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Lumbar Spine Post-operative Guidelines

Adapted from Hospital for Special Surgery PT Program

The following post-operative lumbar spine guidelines were developed by HSS Rehabilitation and are categorized into levels of irritability. These guidelines are intended to assist the clinician in structuring an appropriate criteria-based and individualized treatment plan for a patient. Patients may enter Phase 1 sometime between post-operative weeks 6-12 depending on surgeon preference and surgical type. Following minimally invasive spine surgery, patients may enter Phase 1 at post-operative weeks 2-4 and progress according to level of irritability. While based on the most current evidence as well as clinical pearls from experienced clinicians, guidelines are not meant to be a substitute for clinical reasoning and decision making. Most patients will not fit perfectly into one phase, category, or group. It is the clinician's responsibility to determine the most reasonable treatment model based on sound clinical judgement and assessment of objective clinical findings. For appropriate utilization of these guidelines, it is imperative that the clinician be familiar with the current clinical practice guidelines and treatment-based classifications systems for low back pain, in order to make the most appropriate evidence-based decisions.

It is further noted that the language used by the clinician during the evaluation and throughout all treatments has a substantial impact on the patient's outcome. The clinician must always use a patient-centered approach to promote function and healthy lifestyle decisions. As the goals and plan of care are developed, it is important that the patient take an active role in making informed decisions about their health behavior. It is recommended that the clinician de-emphasizes pathoanatomical explanations of pain or dysfunction, and instead empower the patient by using language that promotes improvements in function based on the patient's behaviors and goals.

If any of these symptoms are present in conjunction with low back pain, refer for medical work up:

- New or recent trauma
- New onset of bowel and bladder dysfunction (retention / incontinence)
- Recent change in neurological status (new onset of saddle anesthesia)
- Severe loss of coordination
- LBP associated with constitutional symptoms
- Previous history of cancer
    - Age < 20 years or > 50 years (malignancy), > 70 years (fracture)
- Failure to improve with conservative care

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If any of these yellow flag risk factors (see reference #2) are present in conjunction with back pain, consider the impact on patient progression and consider the possibility for psychological referral:

- Depression/anxiety
- Psychosocial issues (e.g. secondary gain issues, No-Fault cases)
- Work related conditions (e.g. job dissatisfaction, Worker's Compensation)
- Substance abuse or chronic opioid use

Follow physician modifications as prescribed.

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Acute Care Phase: Week 1

PRECAUTIONS

- Precautions if indicated by MD - no bending, lifting, or twisting ("BLT")
    - Lifting restriction is not specified, generally accepted as lifting nothing heavier than 5 pounds
- Brace if indicated by MD

ASSESSMENT

- Activity Measure for Post-Acute Care (AmPAC)
- Mental status: A&O x 3
- Positional headaches (red flag for possible dural tear)
- Numeric Pain Rating Scale (NPRS)
- Wound status
- Post-anesthesia sensory motor screening
    - Post-operative numbness/weakness
- Functional status

TREATMENT RECOMMENDATIONS

- Ankle pumps & quadriceps sets
- Log roll transfers into and out of bed
- Gait training using appropriate device (with or without brace, as indicated by MD), progressing as appropriate
- ADL training (possible OT consult if appropriate)
- Positioning recommendations – side-lying, supine, seated in chair
- Bracing based on surgeon recommendations
- Initiate and emphasize importance of progressive home ambulation program

CRITERIA FOR ADVANCEMENT (DISCHARGE HOME)

- Length of stay ranges from discharging day of surgery up to 6 days based on complexity of surgery and post-operative complications, e.g. increased drainage, pain
- Independent with all transfers
- Independent ambulation with appropriate assistive device
- Independent stair climbing if needed
- Observes spine precautions if indicated by MD

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- Patient/family expresses understanding of progressive home activity program
    - Change positions every hour, e.g. walk to bathroom, sit in chair, roll over, get a drink of water
    - Ambulate greater than 3x per day - length dependent on fatigue/endurance/pain; progress as tolerated
    - Home environment appropriate for patient function

EMPHASIZE

- Demonstration of proper body mechanics and practice of good spine health, regardless of precaution protocol
- Activity/walking as tolerated

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Phase 1: Activity Modification (High to Moderate Irritability)

PRECAUTIONS

- Adhere to surgeon's precautions, as applicable
- Avoid exacerbating recurring symptoms
- Referain from pathoanatomical explanations

ASSESSMENT

- Screen for sinister pathology- if present, refer back to MD
  - Red flag screen
  - Sensory and motor baselines
- NPRS
- Oswestry Back Index (ODI)
- Fear Avoidance Belief Questionnaire (FABQ)
- Incision/scar assessment
- Functional mobility
  - Bed mobility
  - Transfer skills
  - Gait efficiency and safety
  - Stair safety
- Balance assessment
  - Single leg stance (eyes open/eyes closed)
- Postural control and ability to self-correct posture
  - Statically and dynamically
- Neurologic and neurodynamic examinations

TREATMENT RECOMMENDATIONS

- Functional mobility training
- Core activation
- Postural re-education
- Therapeutic exercise
- Proprioceptive exercises to improve general balance, e.g. postural correction

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CRITERIA FOR ADVANCEMENT

- No red flags or sinister pathology
- Adequate symptom control
- Core control to maintain neutral posture statically and dynamically
- Safe ambulation with or without assistive device
- Safe and appropriate for outpatient physical therapy

EMPHASIZE

- Assurance of safety and appropriateness for outpatient physical therapy
- Independence in all functional mobility
- Ability to perform appropriate therapeutic exercise
- ADLs within pain tolerance

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Phase 2: Activity Impairments (Moderate Progressing to Low Irritability)

PRECAUTIONS

- Avoid exacerbating recurrent symptoms (radiculopathy and neural tension)
    - Any activities that increase previous signs and symptoms > 1 day
        - Consider reverting to a previous phase if exacerbation is in excess of 1 day

ASSESSMENT

- Neurological assessment
- NPRS
- ODI
- FABQ
- Posture
- Transfers
- Gait
- AROM
- Functional movements
    - Squat
    - Single leg stance (time, quality, Trendelenburg)

TREATMENT RECOMMENDATIONS

- Progression of Phase I exercises/activities
- Assignment to Treatment Based Classification if appropriate
- Impairment based approach
- Advance neutral spine activities with upper and lower extremity strengthening
- Regain ROM where appropriate:
    - Stretching of hip flexors/quads, hip rotators, hamstrings
    - Thoracic and lumbar mobility
        - Cat/camel
        - Child's pose
- Stationary biking and elliptical endurance training
- Postural strengthening and endurance activities
- General strengthening activities with neutral spine
    - Add resistance as appropriate
- Functional strengthening activities
    - Planks, step-up/down, squats, lunges
- Balance exercise
    - Static progressing to dynamic as tolerated

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CRITERIA FOR ADVANCEMENT

- Pain managed during functional activities
- Able to lift light to moderate weights if placed appropriately
- Independent with progressive HEP
- Ambulation >5 blocks (community ambulation)

EMPHASIZE

- Understanding of precautions
- Active spinal range of motion
- Unloaded spinal stabilization in neutral
- Postural re-education endurance exercises
- Functional strengthening
- Balance near normative values
- General strengthening

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Phase 3: Restoration of Function (Low to No Irritability)

PRECAUTIONS

- Ensure patient is cleared by MD for multi-planar activity and spinal loading
- Avoid symptom provocation with ADL's and therapeutic exercise
    - Any activity that increases signs and symptoms > 1 day
    - Consider reverting to a previous phase if exacerbation is in excess of 1 day
- Avoid high impact activities unless cleared by MD

ASSESSMENT

- NPRS
- ODI
- FABQ
- Functional movements: functional squat, single leg stance
    - Single leg stance (time, quality, Trendelenburg)
    - Step up/step downs
    - Multi-planar AROM (rotational)
- UE/LE strength
- Flexibility

TREATMENT RECOMMENDATIONS

- Thoracic spine mobility and full integration exercises
- Leg press progressions
- Bending/lifting light weight off ground with proper mechanics
- Standing core strengthening: Pallof press variations
- PNF patterns in half kneeling and standing (chops and lifts)
- Advanced resistive multidirectional training
- Dynamic balance activities
- Lunges with weight
- Transfers: kneeling/half kneel/quadruped
- Advanced mobility exercises
- Job specific movements

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CRITERIA FOR DISCHARGE (OR ADVANCEMENT IF RETURN IF RETURNING TO SPORT)

- Independent with progressive home/community-based activity programs
- Adequate strength and neuromuscular control of UE and LE
- ROM WFL
- Minimal pain with functional activities
- Independent with ADL's
- Discharge or move onto phase 4 if the goal is to return to sport or advanced functional activities

EMPHASIZE

- Advanced functional mobility
- Loaded multi-planar spinal exercises
- Maximize LE ROM and strength of all joints
- PNF and multi-planar neuromuscular control and strengthening
- Progress cardiovascular strengthening

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Phase 4: Return to Sport (if applicable)

PRECAUTIONS

- Monitor exercise dosing- avoid too much too soon
- Be certain to incorporate rest and recovery
- Clearance by MD for return to sport

ASSESSMENT

- NPRS
- ODI
- FABQ
- Functional movements: functional squat, single leg stance
    - Single leg stance (time, quality, Trendelenburg)
    - Step up/step downs
    - Multi-planar AROM (rotational)
- UE/LE strength as indicated
- Flexibility

TREATMENT RECOMMENDATIONS

- Sport-specific training
- Sport-specific warm up and activities
- High resistance training
- Dynamic neuromuscular re-education
- Speed, agility, and coordination drills as necessary for sport
- Multi-planar and rotational movement patterns
- Loading the spine with weight as tolerated
- Abdominal strength to meet sport specific demands
- Increase work and exercise capacity

CRITERIA FOR ADVANCEMENT OR DISCHARGE

- Full activity participation
- Independent symptom management

EMPHASIZE

- Self-monitoring volume of exercise and load progressions
- Functional progressions
- Speed and accuracy
- Communication with appropriate Sports Performance expert

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