LUMBAR SPINE POST-OPERATIVE GUIDELINES

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 depending on surgeon preference. While based on the most current evidence and clinical experience, they are not meant to 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, 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 and empower the patient to make behavioral and lifestyle changes to achieve functional goals.

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

- Include Review of Systems / Red Flag Screening, for example:
  - New or recent trauma
  - Cauda Equina - new onset of bowel and bladder dysfunction (retention/incontinence)
    - Back and/or sciatic pain plus
      - Any disturbance in bladder or bowel function (new)
      - Saddle or genital sensory disturbance
      - Bilateral leg pain
      - Severe or progressive bilateral neuro deficit of legs
      - Altered sexual function – new onset
  - RISK FACTORS:
    - Large herniated lumbar disc
    - History of spinal stenosis/malignancy/osteoporosis
    - Congenitally narrow spinal canal
    - Spina bifida
Recent change in neurological status (new onset of saddle anesthesia)
Severe loss of coordination
Discitis / Infection - LBP associated with constitutional symptoms
  - Severe localized low back pain
  - Gross loss of movement
  - Difficulty walking
  - Fever (not always particularly when the infection has localized within the disc)
  - Weight loss
  - Muscle spasms
RISK FACTORS:
  - Recent bacterial/fungal/viral infection
  - Recent spinal surgery/injection
  - Immunosuppressed – diabetes mellitus/rheumatological arthritis/HIV/malignancy
  - Alcoholism/smoker/intravenous drug user
  - Renal impairment
  - Poor living conditions
  - Can occur in cervical/thoracic commonly lumbar
  - Age: children or over 50 more commonly affected
  - Males > Female
Abdominal Aortic Aneurysm
  - Severe low back pain/flank pain worse on exertion
  - Groin or abdominal pain – band like pain
  - Blood pressure may have started to drop
  - Palpable, pulsatile abdominal mass left of umbilicus
  - Syncope, shortness of breath, dizziness
RISK FACTORS:
  - Male over 50
  - Smoker or have smoked
  - Hypertension/Hypercholesterolemia
  - Cardiovascular history: ischemic heart disease
Previous history of cancer
  - Age < 20 years or > 50 years (malignancy), > 70 years (fracture)
  - Past Medical History: prostate/lung/breast/thyroid/kidney most commonly have affinity to metastasize to bone especially spine
    - Most common site is thoracic spine but can occur lumbar/cervical (essential to do whole spine MRI)
    - 30% go on to develop metastases
Compression fracture
  - > 70 years, prolonged corticosteroid use, trauma, female
o Failure to improve with conservative care
o Inflammatory back pain
  ▪ Morning stiffness of >30 minutes' duration
  ▪ Improvement in back pain with exercise but not with rest
  ▪ Awakening because of back pain during the second half of the night only
  ▪ Alternating buttock pain
  ▪ Hand swelling
  ▪ Enthesitis
  ▪ Uveitis
  ▪ Psoriasis
  ▪ Axial: ankylosing spondylitis/reactive/psoriatic/RA
  ▪ Recent infection (bowel/genitourinary)
  ▪ Risk factors:
    • Family History: Inflammatory conditions
    • Caucasian>Afro-Caribbean/Asian
o Positional headaches (red flag for possible dural tear)

FOLLOW SURGEON MODIFICATIONS AS PRESCRIBED.
LUMBAR SPINE POST-OPERATIVE GUIDELINES
Acute Care Phase: Week 1

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

ASSESSMENT
- Numeric Pain Rating Scale (NPRS)
- Activity Measure for Post-Acute Care (AmPAC)
- Screen for sinister pathology – refer to surgeon if present
  - Flag screen
  - Sensory and motor baselines
- Incision/scar assessment
- Functional mobility
  - Bed mobility
  - Transfer skills
  - Gait efficiency and safety
  - Stair safety

TREATMENT RECOMMENDATIONS
- Positioning recommendations – side-lying, supine, seated in chair
- Bracing based on surgeon recommendation (e.g., foot drop)
- Log roll transfers into and out of bed
- Gait training using appropriate device (with or without brace, as indicated by surgeon), progressing as appropriate
- Activities of daily living (ADL) training (occupational therapist (OT) consult if appropriate)
- Neuro-motor activation of relevant musculature
- Initiate and emphasize importance of 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)
- Observes spine precautions if indicated by surgeon
• Patient/family expresses understanding of progressive home activity program
  o Change positions every hour (e.g., walk to bathroom, sit in chair, roll over, get a drink of water)
  o Ambulate greater than 3 times per day - length dependent on fatigue/endurance/pain; progress as tolerated.
  o Home environment appropriate for patient function

• Independent with all transfers
• Independent ambulation with appropriate assistive device
• Independent stair climbing if needed

**EMPHASIZE**
• Demonstration of proper body mechanics and practice of good spine health, regardless of precaution protocol
• Activity/walking as tolerated
LUMBAR SPINE POST-OPERATIVE GUIDELINES
Phase 1: Activity Modification (High to Moderate Irritability)

PRECAUTIONS

- Adhere to surgeon precautions, as applicable
- Avoid exacerbating recurring symptoms
- Refrain from pathoanatomical explanations

ASSESSMENT

- Patient Reported Outcome Measures
  - Use appropriate patient reported outcomes measure to stratify risk and identify individuals with high likelihood of poor prognosis
    - Willingness to change
    - Optimal Screening for Prediction Referral and Outcome for Musculoskeletal Pain conditions (OSPRO)
    - Orebro Musculoskeletal Pain Questionnaire
    - Oswestry Disability Index (ODI)
    - Fear-Avoidance Belief Questionnaire (FABQ)
    - STarT Back Tool: central sensitization inventory
- NPRS
- AmPAC
- Mental status
- Observation
- Wound status
- Static / Dynamic posture
  - Kyphotic deformity
  - Lateral shift
  - Scoliosis
- Neurologic and neurodynamic examinations
  - Sensory
  - Deep tendon reflexes (DTR)
  - Upper motor neuron (UMN)
  - Manual muscle testing (MMT)
    - Heel and Toe walking
- Palpation
  - Hypertonicity, tenderness, swelling, temperature
• Range of motion (ROM) (Active / Accessory / Physiologic ROM)
  o Lumbar Spine
  o Lower Quadrant
• Function based assessment of impairments
  o Squat
  o Single leg stance (SLS)
  o Tandem stance
  o Timed up and go
  o 10 meter walk test
  o 30 second sit to stand
  o 6-minute walk test
  o Balance Error Scoring System (BESS)
• Gait

TREATMENT RECOMMENDATIONS
• Communicate with surgeon regarding treatment preferences
• Education of symptom management and explanation of rehabilitation process
• Address impairments found on evaluation
  o Functional mobility training
  o Neuromuscular re-education
  o Soft tissue mobilization
  o Provide proper posture modification at home/work
  o Proprioceptive exercises to improve general balance (e.g., postural correction)

CRITERIA FOR ADVANCEMENT
• Symptom management
• Safe ambulation with or without assistive device
• Independence in all functional mobility

EMPHASIZE
  ▪ Assurance of safety with ADL
  ▪ Consistency and independence with home exercise program
LUMBAR SPINE POST-OPERATIVE GUIDELINES
Phase 2: Addressing Impairments (Moderate Progressing to Low Irritability)

PRECAUTIONS
• Avoid exacerbating recurrent symptoms (radiculopathy and neural tension)

ASSESSMENT
• Use appropriate PROM to objectively monitor patient progress
• Continue to assess patient’s psychological status, fears, beliefs, and willingness to change
• Continue to assess and monitor relevant impairments, flags, neurological and functional status
• Test and re-test familiar symptoms and functional impairments to determine intervention effectiveness

TREATMENT RECOMMENDATIONS
• Assignment to Treatment Based Classification
• Independent symptom modulation
• Impairment based approach
  o Mobility
    ▪ Regain active ROM in all directions
  o Stability
    ▪ Proper neuromuscular activation
    ▪ Back/core/lower extremity (LE)
    ▪ Consider crossed patterns and kinetic chains
    ▪ Aerobic conditioning for activity tolerance, conditioning, decreased pain pressure threshold
  o Functional
    ▪ Movement dissociation
    ▪ Movement education for work related activity
    ▪ Progress functional activities that are meaningful to patients, in multiple planes with varying speeds, direction and resistance
  o Aerobic Activity
    ▪ Stationary biking and elliptical endurance training

CRITERIA FOR ADVANCEMENT
• Ambulation >5 blocks (community ambulation)
• Able to lift light to moderate weights if placed appropriately
• Pain managed during functional activities
• Independent with progressive home exercise program (HEP)
**EMPHASIZE**

- Understanding of precautions
- Active spinal range of motion
- Unloaded spinal stabilization in neutral
- Postural re-education endurance exercises
- Functional strengthening
- General strengthening
- Balance near normative values
LUMBAR SPINE POST-OPERATIVE GUIDELINES
Phase 3: Restoration of Function (Low to No Irritability)

PRECAUTIONS
- Ensure patient is cleared by surgeon for multi-planar activity and spinal loading
- Avoid symptom provocation with ADL 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 surgeon

ASSESSMENT
- Use appropriate PROM to objectively monitor patient progress
- Continue to assess patient’s psychological status, fears, beliefs and willingness to change
- Continue to assess and monitor relevant impairments, flags, neurological and functional status
- Test and re-test familiar symptoms and functional impairments to determine intervention effectiveness

TREATMENT RECOMMENDATIONS
Progress from Phase 2 and consider increasing intensity, duration, load, and frequency of activity
Patient encourage to perform general exercise in conjunction with specific physical therapy based exercises

CRITERIA FOR ADVANCEMENT OR DISCHARGE
- Independent with progressive home/community-based activity programs
- Independent with ADL
- Minimal pain with functional activities
- ROM with within functional limits
- Adequate strength and neuromuscular control of upper extremity (UE) and LE
- Discharge or move onto phase 4 if the goal is to return to sport or advanced functional activities

EMPHASIZE
- Advanced functional mobility
- Maximize LE ROM and strength of all joints
- Progress cardiovascular exercise
LUMBAR SPINE POST-OPERATIVE GUIDELINES

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 surgeon for return to sport

ASSESSMENT

- Use appropriate PROM to objectively monitor patient progress
- Continue to assess patient’s psychological status, fears, beliefs, and willingness to change
- Continue to assess and monitor relevant impairments, flags, neurological and functional status
- Test and re-test familiar symptoms and functional impairments to determine intervention effectiveness

TREATMENT RECOMMENDATIONS

- Activity specific training
- Agility and coordination drills as necessary for sport
- Sport specific warm up and activities

CRITERIA FOR 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
LUMBAR SPINE POST-OPERATIVE GUIDELINES

References


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