**Stretching routine.** I have

**Recommendation for appropriate training limits.** For

**A recommendation to use appropriate arch supports as**

**A recommendation to change running shoes every 300-500**

**Implementation of a strength**

**mobilization techniques for a painful muscle/tendon.**11

**shown to be one of the best**

**(30-60 seconds), with short**

**exercises should be progressed**

**quadriceps, adductors, ITT ,**

**improving flexibility through**

**that a leg workout can be**

**at least 40 hours not before or**

**Stretches.** I have

**Recommendation to stop training**

**heart rate is recommended to improve anaerobic capacity.**

**should be limited to a pace that requires 65-75% maximum**

**the knee to withstand future increased stress loads.**

**65%-75% maximum heart rate needs to be established.**

**marathon runners, initially a training base of four miles at**

**2005. ©2005 Dubin Chiropractic**

**REFERENCES**

**ABOUT DICHROIC ART**

Dubin Chiropractic specializes in the treatment of sports, work, and**

**musculoskeletal injuries.** Dr. Dubin, a member of the American Medical

**Tennis**, and the American Academy of Orthopedic Surgeons. In addition, he**

**muscle**

**ABSTRACT:**

**Iliotibial Band Friction Syndrome**

**running.** It has been estimated**

**injury is shifting from a running injury to a training**

**is particularly common in long distance runners. Certain**

**if you're a runner, you may be training for a**

**IT Band Syndrome.**

**condition affecting predominantly long-distance runners. A home**

**and/or surgery.**

**can aid in the treatment and prevention of further injury.**

**conditioning routine and modified training recommendations**

**to relieve symptoms.**21 Based on clinical experience and as**

**The fascia lata, originating from the iliac crest of the**

**Fascia is a sheath-like tissue that surrounds muscles**

**Evidence Based**

**Review of Literature**

**Dichroic**

**Dubin Chiropractic**

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LOWER LEG BIOMECHANICS WITH RUNNING

The Iliotibial Band (ITB) is a fibrous band that runs from the ilium to the lateral side of the knee, running down the leg in a curved band. It is innervated by the femoral nerve and is closely associated with the gluteus maximus muscle. The ITB helps in the absorption of shock and provides a lever for movement. It is composed of fascia and muscle fibers, and its function is to guide and stabilize the patella.

INTRODUCTION

The ITB acts as a shock absorber during running, absorbing impacts and helping to maintain the mechanical congruence of the knee joint. It is also involved in the control of knee flexion and extension, as well as in the prevention of knee pain and injury. The ITB is made up of a thick, fibrous band that runs from the iliac crest to the lateral femoral epicondyle (LFE). It is attached to the lateral collateral ligament and the anterior capsule of the hip joint, and it helps to stabilize the knee joint during movements.

CLINICAL PRESENTATION AND PATHOGENESIS

ITB syndrome (ITBS) is a common overuse injury that affects runners and people who perform activities that involve repetitive knee flexion and extension. The syndrome is characterized by pain and tenderness along the ITB, as well as pain referred to the knee or hip. It is often associated with running or other activities that involve repetitive stressing of the ITB. The pain is usually located in the lateral aspect of the knee, and it may also extend into the hip and buttock.

The pathogenesis of ITBS is multifactorial and involves a combination of biomechanical factors, muscle imbalances, and other risk factors. The biomechanical factors that contribute to ITBS include excessive pronation, excessive supination, and excessive internal or external rotation of the lower extremity. Muscle imbalances, such as weakness or tightness of the hip and lower extremity muscles, can also contribute to ITBS. Other risk factors include poor running form, shoes that do not provide adequate support, and training errors.

THERAPEUTIC APPROACHES

The therapeutic approach to ITBS should be individualized and may include a combination of non-pharmacological and pharmacological interventions. Non-pharmacological interventions may include rest, modification of activity, ice, compression, and elevation. Pharmacological interventions may include anti-inflammatory medications, topical analgesics, and referral for physical therapy.

PROGNOSIS

The prognosis for ITBS is generally good with appropriate management. With proper treatment and lifestyle modifications, most individuals can return to their normal activities within a few weeks or months. However, some individuals may experience persistent symptoms or have a relapse if they do not make lifestyle changes or modify their activity level.

REFERENCES

The ITT and greater trochanter is a bursa, a fluid-filled sac that prevents friction between the vastus lateralis muscle and the greater trochanter. This bursa is essential for allowing the vastus lateralis muscle to slide over the greater trochanter during the knee flexion and extension movements. The ITT consists of various layers, including a synovial membrane that lines the internal aspect of the bursa, a synovial fluid that acts as a lubricant, and a thin outer layer of connective tissue that protects the bursa from external forces.

Injury to the ITT can occur due to various factors, such as repetitive microtrauma or overuse, leading to inflammation and pain. The symptoms of ITBFS may include pain, swelling, and tenderness in the lateral side of the knee, especially during activities that involve running or jumping. The cause of this condition is often attributed to repetitive stress on the ITT, which can be induced by various factors, such as improper running form, overpronation, or excessive loading on the ITT during activities.

It is essential to understand the factors contributing to ITBFS and the appropriate management strategies to prevent further injury and improve functional outcomes. The treatment options for ITBFS can include a combination of strategies, such as rest, ice, compression, and elevation (RICE), anti-inflammatory medications, physical therapy, and adaptive training techniques. Proper rehabilitation and training interventions, including flexibility and muscular strength exercises, can help minimize the risk of ITBFS and improve pain and functional outcomes.

In conclusion, understanding the anatomical and biomechanical aspects of the ITT and its relationship with the knee joint is crucial for managing ITBFS effectively. Early diagnosis, proper management, and targeted interventions can improve outcomes and reduce the risk of recurrence. The management of ITBFS requires a multidisciplinary approach involving physical therapists, orthopedic specialists, and other healthcare providers to comprehensively address the needs of the individual patient.
Lower Leg Biomechanics with Running

The distal extension of the ITT (iliotibial tract) crosses into two structures, the iliopatellar band and a distal extension of the ITT. The distal extension of the ITT is a bursa, a fluid filled sac on the outer aspect of the femur, the lateral femoral epicondyle, the vastus lateralis musculature, and through passage of the ITT and greater trochanter is a bursa, a fluid filled sac on the knee joint. This bursa prevents irritation and friction of the ITT over the greater trochanter.

The distal extension of the ITT includes the iliotibial (IT) tract which is a fascial band that runs from the anterior superior iliac spine down the lateral aspect of the thigh. It is also connected to the lateral aspect of the knee joint and attaches to Gerdy’s tubercle, a bump on the proximal patellar tendon. The distal extension of the ITT is involved in abduction and lateral rotation of the thigh and is also involved in maintaining the alignment of the knee joint. The distal extension of the ITT incorporates bursae, a fluid filled sac, that prevents irritation and friction of the ITT over the greater trochanter.

Lower Leg Biomechanics with Running

During normal activity, the patella moves up and down on the femur, a process that is also called patellar tracking. The patellar tendon, a thick connective tissue, attaches the quadriceps muscles to the patella. The patellar tendon is also involved in movement of the knee joint. The patellar tendon runs from the quadriceps muscle to the tibia and helps to transmit the force of the quadriceps to the lower leg and foot. The patellar tendon is also involved in jumping, running, and other activities that involve a rapid change in direction.

PATIENT EVALUATION FOR ITBFS

1. Worn out running shoes. A sneaker loses approximately 50% of its ability to absorb ground reactive forces after 300-500 miles (14). The more worn out the shoe, the more ITBFS and other conditions that refer pain to the outside of the knee, such as bicipital tendonitis, popliteus tendonitis, ITBFS and other conditions that refer pain to the outside of the knee, such as bicipital tendonitis, popliteus tendonitis, knee effusion, and increased stresses. Inappropriately increasing the intensity, duration, or style of the running program can also increase ITBFS.

2. Training programs that increase mileage or incorporate hills, hills, and increased frontal plane movement patterns of the lower extremity (Figure 8).1,42 This modified gait has been noted in athletes who had acute or sub-acute clinical symptoms of ITBFS.41

3. Running at an improper pace. Placing too much strain on the foot can lead to injury (Figure 9).1,12,38,43,44,45

4. Improper running surfaces. Running on surfaces like concrete, asphalt, or cement can increase the strain on the foot and lead to ITBFS.

5. Extrinsic risk factors may include: Ankle pronation (foot varus, and pes planus) (Figure 10). Ankle pronation can increase the strain on the foot and lead to ITBFS.

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APPRAISABLE TREATMENT OF A GRADE 1 OR 2 Iliotibial Bands (ITB) VS Grade 3 Pain will consist of:

• Manual adjustments to the foot and leg, as well as manipulation for proximal segments of the lower limb.

• Deep tissue procedures, such as the McKenzie Techniques (manual therapy) that may include soft tissue mobilization and myofascial release.

• Stretching exercises designed to improve joint and soft tissue elasticity, core strength, and decreasing tightness of the posterior leg muscles.

• Intraarticular injection of cortisone and local anesthetic for grade 3 pain.

• Physical therapy to restore normal muscle tone, help in the release of tension, and improve flexibility. The goal of physical therapy is to improve function and return the athlete to a pain-free state.

• Appropriate treatment may be necessary.

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Stretching routine. I have intermittent contractions of and external rotators of the hysteresis/creep. The flexibility muscle soreness, as well as or after a long run. When pain free training marathon training schedule consists of 3 shorter runs increased load placed on the knee joint. The average Hill training should be added gradually because of the heart rate is recommended to improve anaerobic capacity. During the week, should be limited to a pace that requires 65-75% maximum Long training runs, usually done on the weekend, the knee to withstand future increased stress loads. That allows for adaptation of the supporting structures of that is impinging on the LFE. When necessary, may involve lengthening the ITT and re-injury. Sometimes ITBFS is resistant to conservative treatment therapies at Dubin Chiropractic include innovative muscle USA International Triathlon Union Duathlon/Triathlon medical staff. Since 1996 we have been a part of the Team accident-related injuries. Since 1996 we have been a part of the Team

CONCLUSION

ILIOITIBAL BAND FRICTION SYNDROME

ITBFS occurs at a particular distance of each training run, probably")

ABOUT DICHROPIRATUR

Dr. Dubin is a chiropractor that specializes in the treatment of sports, work, and recreational-related injuries. Since 1988 he has been a part of the Team USA International Triathlon Union Duathlon/Thalittic medical staff under the direction of Dr. Richard Hargrave. Dichropractic includes a variety of treatment techniques such as Arthro Release Technique and Graston Technique.

Dr. Dubin Chiropractic accepts most health insurance plans.

CONTACT

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Evidence Based Treatment for Iliotibial Band Friction Syndrome

Review of Literature

ABSTRACT:
The iliobial band friction syndrome (ITBFS) is an adaptive response to repetitive shearing forces caused by the friction between the iliotibial band (ITB) and the lateral femoral epicondyle (LFE). The ITB is a fiber束 that is formed in group training; no other cardiovascular activity, and a slower progression of weight training and activity, and a slower progression of weight training and activity, and a slower progression of weight training and activity.

If not for your excellent care of my lower back, I would not be able to compete at the same level that I could successfully have helped me to alleviate the pain. If not for your excellent care of my lower back, I would not have been able to climb the 3,000 foot mountain, overlocking this beautiful Italian countryside. When I saw in pain in may not thought something like this would ever be possible. You made my dream come true. You are a miracle worker. Thank you so much!

ITBFS, and the biomechanics of the ankle, tibia and knee risk factors that predispose long distance runners to ITBFS, especially runners who are new to running or who are running during the stances phase of pain.

ANATOMY OF THE ITIOTIBIAL BAND

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