<table>
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<tr>
<th><strong>Document Type</strong></th>
<th>Guideline</th>
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<tr>
<td><strong>Date Approved</strong></td>
<td>13/11/2017</td>
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<tr>
<td><strong>Ratifying Body</strong></td>
<td>Drugs &amp; Therapeutics Committee</td>
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| **Related Documents** | Physiotherapy rehabilitation guidelines – Lateral ligament reconstruction of the ankle  
Physiotherapy rehabilitation guidelines – Anterior ankle arthroscopy  
Physiotherapy rehabilitation guidelines – Tibialis posterior reconstruction  
Physiotherapy rehabilitation guidelines – Subtalar and hindfoot fusion  
Physiotherapy rehabilitation guidelines – Hallux valgus deformity- Scarf Osteotomy  
Physiotherapy rehabilitation guidelines – Pes Cavus correction  
Physiotherapy rehabilitation guidelines – ACI of the ankle |
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| **Owner (Executive Director)** | Lucy Davies |
| **Directorate** | Operations |
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| **Review Date** | 13/11/2022 |
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### Consultation Group/Approving Bodies/Subject Matter Expert

| Compliance, knee pain, leg pain, foot pain |

| Members of Foot and Ankle Unit Team (4 consultants, & Clinical Nurse Specialist) |

| Members of Outpatient Musculoskeletal Physiotherapy Team (Band 5, 6, 7 and 8a staff members at Stanmore and Bolsover Street) |

| Members of Inpatient Orthopaedic Physiotherapy Team (Band 7 and 8a staff members) |

### Readership

| All staff (inc. Clinical) |
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**Physiotherapy Rehabilitation Guidelines for patients undergoing Total Ankle Replacement**  
Date Approved 13/11/2017  
Version 1.0
1. Equality Impact Assessment (EIA) Disclosure Statement

<table>
<thead>
<tr>
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<tr>
<td>This policy was assessed on the 10th day of March 2017 for its impact on equality. The assessment determined that the policy will not have a significant negative impact on equality in relation to each of the protected staff/patient groups below:</td>
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<tr>
<td>i.) Age; ii.) Sex (Male and Female); iii.) Disability (Learning Difficulties/Physical or Sensory Disability); iv.) Race or Ethnicity; v.) Religion and Belief; vi) Sexual Orientation (gay, lesbian or heterosexual); vii) Pregnancy and Maternity; vii) Gender Reassignment (The process of transitioning from one gender to another); viii) Marriage and Civil Partnership.</td>
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## Privacy Impact Assessment (PIA) Disclosure Statement

<table>
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<td>This policy was assessed on the 10th day of March 2017 for its impact on privacy. The assessment determined that the policy will not have a significant negative impact on privacy of members of staff/patients.</td>
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</tbody>
</table>
2. Introduction and aims

Please note that this is advisory information only. Individual / 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 / interventions 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.

3. Definitions

See section 6.

4. Duties and Responsibilities

Not applicable for this guideline.

5. Body of Policy
Indications for Surgery

- Pain and decreased function not responsive to conservative treatment. Causes include post-traumatic osteoarthritis, primary osteoarthritis, Rheumatoid Arthritis, systemic joint disease, idiopathic arthritis.

Possible Complications

- Infection
- Wound healing problems
- Persistent swelling
- Loosening / subsidence / migration of components
- Impingement
- Bleeding
- Nerve damage
- Deep Vein Thrombosis
- Pulmonary Embolism
- Non-union
- Persistent / recurrent pain
- Fracture of bone / components
- Tendon injuries
- Contractures
- Complex Regional Pain Syndrome
- If failure, may require subsequent revision ankle replacement or conversion to fusion or to below knee amputation

Surgical Techniques

The commonly used Total Ankle Replacement (TAR) prostheses at RNOH are the BOX Ankle Replacement (MatOrtho) or the Infinity Ankle System (Wright Medical Technology). The BOX is a three component, cementless, unconstrained, mobile-bearing prosthesis. The Infinity is a two component, cementless, semiconstrained prosthesis.

The surgery may also include one or more of the following, depending on the clinical presentation of the patient:

- Tendo-Achilles lengthening
- Calcaneal osteotomy
- Tendon transfers
- Ligament reconstruction
- Other osteotomies or joint fusions
Clinical Trials

A multi-centre randomised clinical trial is being led by the Royal National Orthopaedic Hospital comparing ankle replacement against ankle fusion (TARVA) – further details can be found at http://anklearthritis.co.uk

Expected Outcome

- Improved function / mobility
- Improved pain relief
- Increased walking tolerance with decreased walking aid requirement
- Return to no-impact / low-impact sports may be possible but strenuous sport inadvisable
- Maintenance or improvement in range of movement (if the ankle was very stiff before surgery, range of motion may not be improved due to soft tissue constraints)
- Full recovery may take up to twelve months

Pre-operatively

The patient will be seen pre-operatively where able and with consent, the following will be assessed or discussed:

- Current functional levels
- General Health
- Social history and home set up
- Ability to mobilise, plus the provision of appropriate walking aids to be used post-operatively
- Post-operative expectations
- Post-operative management explained, including the provision of bed exercises.

Post-operatively

Always check the operation notes, and the post-operative instructions. Discuss any deviation from routine guidelines with the team concerned. This is very important if the patient has had any other techniques as well as the Total Ankle Replacement as weight-bearing status and progressions may be different as well as other restrictions.

Please ensure you follow the correct protocol from the relevant consultant the patient is under as there may be differences.
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, circulation, elevation
- Exercises to strengthen core

Restrictions:

- Ensure that weight bearing restrictions are adhered to:
  - Total Ankle Replacement (TAR)
  - Mr Singh / Mr Cullen / Mr Welck:
    - Non weight bearing (NWB) for 2 weeks in Back Slab.
    - Below Knee Plaster of Paris (BK POP) at 2 weeks. Progress to Full Weight Bearing (FWB) in POP.
    - POP removed at 6 weeks. Into Aircast™ Boot. FWB.
  - Mr Goldberg:
    - Non weight bearing (NWB) for 2 weeks in Back Slab or Aircast™ Boot.
    - Below Knee Plaster of Paris (BK POP) at 2 weeks or continue with Aircast™ Boot. Progress to Full Weight Bearing (FWB) in POP / Aircast™ Boot.
    - POP removed at 6 weeks and into Aircast™ Boot or continue with Aircast™ Boot. FWB.
  - If any other surgical technique used ensure you check any restrictions with team as these may differ from TAR alone

- 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 Backslab / POP / Aircast Boot
- Pain-relief: Ensure adequate analgesia
- Elevation
- 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 POP. Team to refer to physiotherapy at 6 weeks from clinic.
- Progression from NWB 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 - 12 weeks

Goals:

Mr Singh / Mr Cullen / Mr Welck:

- Once advised by team bone healing is sufficient to come out of Aircast Boot:
  - To be independently mobile out of Aircast™ boot with walking aid as appropriate
  - To achieve optimal range of movement (as described in operation note)
- To address core stability and strength and control throughout kinetic chain within any restrictions

Mr Goldberg:

- To remain independently and safely mobile in Aircast Boot with appropriate walking aid
- To address core stability and strength and control throughout kinetic chain within any restrictions

Restrictions:

Weight Bearing and POP / Aircast Boot progressions are dependent upon the bone healing of the individual patient. The surgical team will advise when to progress weight bearing and when to start to wean from / work out of Aircast Boot.

- Ensure that any weight bearing restrictions are adhered to
- Ensure that any post-operative instructions and advice from the team are adhered to as to when to progress from Aircast Boot and when it is ok to start work around the foot and ankle and out of the Aircast Boot.

Mr Singh / Mr Cullen / Mr Welck:

- FWB in Aircast Boot from 6 weeks until advised by consultant can wean from this

Mr Goldberg:

- FWB in Aircast Boot until 12 weeks or until advised by consultant. Into PUSH ankle brace at 12 weeks (FWB) or when advised by consultant

Treatment:

- Pain relief
- Advice / Education
- Posture advice / education
- Mobility: ensure safely and independently mobile adhering to appropriate weight bearing restrictions. Progress off walking aids as appropriate once reaches FWB stage.
- Gait Re-education
- Wean out of Aircast™ boot once advised to do so and into normal footwear.
- Exercises:
  - Core stability work
Review lower limb biomechanics and kinetic chain within any restrictions. Address issues as appropriate.

Range Of Movement (ROM) exercises of foot and ankle only when team advises can start these – Passive (PROM) / Active assisted (AAROM) / Active ROM (AROM)

ROM exercises of other joints throughout kinetic chain as appropriate

Strengthening exercises of foot and ankle only when team advises can start these

Strengthening exercises of other muscles / muscle groups throughout kinetic chain as appropriate

Balance / proprioception work once appropriate

Stretches of tight structures as appropriate (e.g. Achilles Tendon) once team advises can start to work on these

- **Swelling Management**
- **Manual Therapy:** only when team advises can start to work out of boot / around foot and ankle:
  - Soft tissue techniques as appropriate
  - Joint mobilisations as appropriate
- **Monitor** sensation, swelling, colour, temperature, circulation
- **Orthotics** if required via surgical team
- **Hydrotherapy** if appropriate within restrictions once team advises can start this
- **Pacing advice** as appropriate

**Milestones to progress to next phase:**

- Independently mobilising in Aircast™ boot +/- walking aid as appropriate
- Independent and safe with monitoring / self-management
- Adequate analgesia

**Failure to meet milestones:**

- Refer back to team / Discuss with team
- Continue with outpatient physiotherapy if still progressing
INTERMEDIATE REHABILITATION PHASE: 12 weeks – 6 months

Goals:

- Once advised by team bone healing is sufficient to come out of Aircast Boot:
  - To be independently mobile out of Aircast™ boot with ankle brace / walking aid as appropriate
  - To achieve optimal range of movement (as described in operation note)
  - To optimise normal ankle and foot movement & restore gait
  - To be wearing normal footwear
  - Grade 4 or 5 muscle strength around ankle
- Optimise core stability and strength and control throughout kinetic chain within any restrictions

Restrictions:

Weight Bearing and POP / Aircast Boot progressions are dependent upon the bone healing of the individual patient. The surgical team will advise when to progress weight bearing and when to start to wean from / work out of Aircast Boot.

- Ensure that any weight bearing restrictions are adhered to
- Ensure that any post-operative instructions and advice from the team are adhered to as to when to progress from Aircast Boot and when it is ok to start work around the foot and ankle and out of the Aircast Boot.

Mr Goldberg:

- Out of Aircast™ boot and into PUSH ankle brace FWB at 12 weeks, or when advised by consultant

Mr Singh / Mr Cullen / Mr Welck:

- Team will advise when to wean from Aircast boot. No ankle brace

Treatment:

Further progression of the above treatment:

- Pain relief
- Advice / Education
- Posture advice / education
- Mobility: ensure safely and independently mobile adhering to restrictions. Progress off walking aids as appropriate.
- Gait Re-education
- Wean out of Aircast™ boot once advised to do so and into normal footwear. If patient unable to get into normal footwear advise to try Crocs™ or other wide fitting shoes.
- Exercises:
  - Core stability work
  - Review lower limb biomechanics and kinetic chain within any restrictions. Address issues as appropriate.
- Range Of Movement (ROM) exercises of foot and ankle only when team advises can start these – PROM / AAROM / AROM
- ROM exercises of other joints throughout kinetic chain as appropriate
- Strengthening exercises of foot and ankle only when team advises can start these
- Strengthening exercises of other muscles / muscle groups throughout kinetic chain as appropriate
- Balance / proprioception work once appropriate
- Stretches of tight structures as appropriate (e.g. Achilles Tendon) once team advises can start to work on these

- **Swelling Management**
- **Manual Therapy:** only when team advises can start to work out of boot / around foot and ankle:
  - Soft tissue techniques as appropriate
  - Joint mobilisations as appropriate
- **Monitor** sensation, swelling, colour, temperature, circulation
- **Orthotics** if required via surgical team
- **Hydrotherapy** if appropriate within restrictions once team advises can start this
- **Pacing advice** as appropriate

**Milestones to progress to next phase:**

- Full range of movement
- Independently mobilising out of Aircast™ boot with ankle brace / walking aid as appropriate
- Wearing normal footwear
- Neutral foot position when weight bearing / mobilising
- Grade 4 or 5 muscle strength around ankle

**Failure to meet milestones:**

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

Goals:

- Independently mobile unaided / with walking aid if required long term
- Return to gentle no-impact / low-impact sports
- Establish long term maintenance programme
- Grade 5 muscle strength around ankle

Treatment:

- **Mobility / function**: Progression of mobility and function, increasing dynamic control with specific training to functional goals
- **Gait Re-education**
- **Exercises:**
  - Progression of exercises including range of movement, strengthening, transfer activation, balance and proprioception, core stability
- **Swelling Management**
- **Manual Therapy:**
  - Soft tissue techniques as appropriate
  - Joint mobilisations as appropriate
- **Pacing advice**

Milestones for discharge:

- Independently mobile unaided / with walking aid if required long term
- Appropriate patient-specific functional goals achieved, eg. return to low/no impact sport
- Independent with long term maintenance programme
- Grade 5 muscle strength around ankle
**FAILURE TO PROGRESS**

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

<table>
<thead>
<tr>
<th>POSSIBLE PROBLEM</th>
<th>ACTION</th>
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<tbody>
<tr>
<td>Swelling</td>
<td>Ensure elevating leg regularly</td>
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<tr>
<td></td>
<td>Use ice as appropriate if normal skin sensation and no contraindications</td>
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<tr>
<td></td>
<td>Decrease amount of time on feet</td>
</tr>
<tr>
<td>Pacing</td>
<td>Use walking aids</td>
</tr>
<tr>
<td>Circulatory exercises</td>
<td>If decreases overnight, monitor closely</td>
</tr>
<tr>
<td></td>
<td>If does not decrease overnight, refer back to surgical team or to GP</td>
</tr>
<tr>
<td>Pain</td>
<td>Decrease activity</td>
</tr>
<tr>
<td></td>
<td>Ensure adequate analgesia</td>
</tr>
<tr>
<td></td>
<td>Elevate regularly</td>
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<td></td>
<td>Decrease weight bearing and use walking aids as appropriate</td>
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<tr>
<td>Pacing</td>
<td>Modify exercise programme as appropriate</td>
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<td></td>
<td>If persists, refer back to surgical team or to GP</td>
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<tr>
<td>Breakdown of Wound e.g inflammation, bleeding, infection</td>
<td>Refer to surgical team or to GP</td>
</tr>
<tr>
<td>Numbness / altered sensation</td>
<td>Review immediate post-operative status if possible</td>
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<tr>
<td></td>
<td>Ensure swelling under control</td>
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<tr>
<td></td>
<td>If new onset or increasing refer back to surgical team or GP</td>
</tr>
<tr>
<td></td>
<td>If static, monitor closely, but inform surgical team and refer back if deteriorates or if concerned</td>
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6. Monitoring and the effectiveness of this policy

This guideline will be reviewed 5 yearly.
Appendix 1: Glossary of Terms

Not applicable.
Appendix 2: Other linked trust policies and guidelines

Physiotherapy rehabilitation guidelines – Lateral ligament reconstruction of the ankle
Physiotherapy rehabilitation guidelines – Anterior ankle arthroscopy
Physiotherapy rehabilitation guidelines – Tibialis posterior reconstruction
Physiotherapy rehabilitation guidelines – Subtalar and hindfoot fusion
Physiotherapy rehabilitation guidelines – Hallux valgus deformity- Scarf Osteotomy
Physiotherapy rehabilitation guidelines – Pes Cavus correction
Physiotherapy rehabilitation guidelines – ACI of the ankle

All other RNOH Physiotherapy Rehabilitation Orthopaedic Post-operative Guidelines (Knee, Sarcoma Unit, Peripheral Nerve Injuries, Shoulder & Upper Limb, Spinal Surgery Unit)
Appendix 3: Extra sources of information and support

**Summary of evidence for physiotherapy guidelines**

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


Physiotherapy Rehabilitation Guidelines for patients undergoing Total Ankle Replacement


This policy is available on request in large print and alternative languages. It is a manager’s responsibility to ensure employees are aware of these options.

* The following policies must be sent for review to the Local Counter Fraud Specialist:

- Fraud and Bribery
- Standard Financial Instructions
- Declaration of Interests
- Gifts and Hospitality
- Whistleblowing
- Disciplinary
- IT
- Anti-Money Laundering
- Managing Sickness Absence
- Secondary Employment
- Expenses
- Overpayment
- Financial Redress
- TOIL (Time off in Lieu)
- Code of Conduct/Standards of Business Conduct
- Data Protection
- Lone Worker
- Patient Transport
- Commercial Sponsorship
- Overseas Visitors
- Disclosure