

Ignacio Ponseti

Transformed millions of children's lives with an innovative treatment for clubfoot

Ignacio Ponseti's work on congenital clubfoot will be remembered as one of the key contributions to paediatric orthopaedics and childhood deformity. He devised a carefully constructed sequence of plaster casts and braces for children with clubfoot, based on his anatomic and embryological studies of the condition. The World Health Organization estimates that 100 000 children are born with congenital clubfoot every year, with 80% occurring in the developing world.

Ponseti's ingenious and inexpensive technique has spread to the furthest reaches of the developing world, enabling medical technicians to transform the lives of millions of children destined to severe deformity and suffering. It is also the treatment of choice in the developed world, with long term follow-up studies showing superior results to operative techniques.

The Ponseti method, developed over 60 years ago, avoids cutting the tight ligaments, joint capsules, and tendons and makes use of the biomechanics of stress relaxation of collagen. Ponseti realised that scarring from surgical intervention was a source of pain and stiffness and must be avoided to achieve flexible pain-free feet in adult life. Many before had tried casting with limited success, but Ponseti's breakthrough came from his understanding of the complex inter-relationship of the small bones of the foot.

Despite his work being published in many peer reviewed publications his method was not endorsed by the American Association of Paediatrics until 2006. This resulted from several factors, principally his colleagues' failure to believe in the technique. He was critical of other surgeons' eagerness to operate and frustrated that children were subjected to surgical procedures, when he felt he had already solved the problem. He also developed areas of research in cartilage and connective tissue biology, developmental dysplasia of the hip, and scoliosis.

Ignacio Ponseti was born on Menorca in 1914. He moved to Barcelona at the age of 8 and started a degree in biology at 16. He graduated from medical school in Barcelona in 1936, the day before the outbreak of the Spanish civil war. Two days later he joined the Republican Army as a surgeon and gained experience in plastering techniques, setting the fractured bones of

many wounded soldiers. When Franco's army gained territorial control he fled by mule over the Pyrenees to France with 40 wounded patients. He left France for Mexico where Spanish refugees were granted citizenship before the start of the second world war.

He practised medicine working with a typhoid outbreak in the small town of Juchitepec for two years. After that, he came to the attention of Dr Juan Farril from the University of Mexico, who recommended him to Dr Arthur Steindler in Iowa. He travelled by bus to Iowa in 1941, to begin training in orthopaedics. He finished his residency in 1944 and remained in Iowa as a consultant until briefly retiring in 1984.

He met his wife (Helena Percas-Ponseti) while she was working as an academic at Iowa University in 1961. Amazingly their paths had crossed before on the island of Mallorca because Helena's family summer home was close to his grandparent's house. Having lost contact, nearly 40 years later, they were married.

Forced into mandatory retirement at 70 by hospital policy, he became bored but arranged a return to work two years later, focusing solely on his clubfoot practice. He published his book *Congenital Clubfoot: The Fundamentals of Treatment* in 1996, detailing dissections and anatomical modelling of how his technique works. Over the next decade the technique spread around the world, with many surgeons making the long journey to Iowa to learn the technique first hand.

The man they met was patient, kind, and gentle and in his 90s, still working three days a week, treating patients from all over the United States and sometimes further afield. The

affection for his patients was plain for all to see, and they clearly felt the same for him. His osteoarthritic hands it was joked were "twisted into the shape of a child's foot" and sharp eyed visitors may have noticed a cut latex glove over his left middle finger to protect an underlying basal cell carcinoma, irritated by years of plaster of Paris. True to his Spanish origins he would retire for his siesta on his foldaway office bed after a morning plaster clinic. Despite a hip fracture in January 2009 at the age of 94 he fully recovered and returned to work.



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In his last years he saw his life's work achieve the recognition it deserved. Ponseti had a stroke at his office desk at the age of 95. He died peacefully with his wife and son at his bedside four days later. He is predeceased by a daughter and leaves his wife and son.

Donald Campbell

Ignacio Vives Ponseti, children's orthopaedist (b 1914; q 1936, Barcelona), died on 18 October 2009 after a stroke.

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