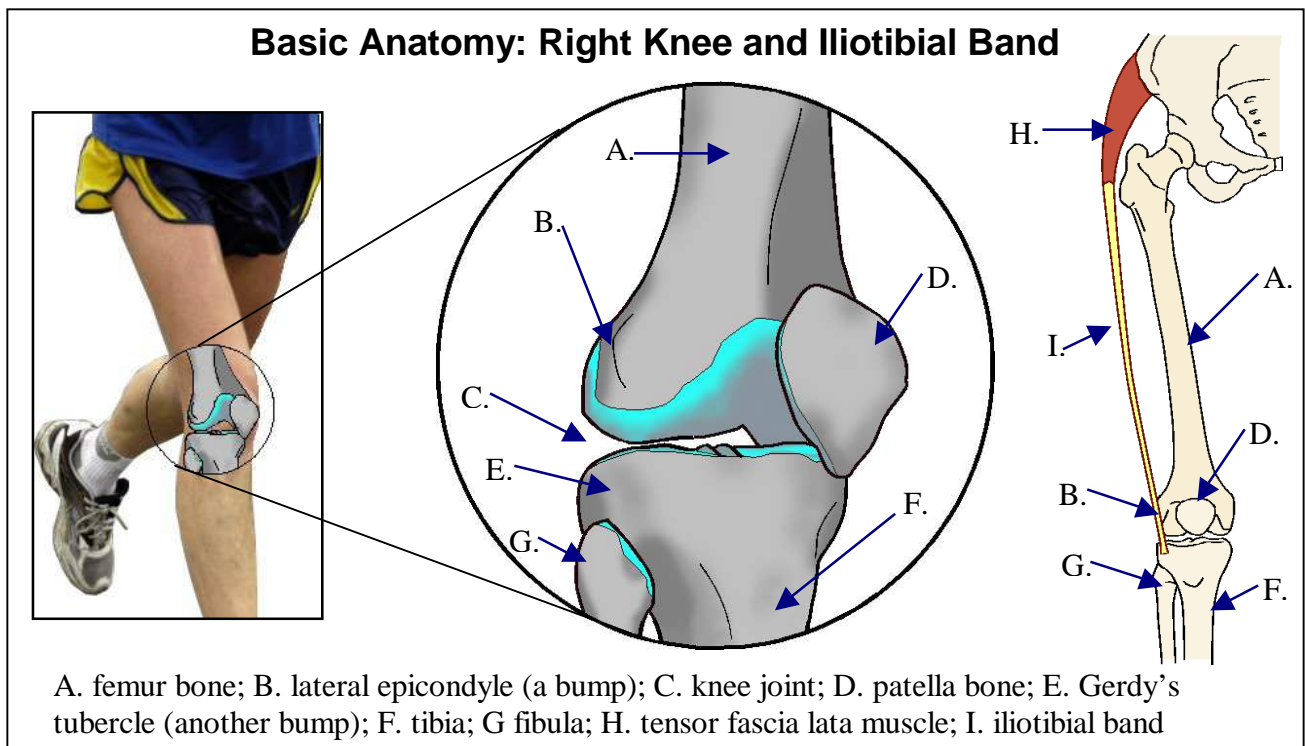


Iliotibial Band Friction Syndrome

The iliotibial band (ITB) is continuous part of the connective tissue that surrounds and supports the muscles of the thigh. The ITB is a thickening of this connective tissue which runs down the side of the thigh and adds additional support to the lateral aspect of the knee. It is named for its attachments from the ilium portion of the pelvis (ilio-) to the tibia, which is the leg bone just below the knee. The ITB also has attachments to the lateral epicondyle (see picture) of the femur (thigh bone) and to the kneecap. The muscles that can pull on the ITB are: the tensor fascia lata (TFL) and the gluteus maximus muscles. Pull on the TFL by these muscles can affect movement of the hip and the knee.



How ITB Friction Syndrome Occurs

When the knee is fully extended (as in standing) the ITB is in front of the lateral epicondyle. When the knee bends the ITB rubs over the lateral epicondyle of the knee at about 30° then ends up behind it. When this action is done repetitively the excessive friction produces an overuse injury at that lateral epicondyle. This causes pain, swelling with fluid buildup in to the space between the ITB and the femur, and over time thickening of the ITB itself.

Activities known to cause this kind of repetitive friction include cycling, skiing, hiking, and running. Curiously running speed does not seem to be a factor, however those who are susceptible to this injury are those with pre-existing biomechanical faults such as tightness of the ITB or weakness in certain muscles of the knee or lateral hip. Other factors include high weekly mileage, running along an incline (such as on a crowned road), and running downhill.

Symptoms of ITB Friction Syndrome

Initially it may take days to weeks for symptoms to develop. Some people are misled because a sudden increase in amount of training seems fine at first and is not initially associated the symptoms because they develop later. The initial discomfort is more diffuse on the lateral aspect of the knee and is often felt during the running just as the heel strikes the ground as the runners extends their leg. If this injury is allowed to persist with continued training then in time the initial achy symptoms will progress to more painful and sharp. People at this point readily localize the pain to the lateral femoral epicondyle or the Gerdy's tubercle (see picture) on the tibia. They often have to stop the aggravating activity because of the pain. At this point the creaking, like rubbing a balloon, may be felt (or heard) with knee movement. Lateral hip pain from trochanteric bursitis may be associated with ITB friction syndrome because of tightness of the ITB over the hip.

Examination and Diagnosis

An examination will lead to a proper diagnosis of ITB friction syndrome. The examination is also used to rule out other causes of lateral knee pain (popliteal tendonitis, biceps femoris tendonitis, lateral meniscal tear, arthritis, back or hip problems, etc), which could be mistaken for this injury. Laboratory and imaging test such as X-ray and MRI are generally not needed and are often not helpful.

The examination should be done in shorts so that both knees are clearly visible and movement is not restricted. If the patient is a runner then it is often useful for them to bring their running shoes. The examination includes assessing not only swelling and tenderness but for proper alignment and gait. Tenderness is often located about 2 cm above the joint line of the knee. The tension and strength of the different muscles of the feet, knee and hips should then be measured to delineate any weakness or imbalances that will be addressed in treatment. During palpation "trigger points" may be found in the quadriceps muscle, the gluteus medius muscle of the buttocks or the biceps femoris muscle of the hamstrings. Often pressing on these muscles can produce pain referred to the lateral aspect of the knee.

Several orthopedic tests (special manoeuvres that stretch or compress different parts of the body to identify injuries) are used to assess pain and/or tightness of the ITB. Such tests include the Renne test where the patient stands on the affected leg with the knee bent to 30 degrees. A positive result is a reproduction of the pain, or an increase in tenderness. Noble's compression test involves having the patient lying on their back with the knees bent. The doctor compresses the ITB against the lateral epicondyle while the patient extends their knee. If this does not reproduce the pain, it suggests the injury is not related to friction of the ITB. The most common test is called Ober's test. This test is done with the patient on their side and the thigh is lowered by the doctor to see how far the ITB will stretch. It must be done properly or it can be misinterpreted, but the test helps to determine the tension in the ITB. That being said, one can still have an ITB that is not tight but still have ITB friction syndrome.

Once a diagnosis is made and other causes of pain are ruled out, then treatment can be targeted to reduce pain and inflammation, improve the function of the joints and muscles, and recommendations for a more suitable training schedule can be given.

Disclaimer: The information is provided for general knowledge only. As each person is different and other conditions cause knee pain, this information may not apply to you. If you are seeking information, advice or treatment please contact the clinic for an appointment.