

## Ankle Lateral Ligament Repair / Reconstruction

### Introduction

#### Surgery:

- Primary Anatomical Repair – direct repair of lateral ligament complex (eg. Brostrum)
- Secondary Anatomical Reconstruction – eg Brostrum / Gould reconstruction
- Secondary non-anatomic Reconstruction – use of peroneal tendons (eg. Evans of Christman-Snook) or 'V' allograft.

Indications for surgery: Recurrent instability, pain, reduced function, laxity on anterior draw / talar tilt

Expected Length of Stay: Day case

Surgeons: Mr McKinley, Mr Shalaby, Mr Amin.

### Scope of practice

These guidelines are designed to guide physiotherapists when treating patients following this surgical procedure. They were produced by a systematic review of the current evidence-based literature, medical and peer consultation. They were correct at the time of writing. They are general guidelines and any specific instructions in the post operative notes must take precedence. They are not a substitute for sound clinical reasoning and good communication with the consultant team, and patients should always be treated on a case-by-case basis.

### Aim

The aim of these guidelines is to provide physiotherapy staff with a series of recommendations from the current evidence base to assist them in the management of patients who have undergone this surgical procedure.

### Literature review question

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Date: 03/2025

Date for review: 03/2030

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What is an appropriate rehabilitation program following ankle lateral ligament surgery, from the day of surgery through outpatient physiotherapy, to ensure the maximise outcome and facilitate a return to function and sport?

### Search Process

Appraisal process: The databases below were searched between March 2014 and March 2025. The titles and abstracts of all identified studies were assessed to determine whether they were relevant to the research question. The search results were combined to ensure articles were not duplicated.

Total number of articles selected: 4

Total number of articles discarded: 13

CASPs used: 0 – Recommendations were previously evaluated using CASPs or deemed expert opinion, where CASPs were not justified.

### Limitations

This literature review was conducted by a single researcher, which may introduce selection and interpretation bias due to the lack of independent verification. Future updates should consider a multi-reviewer approach to enhance rigour and reduce potential bias.

### Data Bases:

| Data Base     | Dates           | Limitations                     |
|---------------|-----------------|---------------------------------|
| PubMed        | 2020 to current | English language, Peer Reviewed |
| Medline       | 2020 to current | English language, Peer Reviewed |
| CINAHL        | 2020 to current | English language, Peer Reviewed |
| ScienceDirect | 2020 to current | English language, Peer Reviewed |
| EMBASE        | 2020 to current | English language, Peer Reviewed |

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|          |                 |                                 |
|----------|-----------------|---------------------------------|
| Cochrane | 2020 to current | English language, Peer Reviewed |
|----------|-----------------|---------------------------------|

### Key Words:

|                                          |     |                     |
|------------------------------------------|-----|---------------------|
| Ankle Lateral Ligament Reconstruction OR | AND | Physio* OR          |
| Ankle Lateral Ligament Repair OR         |     | Physical therapy OR |
| Ankle Ligament Repair OR                 |     | Rehab* OR           |
| Ankle Lateral Ligament Surgery           |     | Post-op* OR         |
|                                          |     | Post-surgery OR     |
|                                          |     | Mobilisation OR     |
|                                          |     | Instability OR      |
|                                          |     | Exercise            |

### Results

There has been limited scientific research on physiotherapy rehabilitation recommendations following ankle lateral ligament repair or reconstruction since the last update of the guidelines. The literature review covers research from 2020 to the present, aligning with the most recent guidelines. However, due to a lack of new research, older guidelines have been retained to ensure a comprehensive analysis.

Early mobilisation for accelerated rehab has been investigated to facilitate an early return to sport. Most evidence suggests a short period of immobilisation (10-14 days) to allow tissue healing. However, some studies comparing early and delayed mobilisation after surgery did not report an increase in wound complication rates and early mobilisation resulted in earlier return to sport. It is important to note that there is little objective evidence to provide a definitive answer in this regard, and much of the research was conducted within the context of accelerated rehabilitation for return to sport in athlete populations.

### Key Points

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- Please note that timescales are approximate and rehabilitation should be guided, at each stage, by swelling, pain, range of motion, good muscle recruitment and no changes in ligament laxity on testing.
- There continues to be a lack of good quality studies on appropriate postoperative rehabilitation following ankle lateral ligament repair/ reconstruction.
- Early mobilisation in an ankle brace (eg. Aircast/Moonboot) at week 2 promoted earlier return to work, sport and improved plantar flexion power at 3 months, whilst not risking ligament stability. At 6 months, torque values were equal.
- It is important not to stretch into inversion.
- Ensure sufficient eversion strength prior to commencing proprioception exercises.
- Use of functional outcome measures to identify readiness for return to sports is suggested
- Generally returning to sports level training around 12-20 weeks post surgery – this is patient and sport dependent and relies on the patient having achieved relevant milestones in rehab

### Recommendations

It is important to note that these recommendations are for guidance only and do not reflect the specific requirements that individual patients may need, depending on the extent of their repair/reconstruction. Guidance from the surgical team should always be sought, as the requirements may vary. Alterations in these guidelines should be made accordingly. Timescales are approximate and rehabilitation should be guided at each stage by each patient's individual presentation and goals.

### **Phase 1: Protective Phase (approx 0-2 weeks)**

#### **Immediately post-op**

| <b>Goals</b>          | <b>Recommendations</b>                                                                               | <b>Grade of evidence</b> |
|-----------------------|------------------------------------------------------------------------------------------------------|--------------------------|
| Protect surgical site | In boot weight bearing status as per individual consultant recommendation<br>– check operation notes | A/B                      |

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**Phase 2: Early loading (approx 2-6 weeks)**

Precautions/ specific post op instructions:

- Avoid stretching into inversion or plantar flexion
- Avoid resistance exercises of peroneals following reconstruction

| Goals                    | Recommendations                                                                                                                                                                                                                  | Grade of evidence |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Protect surgical site    | <p>In boot/brace weight bearing status as per individual consultant recommendation – check operation notes</p> <p>Boot to be removed for physiotherapy and exercises only</p> <p>Gentle scar massage if evidence of adhesion</p> | A/B               |
| Increase ROM             | <p>Active ankle range of movement: dorsi flexion, plantar flexion, inversion and eversion</p> <p><b>NB:</b> Caution with inversion and plantar-flexion, do not stretch</p>                                                       | D                 |
| Increase muscle strength | <p>Isometric dorsi flexion, plantar flexion and inversion</p> <p>Eversion if repair, no eversion if reconstruction</p> <p>Maintenance exercises for lower limb</p>                                                               | D                 |
| Gait                     | Gait re-education                                                                                                                                                                                                                | D                 |

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|                                |                                                                                                                    |   |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------|---|
|                                | Wean off crutches as able                                                                                          |   |
| Increase neuromuscular control | Early proprioception exercises<br><br>Single leg stand if sufficient eversion muscle power (4-5/5 on Oxford Scale) | D |

**NB:** If poorer tissue healing, a moonboot may be required until 6 weeks. This will be determined by the surgeon.

### **Phase 3a: Early - Intermediate loading (approx 6-10 weeks)**

Precautions/ specific post op instructions:

- Eversion strength must be Grade 4 or 5 on the Oxford Scale prior to progressing proprioception exercises
- Do not stretch inversion as it will naturally lengthen over time

| <b>Goals</b>             | <b>Recommendations</b>                                                                                                                                                                                | <b>Grade of evidence</b> |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Increase ROM             | A/AROM in all planes<br><br>Calf / TA stretches in NWB progressing to WB<br><br>Stationary bike                                                                                                       | D                        |
| Increase muscle strength | Isometric exercises to isotonic to resisted through range (NB: Caution with inversion as risk of stretching repair)<br><br>Foot intrinsic exercises<br><br>Lower limb open and closed chain exercises | D                        |

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|                                |                                                                                                                                                                       |   |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| Increase neuromuscular control | <p>Bilateral proprioception exercises progressing to unilateral</p> <p>Progress static eyes open to eyes closed</p> <p>Progress static balance to dynamic balance</p> | D |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|

### **Phase 3b: Intermediate loading (approx 8-12 weeks)**

- Progress to this stage when demonstrating symmetrical gait patterns and ankle strength at least 90% of contralateral side

| Goals                                     | Recommendations                                                                                                                        | Grade of evidence |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Increase muscle strength                  | Strengthening advanced eg SL heel raises                                                                                               | D                 |
| Increase neuromuscular control            | SL standing and ambulation on uneven surfaces                                                                                          | D                 |
| Improve plyometric tolerance              | Begin bilateral and progress to unilateral when able to perform 25 SL heel raises                                                      | D                 |
| Improve performance on functional testing | <p>Slow progressing to fast speed jogging</p> <p>Bilateral progressing to unilateral anterior-posterior and medial-lateral hopping</p> | D                 |

#### **Phase 4: Advanced loading (approx 12 weeks onwards)**

Timescales for return to sport will vary from patient to patient and should only be considered when the patient has progressed through the rehab stages and has attained sufficient load capacity, strength, proprioception, endurance and balance

| <b>Goals</b>                               | <b>Recommendations</b>                                                                                                                                                            | <b>Grade of evidence</b> |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Restore full muscle strength and endurance | Progress proprioception exercises<br><br>Core/lower limb kinetic chain<br><br>Consider orthotic referral if required<br><br>Commence sport specific rehabilitation as appropriate | D                        |

#### **Criteria for Return to Sporting Activity**

- After confirming no limitation of ROM, obtaining sufficient muscle strength, and competition-specific movements
- Patient reported outcome measures such as the Lower Extremity Functional Scale (LEFS) or Foot and Ankle Ability Measure (FAAM) should be used
- Patient should demonstrate  $\geq 90\%$  on functional testing compared to the unaffected side – for example: single-leg hop for distance and triple hop for distance, vertical jump for height, drop jump, crossover hop, six-metre hop and stair hop pending sport-specific requirements, Star Excursion Balance Test
- Once a patient is able to participate in practice without increased symptoms, return to competitive play should be considered as a shared decision between the individual, physiotherapist and coaches

#### **Expectations**

The goal of surgery is to restore ankle stability, allowing for both sporting and non-sporting activities without compromising motion. Long-term bracing should generally not

be necessary but should be guided by individual clinical judgement. Returning to contact sports is typically expected between 4 and 6 months, depending on the individual's clinical presentation.

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