

The Ponseti Method for Clubfoot Correction

Information for Parents

A companion flyer to the book: **Clubfoot: Ponseti Management**

What is clubfoot?

Clubfoot is the most common deformity of the bones and joints in newborns. It occurs in about 1 in 1,000 babies. The cause of clubfoot is not exactly known, but it is most likely a genetic disorder and not caused by anything the parents did or did not do. Therefore, there is no reason for parents to feel guilty about having a child with clubfoot. The chances of having a second child with a clubfoot are approximately 1 in 30.



Parents of an otherwise normal infant who is born with clubfoot can be reassured that their baby, when treated by an expert in this field, will have a normal looking foot with essentially normal function. The well-treated clubfoot, causes no handicap and the individual is fully able to live a normal active life.

Starting treatment

The foot is gently manipulated for about 1 minute every week to stretch the short and tight ligaments and tendons on the inside, back, and bottom of the foot. A cast that extends from the toes to the groin is then applied. The cast maintains the correction obtained by the manipulation and relaxes the tissues for the next manipulation. In this manner, the displaced bones and joints are gradually brought into correct alignment. Treatment should begin during the first week or two of life to take advantage of the favorable elasticity of the tissues at that age.



Cast care at home

1. Check the circulation in the foot every hour for the first 6 hours after application and then four times a day. Gently press the toes and watch the return of blood flow. The toes will turn white and then quickly return to pink if the blood flow to the foot is good. This is called "blanching". If the toes are dark and cold and do not blanch (white to pink), the cast may be too tight. If this occurs, go to your doctor's office or local emergency department and ask them to check the cast. If your child has a soft roll fiberglass cast, remove it.

2. Note the relationship between the tips of the toes and the end of the cast. If the toes seem to be shrinking back inside the

cast, the cast has slipped down and correct pressures on the foot are not being maintained. This might create skin pressure sores. Call the orthopedic clinic immediately, and tell the doctor that this has occurred. The cast needs to be changed.

3. Keep the cast clean and dry. The cast may be wiped with a slightly dampened cloth if it becomes soiled.

4. The cast should be placed on a pillow or soft pad until dry and hard. Whenever your child is on his/her back, place a pillow under the cast to elevate the leg so that the heel extends just beyond the pillow. This prevents pressure on the heel that could cause a sore. vv

5. Use disposable diapers and change the diaper often to prevent cast soiling. Keep the upper end of the cast out of the diaper to prevent urine/stool from getting inside the cast. Diapers with elasticized legs work well.

Notify your doctor or the clinic nurse if you notice any of the following.

- any foul smelling odor or drainage coming from inside the cast
- red, sore, or irritated skin at the edges of the cast
- poor circulation in the toes (see #1 above)
- cast slipping off (see #2 above)
- child running a fever of 38.5°C/101.3°F or higher without an explainable reason, such as a cold or virus

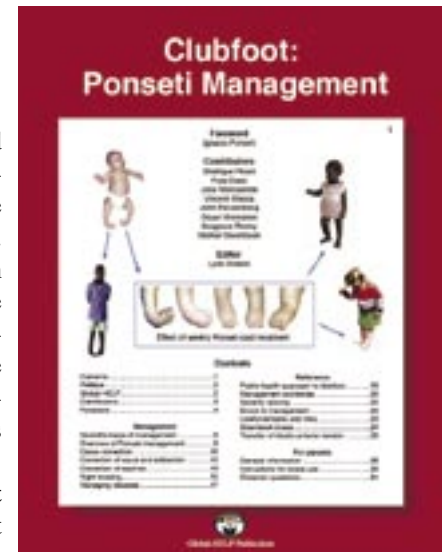
A new cast will be applied every 5 to 7 days:

Soft roll fiberglass casts: Within 2-3 hours of the next appointment, find the end of the last roll that was applied and unravel all of the fiberglass material. Then remove the cotton padding. Bathe the child.

Plaster casts: The nurse will remove the cast with a special plaster knife; therefore, the cast must be softened the day you are coming to the clinic. To do this, put your child in a tub or sink, making sure that warm water is getting inside the cast (about 15–20 minutes). After the bath, wrap a soaking wet hand towel around the cast and cover with a plastic bag. A bread sack works well for this.

Duration of active treatment

Four to seven casts (each extending from the toes to the upper thigh, with the knee at a right angle), over a period of four to seven weeks, should be sufficient to correct the clubfoot deformity. Even very stiff feet require no more than eight or nine casts to obtain maximum correction. X-rays of the foot are not necessary, except in complex cases, because the surgeon can feel the position of the bones and the degree of correction with his/her fingers.



Completion of active treatment

A minor office procedure is required to complete the correction in most feet. The back of the ankle is made numb, either with a numbing cream or an injection, after which the Achilles tendon is completely divided with a narrow scalpel. A final cast is applied. The tendon regenerates at the proper length and strength by the time the cast is removed 3 weeks later.



At the end of the treatment, the foot should appear slightly overcorrected, assuming a flatfoot shape. It will return to normal in a few months.

Maintaining correction – the foot abduction brace

Clubfoot deformity tends to relapse after correction. To prevent relapses after removal of the last cast, a foot abduction brace must be worn, regardless of whether or not the Achilles tendon was cut. The foot abduction brace consists of straight-bordered, high-top, open-toed shoes that are attached to the ends of an adjustable aluminum bar. The distance between the heels of the shoes equals the width of the baby's shoulders. Modifications to the shoes are made to prevent them from slipping off. The shoe on the clubfoot is outwardly rotated 70 degrees and on the normal foot (if the child has only one clubfoot), 45 degrees. The brace is worn 23 hours a day for at least 3 months and, thereafter, at night and during naps for 2 to 4 years.

During the first and second nights of wearing the brace, the baby may be uncomfortable as he/she adjusts to the legs being tethered together. It is very important that the brace not be removed, because recurrence of the clubfoot deformity will almost invariably occur if the splint is not worn as prescribed. After the second night, the baby will have adapted to the splint. When not required to wear the brace, ordinary shoes can be worn.

The foot abduction brace is used only after the clubfoot has been completely corrected by manipulation, serial casting and, possibly, Achilles tendon release. Even when well corrected, the

clubfoot has a tendency to relapse until the child is approximately 4 years old. The foot abduction brace, which is the only successful method of preventing a relapse, is effective in 90% of the patients when used consistently as described above. Use of the brace will not delay the child's development with regard to sitting, crawling, or walking.

Wearing instructions for the foot abduction brace

1. Always use cotton socks that cover the foot everywhere the shoe touches the baby's foot and leg. Your baby's skin may be sensitive after the last casting, so you may want to use two pairs of socks for the first 2 days only. After the second day, use only one pair of socks.

2. If your child does not fuss when you put the brace on, you may want to focus on **getting the worst foot in first** and the better one in second. However, if your baby tends to kick a lot when putting on the brace, focus on the better foot first, because the baby will tend to kick into the second shoe.

3. Hold the foot into the shoe and tighten the ankle strap first.

The strap helps keep the heel firmly down into the shoe. Do not mark the hole on the strap that you use because, with use, the leather strap will stretch and your mark will become meaningless.



4. Check that the child's heel is down in

the shoe by pulling up and down on the lower leg. If the toes move backward and forward, the heel is not down, so you must retighten the strap. A line should be marked on the top of the insole of the shoe indicating the location of the tips of the child's toes; the toes will be at or beyond this line if the heel is in proper position.

5. Lace the shoes tightly, but do not cut off circulation. Remember: the strap is the most important part. The laces are used to help hold the foot in the shoe.

6. Be sure that all of the baby's toes are out straight and that none of them are bent under. Until you are certain of this, you may want to cut the toe portion out of a pair of socks so you can clearly see all the toes.



Helpful Tips for the foot abduction brace

1. Expect your child to fuss in the brace for the first 2 days. This is not because the brace is painful but because it is something new and different.

2. Play with your child in the brace. This is key to getting over the irritability that is often due to the inability of the child to move his/her legs independently of each other. You must teach your child that he/she can kick and swing the legs simultaneously with the brace on. You can gently push and pull on the bar of the brace to teach your child to flex and extend his/her knees simultaneously.

3. Make it routine. Children do better if you make this treatment a routine in your life. During the 2 to 4 years of night and naptime wear, put the brace on any time your child goes to the “sleeping spot.” The child will know that when it is that time of day, the brace needs to be worn. Your child is less likely to fuss if you make the use of this brace a part of the daily routine.

4. Pad the bar. Bicycle handlebar tape works well for this. By padding the bar, you will protect your child, yourself, and your furniture from being hit by the bar when the child is wearing it.

5. Never use lotion on any red spots on the skin. Lotion makes the problem worse. Some redness is normal with use. Bright red spots or blisters, especially on the back of the heel, usually indicate that the shoe was not worn tightly enough. Make sure that the heel stays down in the shoe. If you notice any bright red spots or blistering, contact your physician.

6. If your child continues to escape from the brace, and the heel is not down in the shoe, try the following.

- a. Tighten the strap by one more hole.
- b. Tighten the laces.
- c. Remove the tongue of the shoe (use of the brace without the tongue will not harm your child).
- d. Try lacing the shoes from top to bottom, so that the bow is by the toes.

7. Periodically tighten the screws on the bar. Tools have been provided.

Long term monitoring

Following full correction of the clubfoot, clinic visits will be scheduled every 3-4 months for 2 years, and then less frequently. Your physician will decide on the duration of bracing depending upon the severity of the clubfoot and the tendency for the deformity to relapse. Do not end treatment early. Yearly visits will be scheduled for 8 to 10 years to check for possible long term relapses.

Relapses

If the deformity relapses during the first 2-3 years, weekly manipulations and casts are reinstated. Occasionally, a second Achilles tendon release is needed. In some cases, despite proper bracing, a minor operation is needed when the child is older than 3 years to prevent further relapses. The operation consists of transferring a tendon (the tibialis anterior) from the inside border of the foot to the center of the foot.

Severe clubfoot

Although the results are better if extensive bone and joint surgery can be avoided altogether, 5-10% of infants born with clubfoot have very severe, short, plump feet with stiff ligaments that are unyielding to the stretching and casting. These babies need surgical correction after it is clear that attempts have failed to improve the deformity with a series of casts.

Find experienced doctors

A surgeon with limited experience in the treatment of clubfoot may succeed in correcting a mild clubfoot, but most cases require experienced hands for success. Poorly performed manipulations and casts will delay proper treatment and will make appropriate treatment difficult or impossible. Referral to a pediatric orthopedic surgeon with expertise in this non-surgical (Ponseti) correction of clubfoot should be sought, certainly before considering surgery.

Common Questions

What is the future of children with clubfoot?

The child with a clubfoot, corrected by the Ponseti method described in this brochure, can be expected to have a nearly normal foot. Some minor differences may be noticed. The treated clubfoot is slightly smaller than the normal foot and there is a slight reduction in the size of the lower leg muscles. The amount of difference depends on the original severity of the clubfoot. A small, but insignificant, degree of shortening of the leg may be seen. These differences do not cause problems and often go unnoticed by the child until he/she reaches adolescence, when body image becomes a concern. The differences are usually forgotten or ignored in a year or two.



Sports

Outcome studies of patients treated by Ponseti management show that children and adults with corrected clubfoot may participate in athletics like anyone else. We know many excellent athletes who have corrected clubfoot.

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