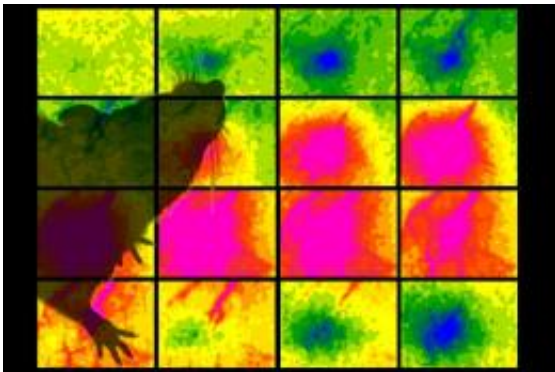


Whisker stimulation prevents strokes in rats, study finds

July 13 2010



UCI researchers found that mechanically stroking a single whisker activated a rat's cerebral cortex - seen lighting up in magenta and blue - and prompted obstructed blood to take other routes to the brain. Photo illustration by Christopher Lay and Cynthia Chen-Bee

(PhysOrg.com) -- Talk about surviving by a whisker. The most common type of stroke can be completely prevented in rats by stimulating a single whisker, according to a new study by UC Irvine researchers.

Strokes are the No. 3 cause of death in the U.S., after [heart disease](#) and cancer. About 795,000 Americans suffer them annually, according to the American Heart Association, and more than 137,000 die as a result.

So should we be tickling our own [whiskers](#)? And what about women, who are less likely to have facial hair? While it's too soon to tell if the

findings will translate to humans, researchers say it's possible, and stubble is not required. We have sensitive [body parts](#) wired to the same area of the brain as rodents' fine-tuned whiskers.

In people, "stimulating the [fingers](#), lips or face in general could all have a similar effect," says UCI doctoral student Melissa Davis, co-author of the study, which appears in the June issue of *PLoS One*.

"It's gender-neutral," adds co-author Ron Frostig, professor of neurobiology & behavior.

He cautions that the research, funded by the National Institutes of Health, is a first step, albeit an important one. "This is just the beginning of the whole story," he says, "with the potential for maybe doing things before a victim even reaches the emergency room."

A stroke usually happens when a main artery bringing oxygen and nutrients to the brain either ruptures or is blocked by a clot, causing partial brain death. The key to preventing strokes in rats whose main cerebral artery has been obstructed, UCI researchers found, is to stimulate the middle part of the brain.

The team discovered that mechanically stroking just one whisker for four minutes within the first two hours of the blockage caused the blood to quickly flow to other arteries - like cars exiting a gridlocked freeway to find detours.

But unlike freeway off-ramps, which can quickly clog, the alternate arteries expanded beyond their normal size, opening wide to allow critical blood flow to the brain. The technique was 100 percent effective in preventing strokes in rats with arterial obstruction.

UC San Diego neuroscientist David Kleinfeld, who has also studied

brain structure and strokes, calls the results "unexpected and spectacular." Random stimulation of the rat whisker also worked, but timing was critical - waiting three hours to do so led to major brain cell death.

Scientists have struggled for years to find ways of preventing strokes or minimizing their effects, which include slurred speech, paralysis and brain damage. One drug can help some patients but also often causes bleeding in the brain.

People believed to be suffering a stroke are currently told to lie still and stay calm in a quiet environment. Frostig says a good massage, listening to a song or otherwise stimulating the right nerve endings might work better.

Kleinfeld cautions that the rodent findings might not be relevant to humans. But with such clear evidence that strokes in rats were prevented, he says, "it would be criminal not to try" controlled human studies. That could be tricky, since it's not possible to predict when someone will have a stroke.

The UCI team - which also includes graduate students Christopher Lay and Cynthia Chen-Bee - would like to find physicians or emergency medical technicians willing to try the technique on patients with early stroke symptoms.

Signs of [stroke](#) include:

- Sudden numbness or weakness in face or limbs, especially on one side
- Sudden confusion, trouble speaking or understanding

- Sudden difficulty seeing or walking
- Dizziness or loss of balance or coordination
- Sudden, severe headache with no known cause

If you or someone you know experiences one or more of these symptoms, call 911. The first two hours are critical.

More information: Paper link: [www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0011270](https://doi.org/10.1371/journal.pone.0011270)

Provided by University of California - Irvine

Citation: Whisker stimulation prevents strokes in rats, study finds (2010, July 13) retrieved 30 April 2024 from <https://medicalxpress.com/news/2010-07-whisker-rats.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--