

Iliotibial Band Anatomy And Biomechanics, Implications For The Treatment Of Iliotibial Band Syndrome

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BACKGROUND: Iliotibial band (ITB) syndrome (ITBS) is a common cause of lateral lower limb pain in athletes.[1, 2] Many treatments focus on stretching the ITB and treating local inflammation at the lateral femoral condyle (LFC).[3-6] This study was planned to examine the anatomy underpinning these treatments.

METHODS: Gross anatomical studies of 20 embalmed cadavers that examined origins, insertions and significant attachments of the ITB were performed. The strain generated in the ITB by three typical stretching manoeuvres (Obers test: OBER, Hip flexion, adduction and external loading: HIP, Straight leg raise: SLR) was measured in 5 unembalmed cadavers using foil-type strain gauges. An ultrasound assessment of the Tensae Fasciae Latae (TFL)/ITB aponeurosis interface was performed on 20 professional athletes during a functional task designed to induce strain in the ITB providing *in vivo* measurement of actual displacement.

RESULTS: The ITB was in all cases a lateral thickening of the circumferential fascia lata. It was firmly attached to the femur along the linea aspera from greater trochanter up to and including the LFC. No bursa between the ITB and femur was demonstrated. The microstrain values (median (IQR)) for the OBER (15.4(5.1-23.3) me), HIP (21.1(15.6-44.6) me) and SLR (9.4(5.1-10.7) me) showed a marked disparity in the optimal inter-limb stretching protocol. HIP stretch invoked significantly ($Z=2.10$, $p=0.036$) greater strain than the SLR trial. The TFL/ITB junction displacement during the MVC was 2.0 ± 1.6 mm, mean ITB lengthening was less than 0.5% (effect size=0.04).

CONCLUSION: The gross anatomical dissections and the use of modern methods of measuring strain and stretch question the anatomical and biomechanical basis for a number of current treatments for ITBS.

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