



## ILIOTIBIAL BAND SYNDROME

### ■ ■ ■ Description

The iliotibial band is the tendon attachment of hip muscles into the upper leg (tibia) just below the knee to the outer side of the front of the leg. Where the tendon passes the knee (lateral femoral condyle) there is a bursa sac between the bone and the tendon. This tendon moves over a bony bump at the outer knee as it passes in front and behind it. The bursa functions like a water balloon to reduce friction and wear of the tendon against the bony bump. In this condition, overuse causes excessive friction at this bump, resulting in inflammation and pain of the bursa (bursitis), tendon (tendinitis), or both.

### ■ ■ ■ Common Signs and Symptoms

- Pain, tenderness, swelling, warmth, or redness over the iliotibial band at the outer knee (above the joint); may travel up or down the thigh or leg
- Initially, pain at the beginning of an exercise that lessens once warmed up; eventually, pain throughout the activity, worsening as the activity continues; may cause the athlete to stop in the middle of training or competing
- Pain that is worse when running down hills or stairs, on banked tracks, or next to the curb on the street
- Pain that is felt most when the foot of the affected leg hits the ground
- Possibly, crepitation (a crackling sound) when the tendon or bursa is moved or touched

### ■ ■ ■ Causes

Iliotibial band syndrome is caused by excessive friction of the iliotibial band and the underlying bursa due to repetitive knee-bending activities. This is an overuse injury, although direct trauma to the outer knee may cause the bursa to get inflamed. Often the deceleration of running down hills may lead to the excessive friction.

### ■ ■ ■ Risk Increases With

- Sports with repetitive knee-bending activities, such as distance running and cycling
- Incorrect training techniques, including sudden changes in the amount, frequency, or intensity of the training, as well as inadequate rest between workouts
- Poor physical conditioning (strength and flexibility), especially tight iliotibial band
- Inadequate warm-up before practice or play
- Bow legs
- Arthritis of the knee

### ■ ■ ■ Preventive Measures

- Appropriately warm up and stretch before practice or competition.
- Allow time for adequate rest and recovery between practices and competition.

- Maintain appropriate conditioning:
  - Knee and thigh flexibility (especially iliotibial band)
  - Muscle strength and endurance
  - Cardiovascular fitness
- Use proper training technique, including reducing mileage run, shortening stride, and avoiding running on hills and banked surfaces.
- Wear arch supports (orthotics) if you have flat feet.

### ■ ■ ■ Expected Outcome

This condition is usually curable within 6 weeks if treated appropriately with conservative treatment and resting of the affected area.

### ■ ■ ■ Possible Complications

- Prolonged healing time if not appropriately treated or if not given adequate time to heal
- Chronically inflamed tendon and bursa, causing persistent pain with activity that may progress to constant pain
- Recurrence of symptoms if activity is resumed too soon, with overuse, with a direct blow, or with poor training technique
- Inability to complete training or competition

### ■ ■ ■ General Treatment Considerations

Initial treatment consists of medication and ice to relieve the pain, stretching and strengthening exercises (particularly the iliotibial band), and modification of the activity that initially caused the problem. These all can be carried out at home, although referral to a physical therapist or athletic trainer for further evaluation and treatment may be helpful. An orthotic (arch support) for those with flat feet or a wedge for the shoe for those with tight iliotibial bands may be prescribed to reduce friction to the bursa. A knee sleeve or bandage may help keep the tendon and bursa warm during activity and reduce some symptoms. Training techniques can be altered by lessening the amount of the training activity, changing the stride length, avoiding running on hills or stairs, changing the direction you run on a circular or banked track, or changing the side of the road you run on if you run next to the curb in the same direction all the time. Cyclists may need to change the seat height or foot position on their bicycles. An injection of cortisone into the bursa may be recommended. Surgery to remove the inflamed bursa and part of the scarred or inflamed iliotibial band is usually only considered after at least 6 months of conservative treatment.

### ■ ■ ■ Medication

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take within 7 days before surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.

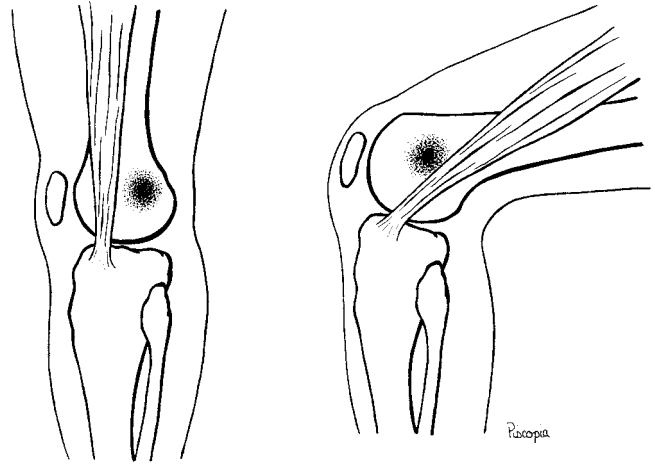
- Pain relievers are usually not prescribed for this condition, although your physician will determine this. Use only as directed and only as much as you need.
- Cortisone injections can reduce inflammation.

■ ■ ■ **Heat and Cold**

- Cold is used to relieve pain and reduce inflammation for acute and chronic cases. Cold should be applied for 10 to 15 minutes every 2 to 3 hours for inflammation and pain, and immediately after any activity which aggravates your symptoms. Use ice packs or an ice massage.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist or athletic trainer. Use a heat pack or a warm soak.

■ ■ ■ **Notify Our Office If**

- Symptoms get worse or do not improve in 2 to 4 weeks despite treatment
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)



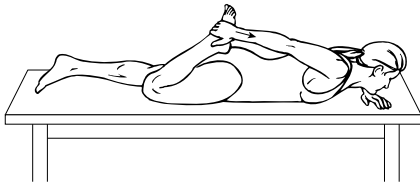
**Figure 1**

From Nicholas JA, Hershman EB: *The Lower Extremity and Spine in Sports Medicine*. St. Louis, Mosby Year Book, 1995, p. 928.

> **RANGE OF MOTION AND STRETCHING EXERCISES** • Iliotibial Band Syndrome

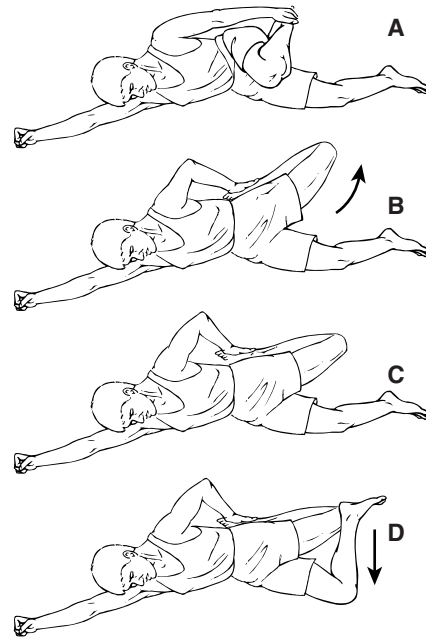
These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- Flexible tissue is more tolerant of the stresses placed on it during activities.
- Each stretch should be held for 20 to 30 seconds.
- A *gentle* stretching sensation should be felt.



**STRETCH** • Quadriceps, Prone

1. Lie on your stomach as shown.
2. Bend your knee, grasping your toes, foot, or ankle. If you are too “tight” to do this, loop a belt or towel around your ankle and grasp that.
3. Pull your heel toward your buttock until you feel a stretching sensation in the front of your thigh.
4. **Keep your knees together.**
5. Hold this position for \_\_\_\_\_ seconds.
6. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



**ILIOTIBIAL BAND STRETCH**

1. Lie on your side as shown. The muscle/iliotibial band to be stretched should be on top.
2. With your hand, grasp your ankle and pull your heel to your buttocks and bend your hip so that your knee is pointing forward as in the top drawing (A).
3. Rotate your hip up so that your thigh is away from your body as shown and in line with your body. Keep your heel to your buttocks (B).
4. Bring the thigh back down and behind your body. Do not bend at the waist. Keep your heel pressed to your buttocks (C).
5. Place the heel of your opposite foot on top of your knee and pull the knee/thigh down farther. You should feel a stretch on the outside of your thigh near your kneecap (D).
6. Hold this position for \_\_\_\_\_ seconds.
7. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.

**> STRENGTHENING EXERCISES • Iliotibial Band Syndrome**

The key with iliotibial band syndrome is to improve the flexibility of the tissue. General strengthening exercise to assist with other related symptoms can be prescribed by your physician, physical therapist, or athletic trainer after your flexibility has improved.



**STRENGTH • Isometric Quad/VMO**

1. Sit in a chair with your knee bent 75 to 90 degrees as shown in the drawing.
2. With your fingertips, feel the muscle just above the kneecap on the inside half of your thigh. This is the VMO.
3. Push your foot and leg into the floor to cause the thigh muscles to tighten.
4. Concentrate on feeling the VMO tighten. This muscle is important because it helps control the position of your kneecap.
5. Tighten and hold for \_\_\_\_\_ seconds.
6. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.



**STRENGTH • Hip Abduction**

1. Lie on your side as shown with the injured/weak leg on top.
2. Bend the bottom knee slightly for balance. Roll your top hip slightly forward.
3. Lift your top leg straight up, leading with your heel. Do not let it come forward. Hold this position for \_\_\_\_\_ seconds.
4. Slowly lower your leg to the starting position.
5. Repeat exercise \_\_\_\_\_ times, \_\_\_\_\_ times per day.

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Notes:

(Up to 4400 characters only)

Notes and suggestions