

# Scientists Create Bio-absorbable Implant to Seal Hole in Heart

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British scientists have created a novel bio-absorbable implant that uses the body's natural building materials to seal a hole in the heart, avoiding the need for open-heart surgery or metal implants.

BioSTAR, as the new device is called, take the shape of biological umbrellas when implanted to fix the hole. The authorities have approved it for use in the UK.

The implant mends the common defects that increase the chance of having a [stroke](#), and eventually gets absorbed by the body and replaced by the patient's own tissue.

A condition wherein a patient is born with a hole between the right and left atrium of the heart is known as patent foramen ovale (PFO) in scientific language. The hole can allow unfiltered blood and fat particles to pass into the arteries and cause blockages. It can also affect blood supply to the brain, causing debilitating [migraines](#) and possibly strokes.

Up to 1,000 PFOs are treated every year in the UK. Heart surgeons believe that by making the operation quicker and less invasive they can help more people.

During the trials, the new bio-absorbable implant effectively sealed holes in more than 50 patients without causing any side effects. Most of the holes were closed within 30 days.

Doctors feed the implant through a catheter in the leg and up to the heart to cover the hole. It is supported by a scaffold of highly purified and very strong [collagen](#), which unfolds either side of the septum like a pair of small umbrellas.

Collagen, which can be derived from pigs, is the main protein used in connective tissue in mammals. It binds quickly to the heart and is easily can be absorbed over time.

Experts say that patients undergoing the procedure will suffer less pain, have a shorter stay in hospital, and recover more quickly than if they had traditional [surgery](#) to treat PFO.

"The BioSTAR device allows us to close PFO quickly, effectively and safely. Crucially, the responses that it triggers mean that patients heal naturally and that minimal foreign material is left behind in the heart," the Telegraph quoted Michael Mullen, a heart consultant at the Royal Brompton Hospital in London, as saying.

"Collagen is 25 per cent of our total body protein. It is contained in skin, bones and teeth. Therefore, using collagen to repair and support parts of the human body makes perfect sense," he added.

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