



## Advanced Orthopedics and Sports Medicine Post operative Spine Rehab-Cervical Laminoplasty/Discectomy Treatment Guideline

### **Phase I: Immediate post Surgical Phase (IPSP) 0-6 weeks**

**Goals:**

1. Decrease pain and inflammation.
2. Increase activity tolerance.
3. Encourage wound healing.
4. Increase aerobic tolerance (independent with home program 20 min tolerance to exercise).
5. Monitor for signs of possible infection.
6. Educate on body mechanics and posture for bed mobility

**Precautions:**

1. Prevent excessive initial mobility or stress on tissues.
2. Please follow physician recommendations regarding use of collars etc. (multilevel fusions hard collar for 6 wks; one-level fusions wear a collar as needed for a week or two)

**Treatment Summary:**

1. Education on bed mobility and transfers with proper spine positioning.
2. Reinforce basic post-op home exercise program including
  - a. Diaphragmatic breathing
  - b. Relaxation exercises
  - c. Upper extremity extension isometric exercises
3. Increase tolerance to walking (½ mile daily) or bike (15-30 min cardiovascular activity)
4. Reinforce sitting, standing and ADL modifications with neutral spine and proper body mechanics.

**Criteria for progression:**

1. Pain and swelling within tolerance.
2. Independent HEP
3. Tolerance of 15 min of exercise and 15-30 min of cardiovascular exercise.
4. Functional ADL for self care/hygiene

### **Phase II: Initiation of OP-PT 6-9 weeks/2-3 times per week**

**Goals:**

1. Patient education/Back-Neck school
2. Reestablish neuromuscular recruitment of the longus colli (Functional dynamic stability)
3. MMT of 4/5 cervical spine (isometric), 5/5 UE
4. Initiate flexibility exercises.
5. Cervical joint position sense
6. Normalize scapulohumeral rhythm
7. Return to activities of daily living
8. Improve positional tolerances for return to work (sitting/standing 30-45 min)

**Precautions:**

1. Avoid excessive cervical loading (minimize overhead arm resisted movements)

**Treatment Summary:**

- Body Mechanics Education
  - Anatomy, Pathology, & Biomechanics
  - Reinforce neutral spine positioning
  - Body mechanics and training: Performance of functional activities with neutral spine and protective positions
- Manual Therapy
  - Grade 1 or grade 2 joint mobs for neuromodulation of pain
  - Scar mobilization. Educate patient in scar mobilization.
  - Nerve mobilization (nerve glides). Do not reproduce symptoms.

- Exercises:
  - Train Neutral lumbar position/cervical posture: Create independent movement of the pelvis and then find and maintain a neutral position of the lumbar spine. Maintain good neck posture
  - Diaphragmatic breathing: Proper breathing technique without the use of accessory respiratory muscles
  - Cervical Range of motion exercises.
  - Cervical Isometric exercises.
  - Cervical flexibility exercises: Decreases stress on cervical spine and makes it easier to maintain neutral spine. (levator scapula, upper trapezius, pectoralis major/minor etc)
  - Advance Cervical Isometric exercises.
  - Initiate Scapular movement re-education including shoulder shrugs, shoulder rolls, scapular retraction/depression exercises
  - Upper thoracic mobilization exercises: cat/camel exercises, upper thoracic extension, upper thoracic rotation, arm locks
  - Neuromuscular re-education of longus colli with pressure biofeedback (include arm and leg movements in varying positions).
  - Cervical Joint position sense with laser pointer.
  - Oculomotor exercises.
  - Restricted (to 5 lbs) arm exercises. Progress to overhead after 6 weeks
  - Abdominal Exercises (watch cervical spine), perform basic core strengthening of lumbar spine. (front and side planks). Isometric co-contractions with addition of heavier external loads to lumbar spine Bridging, dead bud (cycling from supine position), leg extensions in Quadruped.
  - Cardiovascular training, treadmill, UBE, stationary bike
  - Address other mechanical restrictions as needed
  - Modalities for symptom modulation if needed

**Criteria for progression:**

1. Patient has working knowledge of body and lifting mechanics.
2. Able to hold chin tuck for 10 sec (raise of 10 mm Hg pressure from 20 mm HG baseline)
3. Cardiovascular tolerance to 30 min/day
4. Dynamic sitting and standing tolerance of 45-60 min

**Phase III: Advanced PT 9-12 weeks/2-3 times per week**

**Goals:**

1. Progress with strengthening and flexibility exercises.
2. Advanced lifting and posture training
3. Initiate balance activities
4. Address return to work/recreational activity concerns
5. Advanced stabilization and trunk control

**Treatment Summary:**

- Body mechanics training
  - Posture emphasis with exercises, posture training
  - Work/activity specific training
- Manual Therapy
  - Soft tissue mobilization to decrease guarding
  - Joint mobilizations over restricted joints (around fusion) to increase contribution to overall movement (OA/AA and upper thoracic). Protect fusion.
  - Nerve mobilization (nerve glides).
- Exercises:
  - Progress Oculomotor training
  - Upper extremity strengthening (Rhythmic stabilization upper extremity, free weight shoulder strengthening)

- Scapular stabilization/strengthening exercises (shoulder shrugs/rolls, chest press, seated rows, pull downs, incline push ups)
  - Spinal stabilization exercises lumbar and cervical
  - Continue Upper thoracic mobilization exercises
  - Advanced balance training exercises.
  - Progress with ADL and activity simulation with recruitment of longus colli/neutral spine.
  - Cardiovascular training, treadmill, UBE, stationary bike
- Consider FCE.

**Criteria for discharge:**

1. Manual muscle testing is within functional limits
2. Independent with home program
3. Cervical ROM within functional limits

**Pearls of rehab:**

- Focus on local muscle systems (tonic/postural/stabilizing) longus colli before global (phasic/primary movers) such as SCM, PCM. Local muscles are shorter in length and closer to axis or rotation while the global muscles have no direct attachment on the spine.
- Avoid preloading the spine with overhead arm movements too early in rehab.
- No-pain no gain axiom usually does not apply to the spine
- Focus on low load high repetitions to improve endurance rather than high load low repetition for strength.
- Focus on pain relief with Neck Disability Index of 50+, with scores of 30-50 focus on decreasing pain, muscle re-education, gradual strengthening, flexibility and improve cardiovascular endurance, with scores less than 30 focus on work simulation and progressive strengthening.