



steps speaks to Dr Ponseti

It is amazing to think that the Ponseti method has only really taken off in the UK in the last 6 years. **steps** was instrumental in helping to spread the word; our conference in 2001 featured one of the first presentations on the method in the UK, and we have continued to gather and disseminate information on the technique ever since. We are delighted to have been given the opportunity – via email – to ‘interview’ Dr Ponseti himself.

Dr Ponseti, could you tell us a little about your early life?

I was born in Menorca and grew up in Barcelona from 8 years of age on. I graduated from Medical School in Barcelona in 1936 just one day before the Spanish Civil War broke out and served as a medical officer in the Spanish army for three years. The war was won by Franco's side and I had to leave Spain. I went to France for six months and then to Mexico for 1 1/2 years before coming to Iowa City to do an orthopaedic residency in 1941. I joined the faculty of the University of Iowa Department of Orthopaedic Surgery in 1944 and have been here ever since. I did clinical work and did lab work on bone pathology and cartilage and connective tissue biochemistry.

What prompted you to start treating clubfoot the way you do?

When I came to Iowa City in 1941 I had the opportunity of reviewing the patients with clubfeet treated here since 1916. All patients with clubfeet treated in the 1920s were very stiff, weak and painful. Many had had several operations. I decided to study the deformity in the foetus as well as in newborns. I saw that the clubfoot was a normal foot that was pulled by the flexors, posterior tibial, gastrosoleus and calf muscle into an extreme position of flexion, adduction and varus. These muscles were short, fibrotic and contracted. The bones in a baby's foot are mostly made of cartilage. The ligaments were thicker and tight on the inside of the foot. The collagen was wavy so it could be stretched. The big bones at the back of the foot were slightly deformed. Since they are made mostly of cartilage, the bones recover their normal shape as soon as they are decompressed. My treatment technique is based on the understanding that the clubfoot is a normal foot. The tight tendons and ligaments can be gradually stretched to their normal position and then the bones remodel and the foot returns to the normal shape it had before the 16-20th week of pregnancy.

How can a medical practitioner gain your approval and be listed on your website?

Simply attending a training course or spending a week here does not qualify one for inclusion on the web site. Each doctor is asked to send photos of the feet of three babies s/he had treated. For each child I wanted to see the feet before treatment was started,

one of each child in one of the casts so I could evaluate the moulding and casting technique, and one showing the feet when treatment was complete. For each child I also wanted to know:

- Age when treatment was started
- Any other medical problems
- How many casts were used
- How often were they changed
- Long leg or short leg casts
- Plaster or fibreglass
- Did any of the casts slip or were there problems with cast sores
- Was a tenotomy performed
- Local or general anaesthesia
- What type of brace was prescribed
- What wearing instructions were given, i.e. how many hours for how many months/years
- Was the deformity fully corrected or will surgery be recommended

Recently it was decided that a committee would take on this job and they will likely ask that the doctor also submit letters of recommendation supporting his/her results in the treatment of clubfoot from other physicians in the area.

There are many more people using your method, than those listed as approved on your website, so how can parents be satisfied that their practitioner is following your treatment protocol correctly?

On the web site http://members.tripod.com/ponseti_links_vil/id13.html there is a list of questions parents can ask a physician to help them assess his/her training and expertise in the treatment of clubfoot using our technique.

What do you think when people adapt your method and still call it 'Ponseti'? What advice can you give parents if they think this might be happening?

I have found that mothers in particular often have a natural sense of when something is not being done properly and I urge them to seek another opinion. If an infant is otherwise normal, the clubfoot deformity can be corrected with gentle stretching and the application of about 5 or 6 long leg plaster casts which should be changed every 4-7 days. Before the last cast is applied the majority of babies require a percutaneous tendo Achilles tenotomy. This is a very minor procedure which should be performed under local anaesthesia. If a baby's clubfoot is not corrected with 6 casts or if the physician says the child will need any other type of surgery such as a posterior or posteromedial release to correct the deformity, the family should go elsewhere.

Sometimes a child is diagnosed as having an atypical clubfoot. Can you describe this and say whether it needs any special or different treatment?

An atypical or complex clubfoot has a deep crease on the sole of the foot and often another on the back of the foot above the heel. The muscles on the sole of the foot are contracted and bend the metatarsals down into severe flexion. The adduction of the forefoot is easy to correct with a few casts but then unless the knee is flexed 110-120 degrees during cast application the casts tend to slip down. The technique used for proper pressure while applying the cast is slightly different than that used for the common type of clubfoot.

You must be delighted by the application of your techniques to the problem of neglected clubfoot in the developing world. What more do you think could be done to promote your method?

- Educating physicians and other health care providers on the Ponseti method through web-based resources, scholarships for physicians from under-served parts of the world to learn the method, and teaching programmes in countries that have limited access to other sources. Educating parents of children with clubfoot through web-based materials, seminars and other resources to enable parents to evaluate treatment options and have access to the best care.
- Providing better access to care, particularly in developing nations where medical materials are limited.
- Basic research that advances the understanding of the underlying genetic basis of clubfoot with the aim of finding ways to prevent its development.
- Clinical research that improves the evaluation and treatment of clubfoot and leads to current education and training of physicians and health care providers.

The number of hours per day and total length of time a child needs to be in the boots and bar seems to vary between hospitals. What do you recommend? Do you recommend a gradual reduction of hours, or straight to 12-14 hours from 23 a day?

In infants after the last cast is removed, the brace is used 23 hours a day for three months. Time in the brace is gradually reduced by 2 hours each month until it is worn 16 hours a day. Once the child is walking, brace wear may be reduced to 12-14 hours a day.

If a child has previously had surgery, can the Ponseti method still be used if that surgery was unsuccessful?

Yes, the operated foot can be straightened gradually with a few casts. The correction is then maintained with an anterior tibial tendon transfer to the third cuneiform.

What age at the start of treatment was the oldest child you have successfully used the Ponseti method on?

4 years.

Why is it so important to stick closely to the method?

The method is based on the normal functional anatomy of the foot. The bones have to be repositioned gradually following the normal motion of the subtalar and midtarsal joints. Otherwise the bones are damaged, the joints are not congruent and the deformity is not corrected.

Can you pinpoint what the main reasons are for failure in the execution of the method?

Lack of understanding of the subtalar and midtarsal joints, and inability of the doctor to feel clearly how the joints move during the correction.

Your long term follow up studies show a very good outcome – are there any "dos and don'ts" regarding lifestyle and activity levels?

The well-corrected clubfoot is normal for life. Many of our patients are runners and some have competed in marathons.

If you could start your working life again from scratch would you change anything?

No.

How much work are you doing these days and what sort of work do you do?

I have three clinics a week to treat clubfeet. I am trying to study the changes in the muscle proteins in clubfoot and scoliosis.

Do you think you will ever retire?!

Not as long as I remain healthy.

Thank you for your time. **steps** really appreciates you giving us this opportunity.



The Jane Bettridge Fellowship Fund

In his interview, Dr Ponseti mentions the importance of training doctors and other healthcare practitioners from less developed areas of the world in the Ponseti technique. One way that **steps** aims to help with this is via the Jane Bettridge Fellowship Fund.

This Fellowship Fund was established in 2002 in memory of **steps** trustee Jane Bettridge. Jane's involvement with **steps** as a trustee was very important to her; all the more so because of being a parent of a child with clubfoot. The Fund supports research and education in orthopaedics and related disciplines. The Fund has helped to sponsor many Ponseti training events over the last 5 years, both in the UK and overseas. This is an area of work that **steps** would like to expand. If you would like to help **steps** to continue with this work, please send us a donation or contact our fundraising team to hold an event on bev@steps-charity.org.uk