

Clubfoot Correction

Using casting followed by shoes on a bar (the Ponseti method)

The results of treating a child with clubfoot using the Ponseti method are very good. This involves stretching casts to correct the deformity, followed by shoes on a bar to hold the correction.

What is the cause of clubfoot?

Clubfoot is the most common bone and joint deformity in babies. One out of 1,000 babies is born with a clubfoot.

Clubfoot is primarily a genetic condition, but other factors contribute to its occurrence. If your baby is born with a clubfoot you should know it was not caused by anything you did or did not do.

What is the Ponseti method for the treatment of clubfoot?

The Ponseti method is a safe, effective treatment for the correction of clubfoot that reduces the need for extensive surgery. The likely course of treatment for your child is these three steps in this order:

1. Casting (with foot stretching)
2. Tenotomy - cutting of the Achilles (heel) tendon
3. Bracing with special shoes on a bar

Treatment starts when your baby is about 1 week old. The foot is gently stretched and manipulated for about 1 minute. After the ligaments and tendons of the foot are stretched, a long leg soft fiberglass cast is put on. This process will be repeated every week until the foot has been corrected. Most feet will need the Achilles tendon cut. Your child will then wear shoes on a bar to hold the correction.

How long will the treatment last?

The initial correction including tenotomy takes about 2 to 3 months. Then the feet are maintained in the shoes and bar for 23 hours a day for 3 months. This portion of the treatment plan is almost always complete before the child starts walking, and often before they are able to sit independently.

Your child will need to continue wearing the shoes and bar at night until age 4 years. You will be asked to bring your child in for check-ups every 3 months until they are 2, every 6 months until age 4, then less frequently as they grow.

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To Learn More

- Orthopedics
206-987-2109
- Orthotics and Prosthetics
206-987-8448
- Ask your child's healthcare provider
- seattlechildrens.org

Free Interpreter Services

- In the hospital, ask your nurse.
- From outside the hospital, call the toll-free Family Interpreting Line, 1-866-583-1527. Tell the interpreter the name or extension you need.



1. Casting

The cast goes from the toes to the groin. It will hold the correction achieved by the stretching and manipulation. The cast is left on for about 5 to 9 days to relax the tissues before going on to the next stretching, manipulation and cast application. This series of castings is called serial casting.

Your child will get a new cast each week; gradually bringing the foot into correct alignment. The cast is removed at home 1 to 3 hours before your child's next appointment. Four to eight castings over 4 to 8 weeks are generally required. At each appointment, your child's doctor will use their fingers to feel the position of the bones and the correction that has been achieved.

X-rays of the foot are usually not needed.

How do I care for my child and the cast?

- Keep the cast clean and dry. This is easier using disposable diapers than using cloth diapers. Cut the foot off a cotton sock, and place the tube of the sock on the leg from the diaper to the top of the cast to help absorb pee that leaks out from the diaper. If the cast becomes soiled; clean it with a cloth dampened with vinegar and water (equal parts of white vinegar and water). Use a blow dryer on the low, cool setting to help dry it.
- Elevate the legs. Place your child on their back with their legs elevated on a pillow. The pillow should extend down to their heels but not under them. This helps prevent heel pressure sores.
- Keep an eye on the tip of the toes to make sure the cast is not slipping. If the toes slip into the cast, the correct pressures on the foot are not being maintained, which can result in pressure sores. Call the orthopedic clinic right away. The cast will need to be removed and a new one put on.
- Watch for good circulation. The toes should be a light shade and warm. Check your child's circulation by gently pressing the toes and watch them blanch to a lighter shade then quickly return to normal skin color. If the toes seem dark and cool or do not blanch, gently squeeze the fiberglass cast to release pressure on the toes. If the toes are still dark and cool or do not blanch, call the orthopedic clinic right away.

When do I call the orthopedic clinic?

Call if:

- You notice a foul odor or drainage coming from inside the cast
- Red skin, blisters or sores are being caused by the cast
- Toes are dark in color, cool or do not blanch when testing circulation
- Cast has slipped down over the toes
- Your child has a fever of 101.5 or above, and your primary care doctor has seen them and ruled out other reasons for a fever (for example, a cold, virus, or urinary infection).

2. Tenotomy

At the end of serial casting, 90 percent of the children will need their Achilles tendon lengthened through a procedure called tenotomy. Tenotomy is the cutting of a tendon. This is a minor surgical procedure done in the orthopedic clinic. The back of the foot is numbed with a numbing cream (topical anesthetic). The Achilles tendon is then totally separated, which allows the foot to move up, and a final cast is applied. Your child will wear this cast for 3 weeks. During this time, the tendon grows back at a longer length.

After serial casting or serial casting and a tenotomy, the foot should look a bit over-corrected and flat.

When do I call the orthopedic clinic?

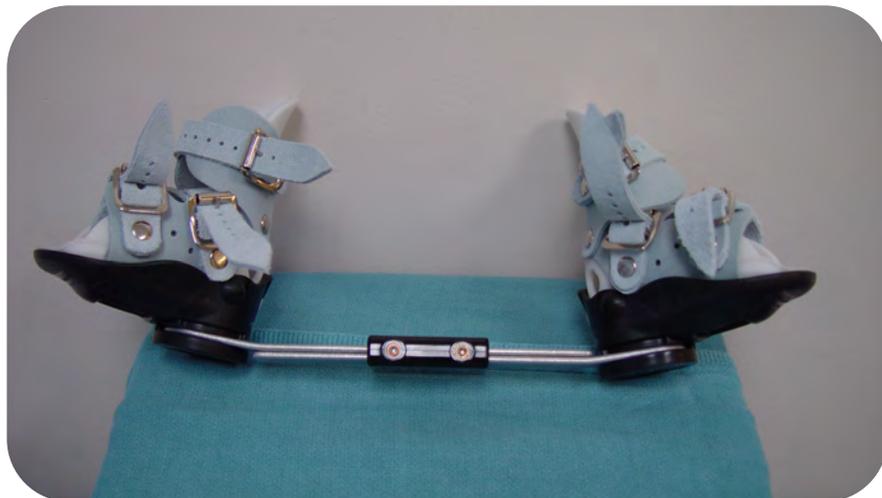
Call if:

- Pain is not controlled by pain medicine (acetaminophen) prescribed by your doctor
- There is bloody drainage on the cast
- The cast slips

3. Bracing with special brace - shoe and bar (foot abduction)

To maintain the correction, your child must wear the shoes on a bar (foot abduction brace) for 23 hours a day for the first 3 months, and then 12 hours a day (night time) until 4 years old. There is an 80 percent chance of the clubfoot deformities coming back if the shoes and bar are not worn.

The shoes are straight bordered and high topped with open toes. They are attached to an adjustable aluminum bar. The bar's length is determined by the width of your baby's shoulders. The shoe is rotated out 70 degrees on the clubfoot, and on the normal foot (if there is only one clubfoot) 40 degrees.



It will take your baby time to adjust. Your baby will likely be frustrated with not being able to kick their legs independently. It is very important to develop a routine and be consistent. Do not give in and take the shoes off. Using the shoes and bar will not delay your child from sitting, crawling or walking.

Sometimes the shoes slip off. If this is a problem for your child, call Orthotics at 206-987-8448 to have your child's shoes adjusted.

How do I put on my child's shoes and bar?

- Put cotton socks on your child's feet first. Cotton allows your child's skin to breathe. Use socks that cover everywhere the shoes touch your child's feet. If your child's skin is sensitive from the last cast, you can have them wear two socks for a couple of days and then switch to wearing one sock.
- Hold the foot into the shoe. First tighten the ankle strap and then the other straps. Do not mark the straps or count the holes. The straps will stretch, so tighten them as tight as you can each time.
- Make sure the heel is down. If the heel is not down, the shoe will not maintain the correction and it will create pressure sores. You can check this by pulling the leg up and down in the shoe. If the toes move back and forward, the heel is not down.
- Lace the shoes tightly to help hold the foot in the shoe. Do not tighten the laces so much that the toes become pale.
- Make sure the toes are straight and not curled under the foot.
- Do not use lotion on red spots on the skin. It can make them worse.

How can I help my child adjust to the shoes?

- Play with your child while they are in the shoes and bar. This helps distract them and helps get them over being irritable.
- Teach your child how to kick and swing their legs together. You can do this by holding on to the bar and moving the legs up and down, back and forward.
- Be consistent and make it routine. Your child will be less likely to be fussy if they know what to expect.

After the serial casting and tenotomy, your child should be seen every 3 months until they are 2 years old. After 2 they will be seen about every 6 months. As your child gets older the need to be seen will decrease, but they still will need to be monitored.

Are there any other recommendations or treatment necessary?

We will teach you how to stretch the Achilles tendon during the shoe/bar phase. Stretching your child's Achilles tendon on the side that has a clubfoot is done during the period they are wearing shoes and bar. It is very important.

See photo below:

- If your child has a right clubfoot, put your right hand under the foot with toes at your wrist and slowly push upwards and outwards.
- If your child has a left clubfoot, put your left hand under the foot with toes at your wrist and slowly push upwards and outwards.



When is surgery needed?

Five to 10 percent of children with clubfoot will need surgery. These children tend to have severe, short, fat, stiff feet that do not respond to serial casting. These children need surgical treatment once it is clear that they have not responded to the casting.

What are the long-term goals of treatment?

The outcome for a child with a club foot treated with the casting and shoes/bar (the Ponseti method) is very good. Your child is expected to lead an active and normal life.

There are a few differences from normal in a child with a clubfoot. The affected foot is 1 to 2 shoe sizes smaller. The calf muscle in the leg with the clubfoot is smaller. No amount of exercise or physical therapy will get it to be equal in size to the other side. The affected leg will be slightly shorter than the non-affected side. This will not cause pain or other health issues and usually does not require any treatment – not even a shoe lift. Children with clubfoot participate in everyday activities and in sports