

# Limb reconstruction below the knee

## Physiotherapy – the first weeks

Department of Physiotherapy  
Royal Children's Hospital, Melbourne

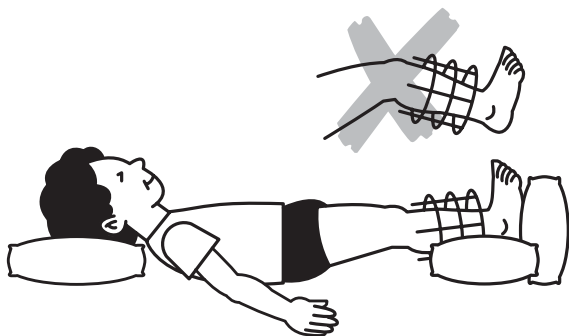


Figure 1

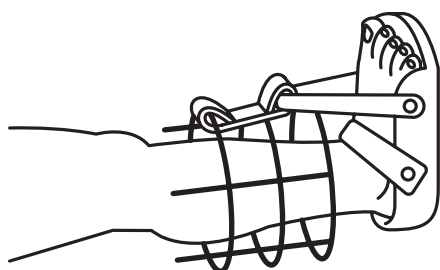


Figure 2

We need to move our bodies in order to keep our bones and muscles fit and strong, so exercise and movement are very important during the treatment.

Physiotherapy is essential for all children with below knee applications to help prevent joint stiffness and tight muscles, and to teach and encourage walking when advised by the orthopaedic surgeon.

Exercises are commenced from the first day after surgery and walking is encouraged very early. Your physiotherapist will show your child what exercises to do and help him/her to do them properly.



You will be shown how to help your child with exercises at home. For young children the physiotherapist aims to exercise through play to achieve the therapeutic goals.

### Night positioning/positioning in bed

In bed the knee joint should generally be positioned for full extension (straightening). This is usually achieved by proper placement of pillows, or by propping the fixator up under the lowest ring. Ensure that the foot is supported and prevented from dropping down, since this will quite quickly cause the calf muscle to tighten. (figure 1)

A foot support may be attached to the fixator to maintain the correct position – this will be fitted in hospital if necessary. During the day the foot support should be removed every 2 hours to check the skin and to allow active exercise for the foot and ankle. (figure 2)



Figure 3

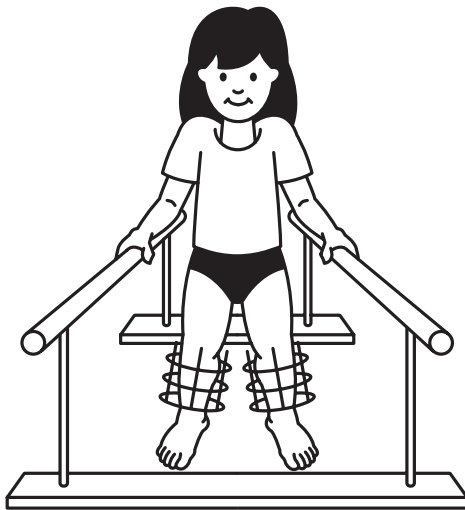


Figure 4

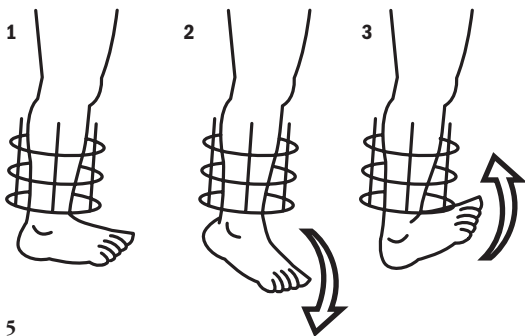


Figure 5

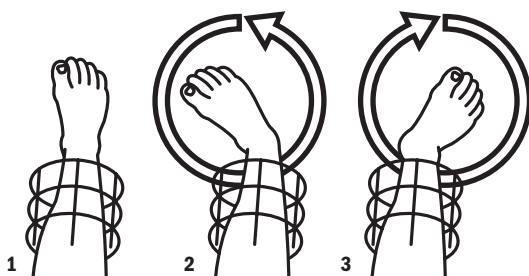


Figure 6

## Sitting

It is recommended that the leg remains elevated on a pillow as much as possible to minimise swelling over the first 2 weeks. A wheelchair may be helpful during the first weeks, with a board to support the leg in elevation. These may be hired from the hospital. However, as soon as possible encourage the child to let the knee bend as normal to sit. The bulk of the fixator may limit knee flexion (bending) to some extent. (figure 3)

## Walking

Walking with walking frame or crutches is encouraged very early – usually from just a few days after surgery. Generally the child may weight bear as tolerated – however the weight bearing status (eg.partial weight bearing) must be confirmed by the orthopaedic surgeon.

The physiotherapist will teach the child to walk with the most suitable gait aid – crutches and walking frames may be hired or bought from the hospital. (figure 4)

## Exercises

To be practised at least 4 times a day.

### 1. Active movement of feet and ankles.

Ankles: Up-down x10 (figure 5)

Circles x10 (figure 6)

Toes: Up-down x10 (figure 7)

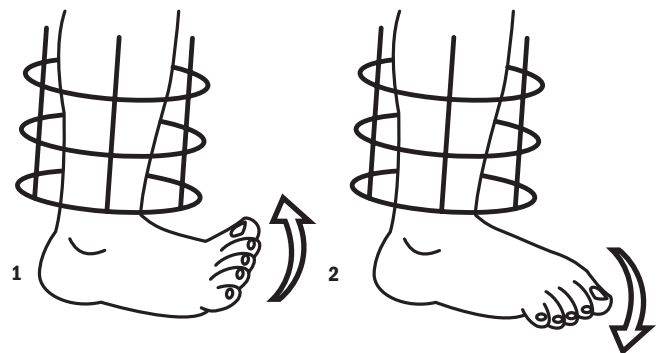


Figure 7

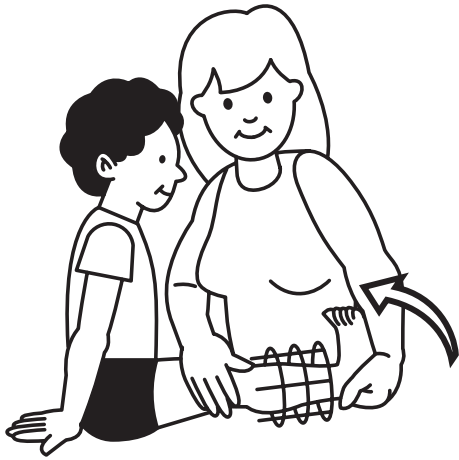


Figure 8

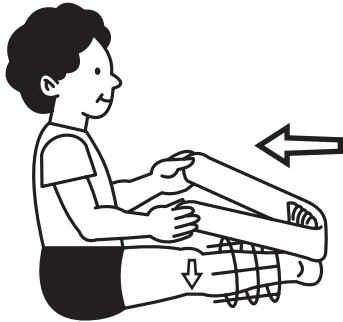


Figure 9

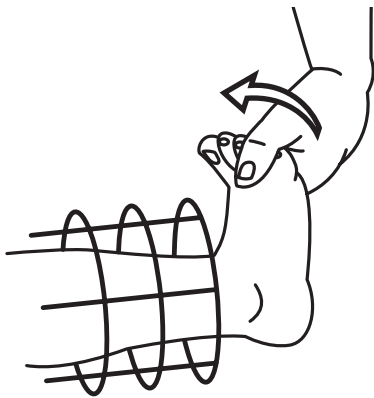


Figure 10



Figure 11

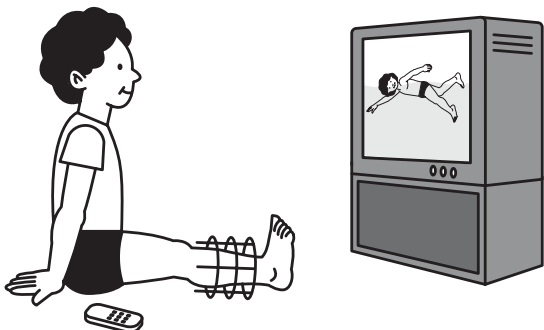


Figure 12

## 2. Calf stretch

With knee straight, gently pull the foot towards face – assist your child to do this. Hold for 30 seconds. Repeat. (figure 8)

OR

The older child may self-stretch using theraband or towel. With the knee straight, use the towel to gently pull the foot towards face. Hold for 30 seconds. Repeat. (figure 9)

## 3. Toe stretch

Stretch toes gently back towards face. Hold for 30 seconds. Repeat. (figure 10)

## 4. Hamstring stretch

Tuck right / left heel near groin with the opposite leg straight. Reach down until a stretch is felt in back of thigh. Hold 30 seconds x 2. (figure 11)

OR

Long sitting: The young child may long sit for 5–10 minutes or as tolerated (keep knees and back straight). (figure 12)

## 5. Knee strengthening/mobilising (Sitting or lying on back)

Static Quads: Tighten the muscle on top of thigh. Push the back of your knee down to the bed. Hold for 5. X10. (figure 13)

Hip Knee bends: Slide the heel up the bed, and down. Assist the child as necessary. X10. (figure 14)

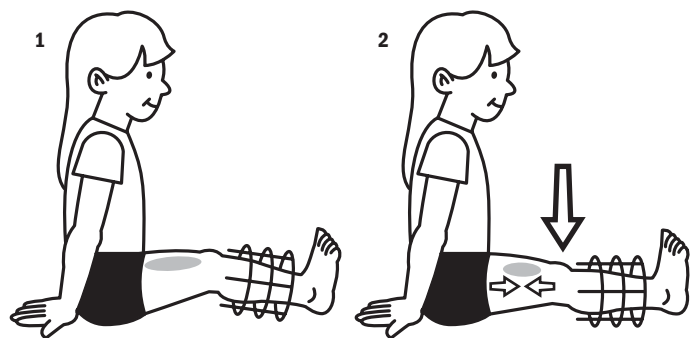


Figure 13

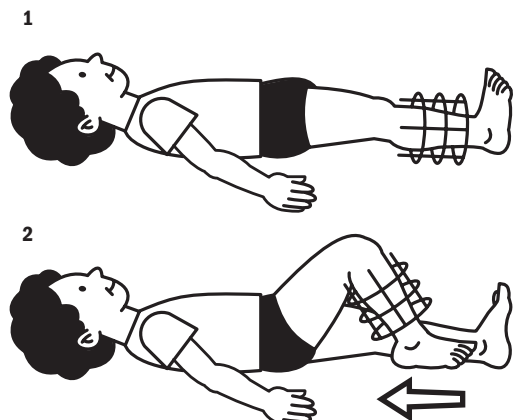


Figure 14