RUNNING INJURIES

Symptoms and treatments

UNIVERSITY OF CALGARY

Contents

Symptoms and Treatments for the Five Most Common Running Injuries

Vanessa Barretto was nearing the 30-kilometre mark while training for her first full marathon when she felt a sharp, throbbing pain in her left knee.

It was a sunny Saturday in June, and as she neared Calgary's landmark Peace Bridge, along the sparkling Bow River, she tried to push through the discomfort. She didn't want to slow down her older brother, Jeremy, who'd competed in marathons before.

"I have always loved running, even as a kid," says Barretto, a 33-year-old marketing manager and UCalgary alumna (BComm'04). "It became a great stress reliever as I got older. So here I am, doing what I love, and now I have to make a tough decision about running."

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>
> *– Reed Ferber*

Afraid to cause permanent injury to her knee, she chose not to participate in the marathon, much to her disappointment. The injury prompted her to visit UCalgary's Running Injury Clinic, located in the city's southeast, that she'd heard about through word of mouth.

Like many recreational runners, she'd tried various solutions to stop the pain — a Velcro knee brace, then physiotherapy and massage — but nothing seemed to work. Then she got a 3D GAIT analysis at the clinic, which identified the root of her problem. The analysis gave her peace of mind and the opportunity to move forward knowing the real cause of her soreness.

"The results meant I could get treatment tailored to address my problem and get past having only short-term relief," says Barretto.

The two-hour, high-tech analysis showed she had the second most-common running injury — Iliotibial Band Syndrome (ITBS). The IT band is a thick band of fascia that extends over the hip and inserts at the knee. It helps to stabilize the knee when running.

Reed Ferber, a UCalgary researcher and the Running Injury Clinic's director, says Barretto's problem was similar to that suffered by many other runners.

"Most of our patients have first seen other practitioners, with no luck," says Ferber, who oversees more than 50 clinics worldwide that solve runners' injury problems using 3D GAIT technology and analysis developed at UCalgary.

"Based on research from our lab, and others around the world, several factors have been identified to help understand the root cause of running injuries and how to best treat and prevent reoccurrence."

Barretto got a biomechanical report that showed increased rotational stress with some foot and ankle dysfunction contributing to ITB pain. She also received recommendations for exercises.

"While longer distances remain a challenge, I still love recreational running with my brother along Calgary's beautiful river pathway," she says.

BASED ON RESEARCH FROM OUR LAB, AND OTHERS AROUND THE WORLD, SEVERAL FACTORS HAVE BEEN IDENTIFIED TO HELP UNDERSTAND THE ROOT CAUSE OF RUNNING INJURIES AND HOW TO BEST TREAT AND PREVENT REOCCURRENCE.

– Reed Ferber

Top 5 Running Injuries: How to Know You Have It, What it is and What You Can Do

Ferber outlines the five most common injuries seen at his clinic while providing tips and tricks for runners.

1 Patellofemoral Pain Syndrome (PFPS, also known as runner's knee)

What it is

Given that half of all running injuries are to the knee, PFPS is the most common. The patella (kneecap) does not sit properly within the groove of the femur (thigh bone). Repeated stress causes pain.

How do I know if I have it

PFPS is characterized by aching pain under the kneecap. You can make it worse by climbing stairs, squatting, jumping, running or sitting for prolonged periods. When you're running, the pain usually begins immediately after you stop running — then it gets worse over the next one to 12 hours.

What do you do if you have it

Traditionally, quad muscle-strengthening helps to stabilize the kneecap within the femoral groove. Most PFPS patients who do this have successful short-term outcomes. But in follow-up studies, ranging from five to 25 years after rehabilitation, 25 to 91 per cent of PFPS patients report a return of symptoms. Recent research clearly points to strengthening a key muscle in your hip — the gluteus medius — as a critical step to better control your femur and optimize rehabilitation.

Video resources

Hip abduction | Gluteus medius strengthening

2 Iliotibial Band Syndrome (ITBS)

What it is

Pain on the outside of your knee is typical of ITBS. A small fluid-filled sac, a bursa, becomes irritated from the iliotibial (IT) band rubbing against it.

How do I know if I have it

Generally, ITBS pain worsens as you continue to run. You can feel stabbing in your knee. Increased twisting forces, primarily because of reduced hip muscle strength, are the main cause of ITBS.

What do you do if you have it

Muscle fatigue is the key reason ITBS pain worsens as you run. You need to strengthen three important muscles that attach to the IT band and reduce forces experienced by the tissue: gluteus medius, gluteus maximus and tensor fascia latae. Foam rolling is helpful since it serves to break up adhesions that form under the IT band as a result of muscle weakness.

Video resources

Hip abduction | Hip extension

3 Peroneal Tendonitis, or Achilles Tendinitis

What it is

Peroneal tendinitis involves the irritation of the two tendons on the outside of your ankle — peroneus longus and brevis. These muscles, responsible for balance and stabilization, support the arch of the foot. They generate forward propulsion along with the tibialis posterior and calf muscles.

How do I know if I have it

You will likely feel localized pain, with swelling on the lateral (outside) ankle behind the lateral malleolus (ankle bone) and crepitus (a grinding sensation).

What do you do if you have it

Strengthening the peroneal muscles through directed exercises and balancing exercises have been shown to aid in recovery.

Video resources

Calf raise protocol

4 Shin Splints (Medial Tibial Stress Syndrome)

What it is

An ankle-stabilizing muscle, tibialis posterior, ripping away from its attachment to the back and inside of the tibia (shin bone), causes the pain associated with shin splints. The pain worsens and small fractures form in the tibia over time unless properly treated.

How do I know if I have it

Shin splints begin as diffused pain along the inside border of the tibia. Unless you do something about it, the pain begins to localize to the lower third of the tibia (a stress reaction). Eventually, it progresses to exquisite and localized pain from a stress fracture.

What do you do if you have it

Calf raises can strengthen both muscles — either the tibialis posterior is weak, or it's being overworked because the soleus (the deep calf muscle) is not strong enough.

Video resources

Calf raise protocol | Ankle inversion

5 Plantar Fasciitis

What it is

The plantar fascia is a piece of thick tissue that spans from heel to toes. Inflammation to the tissue begins with increased stress from either being stretched or twisted too much.

How do I know if I have it

Pain is usually felt near your heel. It is worse in the morning after the tissue has had a chance to shorten overnight. Walking and running usually helps to warm up the tissue up, so symptoms don't usually occur when you're active.

What do you do if you have it

Calf raises are a necessary step for treatment. The ankle stabilizing muscles, such as the tibialis posterior, serve to dynamically support your arch and take the strain off of the plantar fascia. Towel crunches with your toes will strengthen the smaller arch-stabilizing muscles. Many research studies have shown that atypical foot pronation mechanics are rarely a factor to consider for treatment. The majority of runners exhibit very normal pronation mechanics. Another tip: a recent study from the Running Injury Clinic lab shows that simple over-the-counter orthotics can reduce plantar fascia stress by 35 per cent.

Video resources

Calf raise protocol