

# Clubfoot and the Ponseti Method

## *Information for Parents*



### **The Ponseti Method Clubfoot Clinic** *of the Rubin Institute for Advanced Orthopedics*

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### What is clubfoot?

A baby with clubfoot has a stiff foot that points down and is rotated inward. The foot has an unusual appearance because the bones, muscles, and joints of the foot and lower leg developed abnormally. In the U.S., approximately one in every 1,000 babies has clubfoot, although the rate varies in different ethnic groups. The condition is twice as common in boys than girls, and both feet are affected in about half of children.

The cause of clubfoot is unknown, but it seems to be a birth defect that occurs during the second trimester of pregnancy. Sometimes the condition is detected at 16 to 18 weeks of pregnancy by using prenatal ultrasound. Clubfoot can be passed on from the parents to the child. If one parent has clubfoot,

each child has a 3% to 4% chance of being affected; if both parents have clubfoot, each child has a 15% chance of being affected. However, most babies born with clubfoot have parents who do not have clubfoot.

Most children are diagnosed with a type of clubfoot called *idiopathic clubfoot* and are otherwise normal in the rest of their bodies. A small percentage of children experience additional conditions, such as arthrogryposis or spina bifida. When clubfoot is associated with other conditions, it is sometimes called *teratologic clubfoot* or *syndromic clubfoot*. All types of clubfoot can be treated with the Ponseti method, although success rates are much higher for idiopathic clubfoot.



## What is the Ponseti method?

The Ponseti method was devised by Dr. Ignacio Ponseti in Iowa more than 60 years ago. This method was largely ignored by mainstream orthopedic surgeons until 1998 when Dr. John Herzenberg and a few others around the country “re-discovered” the Ponseti method. It is now widely accepted and prescribed. Prior to the Ponseti method, surgeons had to do extensive open surgery that often resulted in stiffer, weaker feet, with frequent relapses.

The Ponseti method is a nonoperative technique in which the foot is gently manipulated and placed in a cast every week during a 4-to-8-week period. This allows enough time for the ligaments to relax and the bones to grow into the corrected position.



After the foot is somewhat overcorrected into full abduction (i.e., a toe-out position), 90% of children will also undergo *Achilles tenotomy*, a minor procedure performed under local anesthesia in the clinic. During this outpatient procedure, the heel cord is cut so that the foot is able to achieve a toe-up position. The foot is then placed in the final cast, which remains on for 3 weeks.

After the final cast is removed, your child will need to wear boots that are connected to a bar to keep the feet turned outward. The boots and bar are worn 23 hours a day for the first 3 months of treatment. After 3 months, your child will transition from wearing the brace 23 hours a day to only during naps and at nighttime. The brace is worn in this manner until the child is at least 4 years of age.



### How many casts will my child need?

Typically, four to eight casts are applied to correct the deformity. In a few rare cases, as many as 10 to 15 casts are needed. Your child will need to visit the clinic every week for 4 to 8 weeks to have the cast removed, the club foot gently repositioned, and a new cast applied. Mild cases of clubfoot deformity are corrected faster than severe cases. To achieve a corrected foot position, the cast needs to extend from your baby's upper thigh to his or her toes.



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### Are there any surgical alternatives to the Ponseti method?

Posteromedial release surgery is an alternative to the Ponseti method. It is an extensive open surgical procedure that involves cutting many



ligaments and tendons. The result is often a stiff and painful foot. Although it used to be the standard treatment, posteromedial release surgery has become much less common because of the success of the Ponseti method.

## **Will the casts make it difficult for my child to receive routine medical care?**

The casts will not prevent your baby from being weighed, undergoing a phenylketonuria (PKU) test, or receiving vaccinations. The baby can be weighed without the casts when you visit the clinic. A PKU test can also be conducted when you visit the clinic. Please ask your pediatrician to provide you with a PKU collection card and bring it with you when you visit the clinic. Your pediatrician can administer vaccinations to the areas of the body that are not covered by the casts.

## **How can I help during treatment?**

You can help your baby relax while undergoing treatment. Using a bottle to feed your baby can calm him or her during the stretching and casting process. If your baby is breastfed, feeding just before the treatment can help to relax your child. The manipulations and casting are not typically painful and children often fall asleep! Please feel free to bring lullaby music that may calm your child.



When the cast is applied, take note of where your child's toes are in relation to the cast. You will be reminded to take a picture of your baby's toes before you leave the clinic to help determine if the cast has slipped at home. If your child's toes disappear into the cast, the cast could be slipping off. This could cause a pressure sore. If the toes disappear inside the cast, the cast needs to be removed. Please contact our office to come in to get the cast removed, or remove the plaster cast yourself by soaking it in a mixture of warm water and a little vinegar. A synthetic, semi-rigid (soft) cast can be removed by finding the end and unwrapping the layers. The cast will need to be reapplied as soon as possible, so please contact the clinic for an appointment.



### How do I care for the cast?

- ❖ Every diaper change, check your baby's toes to make sure that they are pink and warm, and that they are not swollen.
- ❖ Every diaper change, check the skin around the edges of the cast for any signs of rubbing or redness. Check if the thigh skin is irritated or if there is chafing in the groin area.
- ❖ Every diaper change, compare the toes to the picture you took after casting; has the cast slipped?
- ❖ Keep the cast clean and dry.
- ❖ Change your baby's diaper frequently to avoid soiling the cast. Disposable diapers with elasticized legs work well. Try to fit the leg of the diaper above the top of the cast to prevent urine from leaking under the cast.
- ❖ If your baby soils the cast, wipe it with a dry cloth. The cast will be okay even if a stain remains.



### You MUST contact the hospital if:

- ❖ You cannot see your baby's toes.
- ❖ Your baby's toes are not pink and warm.
- ❖ The plaster crumbles or becomes loose or cracked.
- ❖ Your baby is crying more than usual and appears to be in pain. The cast might be rubbing in an area that is not visible.

**If you do not follow ALL these instructions,  
the treatment might not be successful.**

## How do I care for my child while he or she is wearing a cast?

### Diapers

Use disposable diapers with elasticized legs. Make sure the elasticized leg is at the groin and not covering the cast edge. Be sure to use the correct diaper size to keep urine from seeping under the cast.

### Dressing

Clothing that covers a baby's foot will not be large enough to fit over the cast. Pants with snaps or Velcro closures on the seam of the inner leg can make dressing much easier. Extra large socks can fit over the casts to keep your child's toes warm.

### Bathing

Sponge baths may be given while the baby is in the cast. Careful attention to the diaper area is necessary because the baby cannot be placed in water.

### Safety

Typically there is not an issue fitting into a car seat with casts. Check strollers, swings, carriers, and other baby equipment to make sure the casts do not keep safety belts, pads, and other safety equipment from working

properly. Be aware of the length of time that your child's legs are hanging down when sitting and check for swelling of the toes.

### Sleeping

Casts do not usually cause sleeping problems. If your baby is having difficulty getting comfortable or is crying a lot, make sure the casts are not slipping and the toes are warm and pink. If the casts do not seem to be the problem, your baby may need to be positioned differently. If sleeping problems persist, contact your pediatrician for further recommendations.

### Positioning

Repositioning can often help a fussy baby. Place a rolled towel under the casts to bring the legs closer to the tummy. It is very important to place your baby on his or her tummy while the baby is awake. Supervised "tummy-time" play strengthens muscles for normal development.

*“If their baby is otherwise normal, when treated by expert hands, their child will have normal looking feet with normal function for all practical purposes. The well-treated clubfoot is no handicap and is fully compatible with a normal, active life.”*

*– Dr. Ignacio Ponseti (1914–2009)*

**Useful links:**

Our Website:

[www.limblength.org](http://www.limblength.org)

Ponseti International Website for Parents:

<http://ponseti.info>



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