Rehabilitation guidelines for patients undergoing spinal surgery

As a specialist orthopaedic hospital we recognise that our broad and often complex patient group needs an individualised rehabilitation approach. This takes into consideration the multi-factorial components contributing to neck pain.

Milestone driven

These are milestone driven guidelines designed to provide an equitable rehabilitation service to all our patients. They will also limit unnecessary visits to the outpatient clinic at RNOH by helping the patient and therapist to identify when specialist review is required.

Rehabilitation Guidelines for patients undergoing posterior cervical decompression +/-fusion including laminectomy/foraminotomy and laminoplasty

Indications:
- Neck pain with arm pain
- Arm weakness / sensory symptoms
- Cord symptoms (myelopathy: spastic gait / numbness and clumsiness in hands)
- Headaches

Possible complications of surgery:
- Infection
- Dural tear
- Nerve/spinal cord damage
- On-going pain
- Worsening of existing myelopathy or radiculopathy
- Wound haematoma
- Segmental instability, subsidence at level of surgery or adjacent segments

Expected outcome:
- Patient reports good relief of arm pain and significant decrease in neck pain.
- Improvements can continue for up to 18 months post-operatively.

Pre-operatively

When practical the patient will be seen pre-operatively and with consent, the following assessed as indicated:
- Current functional level
- General health
• Social/work/hobbies
• Posture
• Functional range of movement
• Neurological function
• Post-op expectations and precautions

Post-operatively

Always check the operation notes and post-op instructions. Discuss any deviation from routine guidelines with team concerned.

May require collar if documented (rarely requested by consultant).

On discharge

Ensure all patients have been referred for outpatient physiotherapy to begin at 6 weeks.

Initial rehabilitation phase 0-6 weeks

Goals:
1. Mobilise safely and independently
2. Ensure understanding of good posture
3. Achieve full shoulder ROM
4. During this phase gentle neck movements
5. Advise patient regarding pacing and discuss expectations
6. Return to driving at 4-6 weeks (as per precautions below)
7. Proprioception / kinetic chain exercise for upper limbs and lower limbs
8. Deep neck flexor activation
9. Return to work at 4-6 weeks
10. Ensure understanding of use of collar and length of time to be worn (if requested)

Precautions:
1. Pacing: During the first 4-6 weeks whilst the initial post-operative pain settles and tissue begins to heal, it is advised to be careful with some activities. It is important to gradually increase activities and also pace activities throughout the day dependent on pain. Current evidence supports a steady paced up increase in activity whilst respecting post-operative soreness, healing times, nerve recovery times, neural sensitivity and patient’s previous level of fitness.
2. Avoid driving: Until approximately 4-6 weeks post-operatively or longer if required. It is important that the patient can sit comfortably in the car, turn their neck as required for driving and be able to carry out an emergency stop without hesitation.
3. For the first 6 weeks lift nothing heavier than 1kg (or ½ full kettle); slowly increase as advised by your consultant.
4. Walking: No restrictions, should be increased gradually each day.
5. **Sitting:** Should be in a supportive chair.
6. **Sleeping:** Advice on neutral cervical spine position.

**Treatment**

**Pain relief:**
- Ensure adequate analgesia and positioning
- Use of modalities as appropriate

**Patient education:**
- Advise patient on pacing and activity modification
- Advise patient on posture and movement and ergonomic correction
- Reinforce importance of lifting no load heavier than 1kg
- Expectations of treatment and recovery time
- Scar management

**Exercises:**
- Core stability activation; lumbar and cervical
- Encourage normal functional movement
- Proprioception – UL & LL
- Kinetic chain

**Mobility:**
- Ensure patient can manage transfers and mobilise independently taking into account pre-operative mobility.

**MDT:**
- Referral onwards as necessary to appropriate service i.e.; OT, psychology, orthotics

**Milestones to progress to next rehab phase:**
1. Adequate pain relief
2. Achieving goals as above
3. Managing normal activities and gradually increasing
4. Basic core stability achieved
5. Attain functional cervical AROM

**Recovery/rehabilitation phase: 6 weeks to 6 months**

**Goals:**
1. Increase normal activity and function
2. Return to work at 4-6 weeks (if heavy manual work, aim to return at 6 months with a phased return)
3. Graded return to sport/gym
4. Increase lifting

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In association with the UCL Institute of Orthopaedics and Musculoskeletal Science

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5. Regain functional cervical spine movement
6. Regain normal glenohumeral and scapular ROM and dynamics

Precautions/restrictions:
1. Return to work approximately 4-6 weeks
   a. Phased as appropriate for job role (i.e. driving, travelling or computer based).
   b. Heavy manual work should be phased in from 6 months
2. Avoid lifting anything heavier than 10kg until 3 months post-operatively or until the surgeon advises.
3. Light upper limb resistance exercises
4. Rowing and increasing upper body weights from 3-6 months as control allows
5. No breast stroke or front crawl until 6 months
6. Running not usually allowed until fusion confirmed at about 3-6 months. Discussion with surgical team may be necessary
7. No contact sports until 9 months: to be discussed at 6 month review with surgical team

Treatment

Pain relief:
- Ensure adequate pain relief coincides with appropriate level of exercise and activity.

Patient education:
- Ensure patient is pacing at appropriate level and is not over or under exercising
- Ensure good knowledge of importance of posture in all positions
- Encourage normal movement patterns
- Advise patient on healing times
- Ergonomic advice

Exercises:
- Progress core stability and kinetic chain exercises
- Ensure good muscle endurance
- Ensure adequate cervical ROM
- Scapular and glenohumeral posture dynamics and ROM
- Assist to increase general fitness and functional retraining following restrictions
- Swimming-backstroke initially and then front crawl after 6 months if demonstrating good technique
- Can attend gym but no rowing or upper body weights until 3 months post op
- Proprioception training: upper limb, lower limb and cervical spine
- Increase walking

Manual therapy:
- Soft tissue, scar tissue
• Joint mobilisations- treat as appropriate. (Not at fused level)
• Aggressive manipulative (grade v) techniques to the cervical spine should be avoided
• Neural dynamics assessment and treatment as indicated

Milestones to achieve by 6 months:
1. Return to normal activities
2. Achieving above goals
3. Continuing (Independent) with exercise programme
4. Recovery can take up to 18 months

Failure to meet milestones

Refer back to surgical team. Outpatient physiotherapy can continue if the patient is still making progress. If appropriate a referral to pain clinic may be considered (consultant referral required).

If a patient is failing to progress

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible causes</th>
<th>Action</th>
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</thead>
<tbody>
<tr>
<td>Upper limb pain</td>
<td>Neural sensitivity</td>
<td>Make sure patient has adequate analgesia</td>
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<tr>
<td></td>
<td>GHJ/scapular stiffness/ dysfunction</td>
<td>Exercises should be pain free. If pain persists refer back to surgical team</td>
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<td>Thoracic referral</td>
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<td>Recurrence of radiculopathy</td>
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<td>Inflamed and/or oozing wound</td>
<td>Infection</td>
<td>Review by CNS/surgical team as appropriate Referral back to the surgical team</td>
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<tr>
<td>Increase of neurological symptoms</td>
<td>Instability Neuropathodynamics</td>
<td>Review pre-operative neurological status Discuss with the surgical team</td>
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<tr>
<td>Pain on appropriate exercises</td>
<td>Poor technique Inadequate pain control</td>
<td>Review analgesia and exercises</td>
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<tr>
<td>Headaches</td>
<td>Postural Poor technique with exercises Dural/Neural</td>
<td>Check exercise technique and posture. Discuss with surgical team</td>
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<tr>
<td>Swallowing</td>
<td>Post-op swelling Intra-op nerve injury-</td>
<td>Discuss with the surgical team</td>
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<tr>
<td>Issue</td>
<td>Description</td>
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<tr>
<td>Persistent cervical stiffness</td>
<td>Inadequate pain control, Fear avoidance, Preoperative limitation</td>
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<td>Patient may need SALT assessment</td>
<td>Review analgesia, education and preoperative range</td>
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<tr>
<td>Lower back pain</td>
<td>Neural sensitivity, Compensation, Degenerative Lx</td>
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<td>Treat as appropriate</td>
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**Reference list**


