

Concord Sport & Spine Newsletter



Examination in LBP: Lumbar flexion and extension impairments

The following information is largely based on the work of Dr Shirley Sahrmann, PhD, PT.

There are many considerations when examining a patient with acute or chronic low back pain. As with any condition examined in medical or paramedical fields, a common approach is to search for 'patterns' that assist with the formation of a diagnosis. Efficiency and ease of pattern recognition increases with greater years of clinical experience.

FLEXION IMPAIRMENT

A patient with this movement impairment spends more of their day with the lower lumbar segments flexed. Their movement patterns show that they readily adopt flexion both during movement and in static postures. Such patients will be more likely to suffer discogenic-related dysfunction. However, as with all lumbar spine disorders, trunk and lower limb muscles will also play an important role in movement dysfunction and symptom generation.

Examination

The following subjective and objective findings will be more common in patients whose symptoms are generated by excessive low lumbar flexion. The examination findings will direct treatment, particularly with-regard-to correcting motor-control and postural deficiencies.

Subjective

Pain reduces with standing and walking. Often, this is not readily apparent, as patients are more inclined to sit to try to relieve their back pain.

Pain increases with prolonged sitting.

Pain is usually worse on rising in the morning.

Pain increases on movement into flexion.

Low lumbar extension will often be reduced, and in the early stages this motion is often painful.

Symptoms are reduced when the patient is shown how

to bend with a more neutral lumbar posture. This may not help if radicular symptoms are present.

Objective

They may have a flat back posture.

On forward flexion the lower lumbar segments bend early in range.

On squatting the pelvis posteriorly tilts before full hip flexion is achieved.

In sitting there is often excessive lumbar flexion and posterior pelvic tilt. In many patients, the lumbar spine will be in kyphosis and the mid to low thoracic spine in lordosis (what I refer to as 'curve-reversal').

In sitting, if the patient is asked to extend one or both knees, there will be an early increase in lumbar flexion, often associated with pain.

When examined in four-point kneeling, they will often have the pelvis posteriorly tilted, and the lumbar spine in flexion. Asking them to sit back towards their heels (hip flexion) will further increase lumbar flexion.

Flexion dysfunction is commonly associated with a positive straight leg raise test.

Testing the hip joints may reveal tightness into flexion. This is because the patient has developed a movement pattern where they are more mobile in the direction of lumbar flexion. As they use less hip flexion during movement and in static postures, tightness develops over time.

The hamstrings and hip extensor muscles are often short, and the hip extensors are usually weak.

Lumbar extensor muscles are usually elongated and weak.

Abdominals may be shortened and weak, but in some patients are over-active.

EXTENSION IMPAIRMENT

Below are the examination findings often found in a patient with the common extension impairment. These findings will help to guide treatment.

Patients with an extension-related disorder have pain that is generated from a spine that is structurally or posturally positioned close to full range extension. Postural types that are frequently associated with extension impairment include kypho-lordotic & sway back posture. Patients with a history of Scheuermann's disease will often fit into this category. Structural disorders that may be associated include spinal canal stenosis, spondylolisthesis (anterolisthesis), symptomatic degenerative disc disease, and osteoarthritis (spondylosis).

Examination

Subjective

Local low back and/or referred buttock/leg pain. If associated with canal stenosis, pain may be referred to both legs.

Pain worsens on prolonged standing or walking, on working with arms overhead, or other extension related activities.

When the patient is symptomatic, supine or prone lying will often be painful.

Sitting down and/or bending forward will often relieve symptoms.

Objective

Sagittal posture may reveal an increased kypho-lordosis, sway back (where the shoulders sway backwards relative to the hips), or increased anterior pelvic tilt. Where body weight allows such observation, there may be associated abdominal protrusion due to stretched and weakened abdominals.

On forward flexion the lumbar curve often remains in a degree of lordosis. Return from flexion may be initiated by the patient increasing lumbar extension, and if so this will usually be painful.

Extension in standing will often be painful and, except in chronic cases, is normally unrestricted in range.

In sitting they often maintain a degree of lumbar lordosis, even when guided into a posterior pelvic tilt.

In supine, the spine may be in excessive lordosis. If this position is painful, pain will be relieved by passively flexing the hips. Active hip flexion, however, often increases pain, as hip flexor muscle contraction increases anterior pelvic tilt and thus lumbar lordosis.

In prone lying, symptoms may increase with active and/or passive knee flexion, due to an associated increase in anterior pelvic tilt.

Muscle length and strength testing will often reveal tight psoas and quadriceps, tight hamstrings, weak abdominals and gluteals, and tight lumbar erector spinae and latissimus dorsi.

On palpation these will usually be tenderness and possibly symptom reproduction with pressure over the low lumbar facet joints.

Reference:

Sahrmann, S (2002). Diagnosis and Treatment of Movement Impairment Syndromes. Mosby, Missouri.

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