ABSTRACT

**Background:** Due to the lack of verifiable iliotibial band elongation in response to stretching, the anatomical, biomechanical, and physiological responses to treatment of iliotibial band syndrome remain unclear. The lateral intermuscular septum, consisting of multiple myofibroblasts, firmly anchors the iliotibial band to the femur.

**Purpose and Hypothesis:** The purpose of this in-situ study was to examine the constraining effect of the lateral intermuscular septum on available passive hip adduction range of motion in un-embalmed cadavers. It was hypothesized that an iliotibial band-septum-complex release would significantly increase passive hip adduction.

**Design:** Within-specimen repeated measures in-situ design.

**Setting:** Anatomy laboratory.

**Methods:** Metal markers were inserted into selected anatomical landmarks in eleven (11) un-embalmed human cadavers. With the specimen supine, the test-side lower limb was passively adducted until maximum passive hip adduction was reached. This movement was repeated three times each within two conditions: (1) band-septum-complex intact and (2) band-septum-complex dissected. Digital video of marker displacement was captured throughout each trial. Still images from a start and an end position were extracted from each video sequence. A custom Matlab program was used to calculate frontal plane hip adduction angle changes from obtained images.

**Results:** Mean change in passive hip adduction after band-septum-complex release was -0.3° (SD 1.6°; 95% CI: -1.33, 0.76). A paired samples t-test revealed a non-significant difference (t=-.611; p=.555) in passive hip adduction for the band-septum-dissected condition (18.8±3.9°) versus the band-septum-intact condition (18.5°±4.7°).

**Conclusion:** The lateral intermuscular septum does not appear to have a constraining effect on passive hip adduction in un-embalmed cadavers. Future research should evaluate the constraining effect of other selected tissues and conditions on hip adduction. Furthermore, inflammatory, metabolic, viscoelastic, and sensorimotor control properties within the iliotibial band in response to stretching should be investigated.

**Level of Evidence:** 3

**Key words:** Hip adduction, iliotibial band, lateral intermuscular septum, selected cutting.