

# Study: Cellphone use affects brain

## Radiation boosts activity, but harm still unknown

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Holding a cellphone against your ear changes the activity in your brain, according to a new study that shows the brain is sensitive to the phone's radiation emissions.

Whether the increased sensitivity is harmless or harmful to the brain is still up for debate, say researchers from the National Institutes of Health, who found that less than an hour of cellphone use is linked to increased activity in the part of the brain closest to the phone antenna.

It's not clear yet whether the radiation is potentially carcinogenic or has any other negative health implications — or positive ones, for that matter, says lead author Nora Volkow, director of the National Institute on Drug Abuse, about the research in this week's *Journal of the American Medical Association*.

In the year-long study on 47 people, scientists used dye injections and positron emission tomography (PET) scans to measure brain glucose metabolism, which is an indication of the brain's activity. When cellphones were placed against the subjects' ears for 50 minutes — some phones with the sound muted, some turned off without the subjects' knowledge — metabolism in the brain region closest to the antenna was about 7% higher when the cellphone was on.

The orbitofrontal cortex — one of the two areas that lit up on the scans — is "broadly associated with emotion; sense of smell, memory, eating, aggression — a whole range of behaviors," says Murali Doraiswamy, head of biological psychiatry at Duke Medical Center, who wasn't involved in the study. "It's like an orchestra conductor instead of just an individual musician with specific task."

The temporal area, which also lit up, is critical to language and memory, says Keith Black, chairman of neurosurgery at Cedars-Sinai Medical Center in Los Angeles. "This study raises a lot of questions," says Black, who wasn't involved in the study. "Will cellphones impact how we remember things, is there any relation to the risk of Alzheimer's? Will it affect our cognitive ability to manip-

ulate language functions?"

Black is concerned about kids' increased use of cellphones, since their less developed skulls and brains are more susceptible to the radiation.

A cellphone, he says, is "really a microwave radiation antennae. The amount of radiation you get from it is directly related to distance it is from the head." He recommends a headset, and says texting is probably OK.

Still, "an increase in glucose metabolism doesn't mean it's dangerous," Doraiswamy says. "Though cancer cells do have higher levels of glucose metabolism, it has also been associated with some good things, including greater cognitive performance and greater blood flow."

Even so, he says he never uses his cellphone close to his head. "I always put it on speaker phone."