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TECH

Cellphone-Cancer Link Found in Government Study

Multiyear, peer-reviewed study found 'low incidences' of two types of tumors in male rats exposed to type of radio frequencies commonly emitted by cellphones

By **RYAN KNUTSON**

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A major U.S. government study on rats has found a link between cellphones and cancer, an explosive finding in the long-running debate about whether mobile phones cause health effects.

The multiyear, peer-reviewed study, by the National Toxicology Program, found "low incidences" of two types of tumors in male rats that were exposed to the type of radio frequencies that are commonly emitted by cellphones. The tumors were gliomas, which are in the glial cells of the brain, and schwannomas of the heart.

"Given the widespread global usage of mobile communications among users of all ages, even a very small increase in the incidence of disease resulting from exposure to [radio-frequency radiation] could have broad implications for public health," according to a report of partial findings from the study, which was released late Thursday.

A spokesperson for the National Institutes of Health, which helped oversee the study, wasn't immediately available for comment. Earlier in the week, the NIH said, "It is important to note that previous human, observational data collected in earlier, large-scale population-based studies have found limited evidence of an increased risk for developing cancer from cellphone use."

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While not all biological effects observed in animals necessarily apply to humans, the National Toxicology Program's \$25 million study is one

of the biggest and most comprehensive experiments into health effects from cellphones.

“Where people were saying there’s no risk, I think this ends that kind of statement,” said Ron Melnick, who ran the NTP project until retiring in 2009 and recently reviewed the study’s results.

Since mobile phones were launched commercially in the 1980s, the only widely agreed upon physical impact from cellphone radio-frequency energy is that it can heat human tissue at high enough levels. Cellphones are designed well below this thermal level.

The U.S. government’s official position is that the weight of scientific evidence hasn’t indicated health risks. In 2011, the World Health Organization said cellphone radiation was a group 2B possible carcinogen. Illustrating the ambiguity of the designation is the fact that certain pickled vegetables and coffee are also considered possibly carcinogenic.

There also are many studies showing no harmful health effects. Just this month, a survey of brain cancer rates in Australia found no increase since the introduction of mobile phones there almost three decades ago, a finding also seen in other countries.

The U.S. Food and Drug Administration appointed the NTP to study cellphone radio-frequency radiation nearly two decades ago. The NTP, established inside the Department of Health and Human Services in 1978, is tasked with identifying and testing agents that are potentially harmful to humans.

In 2005, the NTP selected the IIT Research Institute in Chicago to carry out the experiments. The parameters of the tests took several years to design and build because of their complexity, researchers say.

The study was conducted in an underground lab with 21 specially designed radio-frequency chambers to house mice and rats. More than 2,500 rats and mice were exposed to radio-frequency energy in various intervals over two years.

The study explored effects from the most common type of wireless technologies, GSM and CDMA, at two common frequencies, 900 megahertz for rats and 1900 megahertz for mice. It exposed the rats to the frequencies every 10 minutes followed by a 10-minute break for 18 hours, resulting in nine hours a day of exposure.

Results from the study on mice weren't released.

The two types of tumors the study identified also have been discovered in some epidemiological studies. Those studies, which have found instances of gliomas and acoustic neuromas, were key factors in the WHO's decision to classify cellphone radiation as a possible carcinogen. The NTP report noted that its findings "appear to support" the classification.

It found the cancer association appeared in male rats, and didn't find similar results in female rats. Rats that were exposed to radiofrequency energy in utero tended to have slightly lower birth weights.

Partial findings from the NTP study were released after the results were earlier reported by the website Microwave News. The NTP report said the complete study results would be released by the fall of 2017.

It's not clear how the results may impact the government's cellphone safety recommendations. The Federal Communications Commission, which administers safety guidelines for U.S. cellphone use, has been briefed on the findings.

"Scientific evidence always informs FCC rules on this matter," an FCC spokesman said. "We will continue to follow all recommendations from federal health and safety experts including whether the FCC should modify its current policies and RF exposure limits."

Current cellphone safety standards are centered around the heating effects from radiofrequency energy, which is the same type of energy that cooks food in a microwave. Tests for safe use of cellphones were designed in the 1990s around this heating effect. The latest findings could lead to changes in safety standards, such as only talking on a cellphone while using a headset and keeping the devices out of pants pockets.

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