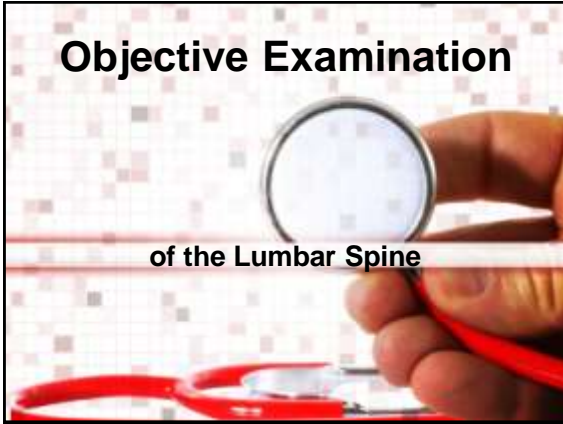


Objective Examination

of the Lumbar Spine



Plan the Objective Exam

- List the anatomical structures that may cause pain
 - joints under the area that cause pain
 - joints that refer pain to the area
 - muscles in the area that cause pain

Plan the Objective Exam

- Consider the effect of the pain on the patient
- Consider the kind of examination required
 - extent and strength of the test movements
- Examination of the underlying abnormalities to find the source of pain



Purpose of the Objective Exam

- Interpret the patient's concept of their disability into terms of joints or muscles that are causing pain
- To determine the physical factors that may have predisposed to the onset of the disorder

Purpose of the Objective Exam

- Accept/reject/modify categories of hypothesis from the subjective evaluation
- Generate new hypothesis to be tested during the objective evaluation and treatment
- Reproduce the Comparable Sign and/or appropriate movement signs
- Clarify options for treatment, select techniques based on intent
- HEAR, SEE and FEEL

Provocation Testing vs Biomechanical Analysis

- Provocation testing (signs and symptoms)
 - underlying principles of Maitland and McKenzie approaches
- Expands from the work of Cyriax
- Parallels modern US Osteopathic theory
- Clinically proven
- World renowned approach
- Dissention amongst biomechanists

Inert vs Active Structures

- Isometric muscle testing - contraction of damaged muscle tissue causes an increase in pain
- Bony structures of a joint are not subject to these pain increases through muscle contraction but through passive movement

Active Tests

- Active physiological movements
- Auxiliary tests
- Neurological examination

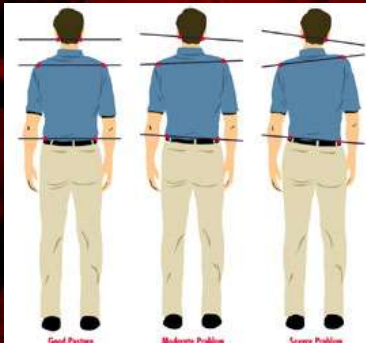
Passive Tests

- Movements of pain sensitive structures in the vertebral column
- Passive physiological movements
- Palpation
- Passive accessory range of motion of single IV joint

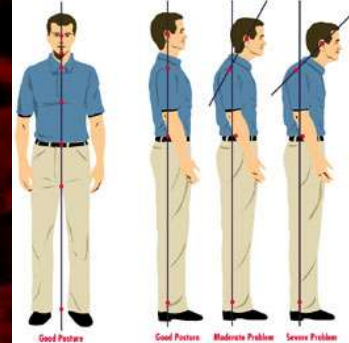
Postural Observations

- Prior to getting your patient to move you want to observe their resting posture
- Observe your patient in standing and sitting
- Observe from the side, back and front
- Look for obvious differences from one side to the next

Postural Observations



Postural Observations



Active Tests



Active Movements

Active Physiological Movements

- Patient's provocation test movement
- 'Quick Tests' that are spontaneous, functional active movements
- Assessing the range and quality of movement

Active Physiological Movements

- Shows the level of pain
- As needed: corrected, overpressure, sustained, repeated, distraction, compression, combined movements, quadrants, gait
- HEAR and SEE

Move to Pain

- The patient is asked to move through active movements until pain is experienced.
- Once pain (or other symptoms) is experienced the patient is asked to return to the starting position.

Move to Limit

- Severity of the symptoms is such that the patient is asked to move to the limit of range.
- Whether measured to pain or to limit a second measure should be taken.
- This measure moves beyond pain or limit to examine the response of the symptoms.

Application of Over-pressure

- Where there are no symptoms the patient should be asked to move to limit.
- At this point over-pressure is applied by the PT.
- Essential if movement appears to be full range and normal.
- Recorded as normal if movement is full and over-pressure can be applied.

Repeated Movements

- Patient should move in repeated fashion so the PT can look for disturbances of normal rhythm of IV movement.
- If a movement is painful repeated movements should be avoided.

Repeated Movements

- Must get into a position where all movements can be clearly viewed.
- May test movement of the upper spine on the lower or vice versa.

Protective Deformity

- Abnormal movement may occur because of pain or joint stiffness which may be painless.
- Pain will be provoked by preventing the abnormality during movement.

Protective Deformity

- With stiffness no pain response will occur.
- Correct any deviation of a movement to determine if it indicates a protective deformity.

Combined Movements

- One movement is superimposed on another or is applied once end range is reached for the primary movement.
- Forward flexion followed by side flexion
- Extension followed by side flexion
- Looking for a combination that relieves or increases a patient's symptoms.

Movement Patterns

Normal and Abnormal

Movement Patterns

- Movement of one vertebral segment involves movement of 3 joints: - 2 facet joints and 1 inter-body joint.

Movement Patterns

- Regular patterns are stretching or compression patterns.
- They produce similar movements at the inter-vertebral joints, while producing similar symptoms.

Regular Movement Patterns

- Compression Patterns
- Right lateral flexion in the lumbar spine produces right buttock pain
- Worsens when the movement is done in extension and eased when done in flexion.

Regular Movement Patterns

- Stretching Patterns
- Right lateral flexion of the lumbar spine produces left buttock pain.
- Pain is accentuated when movement is performed in flexion and eased when performed in extension.

Irregular Movement Patterns

- All patterns that are not regular fall into the irregular category.
- Left lateral flexion of the lumbar spine (stretching movement) produces right buttock pain.
- Pain worsens when movement is done in extension (compression) and eased when done in flexion (stretching movement)

Auxiliary Test Associated with Active Tests

- Performance of movement with the joint surfaces compressed together.
- Tests such as the vertebrobasilar insufficiency and neurological tests are grouped here.

Neurological Tests

- Difference between 'Signs' and 'Changes'.
- Signs are dependent on the patient's statement and can be unreliable.
- Take note of 'changes' in neurological symptoms.
- Assess nerve roots, dermatomes and reflexes.

Passive Tests

The Second Part of the Examination

Movement of Pain Sensitive Structures

- These structures may be in the vertebral canal and inter-vertebral foramen and neural linked movements.
- Assess freedom of movement of the dura of the spinal cord and lumbo-sacral nerve roots.
- Different tests can be applied to test pain sensitive structures.

Passive Physiological Test Movements

- Selected based on active test results
- Verify from the subjective evaluate the stiffest or most free test movement
- Determine location and behavior of : R1, R2, P1, P2, S1, S2, L and B
- SEE and FEEL

Passive Accessory Test Movements

- Determine Rs, Ps, Ss, Ls, Bs
- Usually find R1, back off, assess then if indicated go beyond R1
- Vary the speed, grade and angle
- At different points in the physiological range
- FEEL

Inter-vertebral Test by Palpation

- Positioning joints in their mid-position
- Assessing changes in temperature
- Assessing soft tissue changes
- Assessing bony anomalies
- Checking movement anomalies (PAIVM's)
- Assessing pain responses to the above
- Completing movement diagrams

Movement of Vertebrae

- Postero-anteriorly on spinous process
- Postero-anteriorly on transverse process
- Transversely on lateral aspect of spinous process
- Antero-posteriorly on the articular pillar of the cervical spine

Any Questions

