

# Study finds no difference in survival when lowering cardiac arrest patients' temperature to 33°C vs. 36°C

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Lowering cardiac arrest patients' body temperatures to 33°C (91.4°F) instead of 36°C (96.8°F) did not improve survival or neurological/cognitive function in a late-breaking clinical trial presented at the American Heart Association's Scientific Sessions 2013.

[Cardiac arrest](#) causes the heart to stop suddenly. With no [blood flow](#) or oxygen getting to the brain, nerve cells begin to die. The brain injury can continue to evolve even after the blood flow is restored; this is called reperfusion injury.

To help protect the brain, guidelines recommend cooling resuscitated cardiac arrest patients who remain comatose soon after hospital arrival in a process called [therapeutic hypothermia](#). Body [temperature](#) is then slowly raised to normal levels.

In the Target Temperature Management After Cardiac Arrest (TTM) Trial, the largest trial to-date to study hypothermia in [cardiac arrest](#) patients, researchers looked at outcomes of 939 patients treated in 36 [intensive care](#) units in Sweden, Denmark, the United Kingdom, Netherlands, Italy, Norway, Switzerland, Australia, Luxembourg and the Czech Republic. They randomly chose half the patients to be cooled to 33°C and the other half to 36°C.

At end of the trial, about half of the patients in each group had died: 50

percent in the 33°C group and 48 percent in the 36°C group. After six months, 54 percent of the lower temperature group had died or had poor neurological outcomes, compared to 52 percent in the warmer temperature group.

Although the colder temperature was associated a numerical increase in side effects, the difference was not significant. More patients cooled to 33°C (93 percent) had side effects including pneumonia, electrolyte disturbances and bleeding, compared to those cooled to 36°C (90 percent).

"Given these findings, we may need to re-examine current guidelines" said Niklas Nielsen, M.D., Ph.D., the study's lead author and a consultant in [intensive care medicine](#) in the Department of Anesthesia and Intensive Care at Helsingborg Hospital and Lund University in Sweden.

The American Heart Association and International Liaison Committee on Resuscitation (ILCOR) currently recommend lowering body temperature to 32°C-34°C (89.6°F-93.2°F). A Late-Breaking Clinical Trial presented at the American Heart Association's Scientific Sessions 2012 found in a very small study population that cooling patients to 32°C was associated with a better chance of survival and greater functional ability after recovery than cooling them to 34°C.

"We won't let the results swing the pendulum the other way and have no temperature control," Nielsen said. "Our findings suggest that milder temperature control is equally beneficial and may avoid some of the side effects we saw, but the optimal temperature remains unclear."

Provided by American Heart Association

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