



POSITIONAL AND COMPENSATORY INFLUENCES OF THE LEFT AIC PATTERN ON MUSCLE OF THE LUMBO-PELVIC-FEMORAL REGION

Patients with a Left AIC pattern who are positioned in a state of right AF IR and left AF ER present with the following myokinematic relationships:

The Left Side

The left innominate is positioned in a state of AF flexion, abduction, and external rotation with compensatory femoral (FA) activity. All efforts to restore correct AF position and rehabilitate FA activity on the left side should include extension, adduction and internal rotation.

Left AIC Positional Influences on Left Lumbo-Pelvic-Femoral Muscle Length and Strength

Flexors

Iliacus / Psoas (ER) – short and strong secondary to flexion (positional) and external rotation (compensatory). Overactive as a flexor and external rotator secondary to position (compromised sagittal opposition from hamstrings, glute max and obliques).

Rectus Femoris (ER) – short and strong secondary to flexion (positional) and external rotation (compensatory).

TFL (IR) – short and strong secondary to flexion (positional) and overactive as an internal rotator secondary to compromised agonistic anterior glute med and IC adductor magnus.

Pectineus (IR >90° hip flexion) – long and weak secondary to external rotation (compensatory).

Extensors

Biceps femoris (ER) – long and weak secondary to flexion (positional).

Semi-ten and Semi-mem (IR) – longer and weaker secondary to flexion (positional) and external rotation (compensatory).

Glute Max (ER) – extension fibers long, weak and out of position for optimal extension because of flexion (positional) - i.e. anterior pelvic rotation. External rotator fibers are short and strong with optimal leverage secondary to external rotation (compensatory).

Abductors

Posterior Glute Med (ER) – short and strong secondary to abduction and external rotation (compensatory).

Anterior Glute Med (IR) – long and weak secondary to abduction and external rotation (compensatory).



Adductors

Adductor Magnus and Longus (ER) – long and weak secondary to abduction (compensatory).

Ischiocondylar Adductor Magnus (IR) – longer and weaker secondary to abduction and external rotation (compensatory).

Additional Rotators

Piriformis (ER) – short and strong secondary to external rotation (compensatory).

Obturator Internus (ER) – short, straight and weak secondary to flexion, i.e. anterior forward rotation (positional) and external rotation (compensatory).

Vastus Lateralis (IR) – long and weak secondary to external rotation (compensatory) with increased postural demand on lateral soft tissue secondary to compromised position of hamstrings, glute max and obliques.

The Right Side

The right innominate is positioned in a state of AF extension, adduction and internal rotation with positional femoral activity. All efforts to restore correct AF position and rehabilitate AF and FA activities on the right side should include flexion, abduction and external rotation.

Left AIC Positional Influences on Right Lumbo-Pelvic-Femoral Muscle Length and Strength

Flexors

Iliacus / Psoas (ER) – long and weak secondary to extension and internal rotation (positional).

Rectus Femoris (ER) – long and weak secondary to extension and internal rotation (positional).

TFL (IR) – short or normal length secondary to extension and internal rotation (positional).

Pectineus (IR >90 hip flexion) – short and strong secondary to internal rotation (positional).

Extensors

Biceps femoris (ER) – long secondary to internal rotation (positional) and strong secondary to extension (positional).

Semi-ten and Semi-mem (IR) – short and strong secondary to extension and internal rotation (positional).

Glute Max (ER) – External rotator fibers are long, weak and out of position for optimal external rotation secondary to internal rotation (positional). Extension fibers short and strong with optimal leverage secondary to extension (positional).



Abductors

Posterior Glute Med (ER) – long and weak secondary to adduction and internal rotation (positional).

Anterior Glute Med (IR) – long secondary to adduction (positional) but short and strong secondary to internal rotation (positional).

Adductors

Adductor Magnus and Longus (ER) – short and strong secondary to adduction (positional).

Ischiocondylar Adductor Magnus (IR) – shorter and stronger secondary to adduction and internal rotation (positional).

Additional Rotators

Piriformis (ER) – long and weak secondary to internal rotation (positional).

Obturator Internus (ER) – long, angled and weak secondary to extension, i.e. relative posterior tilt/backward rotation (positional) and internal rotation (positional).

Vastus Lateralis (IR) – short and strong secondary to internal rotation (positional) with increased demand as an abductor and internal rotator (compensatory).