Symmetry of Resting Tone, Alignment, and Strength in the Pelvic Region

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**Title:** Symmetry of Resting Tone, Alignment, and Strength in the Pelvic Region

**Objective:** To establish baseline measurements of pelvic alignment, hip girdle tone, and muscle strength across the sacroiliac (SI) joint.

**Background:** Resting tone contributes substantially to postural alignment and stability of the spine. Muscles attached to the axial skeleton, specifically muscles crossing the SI joint such as the gluteal muscles and latissimus dorsi, could contribute to pain and dysfunction if significant differences in side-to-side resting tone exist. While studies have observed side-to-side differences in resting tone of the biceps brachii, no current studies have assessed resting tone differences across the SI joint.

**Methods and Measures:** Data on resting tone, pelvic asymmetry, and strength were collected using the MyotonPRO myometer, PALM palpation meter, and a strength dynamometer respectively from 30 asymptomatic.

**Results:** Normative data were collected for strength of the iliopsoas, rectus femoris, latissimus dorsi, gluteus maximus, gluteus medius, hamstrings, and hip adductors. The MyotonPRO tested for bilateral tone, elasticity, creep, stiffness, and relaxation of the same muscles. Measures of pelvic alignment for tilt (ranging from 2° to 17° of anteriorly) were collected as well as symmetry of PSIS, ASIS, and iliac crest height (ranging -3° to 3° of difference).

**Conclusions:** Side-to-side differences in resting tone, elasticity, creep, stiffness, relaxation, strength, and pelvic symmetry were noted in asymptomatic participants for SI and low back pain. This data provides information to be used in future studies for: determining correlation among tone, alignment, strength, and dysfunction; identifying impairments associated with dysfunction and response to interventions; and guiding impairment-based treatment options.