

STEVEN CHUDIK MD

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Iliotibial (IT) Band Syndrome

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.

Frequent 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

Etiology (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.



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Risk Factors

- 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

Prevention

- 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.

Outcomes

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

Potential Complications

- 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



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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.

Potential Medications

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take within seven 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.

Modalities (Heat and Cold)

- Cold is used to relieve pain and reduce inflammation. Cold should be applied for 10 to 15 minutes every two to three hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage with a cloth between the ice and your skin to prevent burning /freezing your skin.
- 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 My Office If Symptoms Worsen



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Simple Knee Stretches and Exercises

Knee Flexion



1. Loop a belt or dog leash around your affected leg.
2. Lie on your stomach as shown and grasp belt over your shoulder.
3. Using the belt pull your heel towards your buttocks until you feel a stretch in the front of the thigh.
4. Hold this position for three to five seconds then relax.
5. Repeat exercise 10-15 times, two to three times daily.

Hamstring Stretch



1. Loop a belt or dog leash around your affected leg.
2. Hold the end of the belt and lie down on your back as shown.
3. Slowly start to pull the belt allowing the leg to rise from the table.
4. Keep pulling until a good stretch is felt in the back of the leg.
5. Hold the position for three to five seconds then lower back to the table.
6. Repeat the exercise 10-15 times, two to three times per day.

****It is important to keep the knee straight during the entire exercise.***



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Hamstring Stretch



1. Lie on your back near the edge of a doorway or wall as shown.
2. Place the affected leg up on the wall while keeping the knee straight.
3. Your buttocks should be as close to the wall as possible and the other leg should rest flat on the floor.
4. A stretch should be felt in the back of the leg.
5. Hold this position for three to five seconds then relax.
6. Repeat 10-12 times, two to three times daily.
7. As the repetitions increase the stretch should become easier. Slide your buttocks towards the wall to increase the stretch.

Sitting Calf Stretches



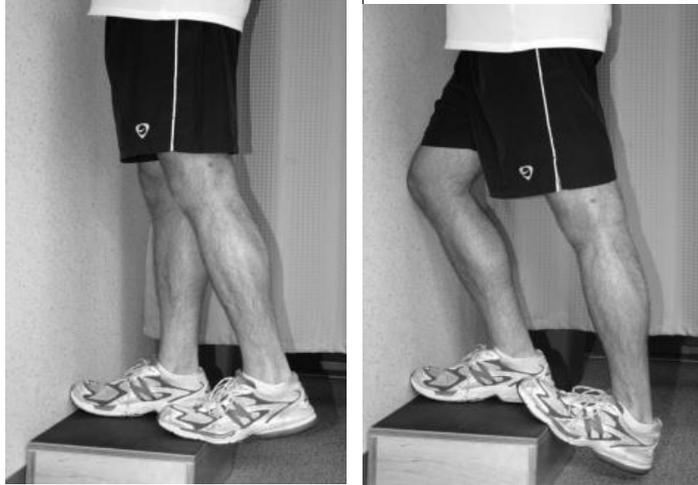
1. Loop a towel or belt around your affected foot.
2. While keeping the knee straight pull your toes toward your body until you feel a good stretch.
3. Hold this position for 3-5 seconds then repeat 10-15 times, two to three times daily.



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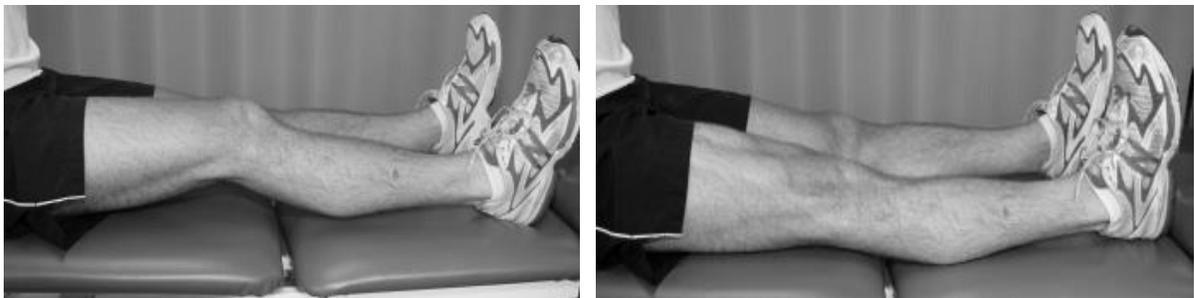
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Standing Calf Stretch



1. Place the ball of your foot on a phone book or the edge of a chair. The heel of the affected leg should be off the ground.
2. Hold on to a table or hand rail for balance.
3. While keeping the knee straight, slowly lower the heel of the affected leg until a stretch is felt.
4. Hold this position for three to five seconds then repeat 10-15 times, two to three times daily.

Quadriceps Sets



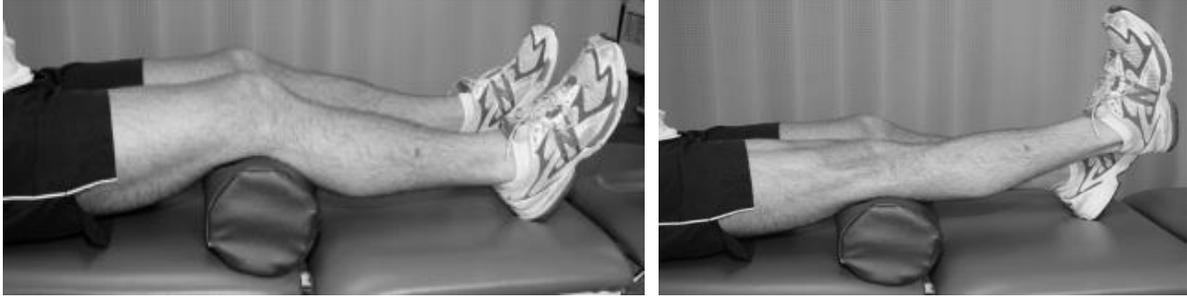
1. Sit or lie on your back with the affected leg straight.
2. Tighten the muscles on the front of your thigh and push your knee down into the table.
3. Hold this position for five seconds then relax. Repeat exercise 10-15 times, two to three times daily.



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Quadriceps Short Arc Sets



1. Sit or lie on your back with the affected leg straight.
2. Place a rolled up towel or pillow under your knee allowing it to bend.
3. Tighten the muscles on the front of your thigh and lift your heel off the table.
4. Hold this position for three to five seconds then repeat 10-15 times, two to three times per day.

Isometric Hamstrings (Heel Digs)



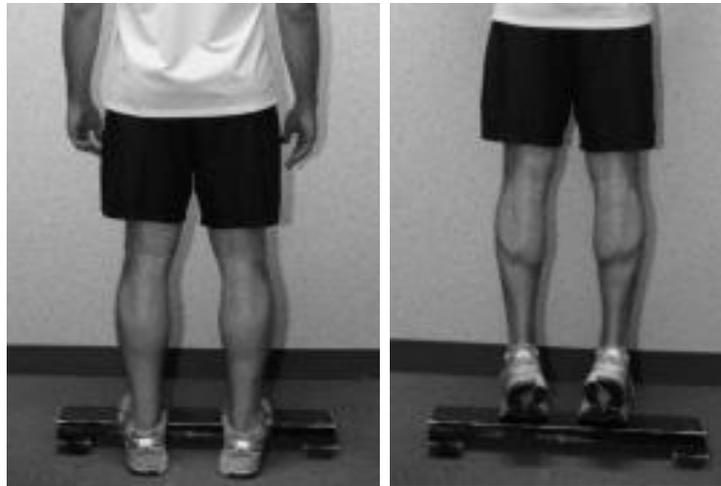
1. Lie on your back and bend your knee to where you feel a stretch.
2. Contract your hamstrings (back of thigh) muscles, attempting to bend the knee while forcefully dig your heel into the floor or bed.
3. Hold this position for three to four seconds then relax.
4. Repeat this exercise 10-15 times, two to three times daily.



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Standing Calf Raises



1. While standing with the ball of your foot on the flat of a low stair, slowly raise both heels.
2. Hold this position for two to three seconds then return to the starting position.
3. Repeat this exercise 10-15 times, two to three times per day.
4. **Hold on to a railing for support and balance as necessary. If you are concerned about balance, you can perform these exercises on the floor while you sit in a chair or stand with your hands on a nearby wall.**
5. **Perform this exercise in your brace if provided**

Straight Leg Lifts



1. Lie on your back while keeping the affected leg straight.
2. Tighten the muscles on top of your thigh then raise the leg 12-18 inches off the floor.
3. Hold for three to five seconds then lower the leg to the starting position.
4. Repeat this exercise 10-15 times, two to three times per day.
5. **Perform this exercise in your brace if provided**



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Straight Leg Abduction (Side) Lifts



1. Lie on your side with the affected leg on top.
2. While keeping the leg straight slowly raise it 12-18 inches.
3. Hold this position for three to five seconds then lower the leg to the starting position.
4. Repeat this exercise 10-15 times, two to three times per day.
5. **Perform this exercise in your brace if provided**

Straight Leg Extension Lifts



1. Lie on your stomach as shown.
2. While keeping the affected leg straight raise it 12-18 inches
3. Hold this position for three to five seconds then lower the leg to the starting position.
4. Repeat this exercise 10-15 times, two to three times per day.
5. **Perform this exercise in your brace if provided**



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Hip Adduction (Ball Squeezes)



1. While sitting or lying on your back, place a medium sized ball or large pillow between your legs.
2. Squeeze the ball.
3. Hold this position for three to five seconds then relax.
4. Repeat this exercise 10-15 times, two to three times per day.

Acknowledgements

Thanks to Larana Stropus, MS, ATC/L and Carmine Van Deven for their assistance in developing these post-operative instructions for Steven Chudik MD Shoulder & Knee Injury Clinic patients



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