

3D bioprinting of human hearts made in Andalusia used for surgical planning around the world

LOCATION: Seville

DURATION: 2'14"

SUMMARY: Paediatricians, cardiovascular surgeons, engineers and researchers from the University Hospital Virgen del Rocío in Seville and Digitálica, a spin-off company of the Andalusian Public Health System, lead an international project for the 3D bioprinting of children's hearts aimed at surgical planning. These interventions are mainly focused on the treatment of congenital cardiac malformations, which are more frequent in children and are the main cause of death in the first year of life. The uniqueness of these malformations together with the small size of the hearts increase the difficulty of these interventions.

VTR:

This is the heart of Jasmine, a baby from Holland who was successfully operated for a complicated congenital malformation. This heart surgery was a turning point for her country's Public Health System, as it was the first time they use a biomodel like this. Today is the first anniversary of that operation performed at the Leiden University Medical Center.

TOMÁS GÓMEZ CÍA
Medical Director at Digitálica

"They are experts. This is one of the centres which carries out the highest number of operations for this disease in the world."

GORKA GÓMEZ
Manufacturing Director
at Digitalica Health

"It is amazing that our work saved the life of a 3-month old girl."

This small heart was created in a lab in Seville, as well as the replica of the hearts of 30 children from different countries who have already benefit from the work of pediatricians, paediatric cardiologists, engineers and researchers from the Virgen del Rocío Hospital in Seville and Digitálica, a spin-off company from the Andalusian Public Health System. Together they lead an international project for the 3D bioprinting of children's hearts aimed at surgical planning.

TOMÁS GÓMEZ CÍA
Medical Director at Digitálica

"Having the most accurate 3D organ possible for this case, for this problem, it drastically reduces uncertainty, it cuts the surgery time and finally it increases safety, which is what all surgeons try to do."

REZA HOSSEINPOUR
Cardiovascular Surgeon
at the Virgen del Rocío Hospital

"We know what we are going to find, we have basically already done the operation before on the model."

Congenital cardiac malformations are the most frequent, 8 out of every 1000 new-borns have them, and they are the main cause of death in the first year of life. The uniqueness of these malformations together with the small size of the hearts increase the difficulty of these interventions.

REZA HOSSEINPOUR
Cardiovascular Surgeon
at the Virgen del Rocío Hospital

"It eliminates the element of surprise during surgery, which is a great thing."

"Parents understand it better, we achieve a real informed consent. They truly understand it because we put it in their hands, they are holding their child's heart in their hands."



TOMÁS GÓMEZ CÍA
Medical Director at Digitálca

This project has been awarded by the Association for European Paediatric and Congenital Cardiology. Other nine hospitals in Spain, the United Kingdom, Holland, Germany and Lebanon have successfully used these replicas made in the University Hospital Virgen de Rocío in Seville.

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