

## Health Watch -- Dead Cells

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New research helps improve our understanding of how and why cells die after heart attacks and strokes.

Much of the long-term damage after heart attacks and strokes happens because the blood supply to crucial cells is cut off. In a heart attack, the blood supply to parts of the heart muscle is cut off, and those heart cells are damaged or die. In a stroke, blood supply to brain cells is cut off, and those cells die. Researchers at UT Southwestern Medical Center at Dallas have discovered what goes on in those cells to make them die. This knowledge could help prevent damage from heart attacks and strokes, and it could even have implications in treating cancer.

The researchers found that a certain protein regulates acid levels inside cells and that the protein is activated by cell volume. When the blood supply to cells is cut off, they become very acidic. When the body's metabolism returns to normal after an attack, the cell responds by pumping out the accumulated acid and replacing it with sodium. But often, the cell gets overloaded with sodium, and that's what causes the cell to die.

[Dr. Donald Hilgemann](#), the UT Southwestern physiologist who led the study, says that blocking the action of this protein can help prevent cell death by keeping the cell from being overloaded with sodium.

To do this study, the researchers developed new techniques for working with individual cells and studying how their systems work.

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