Rehabilitation guidelines for patients undergoing hallux valgus deformity- Scarf Osteotomy

At the RNOH, our emphasis is patient specific, which encourages recognition of those who may progress slower than 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:**
- Moderate to severe hallux valgus deformity impacting on function.

**Possible complications:**
- Infection
- Swelling
- Bleeding
- Traumatic neuroma
- Deep Vein Thrombosis
- Pulmonary Embolism
- Stiffness 1st MTPJ
- Scarring
- Persistent / Recurrent pain
- Non-union and/or avascular necrosis
- Numbness/Pin’s & Needles in the foot post-operatively

**Surgical procedure:**
Medial incision over 1st MTPJ is most frequent.

The 1st metatarsal is divided up into a Z-shape fashion (Scarf) or with a Chevron osteotomy for milder deformities. The 1st MT head is shifted laterally back onto the sesamoids which also corrects the deformity. The bones are then held with screws.
Expected outcome:
- Deformity correction
- Improved function of the Hallux
- Improved pain relief, with decreased analgesic requirements

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 and footwear – i.e. Heel wedge shoe.
- To be independent with home exercise programme as appropriate
- To understand self management / monitoring, e.g. skin sensation, colour, swelling, temperature, etc

Restrictions:
Patients will be full weight bearing in a heel wedge shoe for the first 4-6 weeks until progressed following an X-Ray in clinic. If required, a Darco® splint may be worn, at the consultant request, to promote hallux alignment.

Treatment:
- Heel wedge shoe
- Pain-relief: Ensure adequate analgesia, ICE as required.
- Elevation: ensure elevating leg with foot higher than waist
- Exercises: teach circulatory exercises and passive range of movement MTPJ from 2 weeks *(ensure patient understands difference between motion at MTPJ and IPJ)*
- 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.
- Driving: patient may drive once out of the heel wedge shoe, if pain adequately controlled and confident to do so.

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:
- Wearing trainers comfortably (1 oversize if necessary) at 4-6 weeks as per consultant advice
- Managing swelling
- Wound healing well
- Adequate analgesia
- Team to refer to outpatient physiotherapy if MTPJ range severely restricted.
Recovery rehabilitation phase:
6 weeks to 12 weeks

Goals:
- To be returning to normal footwear
- To aim for full range of movement MTPJ
- Optimise normal movement
- Walking comfortably

Restrictions:
- No impact exercise; i.e. jogging, aerobics
- In some cases, the MTPJ can be loaded in dorsiflexion, in close liaison with the consultant

Treatment:
- Pain relief
- Advice / Education
- Posture advice / education
- Mobility: ensure safely and independently as pre-operative level
- Gait Re-education
- Continue to wean into normal footwear

Exercises:
- Active and passive range of movement Hallux (AROM, PROM)
- Strengthening exercises of the foot and ankle as appropriate
- Exercises to teach patient to find and encourage appropriate foot and ankle positioning in weight bearing
- Balance / proprioception work once appropriate
- Stretches of tight structures as appropriate (e.g. Achilles tendon)
- Review kinetic chain. Address issues as appropriate
- Swelling Management

Manual Therapy:
- Soft tissue techniques as appropriate
- Joint mobilisations as appropriate particularly MTPJ and mid foot.
- 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:
- Full range of movement MTPJ
- Mobilising in normal footwear
- Tolerating weight bearing through hallux in standing and in gait
- Improving toe-off

**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
- Return to normal activities

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

Exercises:
- Active and passive range of movement toes, foot and ankle as appropriate
- Promoting independence with self-mobilisations MTPJ
- Balance / proprioception work i.e.; use of wobble boards, trampet, gym ball, Dyna-cushion.
- Stretches of tight structures as appropriate (e.g. Achilles Tendon) if decreased toe-off
- Review kinetic chain. Address issues as appropriate.
- Sports specific rehabilitation

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

Milestones for discharge:
- Independently mobile unaided
- Returned to full function
Failure to meet milestones:
- Refer back to team / Discuss with team
- Continue with outpatient physiotherapy if still progressing

Failure to progress

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

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<th>POSSIBLE PROBLEM</th>
<th>ACTION</th>
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| Foot Swelling                                         | 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 |
| Swelling of calf                                       | If accompanied by pain – refer urgently to A&E or surgical team to rule out DVT |
| Pain                                                   | 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 |
| Breakdown of Wound e.g. inflammation, bleeding, infection | Refer to surgical team or to GP |
| Numbness/altered sensation                             | 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 |
Summary of evidence for physiotherapy guidelines

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


