

# **Do mobile phone radio frequencies cause headaches?**

**A team of Norwegian researchers has been looking at whether exposure to the radio frequencies from mobile phones can cause head pain or discomfort.**

The team, led by Gunnhild Oftedal from Sor-Trondelag University College, also wanted to discover the psychological effects that real and sham exposure sessions had on people who had previously reported symptoms during or after using mobile phones.

## **The study**

17 people who reported symptoms in an open provocation test took part in a double-blind, randomized provocation study with cross-over design. Sixty-five pairs of sham and mobile phone radio frequency exposures were conducted.

The five females and 12 males who took part in the study ranged from 20 to 58, with an average age of 39.

Seven reported that they always experienced symptoms when a mobile phone call lasted at least 15 minutes and ten reported frequent symptoms, but not with every call.

Fourteen reported that symptoms usually started during the call, with three saying that symptoms started within an hour of the call.

To measure their responses, the researchers used a test GSM 900 mobile phone that generated a radio frequency signal of 92.4 MHz in pulses with a rate of 217 Hz, a duty factor of 1/8 and a peak power of 23 dBm.

They then used a sham phone that did not generate a radio frequency and compared the results.

Each participant took part in a maximum of four, two-hour test sessions, comprising a randomised radio frequency exposure and sham session. At least two days were allowed between sessions.

Subjects were seated comfortably watching nature and wildlife films during exposure and could halt the session at any time.

After the session, participants were asked if they thought they had been exposed to radio frequencies and why. If they answered yes, they were asked to describe any symptoms and rate any pain or discomfort, headaches and other symptoms. Their blood pressure and heart rate were measured before, during and after the sessions.

## **The results**

The researchers found that increases in pain, discomfort, headache and other symptoms were higher during the sham sessions than during the sessions when the participants were actually exposed to radio frequencies.

Pain and discomfort rose by 12.6 during the sham sessions and 10.1 during the radio frequency sessions. Headaches and other symptoms showed a similar pattern, rising by 10.3 and 11.6 respectively during the sham sessions and 7.4 and 8.1 during the radio frequency sessions.

Changes in heart rate or blood pressure were not influenced by the type of exposure.

### **Conclusion**

The study provides no evidence that radio frequency fields from mobile phones can cause head pain or discomfort or influence psychological variables.

The research team conclude that the most likely reasons for the symptoms is a placebo effect - in other words, using the mobile phones induced a feeling of ill-health for no good medical reason.