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### Original Research

## Normative and Critical Criteria for Iliotibial Band and Iliopsoas Muscle Flexibility

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### Abstract

**Context:** The Ober and Thomas tests are subjective and involve a "negative" or "positive" assessment, making them difficult to apply within the paradigm of evidence-based medicine. No authors have combined the subjective clinical assessment with an objective measurement for these special tests.

**Objective:** To compare the subjective assessment of iliotibial band and iliopsoas flexibility with the objective measurement of a digital inclinometer, to establish normative values, and to provide an evidence-based critical criterion for determining tissue tightness.

**Design:** Cross-sectional study.

**Setting:** Clinical research laboratory.

**Patients or Other Participants:** Three hundred recreational athletes (125 men, 175 women; 250 in injured group, 50 in control group).

**Main Outcome Measure(s):** Iliotibial band and iliopsoas muscle flexibility were determined subjectively using the modified Ober and Thomas tests, respectively. Using a digital inclinometer, we objectively measured limb position. Interrater reliability for the subjective assessment was compared between 2 clinicians for a random sample of 100 injured participants, who were classified subjectively as either negative or positive for iliotibial band and iliopsoas tightness. Percentage of agreement indicated interrater reliability for the subjective assessment.

**Results:** For iliotibial band flexibility, the average inclinometer angle was  $-24.59^\circ \pm 7.27^\circ$ . A total of 432 limbs were subjectively assessed as negative ( $-27.13^\circ \pm 5.53^\circ$ ) and 168 as positive ( $-16.29^\circ \pm 6.87^\circ$ ). For iliopsoas flexibility, the average inclinometer angle was  $-10.60^\circ \pm 9.61^\circ$ . A total of 392 limbs were subjectively assessed as negative ( $-15.51^\circ \pm 5.82^\circ$ ) and 208 as positive ( $0.34^\circ \pm 7.00^\circ$ ). The critical criteria for iliotibial band and iliopsoas flexibility were determined to be

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-23.16° and -9.69°, respectively. Between-clinicians agreement was very good, ranging from 95.0% to 97.6% for the Thomas and Ober tests, respectively.

**Conclusions:** Subjective assessments and instrumented measurements were combined to establish normative values and critical criterions for tissue flexibility for the modified Ober and Thomas tests.

**Keywords:** [Ober test](#), [Thomas test](#), [inclinometer](#), [reliability](#)

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