

Mobile Phone Use and Health. Self-rated Health, Neurocognitive Function, Neurophysiological Effects Using 900 MHz Wireless Communication Signals. A laboratory-based Exposure Study

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There is a rapid increase in the use of mobile phones and other wireless devices. Does exposure to such wireless devices impact on human health and well-being? Even though there have been a number of reports purporting that mobile phone use elicits health complaints, including skin sensation, headache, difficulties concentrating, sleep disturbance, and fatigue among mobile phone users (mobile phones and cancer risks are not the subject of our current research), findings have been difficult to reproduce. Some studies, however, have indicated effects of radiofrequency fields (RF) on self-reported symptoms, cognitive functions, blood pressure, brain waves (EEG), and sleep while other studies have not been able to confirm initial findings.

There is lack of sufficiently large, interdisciplinary, well-controlled, laboratory-based studies of the possible non-cancerous and short-term effects from GSM 900 MHz wireless communication signals.

In the present study we have assessed short-term self-rated and neurophysiological effects from laboratory controlled exposure to RF (GSM 900 MHz). Each person is his/her own control. Following a night of adaptation, participants are either exposed to a sham or actual 900 MHz exposure situation. Later, they are brought back for a third sham or real exposure night.

The study investigates the impact from GSM 900 MHz wireless signal exposure, using a double-blind set-up. Outcome measures include:

- Self-rated health, symptoms and belief about actual exposure
- Physiological (individual physiological response patterns), including blood pressure, hormones, and EEG, and
- Social (stress induced through tests during the exposures)

The study is ongoing. All exposures are expected to be completed by February, 2006, and the final report is due late fall 2006.

The study will offer us a better understanding whether day-time phone use is associated with changes in self-rated health, hormonal pattern, mental and cognitive functions as well as night-time sleep and related functions.

The study was approved by the ethical committee at Uppsala University.