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Mind your phone

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Sham radiation can cause real pain

WHETHER mobile phones can cause cancer remains moot (see [article](#)). But they are also accused by some of causing pain. A growing number of people around the world claim to be “electrosensitive”, in other words physically responsive to the electromagnetic fields that surround phones and the other electronic devices that clutter the modern world. Indeed, at least one country, Sweden, has recognised such sensitivity as a disability, and will pay for the dwellings of sufferers to be screened from the world’s electronic smog.

The problem is that, time and again, studies of those claiming to be electrosensitive show their ability to determine whether they are being exposed to a real electric field or a sham one is no better than chance. So, unless they are lying about their symptoms, the cause of those symptoms needs to be sought elsewhere.

Michael Landgrebe and Ulrich Frick, of the University of Regensburg, in Germany, think that the “elsewhere” in question is in the brain and, in a paper presented recently to the Royal Society in London, they describe an experiment which, they think, proves their point.

Dr Landgrebe and Dr Frick used a body scanner called a functional magnetic-resonance imager to see how people’s brains react to two different kinds of stimulus. Thirty participants, half of whom described themselves as electrosensitive, were put in the imager and told that they would undergo a series of trials in which they would be exposed either to an active mobile phone or to a heating device called a thermode, whose temperature would be varied between the trials. The thermode was real. The mobile phone, however, was a dummy.

The type of stimulus, be it the authentic heat source or the sham electromagnetic radiation, was announced before each exposure and the volunteers were asked to rate its unpleasantness on a five-point scale. In the case of heat, the two groups’ descriptions of their experiences were comparable. So, too, was their brain activity. However, when it came to the sham-phone exposure, only the electrosensitives described any sensations—which ranged from prickling to pain. Moreover, they showed neural activity to match. Some of the same bits of their brains lit up as when they were exposed to high temperatures.

This suggests that electrosensitivity, rather than being a response to electromagnetic stimulus, is akin to well-known psychosomatic disorders such as some sorts of tinnitus and chronic pain. A psychosomatic disorder is one in which the symptoms are real, but are induced by cognitive functions such as attitudes, beliefs and expectations rather than by direct external stimuli.

The paradoxical upshot of Dr Landgrebe’s and Dr Frick’s experiment is that mobile phones do indeed inflict real suffering on some unfortunate individuals. It is just that the electromagnetic radiation they emit has nothing whatsoever to do with it.

