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Iliotibial Band Friction Syndrome (ITBFS) Knee Pain And Sports Massage Therapy

by Allen Galante, Licensed Massage Therapist

Case Study And Introduction

Recently, a football player scheduled an appointment for knee pain, caused by Iliotibial Band Friction Syndrome. Before seeing me, he had tried cortisone shots, physical therapy and truncated practice time, none of which fully relieved his symptoms. When I asked him what his pain was on a scale from one to ten, he reported a pain level of nine. His pain was of such intensity that he was curtailing practice time in order to avoid it. Having never received a massage, he scheduled with me (upon the suggestion by his physical therapist that massage might help reduce the pain level).

While I was considering the best approach for this client, two elements from my training came to mind. Initially counter-intuitive, these two points make perfect sense with a proper understanding of myology, anatomy and physiology. They are: (1) Symptoms are often the effect of a deeper root cause (in this case, his right knee pain indicated the causes might range anywhere from the foot to the lower back) and (2) treating the unaffected side (in this case the left leg) is always performed initially to assess and inform massage treatments for the affected side. With this in mind, I proceeded to research ways to help this player both stay in the game and stay healthy.

The client had done his research; he wanted daily massage treatments until the pain subsided and he could resume his high-performance games. After five consecutive days of therapeutic massage

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treatments, he described the pain level reduced from nine to two. Subsequently, he received massage treatments between practices and games, three times per week for two more weeks and then two times per week for a month. During this time, he began using a knee compression strap during practice, which further helped to alleviate the pain.

My research reveals that Iliotibial Band Friction Syndrome is a common source of knee pain, often caused by a sports injury or ongoing repetitive-stress or a result of over-exercise. Iliotibial Band Friction Syndrome research suggests conservative treatments, such as therapeutic massage, for at least three months prior to consideration of invasive alternatives. Specifically, “conservative therapy should be employed for 3 months before surgery, but most patients for whom surgery is necessary have had symptoms for more than 9 months”⁽³⁾. Licensed Massage Therapists employ various techniques, including medical massage and sport massage therapies, to alleviate the tightness and pain caused by Iliotibial Band Friction Syndrome. In this article, I will describe Iliotibial Band Friction Syndrome symptoms, causes, diagnosis, and the best client approach for therapeutic massage treatments (incorporating Swedish massage, therapeutic massage, and sports massage therapy).

Synonyms and related keywords for Iliotibial Band Friction Syndrome are:

“ITB syndrome”, “iliotibial band tendonitis”, “trochanteric bursitis”, and “lateral knee pain.”

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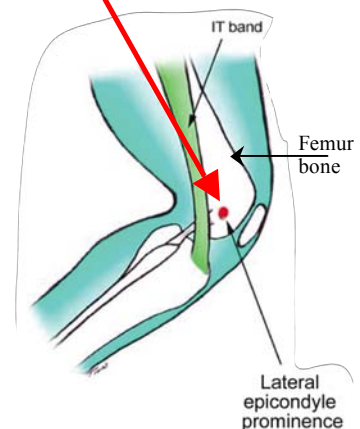
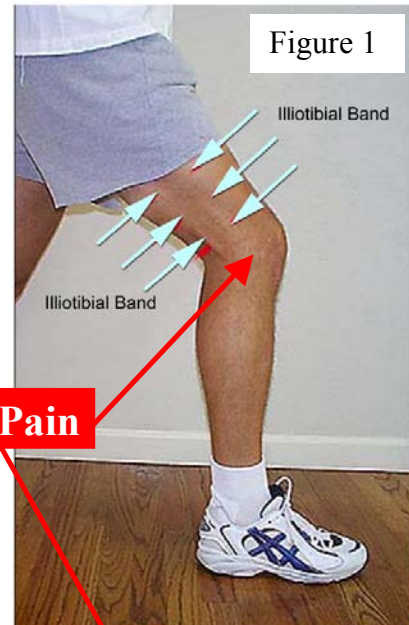
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Symptoms / Presenting Complaints

Most often, a person with Iliotibial Band Friction Syndrome will have a tight iliotibial band (refer to Figure 1). Pain from Iliotibial Band Friction Syndrome is usually localized to the knee area where the IT Band passes over a prominence (bump) on the femur near the knee joint called the lateral femoral condyle (lateral = side; femoral = femur; condyle = knuckle or rounded articular area). Less often, pain can be located at the hip in the area of the greater trochanter (located laterally/side and slightly posterior/back) of the femur bone.

“Pain is aggravated by repetitive flexion of the knee and is relieved by walking stiff-legged. Running downhill and on banked surfaces aggravates the pain, which is most intense at heel strike. Crepitus (grating, crackling or popping sounds in joints) or pitting edema (swelling) sometimes is found over the lateral femoral epicondyle

during knee flexion. Snapping over this area also may be felt



Illustrations of the friction point at the lateral epicondyle prominence ⁽²⁾.



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during knee flexion” (6 parenthesis added)

Etiology (Medical Causes)

Typically, Iliotibial Band Friction Syndrome is a result of vigorous exercise and repetitive flexion and extension of the knee joint (for example, long distance running). Some typical sport activities that cause or exacerbate Iliotibial Band Friction Syndrome are running, cycling, soccer, hiking or weightlifting (especially squats). “Other factors frequently reported are the following:

- Limb length discrepancy (different length legs)
- Genu varum (bowlegs)
- Overpronation (causing the sole of the foot to face more laterally/sideways)
- Hip abductor weakness (see Appendix A for hip abductor muscles)
- Myofascial restriction (a limitation of loose but strong connective tissue)” (1 parenthesis added)

Cause may be determined through postural assessment, gait assessment, and palpation by a licensed massage therapist.

In assessing the client, it is important to remember that knee pain does not always originate at the knee.

In the case of Iliotibial Band Friction Syndrome, the knee pain is often caused by either tightness or trigger points (TrPs) in muscles of the hip and upper leg. Refer to Appendix A: Muscles And Soft-tissue

Potentially Effected By Iliotibial Band Friction Syndrome to commonly effected muscles: gluteus maximus, gluteus medius, gluteus minimus, tensor fascia latae, piriformis and sartorius. A licensed

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massage therapist may utilize trigger point therapy techniques to relieve congested muscle areas (refer to “Client approach as a massage therapist” below).

Methods Of Diagnosis

Two orthopedic tests help in diagnosis of ITBFS: the Ober test and the Noble compression test. A license massage therapist may perform these tests to indicate a positive or negative result. MRI can illustrate inflammation and confirm Iliotibial Band Friction Syndrome diagnosis. Absent MRI, diagnosis of Iliotibial Band Friction Syndrome is by process of elimination. Other conditions often exhibit similar symptoms. In addition to possible muscle sprains or strains in various muscles of the hip and leg, following are **other problems that exhibit similar symptoms** ^(3,4):

- Anterior cruciate ligament tear, with or without posterolateral corner injury
- Chondromalacia patellae
- Common peroneal nerve injury
- Degenerative joint disease
- Femoral stress fracture
- Gastrocnemius strain or tear
- Herniated disk, with radiating lateral thigh pain
- Infection
- Knee pain
- Lateral femoral condyle bone bruise
- Lateral femoral condyle cartilage injury
- Lateral meniscus tear
- Neoplasm
- Patellofemoral pain syndrome
- Plica syndrome
- Popliteus tendon injury

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- Posterolateral corner injury
- Proximal tibiofibular joint injury
- Tendinitis (biceps femoris, vastus lateralis, and popliteus)

“Restriction in hip adduction indicates tightness in the ITB and tensor fascia lata. In evaluating for Iliotibial Band Friction Syndrome (Iliotibial Band Friction Syndrome), also look for restrictions in iliopsoas, rectus femoris, gastrocnemius, and soleus function (these are various muscles of the hip and leg that a licensed massage therapist can examine and treat). Examination usually reveals restriction of hip adduction and weakness of the hip abductors, specifically the gluteus medius”^(4 parenthesis added). These restrictions may be loosened by therapeutic massage techniques discussed below.

Client Approach As A Massage Therapist

The main goal of treatment is to reduce the friction of the iliotibial band on the lateral femoral epicondyle and reduce any associate inflammation. **CAUTION: Some massage therapists will erroneously recommend deep transverse friction. Seek a second opinion before taking this approach.** “Schwellnus et al. (1992) concluding that the addition of deep friction massage did not alter the therapeutic outcome of the condition. In addition, Schwellnus commented that, “it seems contradictory that friction techniques may be beneficial in an injury where the mechanism of the injury is friction”⁽⁷⁾.

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The main tool available to a licensed massage therapist is touch. Therapeutic Swedish massage may help alleviate trigger points (refer to Appendix B: Trigger Points Of Hip And Thigh), lengthen muscles, and regain range of motion and biomechanics for optimal athletic performance. “Soft tissue mobilization and massage techniques may be used to assist with lengthening of the sore ITB... Massage should generally be performed with the ITB in a lengthened state”⁽³⁾.

During the sub-acute phase (between acute and chronic) of Iliotibial Band Friction Syndrome any of **the following treatment recommendations may be included in a therapeutic massage session:**

- **“Stretching exercises:** Begin after inflammation subsides. Restoring proper range of motion in the hip flexors (iliopsoas and quadriceps), hip extensors (gluteus maximus, hamstrings), hip abductors (gluteus medius, tensor fascialata), and, most importantly, the hip adductors is crucial to restoring overall hip function.
- **Myofascial therapy** [soft tissue therapy]: Direct treatment on trigger points and loosen restrictions along the iliotibial band (ITB). Target areas include over the lateral femoral condyle and greater trochanter.
- **Manipulative [Massage] therapy:** Effective in treating areas of restriction and repairing the biomechanical flaws that led to the Iliotibial Band Friction Syndrome. Muscle energy techniques

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can be safely applied to the tensor fascia lata, hip flexors, and piriformis muscles to restore ranges of motion in hip adduction, extension, and internal rotation. Attention should be paid to lumbosacroiliac mechanics to ensure resolution of any dysfunction there. Anterior or posterior rotational innominate (iliac) dysfunctions affect the origin of the tensor fascia lata and can delay recovery if left untreated. Other specific areas to address with manipulation include the T12-L1 vertebral segments (origin of the iliopsoas) and the fibular head (partial insertion point of the ITB). In fact, fibular head dysfunction (either anterior or posterior rotation) cannot only contribute to Iliotibial Band Friction Syndrome but can mimic it as well” (4 brackets added).

In addition to the above treatment techniques, a licensed massage therapist will free the iliotibial band from tightness with a slow methodical softening and adhesion separation approach. “The biggest complaint that some clients express for work in this area is that the therapist moves too fast and exerts pressure directly into the femur rather than obliquely”⁽⁸⁾. Working with the client in a side-lying position will extend the IT band in a stretched position and allow the therapist to “grab the IT Band and rotate it around the leg to free it from deeper adhesions”⁽⁸⁾. Adhesions can cause various compartments of muscle to adjoin incorrectly. These techniques, accompanied by precise work along each border of the IT Band, may release and separate these compartments to avoid the IT band from being pulled too far laterally/sideways.

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Stretching And Massage Therapy For Iliotibial Band Friction Syndrome

According to the New York State Education Department Office of the Professions Massage Therapy Unit, “stretching is within the guidelines of providing professional massage if it relates to massage and if it is for the betterment of the massage treatment”⁽⁹⁾. For Iliotibial Band Friction Syndrome, stretching and loosening the iliotibial band, hip rotator muscles (such as piriformis), and gluteal muscles (attached to the IT Band) may help release restrictions and tightness associated with knee pain. For illustrations of these stretches refer to Appendix C: Massage Stretches for Iliotibial Band Friction Syndrome.

Outside of therapeutic massage treatment, “treatment consists of altering the initiating activities, controlling inflammation, correcting abnormal biomechanics, strengthening and stretching the involved muscle groups, and modulating the return to activity. Inflammation may be diminished by using NSAIDs or, in some cases, steroid injections. Orthotics and shoe wear modifications are helpful for athletes with structural problems. Hip abductor strengthening exercises and ITB stretching exercise are essential to avoid re-injury. Resumption of running should be gradual. Surgical therapy is usually not necessary”⁽⁵⁾.

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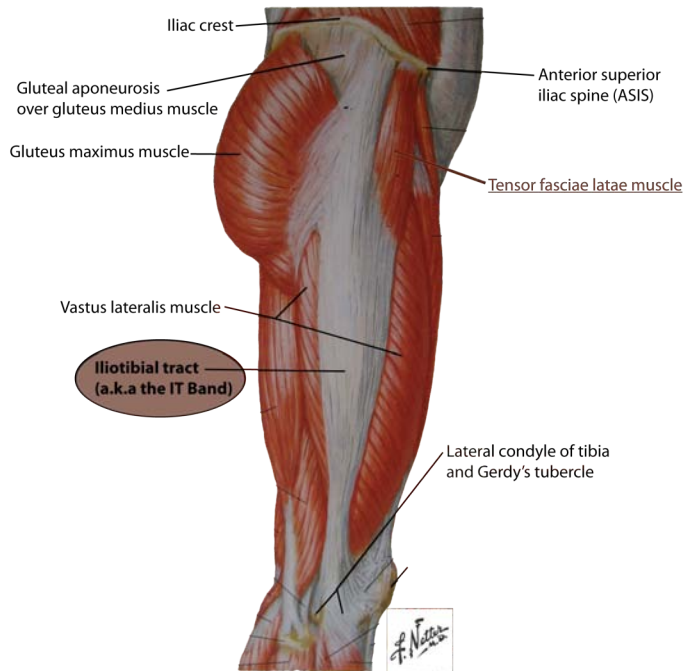
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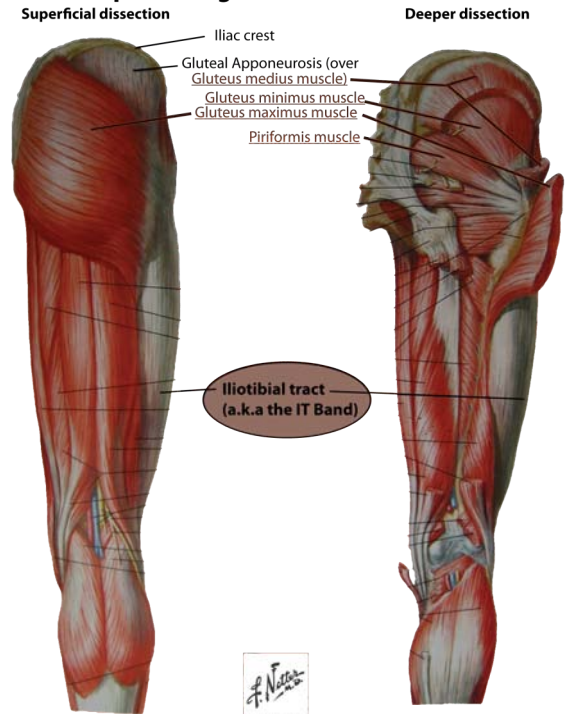
Appendix A: Muscles And Soft-tissue Potentially Effected By Iliotibial Band Friction Syndrome (2)

Key muscles underlined below often correlate with Iliotibial Band Friction Syndrome. These muscles perform hip abduction which assists in moving the leg laterally/sideways away from the body.

Muscles of Hip and Thigh: Lateral View



Muscles of Hip and Thigh: Posterior View





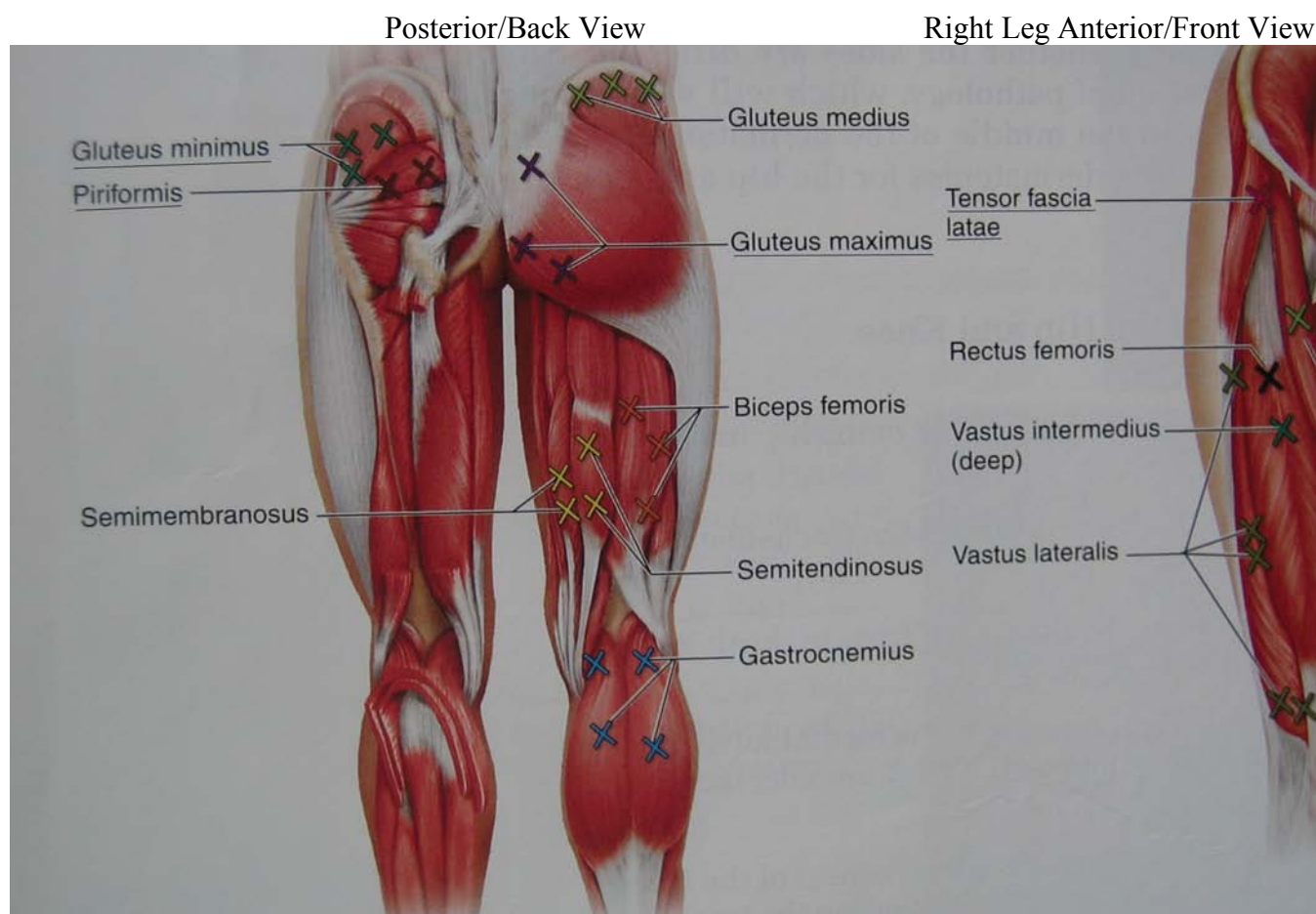
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Appendix B: Trigger Points Of Hip And Thigh ⁽¹⁾

Key Muscle Trigger Points (TrPs) underlined below correlated with Iliotibial Band Friction Syndrome:



A licensed massage therapist is fully trained in the treatment and loosening of these congested muscle areas (called Trigger Points) by a technique called Trigger Point Therapy.

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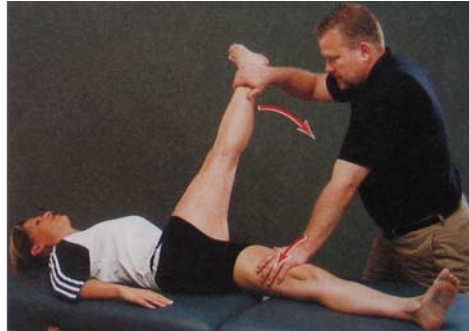
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Appendix C: Massage Stretches For Iliotibial Band Friction Syndrome ⁽¹⁾



Iliotibial Band Stretch – Phase I



Iliotibial Band Stretch – Phase II



External Hip Rotator Stretch



Internal Hip Rotator Stretch



Piriformis Stretch



The Pigeon Yoga Pose



Gluteus Maximus Stretch

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Resources:

(note: case study details are changed to maintain client privacy).

Books:

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2. Frank H. Netter, MD (2006). "Atlas of Human Anatomy 4th Edition." Philadelphia, Pennsylvania. Saunders-Elseviers.

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6. Carrie Ann Lucas, EMT (1992) Iliotibial Band Friction Syndrome as Exhibited in Athletes; Journal of Athletic Training Volume 27 a Number 3.
7. Schwellnus M, Theunissen L, Noakes T, Reinach S. Anti-inflammatory and combined anti-inflammatory/analgesic medication in the early management of Iliotibial Band Friction Syndrome. South African Medical Journal 1991;79:602-6.

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8. Art Riggs Connections: Treating the Knee and Lower Extremities. Massage & Bodywork, November/December 2008.

Other resources:

9. Chad Cassells e-mail to Allen Galante from the New York State Education Department Office of the Professions Massage Therapy Unit (E-mail dated August 23, 2010).

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