

Ilio-Tibial Band (ITB) Friction Syndrome

Ilio-tibial band (ITB) friction syndrome is a condition/irritation that causes pain along the outside of the leg due to inflammation related to the ilio-tibial band.

ANATOMY :

The ilio-tibial tract is a condensation of muscle and tendon into a structure called the ITB. It runs from the outside of the pelvis (“Ilio”) above the hipbone and extends along the outside of the thigh, over the prominence of the hip and the knee and ends up just below

the knee joint (“Tibial”) (Figure 1). This band begins as a muscle incorporating the hip and buttock muscles (flexors and abductors) but soon becomes a tendon with very little muscle function by the time it gets to the knee. It is meant to stabilize the knee primarily and the hip secondarily during walking and running. If your particular running style is abnormal, the ITB can be subjected to excessive pull or force that will make the muscle contract and cause resultant rubbing (hence the term “friction”) over the areas where it is close to the bone and other solid structures. (Figure 2) The ITB is a very important factor in the kinematics and kinetics of the leg during running. As this muscle-tendon complex

spans two joints (hip and knee) it is very susceptible to forces from a multitude of causes. These can include leg length discrepancies, persistent running on uneven or canted surfaces, increased knee flexion from overstriding, which may include downhill running.

Overpronation of the foot will make the ITB function excessively at the knee; supinators will put extra stretch on the ITB and cause friction. Runners with excessive femoral anteversion (in-toers) will place the ITB in an abnormally rotated location rendering it more susceptible to injury. Any abnormal hip and pelvic weakness can promote ITB syndrome.

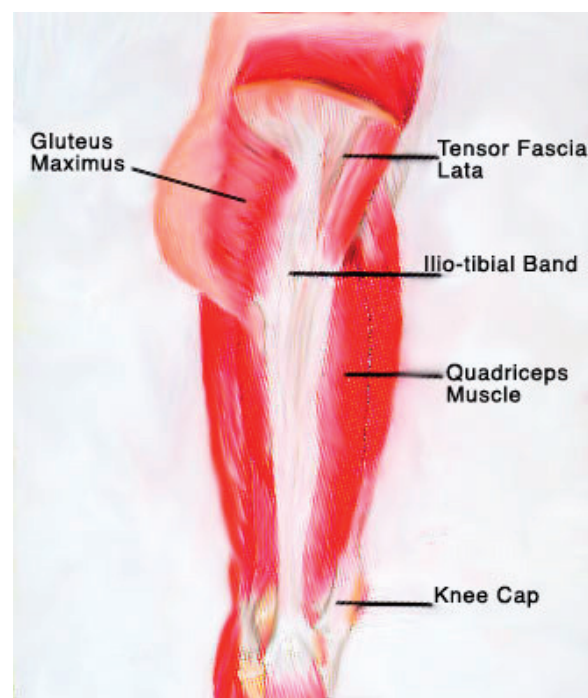


Figure 1. Anatomy of the Ilio –Tibal Band

Figure 2. Movement of the OTB with knee flexion/extension



Whereas ITB was the eighth commonest running injury in 1981 as reported by Dr. Jack Taunton from the Alan McGavin Sports Center at the University of British Columbia, it now ranks second. This increase in ITB frequency may be due to reporting techniques or, as postulated in a previous article, may be secondary to the general increased popularity of motion-control running shoes. These shoes produce more outside thrusting of the knee when running thereby increasing the friction caused by the bone under the ITB.

SIGNS AND SYMPTOMS:

Most of the pain and tenderness from ITB friction syndrome occurs around the knee. (Figure 3) The “usual” area of maximal tenderness is over the outside bone of your knee joint just beside the kneecap. In fact, ITB syndrome is probably the most common cause of pain along the outside of the knee. Other causes are listed in Table 1. The tenderness is best appreciated when your knee is bent about 30 to 45 degrees. However, due to the long course of the ITB from origin to insertion, pain can occur anywhere from the hip to the knee with occasional radiation down the leg to the ankle. Pain typically will occur after a pain-free interval of running. The pain is worse going down stairs and doing such maneuvers as getting out of a car or rising from a chair.



Figure 3. Usual area of pain and tenderness in ITB Syndrome

In my case I would not get the pain until I had been running for at least one hour. The pain began as a dull ache around my knee, then with further mileage localized outside the knee and just above it. Frequently, the pain was too vague to localize it to that area alone, and only after I completed my run when I could actually feel and touch my leg could I actually pin-point where the pain and tenderness was. “Stiff-legged” running would temporarily ease the pain but not eliminate it.

TREATMENT :

Prior to definitive treatment for ITB syndrome, the runner and his or her therapist or practitioner must identify the cause of the syndrome and try and correct that. Ilio-tibial band friction syndrome is probably the best example of an injury that responds to stretching, but only on a regular and consistent basis. There are multitudes of excellent stretches that are described in other articles on this topic. Once you have your particular stretch technique mastered, stick with it and do it regularly. Personally, I find the stretch that can be done standing up rather than lying or sitting on the ground more versatile and adaptable to different running locations. (I never did like sitting in a puddle of water on a marshy lawn in the middle of a June downpour in Vancouver!) Judy Russell, a physiotherapist with my Running Room group recommended this one to me and I now swear by it: stand with the affected (sore) leg crossed behind the good leg and spread them comfortably, but fairly far, apart. Place your hands on your hips, keep your back straight and bend forward from your hips (not your back) thereby stretching your ITB. Hold for five seconds and repeat five times. I can sometimes get another two miles of pain-free running after I do that stretch if I am otherwise unable to stop, e.g., in the middle of a marathon.

Pelvic muscle strengthening is a very important aspect of ITB friction syndrome prevention. This involves mainly the hip extensors and the hip abductors. Of course, prevention of the syndrome involves avoiding any of the above-mentioned causes of ITB syndrome: for instance, alternate the direction of track running to allow your leg to be on an alternate canted surface, avoid overtraining (too much/too soon/too fast), correct malalignments. I don't mean major operative procedures, just appropriate assessments of anatomical variations that may predispose you to ITB syndrome: e.g., pronated feet with knock knees requiring medially posted foot orthotics and supinated feet with bow legs requiring the opposite.

Icing after the run is very soothing and probably helps in some cases to speed healing when used with a program of running cutbacks. I found that by just running up to the point of pain (about 45 minutes) and then using ice, anti-inflammatories, and cutting back on the mileage resulted in “almost” complete elimination of my symptoms in about three weeks. Some runners find the use of an “over-the-counter” knee sleeve or brace useful, but there probably is no scientific reason why. Topical anti-inflammatory medication applied with an occlusive bandage (e.g., Op-site, or Tegaderm) can often deliver adequate tissue levels of the medication to the source of pain without any of the harmful sideeffects if taken by mouth. Occasionally a local injection of anesthetic or cortisone may be needed. You can request more information about this from your doctor.

Very rarely, and only for the recalcitrant and nonresponsive cases, is surgery an option. If you are one of the unfortunate few who may require this treatment, make sure you are seen by a skilled specialist in Orthopedic Sports Medicine who understands the important role of non-operative treatment first, since there is no guarantee that surgery will give you a permanent cure either.

PROGNOSIS :

Most cases of ITB syndrome do respond to a program as outlined above. It may take six weeks or more in severe cases for symptoms to resolve unless treatment is started early and adhered to. It is not uncommon for runners to suffer recurrent bouts of ITB syndrome. This is probably because the underlying problem has not been corrected first and the ITB syndrome only becomes symptomatic with longer runs as when one is training for an endurance race

such as a half- or full marathon. The symptoms then usually subside as the training reduces.

Table 1. Common causes of lateral (outside) knee pain:

- ITB Friction syndrome
- Patello-femoral syndrome
- Biceps (leg) inflammation or tendonopathy
- Tibio-fibular joint arthritis or injury
- Lateral Meniscus or knee cartilage degeneration