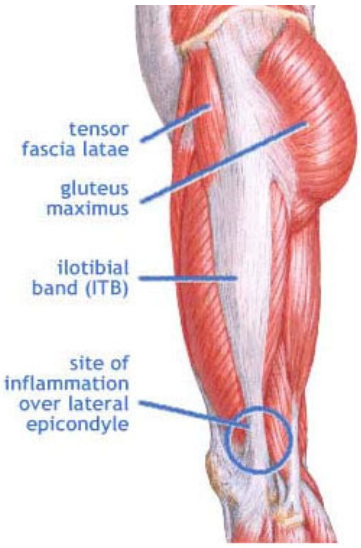
Information and opinions supplied by the staff at UP and RUNNING (Sports Injury Clinics) Ltd

Article 2. Ilio-Tibial Band Syndrome

What is the ITB?

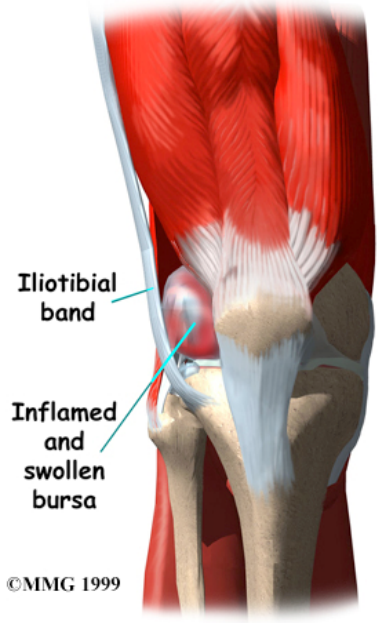
The Ilio-Tibial Band is a thick fibrous tissue (tendon) coming primarily from the Tensor Fascia Latae and Gluteus Medius muscles in the hip and from the hip bone itself (Iliac crest). It inserts into the Tibia just below the knee joint with some fibres attaching to the Patella (knee cap). [4. 6. 7. 8. 9. 13.]

(UpMyBlog, 2013)



What is ITB Syndrome?

Ilio-Tibial Band (ITB) Syndrome is a common affliction particularly affecting runners, cyclists and walkers but can affect anyone and is usually felt in the lateral (outside) thigh area between the hip and the knee. [1. 2. 5. 6. 10.] ITB Syndrome affects the lateral epicondyle of the Femur (thigh bone) as in the diagram below. This is due to friction of the ITB as it flicks over the femoral condyle (bony protrusion on the outside of the knee) on each stride of the run or turn of the pedal and causes the bursa (a sac of fluid to dissipate the effects of friction) to become inflamed and swollen. [11. 12.] This friction is thought to be because the ITB is tight and does not allow enough tolerance for it to clear the femoral condyle.



What causes ITB syndrome?

As usual there are conflicting theories about this particular injury just as there are conflicting theories of the causes of so many other sporting injuries. A review of the published literature suggests the following could potentially cause ITB Syndrome:

Training issues [5. 6. 7. 10. 14. 15.]

1. Overuse – cyclists, runners, walkers
2. Running downhill or on banked surfaces too much
3. Running too many track workouts in the same direction

Equipment issues [2. 4. 8. 10. 13.]

4. Worn-out shoes
5. Cycling toe-in angle
6. Limited "float" of cleats

Muscle imbalance [3. 8. 11. 12.]

7. Abductor muscles tight/weak/non-firing
8. Gluteus Medius tight/weak/non-firing

Biomechanical factors [1. 10. 13. 14.]

9. High or low foot arches
10. Supination/over-pronation of the foot
11. Uneven leg length
12. Knee Varus (Bow-legged)
13. Knee Valgus (Knock-kneed)
14. Hip abnormality

What can be done about it?

If we take each of the above factors using their numbers and look more closely at them it may help to determine the likelihood of this as a factor for individuals suffering with ITB syndrome.

1. **Overuse** is clearly a factor in that, whatever else might be causing the ITB to be tight, if one did not run, cycle or walk excessively then the pain would not present. That being so one of the remedies might be to reduce the activity levels until such time as the cause can be identified. However, thousands of runners, walkers and cyclists cover vast distances without ever suffering ITB syndrome so overuse alone cannot be the only answer.

2. **Running down-hill or on banked surfaces.** While this activity might increase the symptoms due to the muscle loads on certain muscle groups such as in 7, 8 and 9 above it would take an excessive amount to actually cause this condition in the author's opinion. Try running on flat terrain if you believe this to be a factor but bear in mind that if you already suffer from ITB syndrome, any running will exacerbate the symptoms.

3. **Running bends too often.** As in 2 above it would take an inordinate number of laps to cause ITB syndrome. If this were a factor every track athlete would be suffering, however if you believe this to be a factor change where you run for a while.

4. **Worn out shoes** or wrong shoe type may alter the forces upon landing and could be a causative factor in ITB syndrome. Certainly the way the foot strikes the ground is crucial to the shock forces through the body. Consult the experts at a running store.

5. **Cycling toe-In.** This position may result in excessive strain on the lateral structures of the leg and has the potential for causing ITB syndrome, particularly with the repetitive nature of the cycling action.

6. **Limited "float" of cleats** restricts the range of available movement of the feet and is another possible causative factor in ITB syndrome. In both of these cycling specific factors it is best to consult with a cycling specialist shop or similar.

7. **Abductor muscles tight/weak/non-firing.** The abductor muscles of the leg include the Gluteus Maximus, Medius and Minimus; the Tensor Fascia Latae and other muscles such as the Abductor Longus. If the cause of ITB syndrome is associated with these muscles not firing, being weak or being tight this begs the question why is that so? Tightness, weakness or non-firing are symptoms of something happening elsewhere which in turn cause these conditions. Find the cause and treat it effectively and the muscular symptoms will disappear.

8. **Gluteus Medius tight/weak/non-firing** has been covered above but the Gluteus Medius, along with the Tensor Fascia Latae, are the two foremost muscle origins of the ITB therefore perhaps more so than the other muscles could affect the ITB. As mentioned above however these are symptoms of a problem elsewhere therefore attempting to strengthen, stretch or somehow fire-up these muscles locally will in all probability fail.

9. **High or Low foot arches** are postulated to alter the biomechanical action of running gait which in turn create unwanted actions to correct or re-align the biomechanics. The arguments to support this theory have not yet been proven however a specialist in biomechanics is probably the best person for advice if you are of this persuasion.

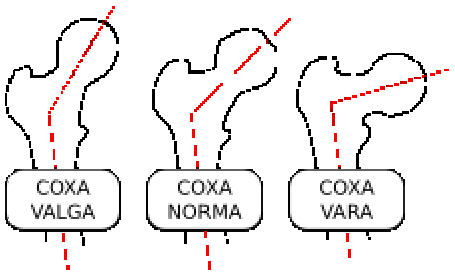
10. **Supination/over-pronation of the foot** both come into a similar category to high or low foot arches whereby the foot action significantly alters biomechanics of the running gait. The research however does not support this theory.

11. **Uneven leg length** will in all probability affect the hip action and could be a causative factor in ITB syndrome. Measuring leg length for discrepancy is relatively easy to do, however be aware that apparent leg length discrepancy can be misleading. It does not necessarily mean that there is a bone length discrepancy or hip angle discrepancy (see hip abnormality below) as muscles can, and often do, cause the pelvis to rotate which in turn alters the apparent leg length. If you believe you may have a leg length discrepancy then go to a Graduate Sports Therapist, Physiotherapist or other appropriate medical professional who should be able to advise.

12. **Knee Varus (bow legged)** may be a factor in ITB syndrome. Knee Varus can be congenital or acquired. If it is acquired then there are probably other factors which need to be taken into account so seek the advice of a Graduate Sports Therapist or Physiotherapist or other appropriate medical professional.

13. **Knee Valgus (knocked Knees)** would seem less likely to cause ITB syndrome but like knee varus should be checked by an appropriate medical expert.

14. **Hip abnormality.** There are various hip conditions both congenital and acquired that may lead to ITB syndrome. Common amongst these are hip dysplasia, femoral neck angle alignment (see diagram below) and Osteoarthritic changes. All of these conditions require appropriate medical advice before continuing with activity.



(Addingrefs, 2009)

Differential diagnosis (What else could it be?) 2. 15.

Biceps femoris tendinopathy
Degenerative joint disease
Lateral collateral ligament sprain
Lateral meniscal tear
Myofascial pain
Patellofemoral stress syndrome
Popliteal tendinopathy
Referred pain from lumbar spine
Stress fracture
Superior tibiofibular joint sprain

The Author's view

ITB syndrome has a number of potential causes. If the cause can be found then the treatments will be more effective. Too often therapists of all persuasions treat just the symptoms. By all means treat the symptoms of inflammation and pain but also find out why it is rubbing otherwise it will just return.

Massaging the ITB is one such "treatment" that seems to be both futile and painful. The ITB is a thick, pretty much non-elastic band that comes off muscles in the hip and the hip bone itself. It is probable that the tightness in the muscles from which the ITB comes causes a tension in the ITB, but why are the muscles tight in the first place?

As mentioned in previous articles apart from pathological conditions there are primarily three reasons for muscle tension; overuse; injury to a muscle; or altered signals to the muscles. If it is the latter then the cause may not be obvious and the opinion of an expert should be sought.

Up and Running (Sports injury Clinics) Ltd are experts in the treatment and management of sports injuries and can be contacted on 02392664748 or via their website at www.upandrunning.org

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