Medical/biological Study (observational study)

Subjective symptoms, sleeping problems, and cognitive performance in subjects living near mobile phone base stations.

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Aim of study (according to author)
To study the relation between exposure from mobile telecommunication and other radiofrequency electromagnetic field and the association between exposure and symptoms.
Background/further details:
In a cross-sectional study of randomly selected inhabitants living in urban and rural areas of Austria for more than one year near to 10 selected base stations, 365 subjects were examined.

Endpoints

- cognitive/behavioural endpoints: cognitive performance
- others: well being, sleep quality

Exposure

Field characteristics	Parameters
field 1: 900 MHz	power flux density: 0.04 mW/m^2 mean value (exposure category 1: <0.1 mW/m^2) power flux density: 0.23 mW/m^2 mean value (exposure category 2: 0.1-0.5 mW/m^2) power flux density: 1.3 mW/m^2 mean value (exposure category 3: >0.5 mW/m^2)
field 2: 80 MHz - 2 GHz	power flux density: 0.0002 W/m^2 min value power flux density: 1.4 W/m^2 max value

Exposed system:
human
whole body exposure

Methods
Measurement parameters:

- cognitive/behavioural endpoints: cognitive performance (memory, short-term memory, medium-term memory, perceptual speed, choice reaction task, reaction time))
- hypersensitivity/subjective complaints: subjective symptoms (headaches, exhaustion, circulatory symptoms)
- others: well being, sleep quality (Pittsburgh sleeping scale; e.g. sleep latency, sleep duration, sleep disturbance), sociodemographic data, evaluation of environmental quality (questionnaires)

investigation on living organism
investigated organ system: brain/CNS

time of investigation: during and after exposure

Main outcome of study (according to author)
Self-reported symptoms like headache and difficulties in concentrating show an association with

microwave exposure from base stations, not attributable to subject's fear of health effects from the base stations. Despite the influence of confounder variables (like fear of adverse effects from exposure) there was a significant relation of some symptoms to measured power density; this was highest for headaches.
Perceptual speed increased, while accuracy decreased insignificantly with increasing exposure levels. There was no significant effect on sleep quality.
The data show that effects of very low exposure to high frequency electromagnetic fields on well being and performance cannot be ruled out; however, mechanisms of action at these low levels are unknown.

(Study character: medical/biological study, observational study, full/main study, cross-sectional study)

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Screen view