



Non-Ionizing Radiation & Children's Health

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POSTER

PLATFORM PRESENTATION

Animal Studies On Growth And Development

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Despite the fact that no plausible biological mechanism has yet been identified how electromagnetic fields below recommended exposure limits could negatively affect health of animals or humans (1), many experiments have been performed in various animal species, mainly mice and rats, to investigate the possible effects on growth and development. While older studies often suffered from sub-optimal exposure conditions, recent investigations, using sophisticated exposure devices and thus preventing thermal effects, have been performed without these limitations. In principle, two types of studies can be addressed: those which have investigated the carcinogenic or co-carcinogenic effects of exposure in developing animals, and those which have been done in developing animals without the focus on carcinogenic or co-carcinogenic effects. In both areas, the vast majority of publications did not show adverse effects (2 - 4 for review). The largest study so far has been done in normal mice which have been chronically exposed to UMTS signals up to 1.3 W/kg SAR, thus 16 times higher than the whole-body exposure limit for humans (4). Even after four generations, no systematic or dose-dependent alterations in development or fertility could be found, supporting the view that negative effects on humans are very unlikely. Ongoing experiments in our laboratory investigate the effects of head-only exposure in rats (up to 10 W/kg local SAR) which are exposed from 14 days of age daily for two hours. A battery of behavioral tests are performed in young, adult, and pre-senile animals. The results will help to clarify possible effects of exposure on brain development.

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3. Lee HJ, Jin YB, Lee JS, Choi SY, Kim TH, Pack JK, Choi HD, Kim N, Lee YS. 2011. Lymphoma development of simultaneously combined exposure to two radiofrequency signals in AKR/J mice. *Bioelectromagnetics* doi: 10.1002/bem.20655. [Epub ahead of print]

4. Sommer AM, Grote K, Reinhardt T, Streckert J, Hansen V, Lerchl A. 2009. Effects of radiofrequency electromagnetic fields (UMTS) on reproduction and development of mice: a multi-generation study. *Radiat Res.* 171: 89-95.