

THE PONSETI METHOD

“Parents of infants born with clubfeet may be reassured that their baby, if otherwise normal, when treated by expert hands 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” - *Ignacio Ponseti*

Dr Ponseti pioneered his method in the 1950's after researching the long term effects of clubfoot surgery. His findings were that, in adulthood, patients who had been operated on often had feet with stiffness, pain, arthritis and limited mobility. And in many cases, further surgery was required. By studying the anatomy and functions of a baby's foot, he discovered why previous casting methods had been unsuccessful and started manipulating the foot differently. Since then he told us he has treated over 2,000 clubfeet and he has patients who already in their 40's now and have functional, pain free feet.

Dr Ponseti and a team of orthopaedic surgeons at the University of Iowa Hospital have been doing the treatment ever since then. There are documented follow-ups on the patients treated over the past 45 years or so and they all have normal, functional and pain-free feet.

In the beginning, Iowa City was the only place the Ponseti Method was done. Although Dr Ponseti gave a lecture on his results, many doctors thought Dr Ponseti was the only doctor who could do it successfully. Luckily things started changing over the past few years. Ponseti published a book on his method in 1996 and the internet has been instrumental in getting the word out to parents and surgeons. Dr Ponseti told us that parents are the major driving force for the method being used more widely.

Dr Ponseti has always shared his expertise with interested doctors. And his protégées are enthusiastically training more doctors worldwide. Surgeons have already switched over in the US, Canada, Australia, New Zealand, Europe, South America, Africa, Thailand and India.

Because there's no surgery involved, once the training has been completed, the Ponseti Method is cheaper and simpler to do. Which makes it especially useful for developing countries. Since 1999, Canadian Rotary sponsored the training of medical staff with the cooperation of the Ugandan Ministry of Health. It is now used successfully in both Uganda and Malawi to treat thousands of babies.

The treatment

If the Ponseti Method is done correctly, most clubfeet are corrected within 4-6 casting sessions. The casts are changed weekly. Less than 5% of clubfeet may be very stiff and severe, they may need more casting, but Dr Ponseti says that even they should be corrected within 8 to 10 casting sessions. For the most severe cases, surgery is occasionally required, but it's less radical than it would have been without the correct casting method.

Dr Ponseti does very gentle manipulations while the baby is seated comfortably on the mother's lap. Each time, the manipulation is done slightly differently to stretch another part of the foot. Then the plaster is applied. He has an assistant to roll on the plaster while he is still holding and moving the foot into the position he requires. A lot of plaster is wrapped around the knee, which is bent at almost a 90 degree

angle. Dr Ponseti does a full-leg cast right up to the groin. The position of the knee and the full leg cast helps to immobilise the foot into the correct position.

The cast is left on for 5-7 days to hold the correction achieved and allow the baby's ligaments and tendons to soften into the new position. The next manipulation is done and re-casted until the displaced bones are brought into the correct alignment and the foot is correctly positioned.

The Ponseti Method of treatment should begin as early as possible, even when the baby is only a week or two old. This is because the tissues forming the ligaments, joint capsules and tendons are still very elastic and stretch easily with each manipulation. Dr Ponseti and other doctors have treated some babies who were up to a year old successfully, and avoided major surgery on the foot.

In many cases, before applying the last plaster cast, the Achilles tendon is cut in the doctor's rooms. This is a simple procedure, done with a local anaesthetic, a tiny cut at the back of the heel and not even a stitch required. By the time the cast is removed after three weeks, the tendon has regenerated to a proper length. The foot should appear overcorrected at first; this will change over time as the baby starts walking.

Following correction the congenital condition that caused the clubfoot deformity in the first place tends to stay active and the foot can sometimes relapse. To prevent relapses, when the last plaster cast is removed a splint must be worn full-time, usually for three months and thereafter at night until 2 to 4 years of age. The splint, called a Foot Abduction Brace (FAB) consists of a bar, with high top open-toed shoes attached to the ends of the bar. The shoes must be shoulder width apart, at 70 degrees of external rotation and slightly angled up (toe higher than heel) to maintain the Achilles tendon dorsiflexion correction. In children with only one clubfoot, the shoe for the normal foot is fixed on the bar in 40 degrees of external rotation. During the daytime the children are barefoot or wear regular shoes. No stretching of the foot or physiotherapy is required.

The surgeon can feel the position of the bones and the degree of correction, so X-rays of the feet are not required. Apparently the bones are like cartilage and do not show up well on X-rays anyway.

If the FAB wear is complied with completely according to Dr Ponseti's instructions, we are assured of 100% success rate. If the foot relapses after the Ponseti Method further casting may be done if the child is young enough, or a simple operation called an ATT transfer may be needed when the child is over two years of age. The operation consists in transferring the anterior tibial tendon to the third cuneiform. This does not have the negative after effects that full surgery has.

Dr Ponseti's opinion is that the poor results of cast and manipulative treatments of clubfeet by some doctors indicate that the attempts at correction have been inadequate because the techniques used are flawed. Without a thorough understanding of the anatomy and kinematics of the normal foot and of the deviation of the bones in the clubfoot, the deformity is difficult to correct. Poorly conducted manipulations and casting will further compound the clubfoot deformity rather than correct it, making treatment difficult or impossible.

Surgeons with limited experience in the treatment of clubfoot should not attempt to correct the deformity. They may succeed in correcting mild clubfeet, but the severe cases require experienced hands.

Referral to a doctor with training and expertise in the Ponseti non-surgical correction of clubfoot should be sought before considering surgery.

So why is the Ponseti Method not more widely used?

Although Dr Ponseti has been successfully treating clubfoot without surgery for over 50 years, it hadn't been widely used by other surgeons worldwide. However since the advent of the internet, this is changing. The publication of Dr Ponseti's book, in 1996, was another catalyst in getting the method better known.

Extract from a review by Dr Herzenberg of Dr Ponseti's book (on Amazon website) – Dr Herzenberg has been doing the Ponseti method since 1999:

“One final note: if Ponseti's method is so effective, why is it not widely used? The fault lies with two parties: we the orthopaedic community, and Ignacio Ponseti himself. We tend to be conservative, closed minded, and not open to new ideas.

Ponseti has been guilty, at least until he published this book, of not arguing forcibly enough to promote his ideas. Those who personally know "Papa" Ponseti understand that he is gentle, soft-spoken, non-bombastic, and non-dogmatic. As a result, his quiet voice has been drowned out by the more self-promoting personalities in our profession.

Now in the twilight of his career, Ponseti has realized how important it is to teach his method to a wider audience than just residents at the University of Iowa. In this book, he has done an admirable job of explaining and illustrating his method. It is up to the rest of us, now, to carefully read, digest, and apply his principles. Generations of clubfoot babies will thank us.” - Dr Herzenberg, Baltimore, Maryland, USA

Sources:

- Dr Ponseti's website:
<http://www.vh.org/pediatric/patient/orthopaedics/clubfeet/parents.html>
- Congenital Clubfoot: Fundamentals of Treatment by Ignacio V. Ponseti
Publisher: Oxford University Press; 1st edition (January 15, 1996), ASIN: 0192627651 (NOTE GRANT: BOOK LINK TO HERE)
- Our own observations during treatment