

# Fetal Exposure to Cellphone Radiation Tied to ADHD-Like Symptoms in Mice

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*HealthDay Reporter*

THURSDAY, March 15 (HealthDay News) — In experiments involving mice, fetal exposure to cellphone radiation appeared linked to symptoms in offspring that resemble attention-deficit hyperactivity disorder (ADHD) in human children, Yale researchers report.

Moreover, these problems with attention, hyperactivity and memory continued when the mice became adults and were worse the longer they were exposed to cellphone radiation in the womb, the researchers said.

“The hypothesis was that the developing brain might be more susceptible to these types of insults,” said senior researcher Dr. Hugh Taylor, a professor and chief of the division of reproductive endocrinology and infertility in the department of obstetrics, gynecology & reproductive sciences.

“We found they seem to have behavioral changes like ADHD. I don’t want to sensationalize this — mice don’t have ADHD — but they had problems with memory, impulsiveness and hyperactivity,” he explained.

There have been studies in humans that correlate the amount of time pregnant women spend on a cellphone with their children’s ADHD, Taylor added.

“But, these studies were largely dismissed because there are many other things that correlate with cellphone use,” he said. “This study is the first one that shows that there is a cause-and effect-relationship,” at least in rodents, he said.

However, while studies involving animals can be useful, experts note that they frequently fail to produce similar results in humans.

The findings cannot therefore be directly extrapolated to women, but they do indicate that cellphone exposure during pregnancy may have effects, Taylor said. “We need to start thinking about how much is safe in humans and limit that exposure,” he said.

“I think we need to be careful about radio-frequency exposures in pregnant women,” he said. “The radiation may have consequences for the developing brain.”

The report was published in the March 15 issue of *Scientific Reports*.

During 19 days of pregnancy, Taylor's team exposed mice to radiation from a turned on — but muted and silenced — cellphone placed above the cage.

In another group, mice were kept under the same conditions but with a deactivated phone.

The researcher measured electrical activity in the brains of adult mice that were exposed to radiation as fetuses. In addition, they conducted psychological and behavioral tests.

They found the mice exposed to radiation tended to be more hyperactive and had increased anxiety and reduced memory.

The explanation for this finding isn't clear, Taylor said. It might be due to heating of the developing brain cells or electrical changes in these cells, he theorized.

Taylor noted that you don't have to be talking on the cell phone to be exposed to radio-frequency radiation: "There is always radiation transmitted as long as the cellphone is on," he said.

Speaking for the cellphone industry, John Walls, a spokesman for the CTIA-The Wireless Association, said that "the peer-reviewed scientific evidence has overwhelmingly indicated that wireless devices, within the limits established by the FCC, do not pose a public health risk or cause any adverse health effects."

However, some doctors believe that more study might be warranted.

Dr. Francene Gallousis, a perinatologist at Northern Westchester Hospital in Mt. Pisco, N.Y., said that "I think there is something to all this, but I don't know exactly what it is or how concerned we should be right now."

"It can't be ignored — it needs to be looked into," she added.

Gallousis did suggest that to be safe, women should limit their exposure to cellphone radiation. She advised them to try to limit the time talking on the cellphone and to not leave it on if it doesn't have to be.

Dr. Nagy Elsayyad, an assistant professor in the department of radiation oncology at the University of Miami Sylvester Comprehensive Cancer Center, has looked at cellphone radiation and the risk for cancer. He also believes that it's still too early to tell if the effects seen in mice translate to humans.

"These findings are interesting, but very preliminary," he said. "This is hypothesis-generating research, so it's too early to jump to any conclusions, but it's worth putting research money into."

### **More information**

For more on ADHD, visit the [U.S. Centers for Disease Control and Prevention](#).

SOURCES: Hugh S. Taylor, M.D., professor and chief, division of reproductive endocrinology and infertility, department of obstetrics, gynecology & reproductive sciences, Yale University School of Medicine; John Walls, spokesman, CTIA-The Wireless Association; Francene Gallousis, M.D., perinatologist, Northern Westchester Hospital, Mt. Kisco, N.Y.; Nagy Elsayyad, M.D., assistant professor, Department of Radiation Oncology, University of Miami Sylvester Comprehensive Cancer Center; March 15, 2012, *Scientific Reports*

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