures, many runners still succumb to overuse running injuries -- like the six most common listed below.

**The Problem: Patellofemoral Pain Syndrome (PFPS)**

PFPS, the most common running injury, also aptly called "runner's knee," occurs when the kneecap does not align properly with the thigh bone while running. This results in pain in the front of the knee, which is typically worse at the beginning of the run, improves during the middle of the run, and aches after finishing.

**The Fix:** First line treatment involves reducing mileage, intensity, avoiding hills, and transitioning to a softer running surface. Replacing running with low-impact cross training such as biking and swimming helps to maintain fitness while reducing load on the extremities. Ice and non-steroidal anti-inflammatory drugs (NSAIDs) are good options for pain control, and physical therapy is focused on flexibility — exercises that target the hip flexors, hamstrings, and quadriceps — and strengthening — exercises focused on the core, hips, and quadriceps—are also helpful.

**The Problem: Medial tibial stress syndrome (MTSS)**

MTSS, or "shin splints", occur when muscles surrounding the tibia — shin bone — pull on the tibia during repetitive contractions while running. This results in pain along a broad area around the shin, which typically improves with running and then aches after.

**The Fix:** As with PFPS, reduce running mileage and intensity, run on softer surfaces, and begin low-impact cross training. Ice, NSAIDs and physical therapy are also recommended, because shin splints may also be caused by overpronation of the ankle, or flat foot. Shoes with proper arch support are essential for preventing and treating shin splints in runners who overpronate or have flat feet.

**The Problem: Iliotibial band syndrome (ITBS)**

ITBS usually presents with pain on the outside of the knee. The iliotibial band is a long band of tissue that extends from the outside of the hip to the knee. During running the IT band moves between the front and back of the knee during knee flexion and extension. This can lead to friction and pain as the band rubs over the outside of the knee.

**The Fix:** Initial reduction in running mileage and intensity is key, in addition to transitioning to a softer running surface and avoiding terrain that increases strain on the outside of the knees -- downhill runs, tracks, and banked running surfaces. Also, shoes that begin to wear out on the outside should be replaced as this can increase strain on the knees. Ice over the outside part of the knee and NSAIDs can also be used for pain control, and foam rolling and massage can also be helpful.

**The Problem: Achilles tendinopathy (Achilles tendinitis)**

As the calf muscles course down the leg, they form the Achilles tendon which inserts onto the heel. The Achilles tendon works to plantar flex -- point the toes down --the ankle during take-off while running. Over time the tendon can become injured from repetitive plantar flexion. Pain is along the tendon and may also be felt where the tendon connects to the heel.

**The Fix:** As with the others, a reduction in running mileage and intensity, softer running surfaces, ice, NSAIDs, and physical therapy, are helpful. Therapy is aimed at improving calf and Achilles tendon flexibility and strengthening. Strengthening exercises can be performed with the heel slowly lowered from a neutral position, using the edge of a step.

**The Problem: Plantar fasciitis**

This involves irritation of the soft tissue band that runs along the bottom of the foot, which helps to support the arch. Plantar fasciitis pain is typically on the bottom of the heel where the plantar fascia originates, and pain is worse with the first steps of the day — when the plantar fascia is the tightest — and is worsened by running.

**The Fix:** Treatment options include rest, ice and plantar fascia stretches — rolling the heel over a firm ball, like a golf or tennis ball — or even wearing socks and splints while sleeping which keep the ankle in a flexed-up position. If that does not work consult your doctor.

**The Problem: Stress fractures**

Out of all overuse running injuries, these are the most concerning. When we run, our bones are broken down and rebuilt in a process called "remodelling." Bone remodelling is the process by which our bones become stronger the more we walk and run. Stress fractures occur when bone breakdown exceeds the body's ability to rebuild bone. The most common bone involved in stress fractures is the tibia, but bones in the hip, thigh, ankles, and feet may also be affected. Of these, the hip is the most concerning, and in some cases, hip stress fractures require urgent surgical fixation. Stress fracture pain usually occurs directly over the bone, however, pain from a hip stress fracture may radiate to the groin. Stress fracture pain typically worsens over the course of the run and continues after the run is completed, often into the next day.

**The Fix:** If stress fracture is suspected, the runner should contact his or her physician for evaluation. The physician may order an X-Ray or MRI to evaluate for the presence of a stress fracture. Most uncomplicated stress fractures are treated with decreased weight bearing with a walking boot, cast, or crutches depending on the location and pain associated with the fracture. As the fracture heals and pain improves, gradual weight bearing is allowed and a return to running protocol is initiating. Return to run following a stress fracture should always be monitored by a physician and a skilled physical therapist.