

Intense light prevents, treats heart attacks

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There are lots of ways to treat a heart attack – CPR, aspirin, clot-busters and more. Now CU medical school researchers have found a new candidate: Intense light.

"The study suggests that strong light, or even just daylight, might ease the risk of having a [heart attack](#) or suffering damage from one," says Tobias Eckle, MD, PhD, an associate professor of anesthesiology, cardiology, and cell and developmental biology at the University of Colorado School of Medicine. "For patients, this could mean that daylight exposure inside of the hospital could reduce the damage that is caused by a heart attack."

What's the connection between light and a myocardial infarction, known commonly as a heart attack?

The answer lies, perhaps surprisingly, in the circadian rhythm, the body's clock that is linked to light and dark. The circadian clock is regulated by proteins in the brain. But the proteins are in other organs as well, including the heart.

Eckle and Holger Eltzschig, MD, a CU professor of anesthesiology, found that one of those proteins, called Period 2, plays a crucial role in fending off damage from a heart attack. With an international team of expert scientists, including collaborators from CU's Division of Cardiology and the mucosal inflammation program, they published their findings in the April 15, 2012 edition of the research journal [Nature Medicine](#).

During a heart attack, little or no oxygen reaches the heart. Without oxygen, the heart has to switch from its usual fuel – fat – to glucose. Without that change in heart metabolism, cells die and the heart is damaged

And here's where the circadian rhythm comes in. The study showed that the Period 2 protein is vital for that change in fuel, from fat to glucose, and therefore could make heart metabolism more efficient. In fact, Strong daylight activated Period 2 in animals and minimized damage from a heart attack.

Future studies will try to understand how light is able to change heart metabolism in humans and how this could be used to treat heart attacks in patients

Provided by University of Colorado Denver

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