

PEGGY & FRIENDS

THE FITTING PROCESS FOR LOWER LIMB PROSTHETIC USERS

NOTE: This advice sheet is based on our experience of our daughter, Laura's limb loss since 1998 and the experience of other families who have contacted the charity since 2000, together with our knowledge of the U.K. Limb Service. Therefore this advice sheet may not relate to your child's condition or your experience and is intended as a guide only. If you require specific advice about your child's condition, you should speak to your consultant at your limb centre.

1. INTRODUCTION

This is a general guide explaining how a lower-limb prosthesis is fitted however, the procedure may vary in practice from centre to centre. You will need to take a pair of your child's shoes with you on your first visit. It may also be helpful to write down any questions or concerns that you may have.

2. ASSESSMENT

The doctor, a Consultant in Rehabilitation, will carry out your child's assessment to decide if they are suitable for a prosthesis or would be better suited to a wheelchair. In some limb centres this may be before amputation. In others it will take place after amputation and after the wound has healed and the swelling sufficiently reduced for first fit. This can take place anywhere between 2 – 6 weeks.

As part of this assessment, the doctor will inspect your child's residual limb to check that it has healed sufficiently for a limb to be fitted and he will also talk to you about your child's lifestyle, activity levels and your aspirations for the future. The doctor should also discuss how the family is coping as well as how you feel and all of these factors should be taken into account when prescribing your child's limb.

3. FIRST FITTING

3.1 Measuring and Casting

Once the assessment has been completed, your child will then be seen by a prosthetist who will begin the fitting process. This will require two sets of measurements to be taken. The first set will be taken from various points on the residual limb to ensure that the correct sizes of components are used in the assembled limb.

The second will involve the prosthetist taking a cast of the residual limb usually in Plaster-of-Paris manually or by computer aided design, also known as CAD tracer, to make a socket.

During this process the prosthetist will make various written recordings, however, they will also gain a sense of feel that allows them to evaluate such factors as; tissue compressibility, pressure tolerance, skin mobility and range of motion. Although, these factors cannot be measured, they are critical to the prosthetist and used during the modification stage of the socket, which is normally completed within 24 hours of the cast being taken. For some congenital limb loss children, this second process may not be necessary.

3.2 Socket Function

It is worth stressing that the socket is the most important component in the prosthesis because it allows weight to be taken only on areas of the residual limb that can cope.

For children with a long residual limb, it is designed to distribute the load of the prosthesis and the child's body weight, together with any forces generated by motion evenly over the whole of the residual limb, whilst avoiding any damaged or sensitive areas.

For children with a shorter residual limb it is designed to distribute the bulk of the load on the Patella Bearing Tendon located under the knee (a PBT socket).

Whichever technique is used, the socket must fit well if the limb is to be comfortable.

4. SECOND FITTING

4.1 Alignment

At the second session, the 'bench-aligned' prosthesis is presented to your child. In this form, it has been tested to ensure that it has been assembled in accordance with the recorded measurements and the principles of biomechanics of the type of limb being fitted.

The prosthetist will refine the basic alignment while your child is standing and then adjust it as they take their first steps. This is to ensure that they walk with as normal a gait as possible and is comfortable in use. With young children, this may take time because the prosthetist must do this by a series of questions to gain information about the child's impression of the limb. The problem is that the child may have difficulty in interpreting what they are feeling, particularly during the fitting of the first limb. Therefore the prosthetist must not be rushed at this stage, and you and your child should allow as much time as necessary.

4.2 Finishing

Once alignment is completed, and hopefully comfort and function assured, the prosthetist should address the issue of cosmesis (appearance). It is now recognised that both Low-definition and High-definition Silicone has an important role to play in the recovery of some children or their parents.

5. DELIVERY

5.1 Final adjustment

Final adjustments will be made when the finished prosthesis is ready to be taken home; however, it may need adjusting in the weeks following first delivery while your child's ability and confidence improves. Both the prosthetist and the physiotherapist usually monitor this.

5.2 Walk Training

At this time, if it hasn't happened before, you should be instructed on how your child should exercise to strengthen their residual limb, walking, building-up tolerance during use and care of both the residual limb and the artificial limb. This should be done by the prosthetist working with the physiotherapist.

Depending on how confident you feel to monitor your child's progress, you should be offered regular physiotherapy sessions or at least a contact number for you to discuss any problems that might arise.

6. CONTINUING PHYSIOTHERAPY

Physiotherapy for children and young people using a prosthesis is a continuing process for a number of reasons:

- The use of a prosthesis combined with continuous growth may result in changes in the way they walk and therefore they need to be monitored.
- Furthermore, this growth may result in single limb loss children getting 'out of alignment' and they may need adjusting from time to time

You should feel free to contact your child's physiotherapist outside of normal appointments if you have any concerns

Tony & Mandy Giddings
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