Main Line Health®
Orthopaedics & Spine

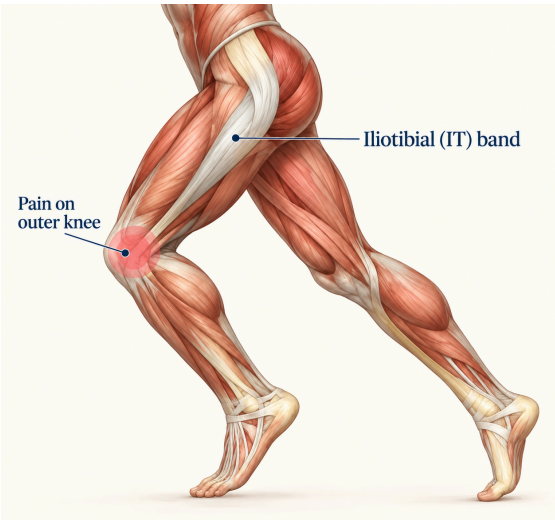
Brian E. Fliegel, DO
255 W Lancaster Ave
Paoli, PA 19301
(484) 565-8080
www.drbrianfliegel.com

ILIOTIBIAL (IT) BAND SYNDROME

Understanding the Injury

The iliotibial (IT) band is a thick band of tissue that runs from the hip down the outside of the thigh and attaches just below the knee on the outer tibia (shinbone). As the knee bends and straightens, the IT band passes over a bony prominence on the outside of the knee called the lateral femoral epicondyle.

IT band syndrome causes pain on the outside of the knee. It is one of the most common causes of knee pain in distance runners and is also seen in cyclists, hikers, and other endurance athletes.



IT band syndrome is an overuse injury. Pain typically comes on gradually during a run or ride, often at a predictable distance, and is felt as a sharp or burning pain on the outside of the knee that may extend up the thigh. It is often worse running downhill or going down stairs, and usually settles with rest.

The pain was traditionally blamed on the band rubbing back and forth over the bone; it is now thought to come mainly from compression of sensitive tissue beneath the band. Common contributors include a rapid increase in training, weak hip muscles, running on banked or downhill surfaces, worn-out shoes, and an improper bike fit.

Diagnosis of IT Band Syndrome

Diagnosis is usually made from your history and physical examination, which typically shows tenderness on the outside of the knee and pain reproduced with the knee bent to about 30°. X-rays or MRI are generally needed only if the diagnosis is uncertain or symptoms do not improve, to rule out other causes such as a lateral meniscus tear. IT band syndrome is sometimes called “runner’s knee,” although that term more often refers to pain around the kneecap, a different condition. Dr. Fliegel will review all findings with you before recommending a treatment plan.

Do You Need Surgery?

Rarely. The large majority of patients recover fully with activity modification and a structured strengthening and stretching program, usually over several weeks to a few months.

If pain persists despite a good-faith course of rehabilitation, a corticosteroid injection may be considered. Surgery to release or lengthen part of the band is reserved for the rare patient whose symptoms do not respond to at least 6 months of appropriate nonoperative treatment.

Why Hip Strength Matters

The hip abductor muscles, on the side of the hip, control the position of the thigh and knee while you run. When they are weak or fatigue easily, the knee tends to drift inward, increasing load on the IT band.

For this reason, hip and core strengthening is a central part of treatment. Stretching can help with comfort, but strengthening, gradual return to training, and correcting training errors are what keep the problem from coming back.

Foam rolling may ease symptoms for some patients, but it does not meaningfully lengthen the IT band and should not replace the strengthening program.

What to Expect

Most patients improve within several weeks to a few months. How quickly you return to running depends on how long symptoms were present before treatment began and how consistently the program is followed.

Contact our office promptly if you experience:

- Significant swelling of the knee
- Locking, catching, or the knee giving way
- Pain at rest or at night
- Pain that is not improving after 4 to 6 weeks of this program
- Numbness or tingling in the leg or foot

These symptoms are not typical of IT band syndrome and may point to a different problem inside the knee that needs further evaluation.

INITIAL TREATMENT

Calming the Knee Down

The first goal is to reduce irritation so the tissue can settle. Please review the guidelines below carefully.

Relative Rest

(As directed by Dr. Fliegel)

- Reduce running and cycling to a pain-free level; a short break from running may be needed.
- Let pain be your guide: a mild ache is acceptable, but stop any activity that causes sharp pain on the outside of the knee.
- Avoid downhill running, stairs, and repetitive deep squatting while symptoms are active.

A physical therapist can guide the strengthening program and assess your running mechanics; please bring this guide to your first visit.

Pain Relief

- Ice the outside of the knee for 15 to 20 minutes, 2 to 3 times a day and after activity, with a towel or cloth between the ice and your skin.
- An over-the-counter anti-inflammatory (such as ibuprofen or naproxen) may help for a short period, if it is safe for you and as directed by Dr. Fliegel.

Cross-Training

- Swimming (especially with a flutter kick), walking on level ground, and cross-country skiing are usually well tolerated and help maintain fitness.
- Cycling, basketball, soccer, volleyball, racquet sports, and heavy squatting are more likely to aggravate symptoms early on.

Training Changes

- Avoid running on banked surfaces such as the edge of a road, and alternate direction when running on a track.
- Replace running shoes regularly; cyclists should have their bike fit checked, especially saddle height and cleat position.
- When you return to training, increase weekly distance gradually rather than in large jumps.

IT BAND SYNDROME HOME EXERCISE PROGRAM

This program is a guideline for both patients and physical therapists. Progression from one phase to the next is determined by meeting criteria, not calendar time alone. Please provide your physical therapist with a copy of this program.

The primary goals are to:

Reduce pain and irritation on the outside of the knee

Build hip, core, and thigh strength

Improve flexibility of the hip and thigh

Improve balance and control of knee position

Return safely to running and sport, and prevent recurrence

PHASE I: CALM THE KNEE DOWN (0–2 Weeks)

Goals

- Reduce pain to a mild level or less with daily activity
- Maintain fitness with pain-free cross-training
- Begin stretching and basic hip strengthening

Activity Modification

- Reduce or pause running as directed by Dr. Fliegel
- Pain-free cross-training such as swimming, level walking, or the elliptical
- Avoid downhill running, stairs, and deep squatting

Flexibility

- Lateral hip and thigh (IT band) stretch: cross the affected leg behind the other and lean toward the unaffected side, letting the affected hip shift outward until you feel a gentle stretch along the outside of the hip — hold 20 to 30 seconds, 3 to 5 times
- Hamstring stretch: with the leg straight on a low surface, bend forward at the hips until you feel a gentle stretch behind the thigh — hold 20 to 30 seconds, 3 to 5 times
- Quadriceps stretch: standing with support, bring the heel toward the buttock until you feel a stretch in the front of the thigh — hold 20 to 30 seconds, 3 to 5 times
- Calf stretch: with the back heel flat and knee straight, lean forward against a wall until you feel a stretch in the calf — hold 20 to 30 seconds, 3 to 5 times

Exercises

- Side-lying hip abduction: lying on the unaffected side with the knees straight, raise the top leg to about 45° with the toes pointing forward, hold 1 second, lower slowly — 20 repetitions
- Clamshells: lying on your side with the knees bent and feet together, lift the top knee, hold 1 second, lower slowly — 20 repetitions

- Straight leg raise: tighten the thigh muscle to keep the knee straight, raise the leg to about 45°, pause 1 second, lower slowly — 20 repetitions
- Ice 15–20 minutes after exercise as needed

Advancement Criteria

- Walking and daily activities without pain
- No pain with Phase I exercises
- Tenderness on the outside of the knee decreasing

PHASE II: PROGRESSIVE STRENGTHENING (2–6 Weeks)

Goals

- Build hip, core, and thigh strength
- Improve single-leg control of knee position
- Prepare for a return to running

Activity Modification

- Continue cross-training at a pain-free level
- Stationary cycling may be added if pain-free, with the seat high enough that the knee is nearly straight at the bottom of the stroke

Flexibility

- Continue the Phase I stretches daily
- Foam rolling along the outside of the thigh may be used for comfort, avoiding direct pressure over the painful spot at the knee

Strengthening

- Short arc lift: with a rolled towel under the knee, straighten the knee fully, hold 5 seconds, lower slowly — 20 repetitions
- Standing hamstring curl: holding a table for balance, bend the knee to bring the heel toward the buttock with the thighs aligned, hold 1 second — 20 repetitions
- Standing toe raise: holding a table with the knees straight, rise onto the toes, hold 1 second, lower slowly — 20 repetitions
- Side planks and bridges for hip and core strength
- Continue hip abduction, clamshells, and straight leg raises; once easy, add an ankle weight starting at 1 pound and increasing 1 pound per week up to 5 pounds, exercising every other day, while stretches continue daily

Precautions

- Stop any exercise that reproduces sharp pain on the outside of the knee
- Avoid deep knee bends and any exercise that causes crunching, clicking, or pain at the kneecap

Advancement Criteria

- No pain on the outside of the knee with daily activities
- Pain-free with Phase II exercises, including ankle weights
- Good single-leg balance without the knee drifting inward

PHASE III: FUNCTIONAL STRENGTHENING (4–8 Weeks)

Goals

- Progress to single-leg, functional strengthening
- Improve control of knee position during weight-bearing movements
- Prepare for a gradual return to running

Flexibility

- Continue daily stretching
- Once you have built up to 5 pounds, the Phase II strengthening exercises can be done 2 times per week for maintenance

Strengthening

- Wall slides: with your back against a wall, feet about 12 inches apart and 6 inches from the wall, slide down until the knees bend about 45°, pause 5 seconds, then slide back up — 3 sets of 10 to 15; going too fast or too deep can aggravate symptoms
- Step-downs and single-leg squats to a comfortable depth, keeping the knee aligned over the second toe
- Single-leg balance, progressing from eyes open to eyes closed and then to an unstable surface
- Side-stepping with a resistance band around the legs

Precautions

- Stop and return to the previous step if pain on the outside of the knee returns

Advancement Criteria

- Single-leg squat and step-down performed with good control and no pain
- Brisk walking for 30 minutes without pain
- No tenderness on the outside of the knee

PHASE IV: RETURN TO RUNNING (Once Phase III Criteria Are Met)

Goals

- Return to running without pain
- Rebuild distance gradually
- Continue strengthening to prevent recurrence

Strengthening

- Continue hip and core strengthening 2 to 3 times per week, even after symptoms resolve

- Continue daily stretching, especially after runs

Running Progression

- Begin with short, easy runs on flat, even ground every other day, stopping before pain begins
- Increase weekly distance gradually; a common guideline is no more than about 10% per week
- Add hills, speed work, and longer runs last
- Vary your training rather than running long distances every day, mixing shorter, faster sessions with a single longer run each week

Avoid

- Running through pain on the outside of the knee — if it returns, stop, rest 1 to 2 days, and restart at the previous pain-free level

RETURN TO SPORT AND PREVENTION

Goals

- Return to full training and sport
- Prevent recurrence through ongoing strength work and sensible training habits

Progression

- Sports that most often aggravate IT band syndrome — distance running, cycling, basketball, soccer, volleyball, racquet sports, and heavy squatting — should be resumed gradually
- Baseball, hockey, skiing, and tennis may or may not cause symptoms; let pain be your guide
- Cyclists should return with a proper bike fit and gradual increases in ride time
- Runners should alternate direction on tracks, avoid heavily banked roads, and replace shoes regularly

Return-to-Activity Criteria

- Pain-free running at your usual training distance
- Hip and thigh strength comparable to the uninjured side
- Cleared by Dr. Fliegel

Key Rehabilitation Principles

- IT band syndrome is an overuse injury — it improves when training load is matched to what the tissues can handle, and hip strength is the best long-term protection.
- Let pain be your guide: a mild ache is acceptable, but sharp pain on the outside of the knee means it is time to back off.
- Contact our office for knee swelling, locking or giving way, pain at rest or at night, or symptoms that are not improving after 4 to 6 weeks of this program.

- Continue this program until you are re-examined by Dr. Fliegel at your next appointment. If you have questions about your exercises, please call our office.