Lumbar Spondylolysis and Spondylolisthesis Protocol

Initial Evaluation	Evaluate
 Hx: Spondylolysis – rest and protect > Is it Acute traumatic vs repetitive stress spondylolysis due to hyperextension? Can be unilateral or bilateral occurring L5 vertebrae between 85-95% of the time; L4 5-15% of the time. > Most are unable to identify any particular traumatic incident 	 Phase 2 static stability +1-4 weeks Review HEP Pain management Neutral spine with daily activities Core bracing techniques If patient wasn't braced initially are they a candidate for bracing? If rest and activity modification wasn't successful for pain management Re-assess neuro system Better /worse/same?
 Twice as common in male verse females Genetic predisposition- seen within families (1st degree relatives) 	 Joint mobility Above and below site (hip and thoracic spine) Soft tissue restrictions locally or regionally due to potential compensation Range of motion Full UE and LE range of motion w/ neutral spine
Is Spondylolisthesis present?	
 Is it from spondylolysis or degenerative spondylolisthesis? Degenerative slippage seen at L4 Rarely seen under age 40 Progression of spondylolisthesis after age of 20 is much less common compared to progression during childhood and adolescence. Degree of anterolisthesis present may be of minimal clinical importance, degree of LBP experienced has good correlation with the degree of instability Prominent instability with minimal anterolisthesis is more problematic then stable segments with prominent anterolisthesis. 	
 Imaging ➤ Xrays, flexion/extension, oblique ○ CT/MRI ➤ Instability with segment? 	
Pain: Chief Complaint LBP seen in 47% of adolescents who have spondylosis and 5% adults.	
Location: Low back pain with radiculopathy (leg pain); pain down one or both legs especially with extension positions; Gluteals and posterior aspect thighs	
 Spondylosis: Asymptomatic in majority of people. Active and inactive lesions: can be incidental finding Back pain in child/adolescence raise suspicion newly 	

 Activity modifications/restrictions: avoiding hyperextension and rotation Rest 8-12 weeks – acute spondylolysis If it is ports no sports Therapeutic Exercise* Therapeutic Exercise* Phase 1: rest and/or protect; first ~8-12 weeks for acute spondylolysis/spondylolisthesis, week 0 degenerative spondylolysis/spondylolisthesis General exercise 	\triangleright	Abdominal bracing	➢ Good lifting mechanics
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F Joint mobilization gru 1-2 for pain aneviation moracle spine,	\triangleright	Thoracic manipulation for pain relief	> Joint mobilization grd 1-2 for pain alleviation thoracic spine;
Gentle STM to paraspinals/other tender areas based on manipulation for global pain modulation and neuromuscaular	\triangleright	Gentle STM to paraspinals/other tender areas based on	manipulation for global pain modulation and neuromuscaular
palpation facilitation		palpation	facilitation
 Segmental traction for pain relief Dry needling pain relief 		Segmental traction for pain relief	 Dry needling pain relief
Goals Goals		Goals	Goals

AAA	Independent with pain management strategies o pain free daily activities Independent with HEP (general exercise, core bracing, neutral spine, gradually increase flexibility upper and lower extremities) Understanding importance of activity restriction/modifications- avoiding hyperextension	A	Maintain pain free (nearly) range, pain free daily activities, increase core strength, normal hip and thoracic mobility, progress flexibility and lumbar stabilization to WB postures, improve proprioception.
	* Exercises within each category are to provide the clinician with examples b	ased	on evidence based research, but are not all inclusive

Evaluate	Evaluate
 Phase 3: dynamic stabilization; +4-6 > Is patient progressing as expected? > ROM spine Progressing towards full range, no restrictions > Joint mobility Progressing towards normal mobility globally > Soft tissue Decreased protective tone, restore normal tension > Neuro screening – WNL If persistent neuro- referral out? Is Non-union/instability present? Precautions: avoid prolonged pain with initiation lumbar extension AROM Progression criteria: no increase in pain with lumbar range of motion 	 Phase 4: coordination, athletic development; +6-8 ROM: spine/UE/Le should be WNL Joint mobility- WNL Soft tissue- no restrictions Neuro - WNL Progression criteria: pain free with all motions Phase 5: return to sport +3-6 months Precautions: may need to be cautious with returning to Olympic lifting (power lifting)
motion.	
Patient Education	Patient Education
Pain management with increased lumbar range of motion	Importance of good mechanics with high level activities
Therapeutic Exercise*	Therapeutic Exercise*
 Therapeutic Exercise* General exercise: mod intensity stationary biking or elliptical machine, shallow water (chest deep water) Suggested exercises: single leg brides, plank, squats/hip hinge, upper body lifting w/ spine neutral, lunges, oblique rotations starting in HL/supine, OH reaching. 	 Therapeutic Exercise* Phase 4: Suggested exercises: chopping/lifting patterns (diagonals), body weight suspension exercises TRX, progression impact loading (sport specific), gradual exposure to sport specific activities/drills Phase 5: Suggested exercises: squats with medicine ball throw/rotations, single leg DL with weight, front squat, lunges with twist, hip sleds, plyometrics, abdominal workouts, sports specific exercises.
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Special Considerations

- Conservative management: depends on the grade, high success for early and progressive spondylosis, and impact on daily life
 Can take 3-6 months to heal majority of unilateral fractures and 50% bilateral
- Surgery
 - Symptoms persistent > 6months
 - neurological complications (persistent)
 - o Segmental Instability
 - Progression slippage grade III or higher

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