

New Medtronic heart device uses 'super plastic' from NASA

May 7 2009, By Janet Moore

A "super plastic" invented by NASA engineers for use in aeronautic and space applications is now being used in a medical device that treats people suffering from heart failure.

Medtronic Inc., the Fridley, Minn.-based medical device maker, claims that its Attain Ability heart lead wire represents the first time a NASA-developed material has been used in an implantable medical device.

The company said Wednesday that the [Food and Drug Administration](#) approved the lead, a wire that connects a cardiac resynchronization device, or CRT, implanted in the chest to the left ventricle of the heart.

CRT devices emit electrical impulses to resynchronize heartbeats in patients suffering from [heart failure](#), a chronic condition that afflicts about 5 million Americans. Historically, it has been difficult for doctors to snake the leads, or wires, to the correct spot in the heart targeted for stimulation.

The "super [plastic](#)" insulation on the lead, as well as its thin design, make this process easier, said Lonny Stormo, vice president of therapy development for Medtronic's Cardiac Rhythm Disease Management division. FDA approval was bolstered by a 190-patient clinical trial to prove the device's safety and effectiveness.

Although Medtronic suffered a setback when it recalled its popular Sprint Fidelis lead in 2007 and subsequently reported 13 related deaths,

the company pointed out Wednesday that the Attain Ability lead is attached to a different device that treats a different condition.

The LaRC-SI super plastic, developed at NASA's Langley Research Center in Hampton, Va., originally was intended to replace metal parts on airplanes, helicopters and space vehicles.

But it soon became apparent to inventor Rob Bryant, a NASA engineer, that his material was extremely adaptable. "It's very forgiving, it can be processed in many different ways," he said.

To Bryant, a medical application using his plastic isn't at all far-fetched. Yet the journey from NASA labs to the human heart was a bit circuitous.

NASA licensed the technology to a Virginia power company, which investigated whether the insulation could prevent intake pipes at power plants from getting clogged with marine life. While that project didn't pan out, other companies such as Medtronic found ways to adapt the technology for different uses.

Medtronic previously collaborated with NASA in the development of its diabetes insulin pump.

"It's a great compliment to NASA when people take the technology we developed for a certain mission and apply it to things we never even thought of," Bryant said. The fact that the device may save a life is an added perk: "I've often joked that the life saved by this invention may be my own."

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