

Swapping plaster casts for 3-D printing

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Black Novacast

NovaCast a device that prevents infections, ulcers and even amputation of limbs, is 10 times lighter than traditional materials and allows good ventilation.

The use of plaster splints for the rehabilitation of bones can cause infections, ulcers and even amputations because their shape prevents proper medical inspection, sweat accumulates, and they have poor ventilation. To avoid these problems, a group of young graduates from the National University of Mexico (UNAM) created Mediprint, a Mexican startup that manufactures 3D-printed splints.

"The material that conventional splints are made of is a highly hygroscopic plaster, meaning it absorbs sweat and allows the bacteria to proliferate because there is no ventilation," said Zaid Musa Badwan, engineer and founder of Mediprint.

The main product is called NovaCast, a cast made with 3D printing, replacing traditional casts. It has the advantage of being 10 times lighter, removable, aesthetically superior, and can be personalized. Patients can even bathe with it.

"The project started when my mom had an accident and broke her left hand. Doctors gave her a bad splint and later had to surgically fracture her to correct it, but again, they wrongly placed the cast, so they diagnosed her with a 50 percent disability in her hand," said Zaid Badwan.



Orange Novacast

He explained that there are cases of people who need amputations because of the misuse of the plaster and infection by the bacteria that can grow in it. Also, if the cast is misplaced, the bone does not weld well and permanently affects mobility.

In addition, the engineer designed software that defines the precise measures needed for the medical device without the need to make a 3D scan. "It only requires that the doctor enters the data and it automatically generates the ideal geometry for the print." This way, the specialist can attend to other patients while the device is printed.

A new NovaCast is obtained in an average of three and a half hours, depending on the size of the cast. "We are doing research and development to reduce that time to just one hour. The next step is to take the technology to hospitals and increase the number of 3D printers, so the health centers can obtain surgical tools, custom templates or anatomical teaching models that replace the use of corpses."

Provided by Investigación y Desarrollo

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