

## Reducing Brain Injury After Cardiopulmonary Resuscitation

This information sheet is provided to help you understand the evidence on reducing brain injury after cardiopulmonary resuscitation. It is a service of the American Academy of Neurology (AAN).

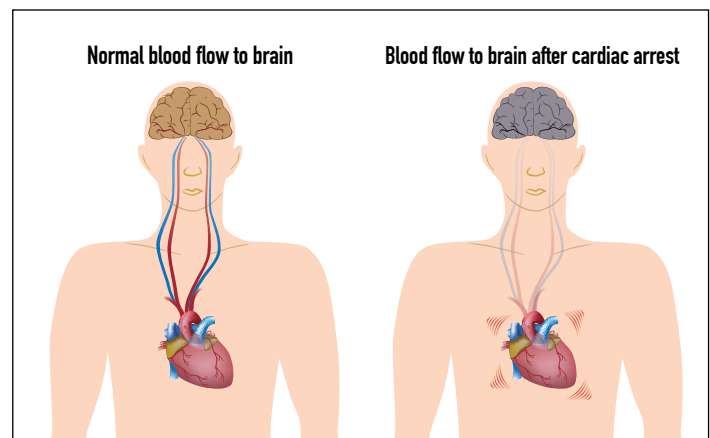
The AAN is the world's largest association of neurologists and neuroscience professionals. Neurologists are doctors who identify and treat diseases of the brain and nervous system. The AAN is dedicated to promoting the highest quality patient-centered neurologic care.

Experts from the AAN carefully reviewed the available scientific studies on reducing brain injury after cardiopulmonary resuscitation. The following information is based on evidence from those studies. The information summarizes the main findings of the 2017 AAN guideline on reducing brain injury after cardiopulmonary resuscitation. This guideline was published online on *Neurology*® May 10, 2017, and in the May 30, 2017, *Neurology* print issue.

To read the full guideline, visit [AAN.com/guidelines](http://AAN.com/guidelines).

### What happens to the brain after cardiac arrest?

Brain injury related to cardiac arrest is recognized as a major cause of death and disability.<sup>1</sup> When a person experiences cardiac arrest (sudden stopping of the heart), blood and oxygen stop flowing to the brain. The lack of oxygen and blood damages the brain. The longer the heart goes without beating, the greater the chance for permanent brain injury or death.



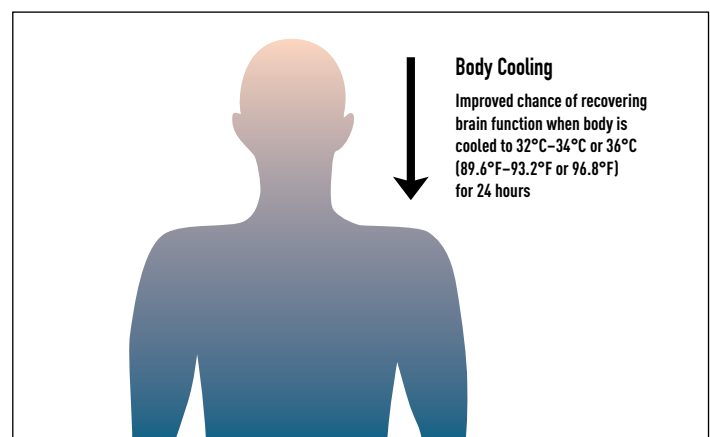
### What does the evidence show for improving brain function in coma patients after cardiac arrest resuscitation?

Patients who are in a coma (complete unresponsiveness) after successful CPR from cardiac arrest require complex medical care in a critical care unit.

There is strong evidence\* that for patients who are treated with electric shocks to the heart after out-of-hospital cardiac arrest and are in a coma, the control of temperature with body cooling is effective in improving their chance of recovering brain function.

The experts recommend keeping the body cooled down to 32°C–34°C or 36°C to help reduce brain injury after cardiac arrest. These temperatures have shown the same results.

Families may consider asking their treating clinician if a loved one qualifies for body cooling.



### Reference

1. Girotra S, Nallamothu BK, Spertus JA, Li Y, Krumholz HM, Chan PS; American Heart Association Get with the Guidelines—Resuscitation Investigators. Trends in survival after in-hospital cardiac arrest. *N Engl J Med* 2012;367:1912–1920.

This guideline was endorsed by the Neurocritical Care Society.

**\*Key to Evidence Levels**

After the experts review all of the published research studies, they describe the strength of the evidence supporting each recommendation:

Strong evidence = more than one high-quality scientific study

Moderate evidence = at least one high-quality scientific study or two or more studies of a lesser quality

Weak evidence = the studies, while supportive, are weak in design or strength of the findings

Not enough evidence = either different studies have come to conflicting results or there are no studies of reasonable quality

This statement is provided as an educational service of the American Academy of Neurology. It is based on an assessment of current scientific and clinical information. It is not intended to include all possible proper methods of care for a particular neurologic problem or all legitimate criteria for choosing to use a specific procedure. Neither is it intended to exclude any reasonable alternative methodologies. The AAN recognizes that specific patient care decisions are the prerogative of the patient and the physician caring for the patient, based on all of the circumstances involved.

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American Academy of Neurology, 201 Chicago Avenue, Minneapolis, MN 55415

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