

Hyperlordosis

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Definition

- Hyperlordosis is:
- An increase in the normal lumbar lordotic curve associated with increased anterior pelvic tilt and hip flexion.
- Often referred to as **Pelvic Crossed Syndrome**

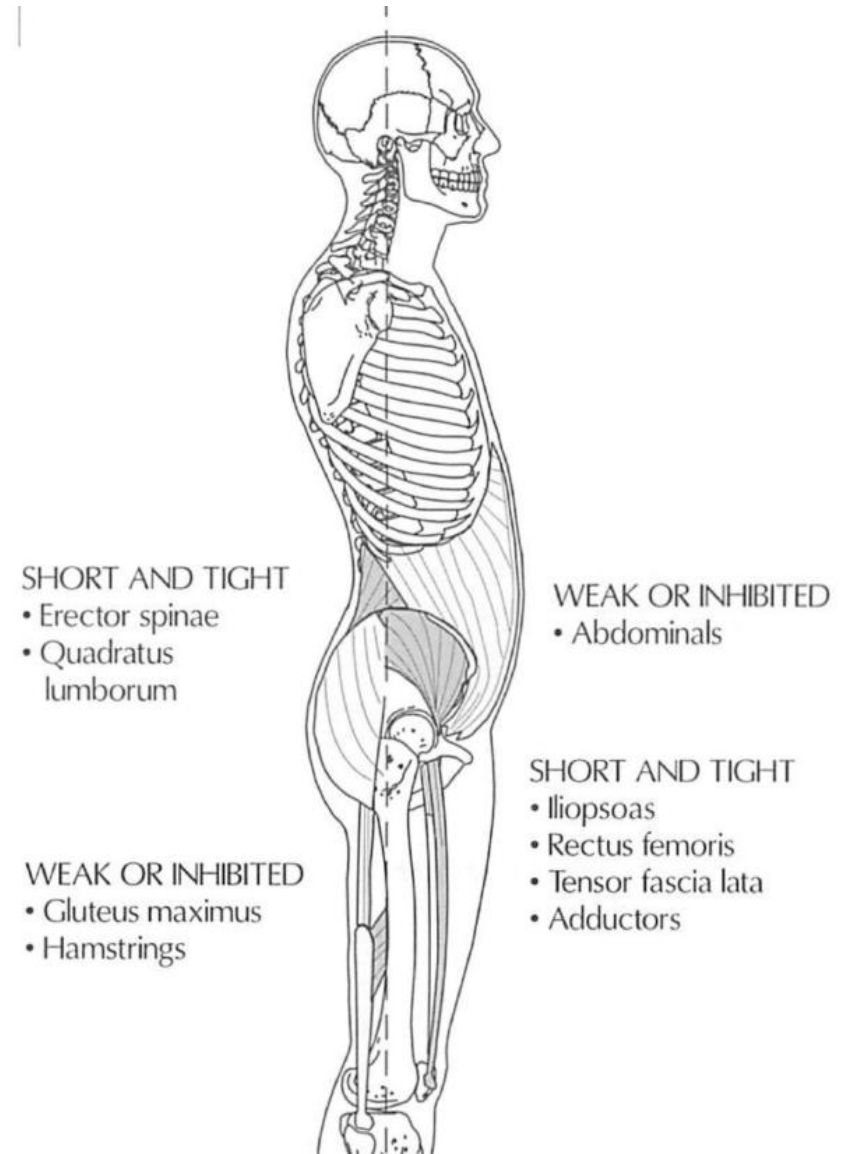
Key Point

- Stress causes muscles to either:
 - **Shorten and become tight (postural muscles)**
 - **Fatigue and become weak (phasic muscles)**

In Hyperlordosis:

- Tight hip flexors and low back muscles inhibit their opposing muscles.
- Creates a characteristic **crossed muscle imbalance pattern**.

Tight and weak muscles in hyperlordosis illustrating pelvic-crossed syndrome.



Tight & Shortened Muscles

- **Postural Muscles (Tight)**
- Iliopsoas
- Rectus Femoris
- Tensor Fasciae Latae (TFL)
- Quadratus Lumborum (QL)
- Lumbar Erector Spinae
- Hip Adductors
- Piriformis
- **Effect**
- Pull pelvis into **anterior tilt**
- Increase lumbar lordosis



Weak & Lengthened Muscles

- **Phasic Muscles (Weak)**

- Rectus Abdominis
- External Obliques
- Internal Obliques
- Gluteus Maximus

- **Hamstrings**

- Appear tight but are actually **lengthened and stretched**
- Due to anterior pelvic tilt increasing distance between attachments

Role of Iliopsoas

- **Origin**
- Lumbar vertebrae and iliac fossa
- **Insertion**
- Lesser trochanter of femur
- **Actions**
- Hip flexion
- Anterior pelvic tilt
- Increases lumbar lordosis
- **Clinical Importance**
- Major contributor to hyperlordotic posture

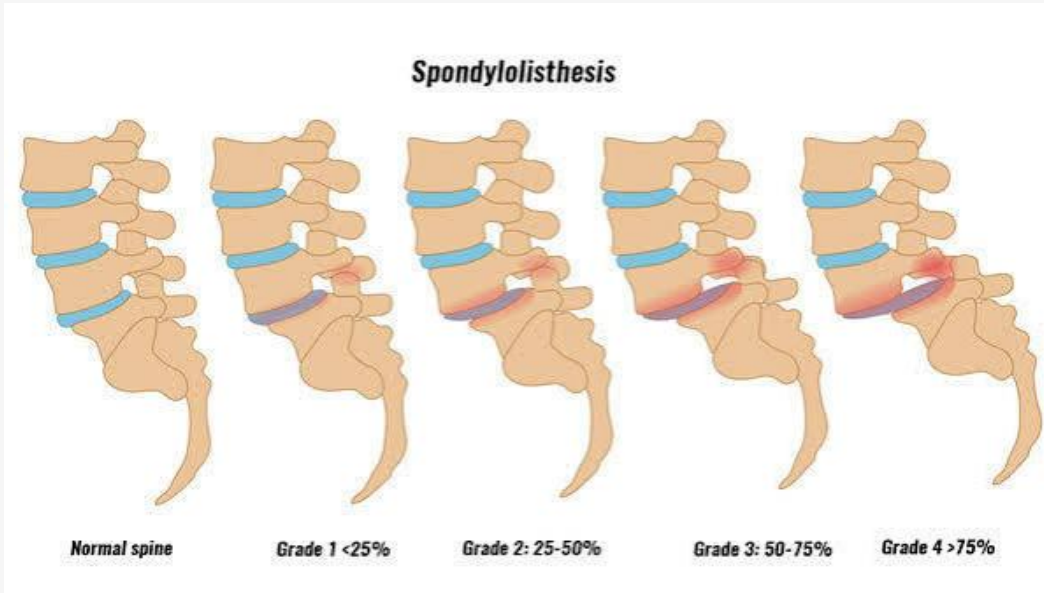


Associated Postural Changes

- Hyperlordosis may lead to:
- Increased thoracic kyphosis
- Forward head posture

Hyperlordosis may be caused by:

- Pes planus (flat feet)
- IT band contracture
- Hyperkyphosis



Related Pathology – Spondylolisthesis

Definition

- Forward slippage of one vertebra over another

Most Common Level

- L5 on S1

Causes

- Hyperlordosis
- Congenital defects
- Stress fractures

Symptoms

- May be asymptomatic
- May cause low back pain



Spondylolysis vs Spondylolisthesis

Condition	Description
Spondylolysis	Fracture/defect of pars interarticularis
Spondylolisthesis	Forward vertebral slippage due to bilateral pars defects



Postural Presentation

- **Observations**

- Increased lumbar curve
- Anterior pelvic tilt
- Hip flexion posture
- Possible knee hyperextension
- Protruding abdomen
- Flattened abdominal wall
- Compensatory hyperkyphosis
- Forward head posture

Hyperlordosis frequently contributes to other postural dysfunctions.

Causes of hyperlordosis

- **Sustained poor posture.** A person may feel comfortable in a slouched posture and habitually adopt this position.
- **Prolonged standing.** This may be occupationally related
- **Other postural conditions:** bilateral iliotibial band contracture and pes planus, Weak abdominal muscles Tight hip flexors
- **Weak abdominal muscles,** from either disuse or abdominal surgery;
- **Pregnancy**
- **Obesity**
- **High heel shoes**
- **Repetitive postures**
- **Muscular imbalance**



Swayback Posture

Swayback posture (slouched posture) is a postural distortion seen in the lateral view where:

- The **pelvis shifts forward (anteriorly)** in relation to the gravity line.
- The **thoracic spine becomes hyperkyphotic** (increased kyphosis).
- The **head moves forward** (forward head posture).

Why It Happens

- The body tries to keep the center of gravity balanced.

Common Compensation Pattern

- Pelvis shifts forward.
- Thoracic cage moves backward.
- Thoracic kyphosis increases.
- Head moves forward to keep eyes level.

Hyperlordosis – Symptom

Postural Findings

- Increased **lumbar lordotic curve** (excessive inward curve of the low back).
- **Anterior pelvic tilt** bilaterally.
- Hips held in slight **flexion**.
- May be associated with:
 - Bilateral **pes planus** (flat feet)
 - **Knee hyperextension** (*genu recurvatum*)
 - Bilateral **iliotibial band contracture**

Muscle Imbalances (Pelvic Crossed Syndrome)

- **Short & Tight Muscles**

- Hip flexors (especially iliopsoas, rectus femoris)
- Lumbar extensors (erector spinae, quadratus lumborum)
- Adductors (may also become tight)

- **Weak & Lengthened Muscles**

- Abdominals
- Gluteus maximus
- Hamstrings (often stretched and taut)



Pain Sources

- Pain may result from:
- Tight ischemic muscles
- Overstretched tissues
- Myofascial trigger points

Range of Motion Changes

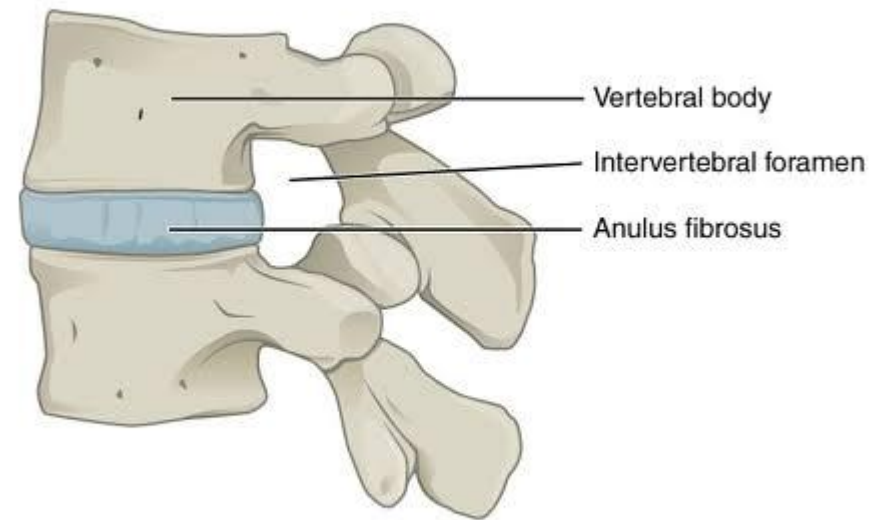
- Decreased **hip extension ROM**
- Difficulty extending the hip during walking or running

Possible Structural Stress

- Stretching of the **anterior longitudinal ligament**

Facet joint approximation/compression causing irritation

- Posterior disc compression
- Narrowing of the **intervertebral foramina**
- Possible **nerve root irritation**



Lateral view



- **Postural Habits**

- Poor posture habits commonly present:

- Standing with pelvis tilted forward
- Protruding abdomen
- Increased low-back arch

- **Associated Postural Conditions**

- **Hyperkyphosis** (increased thoracic kyphosis)

- Other compensatory postural imbalances may also develop

Hyperlordosis – Postural Assessment

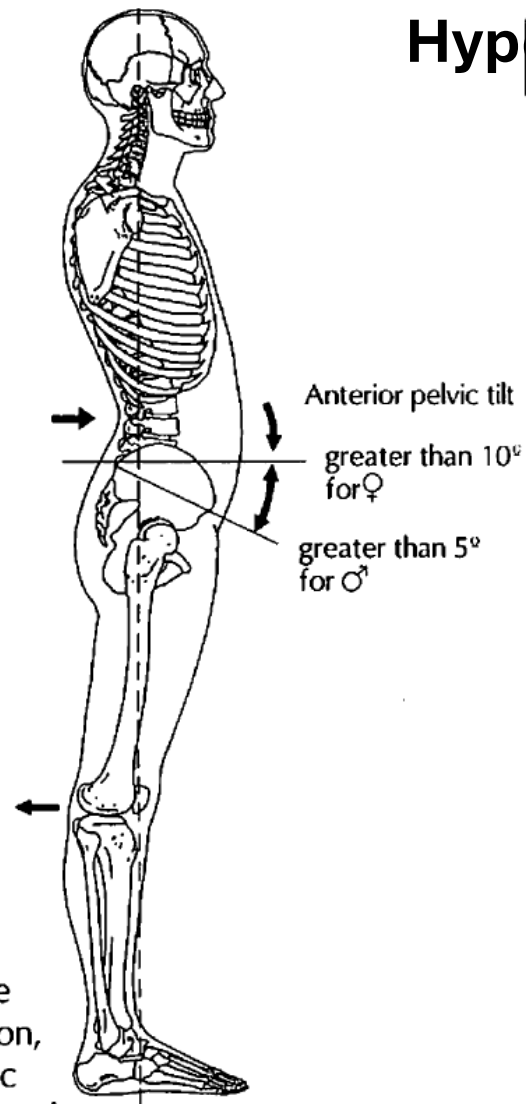


Figure 42.2
Lateral view
showing knee
hyperextension,
anterior pelvic
tilt and increased
lordotic curve.

- **Key Observations:**
- Increased **lumbar lordosis** (excessive inward curve of lower back)
- **Anterior pelvic tilt** (pelvis tilts forward)
 - Females: $>10^\circ$
 - Males: $>5^\circ$
- **Hip flexion** present
- Possible **knee hyperextension**
- Possible **ankle plantarflexion**
- Often associated with:
 - **Thoracic hyperkyphosis** (rounded upper back)
 - **Forward head posture**
 - **Pes planus (flat feet)** in standing posture
- May have **abdominal or lumbar surgical scars**

Special Tests in Hyperlordosis

Special Test	Result	Indicates	Clinical Significance in Hyperlordosis
Thomas Test	Positive bilaterally	Short/tight iliopsoas and rectus femoris	Tight hip flexors pull the pelvis into anterior tilt, increasing lumbar lordosis.
Ely's Test	Positive bilaterally	Short/tight rectus femoris	Rectus femoris contributes to anterior pelvic tilt and excessive lumbar extension.
Ober's Test	Positive bilaterally	Short/tight tensor fascia lata (TFL) and iliotibial band	TFL tightness reinforces hip flexion and anterior pelvic tilt.
Hip Adductor Length Test	Positive	Tight adductor muscles	Adductor tightness may contribute to pelvic imbalance and altered lower-limb mechanics.
Piriformis Length Test	Likely positive	Tight piriformis	Can contribute to hip dysfunction, pelvic asymmetry, and possible sciatic nerve irritation.
Straight Leg Raise (SLR)	Increased range of motion	Lengthened hamstrings	Hamstrings are often overstretched due to chronic anterior pelvic tilt and are usually weak despite feeling "tight."

Thomas Test

Purpose: Assess shortness or contracture of the **iliopsoas and other hip flexors**.

- **Procedure**

- Client lies **supine** near the edge of the table.
- Therapist places a hand under the lumbar spine to monitor lordosis.
- Flex the **unaffected hip and knee** toward the chest until the lumbar spine flattens against the table.
- Client holds the unaffected leg with both hands.
- The **affected leg** is slowly lowered toward the table.

- **Positive Test**

- ☒ Posterior knee/thigh **does not touch the table**.

- **Indicates:**

- Hip flexor shortness
- Iliopsoas contracture
- Often seen with **hyperlordosis** and **anterior pelvic tilt**

- **Negative Test**

- ☒ Thigh rests on the table.

- **Indicates:**

- Normal hip flexor length

THOMAS TEST

NEGATIVE

Bottom leg can get to table = negative for shortened hip flexors



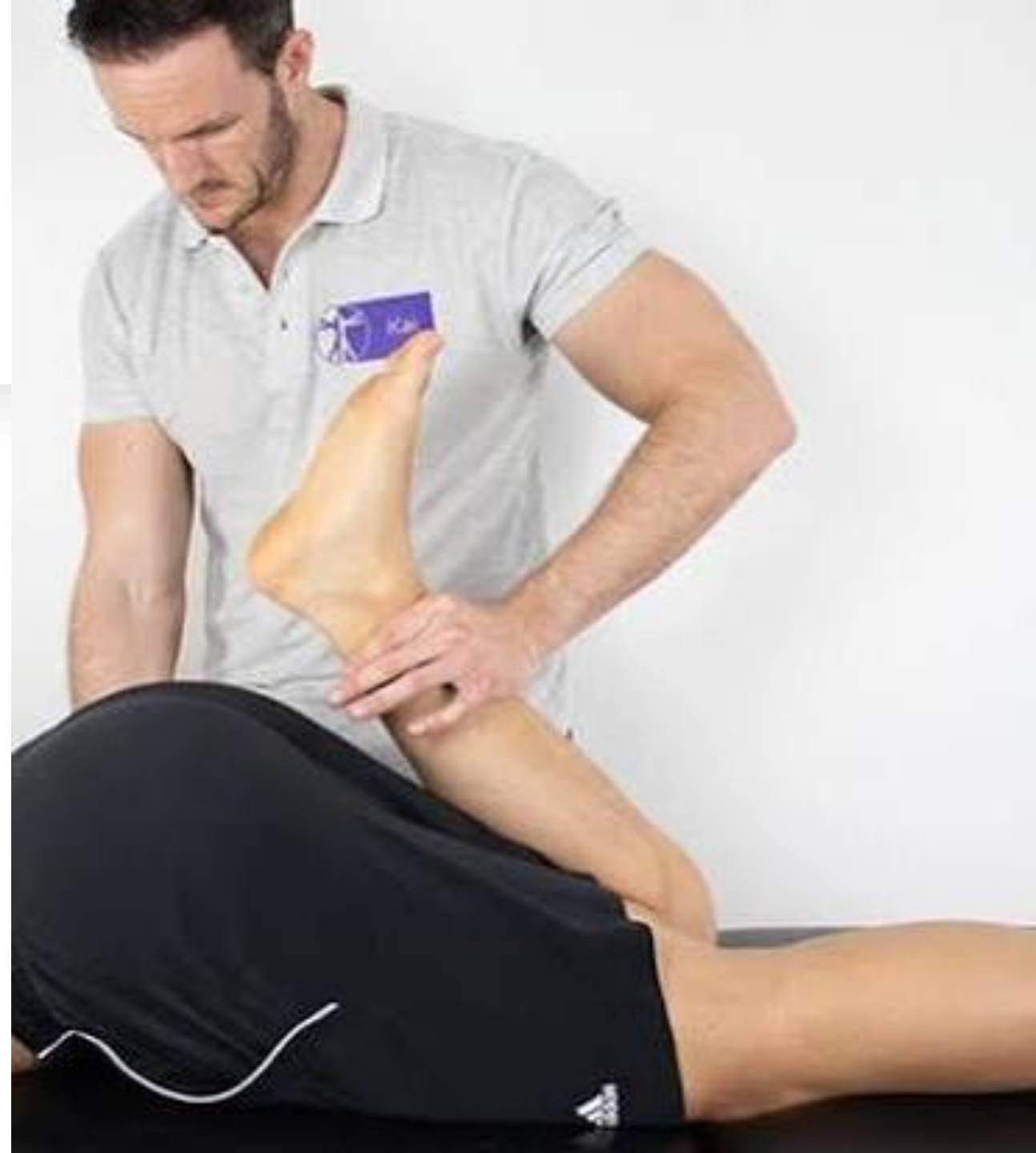
POSITIVE

Bottom leg can't get to table = positive for shortened hip flexors



Ely's Test

- Another method of assessing for rectus femoris muscle shortness or contracture:
- Place the client in a prone position.
- Flex the affected knee, attempting to bring the heel to the gluteus maximus, ensuring that the leg does not abduct.
- Observe the client's pelvis.
- If the pelvis on the affected side flexes as the knee is flexed, the test is **positive** for shortened rectus femoris muscle.



Ober's Test

Purpose:

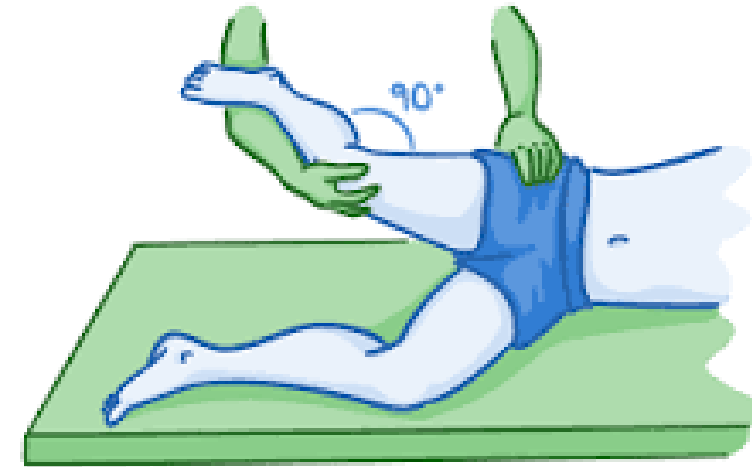
Checks for tightness/shortening of the **Tensor Fascia Lata (TFL)** and **Iliotibial Band (IT Band)**.

Procedure

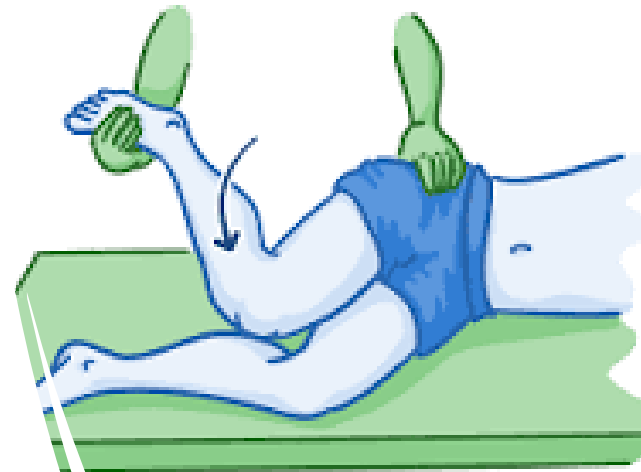
- Client lies on their **side**, with the affected leg on top.
- Bottom hip and knee are slightly bent for stability.
- Therapist stabilizes the pelvis to prevent it from moving.
- Therapist lifts the top leg into **abduction and extension**.
- Knee is bent to **90°**.
- Client relaxes completely.
- Therapist slowly lowers the leg toward the table.



OBER TEST



NEGATIVE



POSITIVE



- **Positive Test (+)**
- ☒ Leg remains **abducted** and does not drop toward the table.
- **Indicates:** Tight/short **TFL** and **IT** band.
- **Negative Test (-)**
- ☒ Leg drops slightly **below horizontal** (adducts normally).
- **Indicates:** Normal length of the **TFL** and **IT** band.

Contraindications

- If low back pain is present, rule out potential pathological sources before treatment. Refer the
- client to a physician if necessary.
- Avoid mobilizing hypermobile vertebral segments.
- Do not randomly stretch fascia. Assess the fascia and only treat areas of restriction.
- Do not compress over palpable vasculature, including the aorta, when massaging the abdomen
- or the femoral artery when massaging the upper medial thigh.
- Avoid lengthening techniques on weak, overstretched tissues.

Treatment Goals

Primary Goals

- Reduce hypertonicity
- Stretch shortened muscles
- Improve pelvic alignment
- Strengthen weak muscles
- Decrease pain
- Improve posture
- Restore normal movement patterns

General Treatment Plan

- **Treatment Sequence**
- Relaxation massage
- Myofascial work
- Trigger point treatment
- Stretch shortened muscles
- Joint mobilization
- Strengthen weak muscles
- Homecare instruction



Stretching Program

- **Stretch Tight Muscles**
- **Iliopsoas Stretch**
- Lunge stretch
- **Rectus Femoris Stretch**
- Standing quad stretch
- **TFL Stretch**
- Cross-over stretch
- **Quadratus Lumborum Stretch**
- Lateral trunk stretch
- Repeat daily.



Strengthen Weak Muscles

- **Abdominals**
- Curl-ups
- Dead bug
- Pelvic tilt
- **Gluteus Maximus**
- Bridges
- Squats
- Hip extension
- **Core Stabilization**
- Plank
- Bird dog



Massage Techniques

- **Swedish Techniques**

- Effleurage
- Petrissage
- Kneading
- Muscle stripping
- Trigger point therapy

- **Fascial Techniques**

- Skin rolling
- Fascial spreading
- Cross-hand stretch
- These techniques help reduce fascial restrictions and hypertonicity.



Joint Play

- **Useful Mobilizations**

- Sacroiliac joint
- Lumbar facets
- Hip joint
- Purpose:
- Restore mobility
- Improve pelvic mechanics
- Reduce compensatory strain



Home Care

Postural Education

- Avoid:
- Excessive standing
- High heels
- Slouched posture
- Anterior pelvic tilt
- Encourage:
- Neutral spine
- Core activation
- Frequent stretching
- Ergonomic workstations



THANK YOU