<table>
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<tr>
<th>Document Type</th>
<th>Guideline</th>
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<tr>
<td>Date Approved</td>
<td>13/11/2017</td>
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<tr>
<td>Ratifying Body</td>
<td>Drugs &amp; Therapeutics Committee</td>
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<tr>
<td>Related Documents</td>
<td>Physiotherapy rehabilitation guidelines – Pes Cavus Correction</td>
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<tr>
<td>Author</td>
<td>Joanna Benfield, Foot &amp; Ankle Specialist Physiotherapist, RNOH</td>
</tr>
<tr>
<td>Owner (Executive Director)</td>
<td>Lucy Davies</td>
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<tr>
<td>Directorate</td>
<td>Operations</td>
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<tr>
<td>Superseded Documents</td>
<td>Rehab Guidelines for Subtalar and Hindfoot Fusion (2008)</td>
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<tr>
<td>Subject</td>
<td>Clinical, Clinical Units, Communication, Inpatient &amp; Outpatient Services</td>
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<tr>
<td>Review Date</td>
<td>13/11/2022</td>
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</table>
### Keywords and Phrases
Rehabilitation, foot and ankle surgery, subtalar joint, talocalcaneal joint, talonavicular joint, calcaneocuboid joint, subtalar joint fusion, subtalar joint arthrodesis, hindfoot fusion, triple arthrodesis, physiotherapy, complications, outcomes, milestones, function, treatment, exercise, pain relief, restrictions, limitations, sport, fitness, postural awareness, pain education, mobility, goals, precautions, compliance, ankle pain, leg pain, foot pain.

### Consultation Group/Approving Bodies/Subject Matter Expert
- 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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1. Equality Impact Assessment (EIA) Disclosure Statement

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<tr>
<td>This policy was assessed on the 1st day of June 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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1. Privacy Impact Assessment (PIA) Disclosure Statement

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<td>This policy was assessed on the 1st day of June 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>
</tr>
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</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

**Team Contact Details:**
Foot & Ankle Unit Consultants: Mr Singh, Mr Cullen, Mr Goldberg & Mr Welck

Foot and Ankle Unit:
- Tel: 0208 909 5125
- E-mail: footandankle@rnoh.nhs.uk
(Please note that if e-mailing from an e-mail address external to RNOH that this e-mail address is not secure so please do not include patient identifiable data)

Physiotherapy Department:
- Tel: 0208 909 5820
Indications for surgery:
Pain and decreased function not responsive to conservative treatment. Causes include post-traumatic osteoarthritis, fracture, primary osteoarthritis or rheumatoid arthritis, failed ankle joint replacement, systemic joint disease, idiopathic arthritis and foot deformity secondary to neuromuscular conditions.

Possible complications:
- Infection
- Bleeding
- Nerve Damage
- Deep Vein Thrombosis
- Pulmonary Embolism
- Wound healing problems
- Persistent swelling
- Loosening/subsidence/migration of components
- Impingement
- Non-union
- Persistent/recurrent pain
- Fracture of bone/components
- Tendon injuries
- Contractures
- Complex regional pain syndrome
- If failure, may require subsequent revision fusion or extended fusion surgery

Surgical techniques
Subtalar fusion involves arthrodesis (fusion) of the talocalcaneal (subtalar) joint.

Hindfoot fusion via the triple arthrodesis technique consists of surgical fusion of the talocalcaneal (subtalar), talonavicular and calcaneocuboid joint through three large cannulated screws or staples.

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

Expected outcome:
- Improved pain relief, with decreased analgesic requirements
- Improved function/mobility
- Increased walking tolerance with decreased walking aid requirement
- Return to no impact/low-impact physical activities may be possible but strenuous sport unlikely
- Full recovery may take up to twelve to eighteen 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 as the patient may have had a combination of techniques which may affect weight-bearing status and progressions.

Please ensure you follow the correct protocol from the relevant consultant the patient is under as there may be differences.
INITIAL REHABILITATION PHASE: 0-2 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

**Restrictions:**
- Ensure that weight bearing restrictions are adhered to:
  - Back slab Non Weight Bearing (NWB) for 2 weeks
  - Elevation

**Treatment:**
- Likely to be in Backslab
- **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 with appropriate walking aid, including stairs if necessary

**On discharge from ward:**
- Independent and safe mobilising, including stairs if appropriate with appropriate walking aid
- Independent with transfers
- Independent and safe with home exercise programme / monitoring / self-management
- Understanding of post-operative routine

**Milestones to progress to next phase:**
- Safe and independently mobile with appropriate aid non weight bearing in Backslab
- Adequate analgesia
RECOVERY REHABILITATION PHASE: 2 weeks- 12 weeks

Goals:
- To be safe and independently mobile with appropriate walking aid, adhering to weight bearing status
- To understand and be independent with self management / monitoring, e.g. skin sensation, colour, swelling, temperature, circulation, elevation
- To understand the post-operative plan e.g. pacing of activities, requirement for short-term lifestyle adaptations, limitation in indoor/outdoor mobility

Restrictions:
Weight Bearing and cast progressions are dependent upon the bone healing of the individual patient. The surgical team will advise when to progress weight bearing. As a guide these are the weight bearing restrictions for each consultant assuming no delays in bone healing or other complications.

- Ensure that weight bearing restrictions are adhered to:
  - **Mr Singh / Mr Cullen:**
    - Out of Backslab and into Below Knee Plaster of Paris (BK POP) at 2 weeks. Progress to Full Weight Bearing (FWB) as pain allows in POP.
    - POP changed at 6 weeks and new POP applied for a further 6 weeks. FWB as pain allows.
    - POP removed at 12 weeks and into Aircast™ Boot. FWB
  - **Mr Goldberg / Mr Welck:**
    - Out of Backslab and into Below Knee Plaster of Paris (BK POP) at 2 weeks. Non weight bearing (NWB) for further 2 weeks until week 4 post-op.
    - Progress to Partial Weight Bearing (PWB) in POP at week 4 until week 8.
    - Progress to Full Weight Bearing (FWB) in POP from week 8 until week 12.
    - POP removed at 12 weeks and into Aircast™ Boot. FWB
  - **If any other surgical technique used ensure you check any restrictions with team as these may differ from subtalar and hindfoot fusion alone**

- If sedentary employment, may be able to return to work from 6-12 weeks postoperatively, as long as provisions to elevate leg, and no complications

Treatment:
Likely to be in Below Knee Plaster Of Paris
- **Pain-relief:** Ensure adequate analgesia
- **Swelling management and elevation**
- **Education:** teach / ensure independently monitoring sensation, colour, circulation, temperature, swelling, and advise what to do if concerned
• **Mobility**: ensure patient independent with transfers and mobility with appropriate walking aid, including stairs if necessary

• **Pacing advice** as appropriate

**Milestones to progress to next phase:**

- Safe and independently mobile with appropriate walking aid in POP / Aircast Boot adhering to relevant weight bearing status as per post-operative instructions and advice from team
- Team to refer to physiotherapy to review safety of mobility / use of walking aids / gait re-education if required or on progression of Weight Bearing status as required
- 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 safe and independently mobile +/- appropriate walking aid out of Aircast Boot
  - To be wearing normal footwear
  - Optimise normal movement
- 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

Treatment:
- Pain relief
- Advice/education
- Mobility: ensure safely and independently mobile. Progress off walking aids as able and appropriate once FWB.
- 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.
  - 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
- Gait re-education
- Swelling Management
- Monitor sensation, swelling, colour, temperature, circulation
- Manual techniques of soft tissues and non-fused joints if / once appropriate
- Electrotherapy if appropriate
- Orthotics if required via surgical team
- Hydrotherapy if appropriate once team advises can start this
• **Pacing advice** as appropriate

**Milestones to progress to next phase:**
- Independently mobile out of Aircast Boot + / - walking aid as appropriate
- Wearing normal footwear

**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 if able, otherwise with appropriate walking aid
- Return to gentle no-impact / low-impact sports
- Establish long term maintenance programme

**Treatment:**
Further progression of the above treatment:
- **Mobility / function:** Progression of mobility and walking aids as able and progression of function, increasing dynamic control with specific training to functional goals
- **Gait re-education**
- **Exercises:**
  - Progression of exercises as appropriate including functional strengthening, balance and proprioception, core stability
- **Manual techniques** of soft tissues and non-fused joints if appropriate
- **Swelling management**
- **Pacing advice** as appropriate

**Milestones for discharge:**
- Independently mobile unaided if able, otherwise with appropriate walking aid
- Appropriate patient-specific functional goals achieved, e.g. return to low/no impact activities and normal daily routines
- Independent with long term maintenance programme
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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<td></td>
<td>Use ice as appropriate if normal skin sensation and no contraindication</td>
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<td></td>
<td>Decrease amount of time on feet</td>
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<td></td>
<td>Pacing</td>
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<td></td>
<td>Use walking aids</td>
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<td></td>
<td>Circulatory exercises</td>
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<td></td>
<td>If decreases overnight, monitor closely</td>
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<tr>
<td></td>
<td>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</td>
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<td></td>
<td>Ensure adequate analgesia</td>
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<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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<td></td>
<td>Pacing</td>
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<td></td>
<td>Modify exercise programme as appropriate</td>
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<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>
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<tr>
<td>Numbness/altered sensation</td>
<td>Review immediate post-operative status if possible</td>
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<td></td>
<td>Ensure swelling under control</td>
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<td></td>
<td>If new onset or increasing refer back to surgical team or GP</td>
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<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

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<td>Physiotherapy rehabilitation guidelines – ACI of the ankle</td>
</tr>
<tr>
<td>All other RNOH Physiotherapy Rehabilitation Orthopaedic Post-operative Guidelines (Knee, Sarcoma Unit, Peripheral Nerve Injuries, Shoulder &amp; Upper Limb, Spinal Surgery Unit)</td>
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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 surgery for subtalar and hindfoot arthrodesis and subsequent rehabilitation. After reviewing the articles and information, the physiotherapy guidelines were produced on the best available evidence.


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