

Injury Prevention

Iliotibial Band Syndrome:

The Fire Starter



By Kerri Kramer, MSPT
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While on a training run, Sara was on a runner's high...until mile 20. She experienced a dull ache at the outside of her knee that suddenly became a sharp pain, like a hot burst of flames. The sting was so intense; she was unable to run another step. Later, she attempted to train with shorter distances, but the fire continued to ignite on every run. While she thought the injury occurred overnight, an experienced clinician would recognize the symptoms: Sara fits a common profile for those with iliotibial band (ITB) problems.

Sara's Profile

Distance Runner: She runs in excess of 40 miles/week. ITB syndrome is one of the most common overuse injuries among endurance runners.

Type A: She runs through the pain and is not easily convinced to back off. The constant rubbing of the IT band over the knee leads to inflammation. Type A personalities continue to run and push themselves beyond the limits. It's in their nature.

Female: Proportionately, many more females are affected, possibly due to the way some women's hips tilt and cause their knees to turn inward.

Anatomical Faults: Sara had pre-existing conditions including internal rotation of the leg, hip weakness, weak core muscles, and over-pronation. Other common anatomical issues are IT band tightness and leg length discrepancies.

What is ITB Syndrome?

The ITB, or iliotibial band, is a thick band of connective tissue that has attachments from the pelvis into the knee and down to the lower leg. Most literature on ITB pain describes a mechanism where the lower part of the band rubs over the outside of the femur (the thigh bone) as the knee moves from 0 to 30 degrees of flexion. Over a long period of repetitive knee bending (e.g., distance running), the friction created from rubbing produces an inflammatory response and "ignites the fire" under the ITB. Recent research indicates the irritated structures are actually a layer of fat and loose connective tissue that lies between the ITB and the femur. In this instance, the tissues become compressed under a tight ITB, particularly at 30 degrees of knee flexion where the band is pulled tightest. Regardless of the exact structure at fault, a 30-degree angle at the knee is the killer, and is unfortunately where we spend the most amount of time running. The epicenter of pain is always located at the outside of the knee and comes on quickly after a few miles (or minutes) of running.

How can ITB syndrome be avoided?

ITB symptoms can come from a multitude of factors, as demonstrated in the case study (which is not an all-inclusive list). If you are currently experiencing ITB pain, a thorough musculoskeletal, running, and orthotic evaluation is the safest approach to return to health. In the meantime, ice is required to reduce inflammation. Use a Dixie cup filled with ice in circular motions at the site of pain for five minutes, multiple times throughout the day. Active rest will be required to further promote reduction of inflammation. As a triathlete, this means you should focus on your bike and swim workouts and reduce your volume of running.

On the other hand, if you are looking to avoid the dreaded ITB syndrome, the following suggestions may help:

- Perform self-massage (e.g., with a foam roller) or routinely visit a massage therapist. Focus on the ITB itself, as well as the vastus lateralis (the outside quadriceps) and the gluteal muscles.
- Maintain or work to improve the strength of your gluteus medius, as these hip muscles stabilize your pelvis while running and research has reported a strong correlation between weak gluteus medius muscles and ITB pain.
- Choose proper footwear. A running-specific shoe store with staff who observe your gait on a treadmill will fit your feet best.
- Change your running shoes every 350 – 450 miles. If you are a heavy runner, err on the side of caution and change them when you reach 350 miles.
- Avoid slanted surfaces such as cambered roads; they add extra pressure to the knee and increase ITB pain, particularly on the lower leg.
- Change running surfaces. Pounding the pavement on a consistent basis will only lead to trouble.
- Avoid sudden changes in running volume or intensity.

ITB syndrome is a condition that should not be ignored. It can very easily become a chronic condition that is difficult to resolve. The above ITB prevention strategies, as well as early treatment if symptoms arise, will promote your longevity in running and triathlon.

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