

Weeks 1 and 2

- **The foot is immobilized with a boot /cast in the equinus position for the first two weeks.**

Weeks 3 and 4 – Consultation with a physiotherapist scheduled *once a week*.

PRIMARY FOCUS: Isometric activation of the calf muscles in the orthosis.

HOME-BASED EXERCISES: Begin with 20 repetitions of each exercise performed 3 times each day

- **Elevation of the foot to reduce swelling**
- **The foot is immobilized in the equinus position with an ankle-foot orthosis equipped with 3 heel wedges**
- **Weight-bearing as tolerated using the orthosis** - Ensure patient confidence in that he or she can fully weight-bear with the orthosis, but **DO NOT** attempt any weight bearing without the orthosis being securely fitted. Crutches are used until the patient is able to ambulate safely and with confidence
- **Isometric plantar flexion** – put pressure on the forefoot in the orthosis
- **Cycling for 10-20 min using the orthosis**

Weeks 5 and 6 - Consultation with a physiotherapist scheduled *1-2 times a week*

HOME-BASED EXERCISES: The exercises are performed 3 times each day with 20 repetitions

- **Remove 1 of the 3 heel wedges from the orthosis 4 weeks from start of treatment (2 wedges are left in the orthosis)**
- **Isometric plantar flexion** - put pressure on the forefoot in the orthosis
- **Cycling for 10-20 min using the orthosis**

Week 7 and 8 - Consultation with a physiotherapist scheduled *2-3 times a week*

PRIMARY FOCUS: Mobilization and neuromuscular control

HOME-BASED EXERCISES: The exercises are performed 3 times each day with 20 repetitions

- **Remove the second heel wedge from the orthosis 6 weeks from start of treatment, and the last heel wedge 7 weeks from start of treatment. No heel wedges are used the last week of orthosis treatment** - save them for later use
- **Seated heel rise:** make sure the patient puts pressure on the forefoot, not the toes
- **Mobilization exercises in plantar flexion with flexed knee** - do not provoke dorsiflexion
- **Mobilization exercises in supination / pronation**
- **WEEK 8: Single leg balance exercises with heel elevation.** Neuromuscular training standing on one leg with heel elevation, e.g. a wooden plank or a book (about 2 cm). If the exercise causes discomfort or pain, increase the elevation. The main purpose of the exercise is to increase patients' confidence in standing on his/her feet without the orthosis. This exercise should only be performed under supervision of the physiotherapist.
- **Cycling without the orthosis.** The patient can now cycle without the orthosis. The pedal is positioned underneath the heel to avoid excessive contractions of the m. triceps surae, thereby ensuring minimal strain to the Achilles tendon. Start for 5 min without resistance, the duration can be gradually increased up to a maximum of 10 min, if there is no discomfort.

Weeks 9 through 12 - Consultation with a physiotherapist scheduled *2-3 times a week*

PRIMARY FOCUS: Walking technique

HOME-BASED EXERCISES: The exercises are performed every day

- **The orthosis is removed 8 weeks after start of treatment, and for the next 4 weeks a single heel wedge is placed in each of the shoes. Crutches are used until the patient is able to walk normally** (approx. 3-4 weeks).
- **Walking technique** - focus on the toe-off phase while walking
- **Heel rise standing on both legs with a gradual increase in load** - start with about 30% of the body

weight placed on the injured leg and gradually increase the load. The **weight-bearing load is determined by swelling and discomfort**. Begin with 10 repetitions performed 3 times each day.

- **Neuromuscular exercises - balance pads** - Expand the neuromuscular exercises. If there is rigidity in dorsiflexion and the patient has difficulty in standing with the whole foot placed on a balance pad, place the balance pad underneath the heel instead. Do not use balance boards in the beginning to avoid sudden and uncontrolled movements
- **Cycling with increasing load** - gradually increase the load and time spent cycling. The pedal can gradually be moved forward from the heel to its normal position.
- **Mobilization exercises in plantar and dorsal flexion with flexed knee**. To restore full ROM in the ankle, continue with mobilization exercises in plantar and dorsal flexion with flexed knee. 20 repetitions.
- **Dynamic mobility training** - squats and ascending stairs, ROM is determined by tendon rigidity. Load is determined by swelling and discomfort. 3 sets x 10 repetitions.

Week 13 through 18 - Consultation with a physiotherapist scheduled 2-3 times a week

PRIMARY FOCUS: To regain strength and ROM

HOME-BASED EXERCISES: The exercises are performed every day

From week 13, the rehabilitation is adapted to the desired activity level, level of fitness and functional requirements. REMEMBER that load and gain in intensity are determined by swelling and discomfort!

- **Continue with strength training**
 - → **Gradually increase 1 foot heel rise**
 - → **Standing heel rise (Smith machine or similar)**
 - → **Seated heel rise**

Ascend/descend stairs with only the forefoot touching the stairs
- **ROM exercises are performed as needed**

Week 19 through 24 - Consultation with a physiotherapist scheduled 2-3 times a week

PRIMARY FOCUS: To maximize strength and to start up with plyometrics

- **Quick walk for 30 minutes without limping or pain (no heel wedge in the shoe)**
 - **running** - Gradually start up with running exercises, begin with 5 minutes and increase with a maximum of 3-5 minutes every second consultation.
- **Heel rise 1 foot. When the patient manages 10 repetitions with about 80% of the heel rise height compared to the uninjured foot, continue with eccentric training**
 - **toe walking**
 - **explosive heel rises**
 - **2 leg jump on forefoot**
 - **1 leg jump on forefoot**

Week 25 through 36 - Consultation with a physiotherapist scheduled 1-2 times a week

- **Running exercises - speed - endurance**
- **Plyometric exercises - jumping in different directions**
- **Maximum strength training - heel rises with extended and flexed knee**
- **Continue with neuromuscular / proprioceptive exercises on balance pod (Bosu)**
- **Return to sports** depends on the patient's fitness level and the sport activity he / she strives to return to. Pivoting sports and sports requiring deceleration–acceleration coupled with rapid changes in direction should not be initiated before week 36.

Adapted from: Nonoperative or Surgical Treatment of Acute Achilles' Tendon Rupture (2022, New England Journal of Medicine)