

Citation: Pepper T, Brismee JM, Sizer PS, Kapila J, Seeber G, Hooper TL. The immediate effects of foam rolling and stretching on iliotibial band stiffness: a randomized control trial. 2019.

Context: Iliotibial Band Syndrome (ITBS) is a clinical condition likely caused by abnormal compressive forces between the iliotibial band (ITB) and the lateral femoral condyle. Stretching interventions are common ITBS treatments and may predominantly affect the tensor fascia latae (TFL). Another ITBS treatment is foam rolling, which may more directly affect the ITB.

Objective: To examine the immediate effects of foam rolling and iliotibial complex stretching on ITB stiffness, sub-ITB tissue depth, and hip adduction range of motion (ROM) compared to a control group.

Design: multi-arm parallel, single blind, two factor, pretest-posttest, randomized control group design (RCT) with three treatment arms.

Setting: Research laboratory.

Participants: Thirty-six healthy subjects (14 males; age =  $32.4 \pm 9.4$  years and 22 females; age =  $24.6 \pm 5.5$ ) participated.

Interventions: Subjects were randomly assigned to control, stretching, and foam rolling groups. Each group performed their assigned intervention for 5 minutes.

Main Outcome Measures: The ITB Young's modulus at the mid-thigh and distal femur and the TFL muscle belly, hip adduction ROM, and mid-thigh ITB-to-femur depth.

Results: The ITB stiffness at the patellar ( $p < .001$ ) and thigh ( $p < .001$ ) levels, but not TFL ( $p = .83$  before intervention;  $p = .67$  post intervention) increased with  $10^\circ$  abduction. No significant interactions or main effects were found for group or time differences in ITB Young's modulus at the three measured locations. The ITB tissue depth decreased 5 percent with  $10^\circ$  adduction following foam rolling. A main effect for adduction ROM was observed, where ROM increased  $0.8^\circ$  post-treatment ( $p = .02$ ). Correlations between hip adduction ROM and ITB-to-femur depth to SWUE were fair to moderate.

Conclusions: A single episode of stretching and foam rolling does not affect short-term ITB stiffness, but foam rolling decreases ITB tissue depth. The lack of ITB stiffness changes may be from an inadequate intervention stimulus. Alternatively, tissue depth changes following foam rolling may relate to perceived foam rolling benefits.