

# Orthopedic Back (Thoraco-Lumbar Spine) Examination

## Course 452

### Goal:

To establish competence in physical examination of the thoraco-lumbar spine

### Method:

1. First: standing/walking position:
  - a. **Look:**
    - i. Expose the trunk and lower limbs properly.
    - ii. Examine front and back.
    - iii. Any deformity, swelling, or skin changes (scars, hairy tuft, “café au lait” spots).
    - iv. Are shoulders & pelvis level.
    - v. Gait:
      1. Abnormal types: Antalgic, Trendelenberg, waddling.
      2. Heel and toe walking: unable to heel walk= L4 weakness, unable to toe walk= S1 weakness
  - b. **Feel:**
    - i. Palpate spinous processes for tenderness, steps or gaps.
    - ii. Soft tissues: temperature, tenderness.
  - c. **Move:**
    - i. Start with active ROM in all 6-directions
      1. Flexion. Record as such: able to touch toes/shins/knee/thighs...etc.
      2. Extension: normal around 30°
      3. Lateral bending: normal around 30°
      4. Rotation: normal around 40°
    - ii. Note if painful/painless.
    - iii. Attempt passive ROM if active ROM is limited and painless, record.

**d. Special tests:**

- i. Adams Forward bending test: full forward flexion until back is horizontal to the floor. If thoracic scoliosis is present, then rib hump will become visible.

**2. Second: Supine position.**

**a. Look:**

- i. Note any muscle wasting in the lower limbs.

**b. Feel:**

- i. Check for Leg length discrepancy (ASIS to medial malleolus).

**c. Special tests:**

- i. Straight leg raising test (SLRT):
  1. With the patient supine, passively elevate the leg –the examiner’s hand behind the heel- with knee extended while observing the patient’s face for sign of discomfort.
  2. A positive test is reproduction of sciatica-i.e. sharp shooting pain that radiates below the knee- between 30° and 70° of hip flexion.
    - a. The pain is aggravated with dorsiflexion of the ankle and relieved with knee flexion.
    - b. Hamstring tightness and knee or hip pain should be distinguished from a true positive SLR.
      - i. Screening Hip and knee examination (e.g. rotation of the hips, joint line tenderness at the knees) should be done to rule out hip or knee OA which can be confused with sciatica.

**d. Neurologic examination:**

- i. Motor: Hip flexion=L2, knee extension=L3, Ankle dorsiflexion=L4, EHL=L5, Ankle plantar flexion=S1.
- ii. Sensory: dermatomes.
- iii. Tone: normal, flaccid or rigid.
- iv. Reflexes: knee & ankle jerks.

**e. Vascular examination:**

- i. Pedal pulses (DP & PT).
- ii. Capillary refill (normal < 2 seconds).