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Mobile Phone Exposure Causes Brain Damage in Rats

[RESEARCH TRIANGLE PARK, NC] A study published today in the online edition of the peer-reviewed journal *Environmental Health Perspectives (EHP)* found for the first time that electromagnetic fields (EMFs) emitted by certain mobile phones damaged neurons in the brains of rats.

The researchers studied 12- to 26-week-old rats because their developmental age is comparable to that of human teenagers, who are some of the heaviest users of mobile phones. "The situation of the growing brain might deserve special concern," the study authors wrote, "since biological and maturational processes are particularly vulnerable. We cannot exclude that after some decades of often daily use, a whole generation of users may suffer negative effects as early as middle age."

Three groups of rats were exposed for 2 hours to GSM mobile phone EMFs of different strengths. GSM, which stands for Global System for Mobile Communications, is the main standard for mobile phones used in Europe, as well as in many countries in the Middle East and Asia. GSM is one of several standards by which mobile phones in the United States operate.

The study found that EMF exposure was associated with leakage of albumin through the blood-brain barrier and neuronal damage that increased in response to the amount of exposure. The authors acknowledged that the study sample was small, but stated that "the combined results are highly significant and exhibit a clear dose-response relation."

Earlier EMF studies have focused on whether exposure might cause cancer, with some studies finding increased risk but most showing no effects or even decreased risk.

"Scientists have been looking for some time at the possible effects of exposure to the energy coming out of cell phones," says Dr. Jim Burkhardt, science editor for *Environmental Health Perspectives*. "These scientists decided to look in a new place, studying potential nerve damage, rather than cancer growth. Their results suggest a strong need for further study as we all rely on cell phones more and more."

The study team was headed by Leif G. Salford of the Department of Neurosurgery at Lund University in Sweden. Other authors include Arne E. Brun, Jacob L. Eberhardt, Lars Malmgren, and Bertil R.R. Persson. The study will appear in a future print issue of *EHP*. *EHP* is the journal of the National Institute of Environmental Health Sciences, part of the U.S. Department of Health and Human Services. More information is available online at <http://www.ehponline.org/>.

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