Rehabilitation Guidelines for Conservative Management of Spondylosis/Degenerative Changes of the Lumbar spine

These guidelines are intended to guide clinicians and patients through the conservative course for Spondylosis/ Degenerative changes of the lumbar spine. These guidelines are time based (dependent on tissue healing) as well as criterion based. Specific intervention should be based on the needs of the individual and should consider exam findings and clinical decision making. The timeframes for expected outcomes contained within this guideline may vary based on physician preference, additional procedures performed, and/or complications. If a clinician requires assistance in the progression of a patient, they should consult with the referring provider.

The interventions included within these guidelines are not intended to be an inclusive list of exercises. Therapeutic interventions should be included and modified based on the progress of the patient and under the discretion of the clinician.

Considerations for lumbar spondylosis
Many different factors influence the spondylosis/ degenerative changes rehabilitation outcomes, including acute or chronic, leg pain, comorbidities, and psychosocial factors. It is recommended that clinicians collaborate closely with the referring physician regarding progression through the phases of the program.

PHASE I: ACUTE (0-6WEEKS), 6-8 PT visits

Rehabilitation Goals	• Control Pain/ inflammation • Centralization of LE radicular symptoms, if present • Participate safely in activities of daily living • Address mobility /flexibility limitations of the hip and lumbar spine • Promote hip and core muscle strength and stability • Maintain cardiovascular conditioning
Bracing/ Precautions	• Lumbar support may be indicated • Assistive device for ambulation may be indicated • Precautions: avoid prolonged sitting, bending, lifting, repetitive twisting

Interventions	*Education*
	• Patient education: posture, positioning, body mechanics, activity modification including home walking program
	• Utilize Oswestry Questionnaire to guide functional outcomes
	• If chronic, include pain neurophysiology, utilize FABQ, STarT Back tool
	
	Pain Management
	• Modalities: heat/ice
	• Frequent changes of position
	• Lumbar spine unloading techniques,
	
	Mobility/Flexibility
	• Manual Therapy
	  ○ Soft Tissue Mobilization: paraspinals, quadratus lumborum, piriformis, gluteals
	  ○ Manual stretching: Iliopsoas, Rectus femoris, Iliotibial band, as indicated
	  ○ Hip/Lumbar spine/Thoracic spine mobilization
	• Hip and LE flexibility

	○ Supine modified Thomas position hip flexor stretching ○ Supine piriformis stretching ○ Supine hamstring stretching (if no radicular symptoms present) ○ Supine gluteal stretching ○ Standing hip flexor stretching ○ Standing gastrocnemius stretching ○ Standing hamstring stretching (if no radicular symptoms present) ○ Quadruped rock • Thoracic and Lumbar spine ○ Supine single knee to chest ○ Supine pelvic tilt/pelvic clock ○ Supine lower trunk rotation (if low reactivity) ○ Standing hip flexion/extension on step ○ Quadruped/modified plantigrade cat/camel *Stability/strength* • Local core muscle control (Transverse Abdominis (TA)/Multifidus (MF)) in low load, spine-supported positions ○ Hook-lying isometric TA contraction ○ Hook-lying isometric TA contraction with heel slides ○ Hook-lying isometric TA contraction with alternate UE elevation ○ Hook-lying ADIM with single leg fall out • Hip strengthening ○ Hook-lying gluteal set ○ Hook-lying modified bridge with TA contraction ○ Sit to stand with neutral lumbar spine ○ Modified plantigrade hip abduction *Cardio/low impact* • Aquatics • NuStep • Stationary/recumbent bike • Treadmill • Home walking program
Criteria to Progress	• Improved tolerance to weight bearing positions • Neutral spine position with transitional movements • Improved quality of gait

PHASE II: SUBACUTE STRENGTHENING (6-12 WEEKS), 6 PT visits

Rehabilitation Goals	• Monitor pain/inflammation • Continue to address mobility/flexibility limitations • Improve hip and core muscle strength and stability • Progress cardiovascular conditioning • Improve consistency with use of proper body mechanics • Continue gradual loading to the lumbar spine in more functional positions
Bracing/ Precautions	• Reduce/discontinue use of lumbar support • Precautions: avoid prolonged sitting, bending, lifting, repetitive twisting
Additional Interventions **Continue with Phase I interventions, as indicated*	*Stability/strength* • Neutral trunk stabilization ○ Hook-lying isometric TA contraction with march ○ Supine dead bug ○ Modified plantigrade bird dog • Hip strengthening ○ Side-lying clamshell ○ Hook-lying bridge with theraband ○ Hook-lying bridge with heel lift

	• Closed chain strengthening
	  ○ Standing squat with/without support
	  ○ Standing lunge with/without support
	  ○ Standing staggered standing low rows
	  ○ Standing staggered standing latissimus pulldown
	  ○ Standing anti-rotation trunk exercises
	  ○ Quadruped bird dog
	  ○ Standing step-up with/without support
	
	Stretching/Mobility
	• Thoracic/Lumbar
	  ○ Quadruped child's pose
	  ○ Quadruped thread the needle
	  ○ Side-lying open book with hip flexion
	• Hip
	  ○ Half-kneeling psoas stretching
	
	Neuromuscular re-education
	• Standing balance exercise progression
	
	Cardio/low impact aerobics
	• Progress treadmill walking: speed/incline
	• Progress stationary bicycle: cadence/resistance
	• Progress NuStep: resistance/cadence
	• Progress elliptical machine: speed/incline
	• Aquatics

Criteria to Progress	• Centralized symptoms • Pain free ADLs • Pain controlled with prolonged tolerance to weight bearing positions • Consistent use of proper body mechanics

PHASE III: ADVANCED STRENGTHENING (12-16WEEKS), 2-4 PT visits

Rehabilitation Goals	• Address mobility/flexibility limitations • Progress core and lower quarter strength and endurance, as appropriate/tolerated • Demonstrate lumbopelvic control with closed chain movement patterns • Progress cardiovascular endurance
Bracing/ Precautions	• Return to gym- based exercise program safely
Additional Interventions **Continue with Phase I-II Interventions*	*Stability/Strength* • Standing squat progression • Side-stepping with/without resistance • Standing single leg pull downs • Standing loaded carry from different heights *Neuromuscular re-education* • Proprioceptive training on static and dynamic surfaces • PNF diagonals with/without resistance *Cardio/low impact aerobics* • Progress treadmill walking: time/speed/incline • Progress Stationary bicycle: time/ cadence/resistance • Progress elliptical machine: resistance/incline
Criteria to Progress	• Pain fee ranges of all lumbar motions • Minimal to no pain or difficulty with integrated movements with load

PHASE IV: OPTIONAL RETURN TO SPORT/RECREATIONAL EXERCISE (16 WEEKS +)

Rehabilitation Goals	• Introduce, progress and maximize sport/recreational specific strength, endurance, and performance training, increasing intensity, volume, speed as appropriate • Demonstrate lumbopelvic control with dynamic sports/ recreational specific activities • Establish appropriate training routine with independent management plan
Additional Interventions **Continue with Phase I-III interventions*	*Education* • Monitor graded return to sport specific and/or recreational exercise
Criteria to Discharge	• No increase in pain during/after sport specific exercise training • Proper mechanics during sports specific movement with full volume/intensity • Participate at pre-injury performance level without pain

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Contact	Please email MGHSportsPhysicalTherapy@partners.org with questions specific to this protocol

References:

1. Middleton K, Fish DE. Lumbar spondylosis: clinical presentation and treatment approaches. Curr Rev Musculoskelet Med. 2009 Jun;2(2):94-104. doi: 10.1007/s12178-009-9051-x. Epub 2009 Mar 25. PMID: 19468872; PMCID: PMC2697338.
2. George SZ, Fritz JM, Silfies SP, et al. Interventions for the Management of Acute and Chronic Low Back Pain: Revision 2021. *J Ortho Sports Phys Ther*. 2021;51(11): Cpg1-cpg60.