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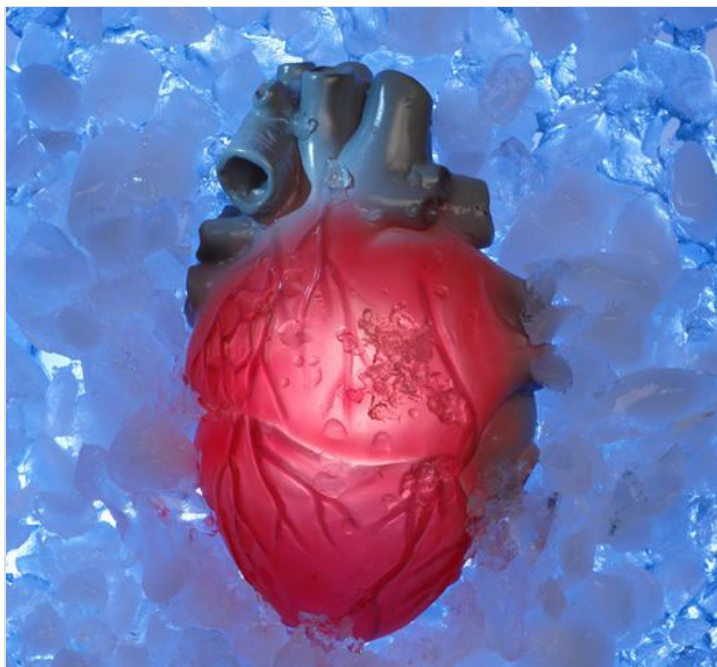
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Freezing the Heart to Save the Life

Two Philadelphia doctors are championing an unconventional new treatment for keeping cardiac-arrest victims alive, with as little brain damage as possible: just give them hypothermia

By [Melinda Wenner Moyer](#) Posted 01.27.2009 at 11:18 am



Cold Relief John B. Carnett

At 3 p.m. last June 22, Pam Barco's heart stopped. The 46-year-old ER clerk at the Children's Hospital of Philadelphia was near the end of her shift when she felt dizzy, put her head down on her desk, and suddenly stopped breathing. A nearby co-worker saw Barco slump over and shouted, "Staff emergency!" Minutes later, a dozen doctors and nurses surrounded Barco's body. They shocked her with a defibrillator. No response. They shocked her twice more. Nothing. Then: Beep. Beep. Beep.

On TV, this is when everyone breathes a sigh of relief. In real life, though, 9 out of 10 cardiac-arrest patients whose hearts are restarted end up dying in the hospital; of the survivors, one out of eight suffers permanent brain damage. Every minute that the heart isn't pumping starves the brain and other organs of oxygen, depriving their cells of energy.

Although Barco's heart was beating, her blood pressure was dangerously low, and she wasn't getting enough oxygen. Doctors inserted a breathing tube. When she was stable enough to be moved, they wheeled her next door to the University of Pennsylvania hospital and up to the cardiac-care unit on the eighth floor.

Nurse Jamie Weller had everything set up. First she gave Barco a sedative to knock her out, and then another drug that paralyzed her so she wouldn't shiver. She hooked Barco's IV up to a bag of 35°–40°F saline and wrapped her legs and torso in what looked like bubble wrap with cold water flowing through it. By the morning, Barco's body temperature was 91°, cold enough that she officially had hypothermia, just as the doctors intended. She stayed like that for 24 hours.

Barco was lucky. She happened to collapse next door to the Penn Center for Resuscitation Science, where doctors Lance Becker and Benjamin Abella are convinced that a procedure that sounds like torture would in fact increase Barco's chances of surviving, while minimizing brain damage. The treatment is called therapeutic hypothermia, and it's based on the idea that what damages tissue in the heart and brain isn't the heart stopping, but rather its sudden restarting and the destructive natural reactions that occur when the oxygen comes back—unless the body is cold enough to slow the process. Two clinical trials in 2002 showed that cooling resuscitated patients within four hours of defibrillation increased their survival rate by 20 percent, even if they had been clinically dead for as long as an hour. A more recent study at the University of Pittsburgh School of Medicine, which has been using the technique for five years, showed that among certain groups, cooling doubled the number of survivors.

Yet many people have never heard of therapeutic hypothermia, and few doctors are using it. For all its promise, inducing controlled hypothermia is a complex procedure that requires doctors to develop and learn a protocol, buy special equipment, and train staff from multiple departments—all for something that sounds entirely counterintuitive. It's also a procedure that punishes imprecision: Cool a patient a few degrees too far, and you could stop her heart again.

But the U. Penn doctors who are the treatment's biggest proponents say that not only should the procedure be standard, but that doctors should go even further. They're running studies on mice and pigs that suggest that it's better to start cooling *before* restarting the heart. Soon they will start testing this idea on humans with a machine that would let emergency-medical technicians run a "frozen slushee" IV into patients. In Becker and Abella's ideal world, at least 15 percent of the 166,000 people who have a cardiac arrest outside the hospital every year will be frozen and paralyzed before they even reach the ER.

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21 COMMENTS



kasikas

01/27/09 at 11:30 pm

It's very informative to everybody and I really love this article.

<http://kasikas.com>
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coolm d

01/28/09 at 11:03 am

For more information on hypothermia after cardiac arrest, readers should visit our non-commercial community resource page at

<http://www.med.upenn.edu/resuscitation/hypothermia/index.shtml>
[Link to this comment](#)

cw olf88

01/28/09 at 12:29 pm

The Australian military has researched cold saline IV infusion to treat heat injuries. It is effective. See ASSESSMENT OF POST-COOLING TECHNIQUES TO TREAT EXERCISE-INDUCED HYPERTHERMIA, Wade H. Sinclair and Anthony S. Leicht.

[Link to this comment](#)

briezy

01/29/09 at 3:07 pm

This is actually being done in more places than you'd think. My friend's father went into cardiac arrest in Tampa, FL while jogging with her and once they got him to the hospital, the staff used the same technique to induce hypothermia. He woke up with minimal damage (immediately following the incident he had some short term memory issues, but they have since lessened) and is fully functional again.

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njdevil

02/01/09 at 12:02 pm

Is this what they did to Amber in House?

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Fishman5

06/26/09 at 12:16 pm

I wonder if this would have helped Michael Jackson. It's sad to see him go.

<http://www.empoweringparents.com/Consequences-Dont-Work-for-My-Teen-Here-Why-and-How-to-Fix-It.php>
[Link to this comment](#)

aleyna

08/02/09 at 5:21 pm

The treatment is called therapeutic hypothermia, and it's based on the <http://www.viptravesti.net> idea that what damages tissue in the heart and brain isn't the heart stopping, but rather its sudden restarting and the destructive natural reactions that occur when the oxygen comes back—unless the body is cold enough to slow the process.

Thank you very much...

[Link to this comment](#)

clayss

08/14/09 at 2:54 pm

It's very informative to everybody and I really love this article.

<http://www.hedefnakliyat.com>
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cananfm

09/14/09 at 12:49 am

www.escorttravestiler.net
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cananfm

09/14/09 at 12:49 am

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TonyMann

01/02/10 at 5:43 am

Fascinating article. Funny isn't it how counter intuitive solutions can sometimes be the more effective. The problem then is to get people to use it.

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ladynatali

01/11/10 at 11:57 pm
www.travestijans.com
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www.sibertravesti.com
www.superstareful.com

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escortbayan

01/31/10 at 7:07 pm
thanks so much site

www.dalmin.net Escort, Escort ilanları, Eskort, Escort Bayanlar, Escort Ankara, Escort Hizmetleri Sitesine

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guzeltravestiler

03/09/10 at 7:39 pm
travesti , trans , escort , eskort , istanbul travestileri

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trv

04/09/10 at 3:23 pm
Great Post!!! thanks for sharing such a valuable information.

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trv

04/09/10 at 3:24 pm
sometimes be the more effective. The problem then is to get people
www.startravestiler.com

[Link to this comment](#)

JohnJansen

05/24/10 at 4:24 am
It is really nice to use hypothermia to help the people that need it.
However there can be some complications with the rewarming of the heart. But this is really a nice development in the medical world.

[Link to this comment](#)

DimitriTheBold

05/29/10 at 7:43 am
Perfect for war situations, protection, reinforcement and dangers presented by a world in which terrorism is spreading its ugly wings X-Flex acts as a mesh that will prevent the walls from collapsing. Army Corps of Engineers, has managed to design X-Flex, a wallpaper that will hold your home together even when hit by blast waves of an explosion. X-Flex Blast Protection System wallpaper, invented by Berry Plastics in a partnership with the U.S. X-Flex Blast Protection System which forms a wallpaper and put it on the inside can withstand a blow from the outside so that the fractional wall will not hurt anyone in the house/building.
Very very nice.
|Written by Dimitri from Eat Healthier Foods |

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tercume

09/09/10 at 6:13 pm
An interesting approach to the topic, but I disagree.
tercume

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tercume

09/09/10 at 6:14 pm
www.adertercume.com

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towinbet

11/30/10 at 5:57 pm
Pretty good post. I just stumbled upon your blog and wanted to say that I have really enjoyed reading your blog posts. Any way I'll be subscribing to your feed and I hope you post again soon.
<http://www.towinbet.com/>

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