



Josè M. CAÑADELL CARAFI (1923, Barcelona – 2014, Pamplona, Spain)
EPOS Board Advisor (1989 – 1990)
6th EPOS President (1993 – 1995)

Dr Cañadell graduated from the Faculty of Medicine at the University of Barcelona in 1946. He specialized in Orthopaedic Surgery and Traumatology, he worked for seven years at the Hospital Sagrado Corazón, then he oversaw the Orthopaedic Surgery Service (1953-1968), and he was appointed Deputy Director in 1957 at the Red Cross Hospital in Barcelona. In 1968 he was appointed Professor of Orthopaedic Surgery and Traumatology at the University of Navarra, Director General of the corresponding University Department for 15 years (1969-1984) and Medical Director for another 5 years (until 1989).

In Pamplona, Dr Cañadell used the Mayo Clinic model centered on teaching and research, combined several elements: quality care, careful patient care, human and professional training of the health staff. He contributed to the development of a new bone bank and an experimental orthopaedic laboratory. He had a great vision of the future. He was a pioneer in Spain in osteosynthesis, microsurgery, bone et tissue bank, arthroscopy, computer technology, and experimental surgery. Because research was a passion for acquiring new knowledge, Dr Cañadell has an enormous list of publications.

Among his long list of honors, he was the President of the Spanish Society of Orthopaedic Surgery and Traumatology (SECOT, 1970-1972). He was awarded the Red Cross Gold Medal in Barcelona in 1967, and he has received the Gold Medal of the University of Navarra in 1995.

Contribution to EPOS:

Dr Cañadell was the first Spanish member at EPOS, he was elected in 1986. In 1989, at the 8th annual meeting held in Helsinki (local host: Soini Ryöppi), he directed with Alessandro dal Monte and Wladislaw Lokietek the main topic on the limb leg lengthening. During the General Assembly, under Henri Bensahel's presidency, Dr Cañadell was elected as a Board Advisor as well as Viktor Bialik, Jan van der Eijken and Peter Witherow.

He organized the 3rd EPOS Seminar in Pamplona, from 24th-26th October 1991. The topic was “Idiopathic Scoliosis Update”.

In 1991, Dr Cañadell was elected Vice-President during the 10th annual meeting held in Paris (local host: Henri Bensahel). During the 12th annual meeting in Vienna in 1993 (local host: Franz Grill), he succeeded to Jørgen Reimers and he became the 6th EPOS President. The executive board was as follow: José Cañadell (President), Klaus Parsch (Vice-President), Jørgen Reimers (Past-President), Jan van der Eijken (General Secretary), Erika Lamprecht (Treasurer), Gérard Bollini, Franz Grill and José Mesquita Montes (Advisors), Nando de Sanctis (EPOS News) and Henri Bensahel (JPO B).



Under Cañadell's presidency, two EPOS annual meetings were organized. But unfortunately, Dr Cañadell could not attend these meetings, and he was replaced by Klaus Parsch, Vice-President.

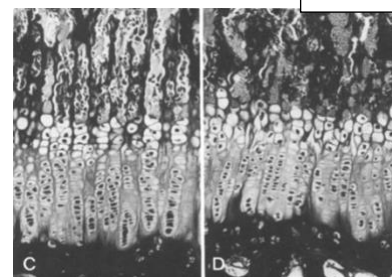
- The 13th annual meeting held in Porto, Portugal, at the Hotel Solverde, on the 7th-9th of March 1994 with José de Mesquita Montes as the local host. More than 200 attendees represented 30 countries. The main topic was “children's fractures”.
- The 14th annual meeting was organized by Wladyslaw Lokietek under the Auspices of Her Majesty the Queen Fabiola in Brussels, Belgium, on the 5th-8th April 1995. The main topic was the “Handicapped child”. The participants came from 22 European and 6 extra-European countries. A new board was elected : Klaus Parsch (President), Jan van der Eijken (Vice-President), José Cañadell (Past-President), Viktor Bialik (General Secretary), Erica Lamprecht (Treasurer), Michael Benson, Gérard Bollini, John Dimitriou and Julio de Pablos (Advisors).

Dr José Cañadell was awarded Honorary Membership by Jan van der Eijken in Madrid in 1998 during the 17th annual meeting (local host: Julio de Pablos) and Pro Maximis Meritis by Dietrich Schlenzka in Zagreb in 2010 at the 29th annual meeting (local host: Darko Anticevic).

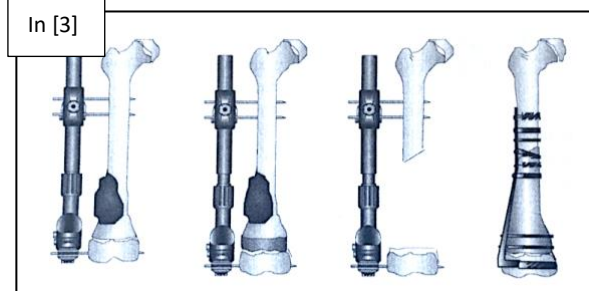
Contribution to Paediatric Orthopaedics

From the beginning of his specialization in Paediatric Orthopaedics, Dr Cañadell was fascinated by the physis. In 1966, he defended his doctoral thesis: “*Verificacion de los factores locales que influyen sobre la actividad del cartilago de crecimiento*”. He had a lot of interest for other topics, and he published many papers on scoliosis, femur and tibia osteotomies, pseudarthrosis, DDH. Nevertheless, his main work was focused on malignant bone tumors treatment and bone lengthening.

In 1985, he developed a new approach in the treatment of epiphysiodesis: *the breaking bony bridge by physal distraction*. In three patients, he was able to break the bony bridge with an external fixator, and to correct an angular deformity and/or to lengthen the bone without internal fixation or bone graft [1]. One year later, Julio de Pablos and José Cañadell showed that the distraction produced a fracture between the metaphysis and the epiphysis in 45 lambs, and that the optimal distraction rate of 0.5 mm/day offered a greater short- and long-term viability of the physis that a 1 and 2 mm/day. The figure shows of the right (D) the result of the lengthened side (2cm, distraction rater = 0.5mm/day, follow-up = 4 months) compared with the control side (C) [2]. Many studies on bone lengthening led to innovation as the development of a new external fixator with a controllable damping (1993) [a].

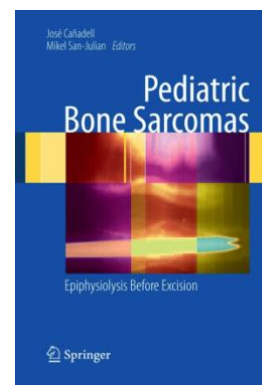


In 1994, Dr Cañadell published his results of malignant bone tumors resection with an epiphyseal conservation. The progress of imaging allowed surgeons to detect more and more cases with an intact epiphysis. So, the physal distraction technique offered the possibility to remove the tumor safely with an oncologic wide resection and to avoid the sacrifice of the joint. 20 patients were operated on, and no-one developed a local recurrence with a 54-month follow-up [3]. Another of Dr Cañadell's notable contributions consisted of the use of monolateral fixators to perform the bone transport technique hitherto only achieved with circular fixators according to Ilizarov [4].



As Dr Cañadell had an easy access to a bone bank in Pamplona, the reconstruction after bone tumor removal was often performed with an allograft. Then, he analyzed the influence of several factors affecting the consolidation time of 83 massive bone allografts (mean length = 18 cm) in 79 patients (mean age = 19 years) with malignant bone tumors: the bone union was obtained with an average of 6.5 and 16 months at the metaphyseal and diaphyseal junctions respectively [5]. However, fractures of allografts were observed in around 10% of cases, at the metaphyseal junction, always after the bone union, and frequently through a hole into the allograft either for a tendon or ligament reattachment or for a plate. The recommended treatment of these fractures was a new fixation with an intramedullary implant as far as possible and an autologous bone grafting [6].

In 2009, Dr Cañadell and Dr San-Julian published a book of 152 pages: "*Pediatric Bone Sarcomas – Epiphysiolysis before excision*", Springer ed. The goal of the surgical resection-reconstruction was to spare the epiphysis as often as feasible. In this book Dr Cañadell express his philosophy of bone sarcomas treatment in non-mature patients as well as the different techniques entitled in Spanish: "*la técnica de Cañadell*". The publication of this book took a long time because many surgeons did not believe that it was possible to preserve the patient's joint. A second edition has been published in 2016.

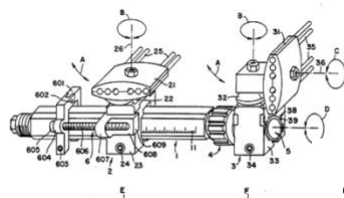


Top 6 references

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External fixator with controllable damping. In [a]

José Cañadell and his wife Montserrat. In [b]



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