



## **LUMBAR SPONDYLOLYSIS/SPONDYLOLISTHESIS**

WEEK ONE

TWO TO FOUR WEEKS

**Evaluation**

**HX:** Traumatic vs. degenerative?  
Spondylolisthesis present?  
Flexion/extension radiographs?  
Stable vs. Unstable?  
Functional capacity to perform ADL's/work?

**PAIN:** Low back and/or lower extremity exercises.

**POSTURE:** May see increased or decreased lumbar lordosis. Forward flexed position may provide comfort.

**AROM:** Avoid lumbar extension and rotation.

**PROM:** Lumbar PROM and assess thoracic joint mobility.

**FLEXIBILITY:** Tight hip flexors and deep hip external rotators.

**NEURO:** Myotomes, dermatomes, DTR's, neural tension.

**BRACE:** Unstable spondylolisthesis may offer lumbar bracing. May offer temporary lumbar brace for spondylolysis at MD's discretion.

**PALPATION:** Step deformities or lateral rotation of spinous process, paraspinal muscle tone.

- Review compliance with home exercise program.
- Review ability to acquire and hold neutral lumbar spine in all positions, ie) supine, sit and stand.
- Lumbar lordosis with decreased forward flexion.
- Assess passive inter-vertebral joint mobility at levels surrounding the spondylolysis or spondylolisthesis and in the thoracic spine.
- Accommodate brace needs for continued compliance.
- Review medication usage and or TENS usage.

**Education**

- Avoid thoraco-lumbar extension exercises activities, hyperlordotic posture.
- Understand lumbar neutral spine in both static and dynamic postures.
- Corset/binder/taping for pain management and unloading spine.

- Avoid thoraco-lumbar extension exercises, activities and postures.
- Understand lumbar neutral spine in both static and dynamic postures.
- Corset/binder/taping for pain management and unloading spine.
- Body mechanics for ADL's and minor lifting.

**Treatment**

**Strength:** Initiate low-level stabilization program in supine to include multifidus and transverse abdominus. Erector spinae training from flexion to neutral.

**Flexibility:** Gentle hip flexor stretch, and deep hip external rotators stretch.

**Endurance:** Initiate walking on treadmill with grade, bike, or nustep progress to 10 min and encourage endurance activity outside of formal P.T. treatment if tolerated.

**Aquatics:** Core stabilization work, unloading and flexibility cv endurance activity.

**Brace:** Temporary lumbar corset to progress trunk stability while strengthening.

**Pain:** Modalities such as TENS along with exercise and activities to increase endurance.

**Strength:** Progress lumbar strengthening from supine to standing. Use unloading techniques while strengthening and slowly add thoraco-lumbar motion that is not flexion biased. Avoid hip flexor strengthening like SLR. If stable on static surfaces, add dynamic levels to straight plane exercises.

**Flexibility:** Pt should be independent with HEP. Treat deficits and residual muscle tightness.

**Endurance:** Walking or biking program 10-30 minutes outside of formal P.T. treatment.

**Aquatics:** Progress to deep-water exercises and increase resistance in shallow water exercises.

**Brace:** De-bracing as tolerated.

**Goals**

- Avoidance of extension activities.
- Understanding of thoraco-lumbar neutral spine.
- Independence with home pain management.
- Independence with HEP and walking program.
- Independence with donning/doffing applicable corset/binder.

- Neutral spine in all positions
- Independent with body mechanics for lifting and restrictions of activity until core strength obtained.
- Establish return to work plan or return to recreation plan.
- Independent with pain management techniques.
- Independent with home walking, physioball and exercise program.
- Demonstrate reversal of lordosis with forward bend.
- Use brace only as needed.



## **LUMBAR SPONDYLOLYSIS/SPONDYLOLISTHESIS**

### WEEKS FIVE TO DISCHARGE

#### **Evaluation**

- Return to work or recreation plan if supported by MD Contact employer, case worker, or trainer as indicated.
- Demonstrate neutral spine with trunk stability engaged throughout all straight plane, trunk stabilization therapeutic exercises and ADL's.
- Demonstrate a full squat maintaining a neutral spine without loss of balance and/or demonstrate a single knee with same neutral spine postures.
- Lower extremity flexibility limitations.
- Bracing effectiveness.
- Lifting tolerance.

#### **Education**

- Avoid twisting and rotation when loading spine.
- Review use of brace if activity warrants it.
- Emphasis on keeping established core strength and bridging the patient to continued success in their exercise/hobbies.

#### **Treatment**

- Strength:** Progress to PNF thoracic and upper extremity diagonals.  
Progress toward multiplane exercises as tolerated.  
Decrease limits of stability with unsupported positions of exercise.
- Endurance:** Timed proprioceptive exercises while maintaining core stability.
- ADL/Work:** Simulate lifting and endurance type activity needed for work and recreation.
- Manual Therapy:** Grade I-III in thoracic spine, address myofascial component of pain.

#### **Goals**

- Discuss return to work and/or return to recreational activity.
- Improve to full lordosis in standing pain-free.
- Demonstrate full reversal of lordosis fingertips to lower shin or the floor.
- Demonstrate full squat with neutral spine, without loss of balance.
- Independent with pain management as needed.
- Patient to resist standing rotational perturbations to test multifidus.
- Achieve fifty modified abdominal curls if tolerated
- Independent with home walking exercise program
- Progressive return to light duty work.
- Appropriate referral outside realm of P.T. if necessary