RNOHT PHYSIOTHERAPY DEPARTMENT
Rehabilitation guidelines for patients undergoing spinal surgery

Please note that this is advisory information only. Your experiences may differ from those described. All exercises must be demonstrated to a patient by a fully qualified physiotherapist. We cannot be held liable for the outcome of you undertaking any of the exercises shown here independently of direct supervision from the RNOH.

As a specialist orthopaedic hospital we recognise that our broad and often complex patient group needs an individualised rehabilitation approach. Our emphasis is on patient-specific rehabilitation, which encourages recognition of those patients who may progress slower than others. These rehabilitation guidelines are therefore ‘milestone driven’ and designed to provide an equitable rehabilitation service to all our patients. They will also limit unnecessary visits to the outpatient clinic at RNOHT by helping the patient and therapist to identify when specialist review is required.

Rehabilitation Guidelines for patients undergoing Anterior Lumbar Interbody Fusion (ALIF) surgery

Indications:
- Single level lumbar disc degenerative problems with loss of disc height that require vertebral stabilisation.

Possible complications of Surgery
- Vascular complications
- Infection
- Nerve damage
- Ongoing back pain
- Dural tear
- Recurrence
- Retrograde ejaculation
- Non-union of graft

Expected outcome
- Patient reports good relief of leg pain and a significant decrease in back pain.
- Back pain can persist. Improvements can continue for up to 18 months post operatively.

Pre-operatively
Where practical the patient will be seen pre-operatively and with consent, the following assessed:-
• Current functional levels
• General health
• Social/work/hobbies
• Posture
• Functional R.O.M., e.g. dressing/bending, sitting, sit to stand and stairs if appropriate.
• Gait/Mobility including any walking aids, corsets etc.
• Neurological function and pathodynamics.
• Post-operative expectations, especially long-term self-management and precautions.

The patient information leaflet will be issued to the patient and exercises taught with warnings. Post-operative management will be explained and log-rolling practised.

**Post-operatively**

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

NB If dural tear intra-operatively, patient may complain of intense, severe headache. In this instance, mobilise as comfort allows. Surgeon will usually prescribe a period of flat bed rest.

**Initial recovery phase: 0 – 6 weeks**

**Goals:**
1. Patient education of anatomy, spinal biomechanics and correct postures.
2. Patient awareness of post-operative precautions.
3. Mobilise independently and safely.
4. Independent with basic exercise programme.
5. Understand self-management and pacing concept particularly with PADLs and ADLs.
6. Patient can return to driving at 6 weeks

**Precautions:**
For the first 6 weeks, whilst the initial post operative pain settles and the spinal fusion begins to take it is advisable to be careful with some activities. A gradual paced increase in activities is recommended bearing in mind post-operative discomfort, neural sensitivity and the patient’s pre-morbid state of physical function.

1. **Sitting** should be gradually built up during activities such as eating or relaxing and should be guided by the development of symptoms. A limit of 15 – 20 minutes is suggested for the first few days. Once this is comfortable it can be gradually increased. If a long journey is unavoidable e.g. to get home from hospital, the patient can recline as a passenger and ensure breaks every 20-30 minutes to mobilise.
2. Avoid prolonged sitting (for more than one hour) for about 4 weeks until neural sensitivity has settled and strength improved. It can then be tried with care, e.g. in the bath.

3. **Walking** is unrestricted. It should be encouraged to be increased day by day as comfort allows.

4. **Flexion** in sitting or standing should be done with caution for the first 6 weeks and will be guided by the patient’s symptoms and pre-morbid level of activity.

5. **Driving** should be avoided until about 4-6 weeks post-operation, or longer if there is a significant loss of function or sensation in one or both legs/feet. The patient should be able to sit comfortably in the driving position for the amount of time they will be driving for, turn to look in the mirror and have 100% reaction times in the case of an emergency stop. As with all activities, driving should be paced and gradually increased. It may also be advisable to inform your insurance company prior to starting to drive.

6. **Lifting** for the first week should initially be limited to about 1kg (a half full kettle), then gradually increased.

7. **Log-rolling** should be continued until neural sensitivity has settled and strength improved which should take about 2-4 weeks.

**Treatment**

- **Pain relief**: Ensure adequate analgesia; advise of suitable positioning.

- **Patient education**: Advice given on sitting relating to patient’s function. Reinforce self-management and building up of activities appropriately. Precautions as above

- **Postural awareness**: Advice given on the importance of good posture especially in sitting.

- **Exercises**: Teach core stability exercises in lying and in functional positions. Teach lying to standing through side-lying, log rolling. Teach basic exercises from patient information leaflet.

- **Mobility**: Ensure patient is independent with transfers and mobility, including stairs if appropriate. Pre-operative status will affect outcome goals. If a walking aid is given and was not used pre-morbidly, the surgical team will be informed.

**On Discharge home from hospital**:

Ensure patient has been referred for outpatient physiotherapy. The patient should aim to achieve:

1. Independent and safe mobility, including stairs if appropriate.
2. Independent with good understanding of the home exercise programme.
3. Independent in transfers.

**Milestones to progress to next rehab phase**:

ALIF guidelines HN 2013.Review 2015
1. Adequate pain control.
2. Basic core stability.
3. Starting to build-up normal activities.
4. Normal gait pattern.
5. Increasing sitting and walking tolerance.
Rehabilitation phase 6 – 24 weeks

Goals:

1. Increase normal daily activity and function (PADLs and ADLs).
2. Return to work at 4-6 weeks (see restrictions).
3. Return to non-contact sport/gym at 6 weeks (see restrictions).
4. Optimise normal movement.
5. Return to driving at 4-6 weeks.
6. Increase lifting to functional requirements.

Restrictions:

These are designed to allow the fusion to develop and the neural sensitivity to fully settle. It is balanced against the evidence supporting the return to early function and activity which decreases the risk of a poor outcome.

1. An appropriate graduated return to work should be planned for about 4-6 weeks. If possible, a part time return would be more appropriate, especially if there are prolonged amounts of travelling/sitting involved. If the job involves heavy manual work, the aim would be for a phased return by 12 weeks.
2. Avoid heavy lifting of more than 10kg until 12 weeks post-operation or until the surgeon advises.
3. Contact sports should be avoided until 6 months check x-ray post-operatively unless otherwise stated.

Treatment

- **Pain relief**: Ensure appropriate analgesia for amount of exercise and activity
- **Patient education**: Pacing activities within appropriate restrictions. Ensure patient is exercising an appropriate amount. Proceed cautiously with activities that were previously aggravating. Postural awareness and encourage normal movement patterns. Education on healing times of fusion; not smoking and advantages of body weight control.
- **Postural awareness**: Reinforce importance of good posture especially when sitting functionally (e.g. at work, driving, in the bath). Advise on good practice of changing posture regularly and educate patient on pacing strategies.
- **Exercise**: Progress core stability to include leg slides, gym ball, balance work and proprioceptive training. Progress functional range of movement, avoiding sustained flexion and extension. General fitness advice, e.g. swimming – start initially with backstroke and add-in other strokes within comfort. Can attend gym and return to sport (see restrictions). Trunk, upper and lower limb conditioning as relevant to patient’s goals.
• **Mobility**: Continue to increase. Patient should be now at pre-morbid level in terms of pattern, use of walking aid and distance.

• **Manual therapy**: Soft tissue and neuropathodynamics treatment as suitable. Joint mobilisations on non-fused levels can be used if appropriate.

**Milestones to be achieved by 24 weeks:**

Recovery can continue up until 18 months post operation, so patient’s expectations must be discussed with them so they are realistic for their individual situation.

1. Achieve realistic goals set together with patient.
2. Return to normal activities, including work.
4. Starting to return to contact sports
5. Continuing with paced exercise programme and good posture.

**Failure to meet milestones:**

• Refer back to surgical team.
• Continue with outpatient physiotherapy whilst still making progress.
• Consider referral to RNOHT for inpatient rehabilitation/Active Back Programme (ABP).
## Failure to progress

If a patient is failing to progress, then consider the following:

<table>
<thead>
<tr>
<th>POSSIBLE PROBLEM</th>
<th>CAUSES</th>
<th>ACTION</th>
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<tbody>
<tr>
<td>Leg pain</td>
<td>Neural sensitivity</td>
<td>Can take up to 4 weeks to decrease.</td>
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<td></td>
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<td>Ensure adequate analgesia.</td>
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<td>Keep exercises pain free.</td>
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<td></td>
<td>Decrease sitting times slightly.</td>
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<td>Progression of activities too quickly or too slowly.</td>
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<td>If persists, refer back to surgical team.</td>
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<tr>
<td>Neurological deterioration</td>
<td>Further motion segment complications</td>
<td>Review pre-operative neurological status.</td>
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<td>Closely monitor and inform surgical team.</td>
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<td>Inflamed wound</td>
<td>Possible infection</td>
<td>Refer to surgical team or GP.</td>
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<td>Exercises painful</td>
<td>Poor technique</td>
<td>Alter exercise programme and correct technique.</td>
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<td>Irritable back still</td>
<td>Ensure exercises are focussed and relate to function.</td>
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<td>Patient not exercising</td>
<td>Poor patient compliance</td>
<td>Explain importance of good muscle function and posture to avoid flare-ups.</td>
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<td>regularly enough or following restrictions</td>
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<tr>
<td>Altered neuropathodynamics</td>
<td></td>
<td>Assess and treat accordingly</td>
</tr>
<tr>
<td>Back pain</td>
<td>Common.</td>
<td>Ensure adequate analgesia.</td>
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<td></td>
<td>Non-union of graft</td>
<td>Liaise with medical team (check x-rays at 3 and 6 months)</td>
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<tr>
<td></td>
<td>Spinal motion segment changes.</td>
<td>Ensure exercises are appropriate and not increasing too quickly or too slowly.</td>
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<td>Check not returning to</td>
<td>Not sitting or walking too much.</td>
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<td></td>
<td>activities too quickly</td>
<td>Reassure it can be common.</td>
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<td>Check technique</td>
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<tr>
<td>Headaches</td>
<td>Dural tear (1st 4 weeks)</td>
<td>If has dural tear during surgery, this can take up to 2 weeks to settle.</td>
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<td></td>
<td>Postural or altered neuropathodynamics</td>
<td>If onset is after 4 weeks post-op, assess and treat if appropriate and liaise with referrer.</td>
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</table>
Summary of evidence for physiotherapy guidelines

A comprehensive literature search was carried out to identify research relating to rehabilitation following anterior lumbar interbody fusion surgery. After reviewing the articles and information found including discussion with other physiotherapists on the interactive CSP website, the physiotherapy guidelines were produced using the evidence available and best clinical practice.


ALIF guidelines HN 2013.Review 2015