Iliotibial Band Syndrome in Runners

*Quick Reference Guide for Physical Therapists*

|  |  |
| --- | --- |
| *Topic* | *Description* |
| Pathophysiology in Runners | * Overuse injury of lateral knee; usually presents with insidious onset1
* 2nd most common cause of all knee pain in runners; most common cause of lateral knee pain in runners2,3
* Exacerbated in stance phase with knee in approximately 20-30o flexion3
* Increased tension of ITB especially with eccentric contraction of Gluteus Maximus (GMax) and Tensor Fascia Lata (TFL) results in friction and compression of ITB over lateral femoral epicondyle (LFE)3,4
 |
| Anatomy and Biomechanics | * The ITB is a dynamic structure; spans iliac crest to Gerdy’s Tubercle2
* The GMax and TFL insert into the ITB and exert forces through it2
* During the gait cycle, the ITB translates across the LFE which may cause frictional abrasion5
* There are two different biomechanical theories: the friction/impingement theory and the compression theory – however, the bottom line is excessive tension in the ITB that causes pain and inflammation at the LFE2,6,7
 |
| Risk Factors | * Increased knee internal rotation (IR) and tibial IR during stance phase1,3,4
* Increased hip adduction during stance phase1,3,4
* Hip abductor weakness8
* Running style, shoe wear, running frequency and distance, running surface1,4,5
* Excessive foot pronation or forefoot varus1,5
 |
| Differential Diagnosis9 | * Biceps Femoris Tendinopathy
* LCL Sprain
* Lateral Meniscus Pathology
* Patellofemoral Pain Syndrome
* Popliteal Tendinopathy
 | * Degenerative Joint Disease (OA)
* Myofascial Pain Syndrome
* Referred Pain from L-Spine
* Stress Fracture
* Superior Tibiofibular Joint Sprain
 |
| Evaluation/Assessment5,10 | * Gait Assessment/Running Mechanics
* Shoe Wear – worn-out or inappropriate for biomechanics
* Strength
* Flexibility
 | * Neurological Testing
* Palpation
* Foot/ankle biomechanics
* Special Tests
	+ Ober’s Test
	+ Noble’s Compression Test
 |
| Interventions | * Acute Phase – reduce pain and inflammation; rest; activity modification2,4,10,11
* Subacute Phase – address biomechanical abnormalities (stretching ITB *if* it is tight, stretching TFL and GMax, myofascial release)2,10,11
* Recovery/Strengthening Phase – graded strengthening exercise program2,11
* Return to Running Phase – gradual return over 3-4 weeks; running every other day; slowly increase frequency/distance/intensity; monitor pain2,11,7
 |

**References:**

1. Louw M, Deary C. The biomechanical variables involved in the aetiology of iliotibial band syndrome in distance runners - A systematic review of the literature. *Phys Ther Sport*. 2014;15(1):64-75. doi:10.1016/j.ptsp.2013.07.002.

2. Baker RL, Fredericson M. Iliotibial Band Syndrome in Runners. Biomechanical Implications and Exercise Interventions. *Phys Med Rehabil Clin N Am*. 2016;27(1):53-77. doi:10.1016/j.pmr.2015.08.001.

3. Aderem J, Louw QA. Biomechanical risk factors associated with iliotibial band syndrome in runners: a systematic review. *BMC Musculoskelet Disord*. 2015;16:1-16. doi:10.1186/s12891-015-0808-7.

4. Van der Worp MP, Nijhuis-Van der Sanden MWG, Backx FJ, de Wijer A. Iliotibial band syndrome in runners: a systematic review. *Sport Med*. 2012;42(11):969-992.

5. Hertling D, Kessler RM. Chapter 15: Knee. In: *Management of Common Musculoskeletal Disorders: Physical Therapy Principles and Methods*. Fourth. Philadelphia, PA: Lippincott Williams & Wilkins; 2006.

6. Fairclough J, Toumi H, Best TM, et al. The functional anatomy of the iliotibial band during flexion and extension of the knee: implications for understanding iliotibial band syndrome. *J Anat*. 2006;208(3):309-316. http://dialnet.unirioja.es/servlet/extart?codigo=1450980.

7. Orchard JW, Fricker PA, Abud AT, Mason BR. Biomechanics of Iliotibial Band Friction Syndrome in Runners. *Am J Sports Med*. 1996;24(3):375-379. doi:10.1177/036354659602400321.

8. Mucha MD, Caldwell W, Schlueter EL, Walters C, Hassen A. Hip abductor strength and lower extremity running related injury in distance runners: A systematic review. *J Sci Med Sport*. 2016;(2016):1-7. doi:10.1016/j.jsams.2016.09.002.

9. Khaund R, Flynn Sharon H. Iliotibial Band Syndrome: A Common Source of Knee Pain. *Am Fam Physician*. 2005;71(8):1545-1550. http://www.ncbi.nlm.nih.gov/pubmed/15864895.

10. Lavine R. Iliotibial band friction syndrome. *Curr Rev Musculoskelet Med*. 2010;3(1-4):18-22. doi:10.1007/s12178-010-9061-8.

11. Fredericson M, Weir A. Practical management of iliotibial band friction syndrome in runners. *Clin J Sport Med*. 2006;16(3):261-268. doi:10.1097/00042752-200605000-00013.