

Lecture 18 — Hyperlordosis

Student Handout · RU RMT 20 Pathological Treatments · Ruhani College · Registered Massage Therapy Diploma Program

How to use this handout: it follows the lecture in the order it is delivered, so you can annotate it as we go rather than copying slides. Everything examinable in this lecture is here. Work through the review questions at the end without looking back, then check them against the answers.

Learning outcomes

Assess the pattern

Apply core techniques

Work safely

Hypertonic drivers and the anterior pelvic tilt.

From effleurage to iliopsoas MET.

Key cautions, especially around the iliopsoas.

Notes:

Define hyperlordosis — The exaggerated lumbar curve and what drives it.

Explain the biomechanics — Load transfer and the pathologies that follow.

Map the imbalance — Postural vs phasic muscles and the lower crossed syndrome.

An Overview — The exaggerated lumbar curve

The lumbar spine has a natural lordotic curve that absorbs shock. It deepens with extension and flattens with flexion. Hyperlordosis is an exaggeration of this normal curve.

A natural curve

Extension deepens it

Needed for shock absorption.

Flexion reduces it.

Hypertonicity in the lumbar extensor muscles can drive low-back pain and myofascial trigger points — and further exaggerate the lordosis.

Extensor hypertonicity

Wider effects

A key driver of the curve.

Pelvis, discs and nerves.

Notes:

Source: Rattray & Ludwig (2000); Ruhani College Lecture 18

Understanding Hyperlordosis

A normal lumbar curve becomes a problem when the extensor muscles pull it too deep — driving pain, trigger points, and postural change.

Notes:

The Key Muscles — Muscles that produce lumbar extension

Erector spinae

Quadratus lumborum

The main spinal extensor group.

A powerful lumbar stabiliser and extensor.

Multifidi & rotatores

Interspinales & intertransversarii

Small deep intrinsic spinal muscles.

The smallest deep segmental extensors.

When these muscles become hypertonic, they exaggerate the lordosis — and can seed low-back pain and trigger points.

Notes:

Source: Ruhani College Lecture 18; Lowe (2009)

A Self-Reinforcing Loop — How hypertonicity deepens the curve

Extensor hypertonicity

Notes:

Pain & trigger points — Low-back pain and myofascial trigger points develop.

Deeper lordosis — The curve is pulled further into extension.

The lumbar extensors tighten and shorten. — Each element feeds the next — so effective treatment aims to break the loop, not just chase the pain.

Source: Ruhani College Lecture 18; Lowe (2009)

Signs & Symptoms — What the pattern looks like

Low-back pain

Trigger points

Deep lumbar curve

Often the presenting complaint.

In the lumbar extensor muscles.

A prominent, exaggerated lordosis.

Anterior pelvic tilt

Tight hip flexors

Weak abs & glutes

The pelvis rotates forward.

Shortened iliopsoas and rectus femoris.

Inhibited phasic muscles.

Notes:

Source: Ruhani College Lecture 18; Rattray & Ludwig (2000)

Contributing Factors — What perpetuates the curve

Poor posture

Sedentary lifestyle

Habitual, sustained lumbar extension.

Overuses postural muscles at the desk.

Notes:

Muscle imbalance — Hypertonic drivers vs inhibited stabilisers.

Faulty activation — Dysfunctional patterns of muscle recruitment.

Source: Ruhani College Lecture 18; Lowe (2009)

Beyond the Low Back — One curve, many consequences

An excessive lumbar lordosis is never an isolated problem. It tilts the pelvis forward, loads the posterior spine, and alters muscles as far away as the hamstrings.

Anterior pelvic tilt

Posterior-arch load

The pelvis rotates forward.

Weight shifts off the vertebral body.

That is why hyperlordosis is best treated as a whole pattern — not as an isolated low-back complaint.

Nerve compression
Hamstring strain risk
Foramina narrow in extension.
Lengthened, vulnerable hamstrings.
Notes:

Source: Lowe (2009); Ruhani College Lecture 18

Biomechanics & Spinal Pathology

When the curve deepens, load shifts off the vertebral bodies and onto structures never built to bear it — with real consequences.

Notes:

Normal Mechanics — How a healthy lumbar spine bears load

In a normal lumbar lordosis, the vertebral body is the primary weight-bearing structure — built to carry the body's load through its dense, broad mass.

Vertebral body

Balanced curve

The primary load-bearer.

Distributes force safely.

A balanced curve shares that load safely between the bodies, the discs, and the guiding facet joints.

Discs cushion

Facets guide

Shock absorption between bodies.

Direct motion, not bear weight.

Notes:

Source: Ruhani College Lecture 18; Magee (2014)

The Mechanical Problem — Load shifts to the posterior arch

With an excessive lordosis, more of the body's weight transfers to the posterior vertebral arch — structures that were never designed to bear it.

Lamina & pedicle

Pars interarticularis

The bony bridge of the arch.

A common stress-fracture site.

Posterior disc

Facet joints

The rear of the intervertebral disc.

Now loaded well beyond their design.

Notes:

Source: Ruhani College Lecture 18; Magee (2014)

The Consequences — Pathologies that can result

Facet joint dysfunction

Disc herniation

From chronic posterior overload.

Strain on the posterior disc.

Spondylolysis

Spondylolisthesis

A stress fracture of the pars interarticularis.

Forward slippage of a vertebra.

Notes:

Source: Ruhani College Lecture 18; Magee (2014)

Nerve Involvement — Foraminal narrowing & nerve compression

Increased lumbar extension narrows the intervertebral foramen — the bony openings through which the spinal nerve roots exit the spine.

Narrowed foramen. Sustained extension closes down the exit space.

Root compression. Radiating pain or neurologic signs may follow.

Notes:

Source: Ruhani College Lecture 18; Magee (2014)

The Lower Crossed Syndrome

Janda's model explains why the low back tightens while the abdominals go quiet — and why the pelvis tips forward with the curve.

Notes:

Janda'S Model — Postural vs. phasic muscles

Postural

Phasic

Maintain erect posture

Create movement

Slow-twitch dominant

Tend toward hypertonicity when fatigued

e.g. iliopsoas, erector spinae

e.g. quadratus lumborum, rectus femoris

Fast-twitch dominant

Tend to fatigue and weaken

e.g. rectus abdominis

e.g. gluteus maximus & medius

Notes:

Source: Page, Frank & Lardner (2010); Ruhani College Lecture 18

The Law of Reciprocal Inhibition — Why the abdominals go quiet

The abdominals are often weak not from lack of training, but from neurological inhibition by tight postural muscles.

Notes:

Postural muscle fires — Hypertonic extensors and iliopsoas contract.

Antagonist inhibited — The nervous system quiets the opposite muscle.

Phasic weakness — Abdominals and glutes become functionally weak.

Source: Page, Frank & Lardner (2010); Ruhani College Lecture 18

Where the Cross Forms — The muscles of the lower crossed syndrome

Tight & hypertonic

Weak & inhibited

The postural group

The phasic group

Iliopsoas

Erector spinae

Rectus femoris

Quadratus lumborum

Rectus abdominis

Gluteus maximus

Gluteus medius

Lines drawn between these two groups cross diagonally — which is where the syndrome gets its name.

Notes:

Source: Page, Frank & Lardner (2010); Ruhani College Lecture 18

The Pelvic Link — Anterior pelvic tilt

An excessive lordosis and an anterior pelvic tilt travel together. Both innominates — the two halves of the pelvis — rotate forward, deepening the lumbar curve.

Both innominates rotate

Measure each side

The pelvis tips forward.

One may rotate more.

It is worth measuring each innominate separately, because one side often rotates more than the other.

Muscle imbalance drives it

Deepens the lordosis

Pulling on pelvis & spine.

A reinforcing pair.

Notes:

Source: Ruhani College Lecture 18; Lowe (2009)

Clinical Tip • Think Globally — The hamstring connection

A common error is treating a region in isolation. An excessive lordosis tilts the pelvis anteriorly, which lengthens the hamstrings — and longer hamstrings in an anterior pelvic tilt carry a higher risk of strain.

Look upstream. Preventing hamstring strains may mean treating the low back.

One pattern, many sites. A postural distortion radiates through the whole body.

Notes:

Source: Lowe (2009)

Treatment Principles

The most effective route is counter-intuitive: release the tight postural muscles first, then strengthen the weak ones and retrain posture.

Notes:

The Core Principle — Release before you strengthen

Because the phasic muscles are weak largely through inhibition, the effective approach is to reduce hypertonicity in the postural muscles first — not simply to strengthen the weak ones.

Target the tight

Release inhibition

Postural muscles driving the tilt.

Free the phasic muscles.

Strengthening still has a place; it simply comes later, once normal tone allows the phasic muscles to fire freely.

Then strengthen

Retrain posture

Once tone is normalised.

Make the change last.

Notes:

Source: Lowe (2009); Ruhani College Lecture 18

A Common Pitfall — Why strengthening first backfires

Notes:

Sit-ups recruit iliopsoas — With feet anchored, the hip flexors do the work.

That worsens the driver — Reinforcing the very iliopsoas hypertonicity you want to reduce.

Weakness is inhibition — The abdominals are quiet, not simply untrained.

Compensation develops — Strengthening tight patterns builds dysfunctional recruitment.

Source: Lowe (2009); Ruhani College Lecture 18

Sequencing the Work — Soft tissue before strength

Soft-tissue release

Neuromuscular reset

Strength training

Reduce hypertonicity in the postural muscles.

Let proprioception and control readjust.

Build the phasic muscles last.

Strengthening before release invites the dysfunctional compensation and recruitment patterns we are trying to undo.

Notes:

Source: Lowe (2009); Ruhani College Lecture 18

Making It Last — Postural re-education

Many anterior pelvic tilts persist because neuromuscular patterns of tension are continually reinforced through the day.

Reinforced daily

Retrain movement

The body relearns the distortion.

Replace the faulty patterns.

Without postural re-training that reinforces corrected biomechanical patterns, even good soft-tissue work or strengthening will not hold.

Daily practice

A shared effort

Carries the change forward.

Therapist plus client commitment.

Notes:

Source: Lowe (2009); Ruhani College Lecture 18

Massage Therapy Techniques

Assess the pattern, warm the tissue, strip the deep extensors and QL, and release the iliopsoas safely — by MET, not deep abdominal pressure.

Notes:

Assessment — Reading the pattern before you treat

Observe the curve

Check the pelvis

Palpate for tightness

Gauge the depth of the lumbar lordosis.
Anterior tilt; measure each innominate.
Extensors, QL, iliopsoas, rectus femoris.
Identify weakness
Hypertonic or weak?
Screen for red flags
The abdominals and gluteals.
Decide the tissue state before deep work.
Especially vascular cautions for the iliopsoas.
Notes:

Source: Lowe (2009); Ruhani College Lecture 18

Soft-Tissue Manipulation — Targets & techniques

Soft-tissue work focuses on the hypertonic muscles creating the distortion — the spinal extensors, quadratus lumborum, iliopsoas, and rectus femoris.
Sweeping cross-fibre
Deep longitudinal stripping
Broad, superficial release.
Along the muscle fibres.
A small menu of techniques, applied in sequence, addresses these muscles from superficial to deep.
Pin & stretch
Active-assisted stretch
Fix, then lengthen.
Client-assisted lengthening.

Notes:

Source: Lowe (2009); Ruhani College Lecture 18

Technique A — Effleurage & sweeping cross-fibre

Reduce superficial tension in the lumbar muscles with long gliding effleurage and sweeping cross-fibre strokes — always applied before any deep stripping.
Broad contact. Use the thumb, backs of the fingers, or base of the hand.
Warm first. Prepare the tissue for the deeper work to follow.

Notes:

Source: Lowe (2009); Ruhani College Lecture 18

Technique B — Deep longitudinal stripping — spinal extensors

Apply deep stripping to the erector spinae and other lumbar extensors close to the spine, encouraging elongation along the specific myofascial fibres.
Small contact. Fingertips, thumb, or a pressure tool for precision.
Follow the fibres. Strip in the direction of the muscle.

Notes:

Source: Lowe (2009); Ruhani College Lecture 18

Technique C — Deep stripping — quadratus lumborum

With the client prone, strip the quadratus lumborum along its several fibre directions — iliac crest to transverse processes, iliac crest to twelfth rib, and transverse processes to twelfth rib.
Reach under the erectors. Work lateral-to-medial, deep to the erector edge.
Mind the transverse processes. Don't press hard against their bony tips.

Notes:

Source: Lowe (2009); Ruhani College Lecture 18

Technique D — MET for the iliopsoas

With the client supine and one thigh hanging off the table, resist an active hip-flexion effort for 5–8 seconds. On release, guide the thigh into extension to stretch the iliopsoas.

Safer than abdominal pressure. It reaches the muscle without pressing over the vessels.

Ease discomfort. If the back complains, flex the opposite hip to rotate the pelvis.

Notes:

Source: Lowe (2009); Ruhani College Lecture 18

Putting It Together — A safe session sequence

Warm superficially

Then strip deeply

Effleurage and sweeping cross-fibre first.

Erector spinae and quadratus lumborum.

Release the iliopsoas

Reassess & retrain

By MET — not deep abdominal pressure.

Recheck posture and assign self-care.

Repeat soft-tissue work over several sessions before adding strength training — the body needs time to readjust.

Notes:

Source: Lowe (2009); Ruhani College Lecture 18

Aftercare & Safety

Lasting correction depends on the client's daily re-training — and on respecting a few firm cautions, above all around the iliopsoas.

Notes:

Aftercare · Re-Training — Homework that holds the change

Posture awareness

Corrective movement

Ergonomic set-up

Through the day, not just on the table.

The patterns prescribed by the therapist.

Desk, chair, and standing habits.

Gradual strengthening

Consistency

Move often

Abdominals and glutes, once tone allows.

Daily practice reinforces new patterns.

Counter the sedentary driver.

Notes:

Source: Lowe (2009); Ruhani College Lecture 18

Aftercare · Self-Care — Stretch, mobilise, activate

Hip-flexor stretch

Pelvic-tilt drills

Glute activation
 Lengthen the iliopsoas and rectus femoris.
 Relearn a neutral pelvic position.
 Wake the inhibited phasic muscles.
 Gentle core work
 Break up sitting
 Progress slowly
 Once postural tone has normalised.
 Stand and move regularly.
 Let the new patterns re-establish.

Notes:

Source: Lowe (2009); Ruhani College Lecture 18

Cautions & Contraindications — Working safely with hyperlordosis

Notes:

Iliopsoas via the abdomen — Use great caution — direct pressure risks the vessels.
Aortic aneurysm risk — Pressure on the external iliac artery can be dangerous.
Prefer MET for iliopsoas — It avoids direct pressure over the vasculature.
MET back discomfort — From compression of the lumbar facet joints.
Ease the facets — Have the client flex the opposite hip to rotate the pelvis.
Transverse-process tips — Don't over-press the bony tips when stripping the QL.

Source: Lowe (2009); Ruhani College Lecture 18

References and further reading

- Rattray, F., & Ludwig, L. (2000). Clinical Massage Therapy: Understanding, Assessing and Treating Over 70 Conditions. Toronto: Talus Inc.
- Lowe, W. (2009). Orthopedic Assessment in Massage Therapy. Sisters, OR: Daviau-Scott.
- Page, P., Frank, C. C., & Lardner, R. (2010). Assessment and Treatment of Muscle Imbalance: The Janda Approach. Champaign, IL: Human Kinetics.
- Magee, D. J. (2014). Orthopedic Physical Assessment (6th ed.). St. Louis: Saunders / Elsevier.
- Werner, R. (2019). A Massage Therapist's Guide to Pathology (7th ed.). Books of Discovery.
- Notes:

Key takeaways — Release the drivers, then retrain

Hyperlordosis is a whole-pattern problem — an exaggerated lumbar curve, an anterior pelvic tilt, and Janda's lower crossed syndrome. Reduce hypertonicity in the postural muscles first, treat the iliopsoas safely, then strengthen and retrain posture to make the change last.

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Notes:

Review questions

Answer these from memory before checking the answers below.

1. Define hyperlordosis and describe the pelvic position that accompanies it.
2. Describe lower crossed syndrome.
3. Which specific muscles would you expect to find shortened, and which lengthened?
4. How does prolonged standing or prolonged sitting each contribute?
5. Outline a treatment approach.

Answers

1. An exaggerated anterior curve of the lumbar spine, accompanied by an anterior pelvic tilt in which the anterior superior iliac spines drop relative to the posterior superior iliac spines.
2. A crossed pattern of imbalance: tight hip flexors and lumbar extensors on one diagonal, with weak abdominals and gluteals on the other. The pattern reinforces the anterior pelvic tilt and the exaggerated lumbar curve.
3. Shortened: iliopsoas, rectus femoris, tensor fasciae latae and the lumbar erector spinae and quadratus lumborum. Lengthened and inhibited: rectus abdominis and the deep abdominal wall, gluteus maximus and gluteus medius, and the hamstrings in some presentations.
4. Prolonged standing loads the lumbar extensors and encourages the client to hang on the anterior structures of the lumbar spine; prolonged sitting holds the hip flexors in a shortened position and deconditions the gluteals, so both feed the same pattern by different routes.
5. Release and lengthen the hip flexors, tensor fasciae latae, lumbar erectors and quadratus lumborum; mobilise the lumbar spine and hips within tolerance; avoid aggressive work on the already-lengthened abdominal and gluteal groups; and support with education on standing and sitting posture and a strengthening programme for the abdominals and gluteals.