Rehabilitation guidelines for patients undergoing surgery for lateral ligament reconstruction of the ankle

At the RNOH, our emphasis is patient specific, which encourages recognition of those who may progress slower then others. We also want to encourage clinical reasoning.

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 which specialist review is required.

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Indications for surgery:
- Generally for Chronic Lateral Ankle Instability in patients who have failed to respond to conservative treatment.

Possible complications:
- Infection
- Bleeding
- Nerve damage
- Deep Vein Thrombosis
- Pulmonary Embolism
- Scarring
- Persistent / Recurrent pain
- Recurrent instability
- Talo-crural and sub-talar joint stiffness
- Numbness/Pin’s & Needles in the foot post-operatively

Surgical techniques
The technique(s) used will depend on the severity of the ankle instability and the quality of the lateral ligament complex.

Surgery tends to include one or more of the following:
- Primary Anatomical (non-augmented) repair. Carried out by reattaching torn ligaments in order to regain lateral ankle stability. A Brostrom repair is the common technique used in an anatomical repair
- Secondary Extrinsic (augmented) repair. The surgeon may use the peronei and re-route them, commonly through the lateral malleolus in
order gain greater stability. A Chrisman-Snook is the commonly used technique at RNOH

**Expected outcome:**
- Improved function / mobility
- Improved pain relief, with decreased analgesic requirements
- Improved ankle-hindfoot complex stability
- Decreased requirement for orthotics
- Return to full sporting activity
- Full recovery may take up to twelve months

**Pre-operatively:**
When practical the patient will be seen pre-operatively, and with consent, the following assessed:
- Current functional levels
- General Health
- Social / Work / Hobbies
- Functional Range of Movement
- Gait / mobility, including walking aids, orthoses, etc
- Post-operative expectations
- Patient information leaflet issued
- Post-operative management explained

**Post-operatively:**
Always check the operation notes, and the post-operative instructions. Discuss any deviation from routine guidelines with the team concerned.
Initial rehabilitation phase:  
0-6 weeks

Goals:
- To be safely and independently mobile with appropriate walking aid, adhering to weight bearing status
- To be independent with home exercise programme as appropriate
- To understand self management / monitoring, e.g. skin sensation, colour, swelling, temperature, etc

Restrictions:
Ensure that weight bearing restrictions are adhered to.

Primary Anatomical Repair:
- Fully Weight Bearing (FWB) in Aircast Boot in neutral for 2 weeks. In weeks 3-4 the brace is locked at 10 degrees of dorsiflexion (DF) and 20 degrees of Plantar flexion (PF). During weeks 5-6 20 degrees DF and 40 degrees of PF is allowed
- At 6 weeks, the patient is fully weight bearing and can start to wean out of their orthotics
- Referred to outpatient physiotherapy to start in week 3
- In weeks 3-6, patient can start active range of motion (ROM) training as the brace allows, avoiding inversion/eversion and encouraged to move their ankles without restriction whilst walking into DF and PF

Secondary Anatomic Repair:
- May be Partial Weight Bearing (PWB) in Plaster Of Paris (POP) for 6 weeks with foot in neutral position
- Full Weight Bearing (FWB) in POP at 4-6 weeks
- Out of POP at 6 weeks and referred to physiotherapy
- No active eversion for 6 weeks
- Elevation
- If sedentary employment, may be able to return to work from 4 weeks post-operatively, as long as provisions to elevate leg, and no complications

Treatment:
- Likely to be in Walker Boot or POP
- Pain-relief: Ensure adequate analgesia
- Elevation: ensure elevating leg with foot higher than waist
- Exercises: teach circulatory exercises
- Education: teach how to monitor sensation, colour, circulation, temperature, swelling, and advise what to do if concerned
Mobility: ensure patient independent with transfers and mobility, including stairs if necessary

On discharge from ward:
- Independent and safe mobilising, including stairs if appropriate
- Independent with transfers
- Independent and safe with home exercise programme / monitoring

Milestones to progress to next phase:
- Out of Aircast/POP. Team to refer to physiotherapy when appropriate (Primary Anatomic Repair at 2 weeks post-operatively, secondary extrinsic repair at 6 weeks.)
- Progression from PWB to FWB phase. Team to refer to physiotherapy if required to review safety of mobility / use of walking aids
- Adequate analgesia
Recovery rehabilitation phase:  
6 weeks to 12 weeks

Goals:
- To be independently mobile out of plaster shoe / aircast boot
- To achieve full range of movement
- Muscle strength: eversion grade 4 or 5 on Oxford scale
- Optimise normal movement

Restrictions:
- No balance exercises until eversion grade 4 or 5 on Oxford scale achieved
- Do not formally stretch transfer in secondary extrinsic repair. It will naturally lengthen over a 6 month period
- No impact exercise; i.e. jogging, aerobics

Treatment:
- Pain relief
- Advice / Education
- Posture advice / education
- Mobility: ensure safely and independently without walking aid
- Gait Re-education
- Wean out of aircast boot and into normal footwear

Exercises:
- Active assisted range of movement (AAROM)
- Active range of movement (AROM)
- Resisted inversion and eversion exercises with progression
- Encourage isolation of evertors without overuse of other muscles.
  **Biofeedback** likely to be useful
- Strengthening exercises of other muscle groups as appropriate
- Core stability work
- Exercises to teach patient to find and maintain sub-talar neutral.
- Balance / proprioception work once appropriate
- Stretches of tight structures as appropriate (e.g. Achilles Tendon), not of transfer
- Review lower limb biomechanics. Address issues as appropriate
- **Swelling Management**

Manual Therapy:
- Soft tissue techniques as appropriate
- Joint mobilisations as appropriate particularly sub-talar joint.
- **Monitor** sensation, swelling, colour, temperature, etc
- **Orthotics** if required via surgical team
- **Hydrotherapy** if appropriate
- **Pacing advice** as appropriate

**Milestones to progress to next phase:**
- Muscle strength: eversion grade 4 or 5 on Oxford scale
- Full range of movement
- Mobilising out of aircast boot
- Neutral foot position when weight bearing / mobilising

**Failure to meet milestones:**
- Refer back to team / Discuss with team
- Continue with outpatient physiotherapy if still progressing
Intermediate rehabilitation phase:  
12 weeks to 6 months

Goals:
- Independently mobile unaided
- Optimise normal movement

Treatment
Further progression of the above treatment:
- **Pain relief**
- **Advice / Education**
- **Posture advice / education**
- **Mobility:** Progression of mobility and function
- **Gait Re-education**

Exercises:
- Range of movement
- Progress strengthening of evertors.
- Core stability work
- Balance / proprioception work i.e.; use of wobble boards, trampet, gym ball. Dyna-cushion.
- Stretches of tight structures as appropriate (e.g. Achilles Tendon), **not of transfer**.
- Review lower limb biomechanics. Address issues as appropriate.
- Sports specific rehabilitation

Manual Therapy:
- Soft tissue techniques as appropriate
- Joint mobilisations as appropriate ensuring awareness of those which may be fused and therefore not appropriate to mobilise
- **Monitor** sensation, swelling, colour, temperature, etc
- **Orthotics** if required via surgical team
- **Hydrotherapy** if appropriate
- **Pacing advice** as appropriate

Milestones to progress to next phase:
- Independently mobile unaided
- Muscle strength: eversion grade 5 on Oxford scale
- Returned to low-impact activity/sports

Failure to meet milestones:
- Refer back to team / Discuss with team
- Continue with outpatient physiotherapy if still progressing
FINAL REHABILITATION PHASE:
6 months to 1 year

Goals:
- Return to high impact sports if set as patient goal
- Normal evertor activity
- Single leg stand 10 seconds, eyes open and closed
- To be able to do multiple heel raise
- Establish long term maintenance programme

Treatment:
- **Mobility / function**: Progression of mobility and function, increasing dynamic control with specific training to functional goals
- **Gait Re-education**

Exercises:
- Sports specific/functional exercises.
- Address any issue’s raised from patient after return to activity
- **Pacing advice**

Milestones for discharge
- Independently mobile unaided
- Good proprioceptive control on single leg stand on operated limb.
- Return to normal functional level
- Return to sports if set as patient goal
- Grade V Eversion strength
Failure to progress

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

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<thead>
<tr>
<th>POSSIBLE PROBLEM</th>
<th>ACTION</th>
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<tbody>
<tr>
<td>Swelling</td>
<td>Ensure elevating leg regularly Use ice as appropriate if normal skin sensation and no contraindications Decrease amount of time on feet Pacing Use walking aids Circulatory exercises If decreases overnight, monitor closely If does not decrease overnight, refer back to surgical team or to GP</td>
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<tr>
<td>Pain</td>
<td>Decrease activity Ensure adequate analgesia Elevate regularly Decrease weight bearing and use walking aids as appropriate Pacing Modify exercise programme as appropriate If persists, refer back to surgical team or to GP</td>
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<td>Breakdown of Wound e.g. inflammation, bleeding, infection</td>
<td>Refer to surgical team or to GP</td>
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<td>Recurrent Instability</td>
<td>Refer back to surgical team Ensure exercises not too advanced for patient Address core stability Liaise with podiatrist/orthotics re, footwear</td>
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<td>Numbness/altered sensation</td>
<td>Review immediate post-operative status if possible Ensure swelling under control If new onset or increasing refer back to surgical team or GP If static, monitor closely, but inform surgical team and refer back if deteriorates or if concerned</td>
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Summary of evidence for physiotherapy guidelines

A comprehensive literature search was carried out to identify research relating to rehabilitation for ankle instability and surgery for recurrent ankle instability and subsequent rehabilitation. After reviewing the articles and information, the physiotherapy guidelines were produced on the best available evidence.


