

## Health Symptoms Aren't Linked To Cell Phone Tower Emissions, Study Finds

ScienceDaily (July 30, 2007) — One of the largest studies into the short-term health effects of mobile phone technology has found that reported symptoms such as anxiety, tension and tiredness are not caused by the typical emissions from phone masts (cell phone towers).

A team of independent scientists at the University of Essex tested 44 people who had previously reported symptoms or sensitivity to mobile phone technology, and 114 people who had not reported any health effects (controls), at a specially-designed laboratory.

The three-year study found that physiological measures such as heart rate, blood pressure and skin conductance were not affected by whether the mast was switched on or off, and did not detect any significant effects in either sensitive or control participants between GSM (conventional) exposure and no exposure.

When both sensitive and control participants were exposed to a 3G (UMTS) signal, neither the physiological measures nor the number of reported symptoms increased. However, the sensitive group did report increased levels of arousal when exposed to 3G, but further analysis suggested that this was related to the fact that a higher proportion of sensitive people received the UMTS signal during their first 50-minute testing session. All other measures did not differ between the 3G and the sham conditions.

All participants were tested in several different sessions. In open provocation tests, when both participant and experimenter knew whether the signal was on or off, sensitive individuals reported lower levels of well-being and more symptoms when the signal was on. This confirmed that the laboratory conditions did not prevent them from experiencing typical symptoms in response to mobile phone masts.

However, when tests were carried out under double-blind conditions, where neither experimenter nor participant knew whether the signal was on or off, the number of symptoms reported was not related to whether the mast was on or off. Two of the 44 sensitive individuals correctly judged whether the mast was on or off in all six tests, compared with five out of 114 control participants. This proportion is what is expected by chance and was not increased in the sensitive group.

The study found that, compared with controls, sensitive individuals reported more symptoms and greater severity of symptoms, as well as higher skin conductance (which is a good measure of physiological response to environmental stressors), regardless of whether the signal was on or off. Hence, the range of symptoms and physiological response does not appear to be related to the presence of either GSM or 3G signals.

Principal investigator Professor Elaine Fox explained: 'It is clear that sensitive individuals are suffering real symptoms and often have a poor quality of life. It is now important to determine what other factors could be causing these symptoms, so appropriate research studies and treatment strategies can be developed.'

The results are consistent with the only other published large-scale study of the effects of short-term exposure to mobile phone masts with sensitive individuals (published in *Environmental Health Perspectives* by Regel et al, 2006).

Dr James Rubin, of the Mobile Phones Research Unit at Kings College London, who has reviewed 31 blind and double-blind studies carried out under controlled laboratory conditions, said: 'The Essex study is one of the largest and most detailed of these experiments and its findings, that mobile phone signals are not responsible for the symptoms that some people describe, are in line with those from most other previous experiments. This should be reassuring news for anyone who is concerned about the possible short-term health effects of masts.'

The multi-disciplinary scientific research team at Essex included cognitive psychologists, electronic and biomedical engineers and a medical doctor. Testing took place in the Electromagnetics and Health Laboratory at the University's Colchester campus. The exposure system was provided by Red-M, and the accuracy of both the exposure system and the testing environment was confirmed by the National Physical Laboratory.

The study was funded by the Mobile Telecommunications and Health Research (MTHR) programme (<http://www.mthr.org.uk>). The results are published online today by the journal *Environmental Health Perspectives* (<http://www.ehponline.org>).

The Essex research team is now undertaking an MTHR-funded study into the short-term health effects of exposure to TETRA mobile radio masts, which are used for the emergency services' communications systems.



The top of a cell phone tower. (Credit: iStockphoto/Jane Norton)

Adapted from materials provided by [University of Essex](http://www.essex.ac.uk).

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