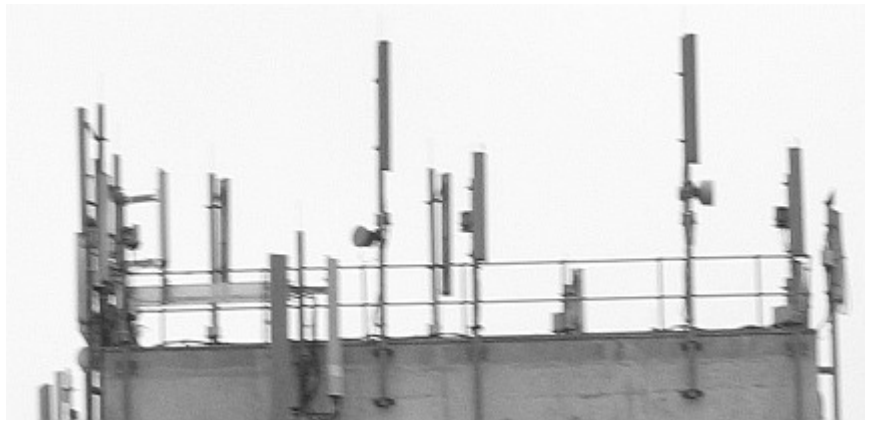


**MOBILE
PHONE
MASTS:**



**The Awful
TRUTH
About Their
Effects On
Your
HEALTH**



**Brought to you by
Goldsworth Residents Against the Masts
(nomasts.org.uk)**

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[Updated: 2005-08-08]

Introduction to Research Summary

Below is a summary of Independent Research into Mobile Telephone Masts that we have put together from various independent sources, with references, which you will find very informative.

Like many people, we never realised the full extent of the problems with Mobile Telephone Masts, nor the official wall of silence that exists, until circumstances lead us to spend a large amount of time and effort looking into the whole issue. We were shocked, and we expect you will be too.

It is only by assessing independent, good quality, information that you or we can make up our own minds about the Mobile Phone Mast issue. This document hopes to give you a summary.

Please read it.

To introduce this and to aid your understanding:

Government and Telecommunication Companies quote the 'ICNIRP Guidelines' as assurances of safety for any mast/s saying, 'The mast has an ICNIRP [safety] Certificate' or, 'The mast's emissions fall well below the ICNIRP Guidelines', etc.

However, the ICNIRP Guidelines **ONLY** cover the Thermal (i.e. heating) effects of mast emissions. Hence all that an ICNIRP certificate means is that the mast won't cook you!

When the guidelines were made in 1998 it was generally thought that the only effects of the mast emissions would be thermal, hence the ICNIRP Guidelines as they stand.

However, it is now widely accepted that NON-Thermal effects are probable but, vitally and to our minds, negligently, these guidelines have NOT been updated to include NON-Thermal effects.

The Thermal (heating) effects are accepted to be negligible - however, the NON-Thermal effects are real threats to our health and, for some of us, to our lives.

The summary attached clearly details some of the NON-Thermal Effects.

From studying independent research it is clear that, although the ICNIRP Guidelines are always quoted to assure the public of the safety of a mast, these assurances are completely **FALSE** since the ICNIRP Guidelines **DO NOT PROTECT US** against the NON-Thermal effects, which are, sadly, being negligently and completely ignored.

Many people believe that the ICNIRP Guidelines have not been updated with guidelines for non-thermal effects because there is still no "dose-response equation" for no risk (or acceptable risk). Dr. Neil Cherry **[13]** said, the safe level for microwaves is nil. Additionally the ICNIRP Guidelines ignore long-term low-level exposure to microwaves.

What are the Non-Thermal Effects detailed in the research?

Here are some examples:

- DNA damage potentially leading to cancers such as Breast cancer and Testicular cancer,
- Signal pulsing, similar to rapidly flashing lights, causing or worsening epilepsy,
- Reduction in Melatonin levels - and increase in nitric oxide (NO) levels - resulting in: reduced cancer fighting cells in our bodies, sleeping disorders, increased cholesterol levels leading to greater risk of atherosclerosis and coronary heart disease, increased blood pressure giving greater risk of blood clots and strokes. Also increasing chances of serious disorders such as Alzheimer's disease, Lou Gehrig's disease, Multiple Sclerosis and Parkinson's,
- Tinnitus and Hearing problems, Headaches, Reduced drug effectiveness.

These effects are increasingly being found to occur in reality within the population at large who are exposed to mobile phone mast radiation. Many German and European doctors, equivalent to our GPs are so concerned that they have signed up to the “Freiburger Appeal” to demand that health concerns over masts are taken seriously. Other similar appeals exist across Europe [6] . The Doctors note many symptoms increasingly seen by them in the vicinity of mobile phone masts.

They are:-

- Learning, concentration, and behavioural disorders (e.g. attention deficit disorder, ADD)
- Extreme fluctuations in blood pressure, ever harder to influence with medications
- Heart rhythm disorders
- Heart attacks and strokes among an increasingly younger population
- Brain-degenerative diseases (e.g. Alzheimer’s) and epilepsy [14]
- Cancerous afflictions: leukemia, brain tumors
- Headaches, migraines
- Chronic exhaustion
- Inner agitation
- Sleeplessness, daytime sleepiness
- Tinnitus
- Susceptibility to infection
- Nervous and connective tissue pains, for which the usual causes do not explain even the most conspicuous symptoms

Additionally we have found multiple examples of the following to add to the above list:-

- Pineal dysfunction which may contribute to the onset of depression or may exacerbate existing depressive disorders, possibly leading to suicide.
- Miscarriages

Government and the Telecommunication Industry would prefer you to read and hear about their scientists’ ‘research’ - but with their huge financial gains reliant on ‘safe results’ can you blame anyone for being sceptical about how trustworthy their research actually is?

Please read our summary of INDEPENDENT scientific research that, we believe, the government and the industry are trying to suppress. This research is carried out by independent scientists whose careers are often put at risk because they dare to question the safety of these masts and oppose the government view by saying that these masts may well cause much harm to people.

‘The reality of such a risk to public health is not yet officially recognised, however, and those who dare to depart from the ‘official’ line, by warning of potential dangers to human health posed by non-thermal influences of the radiation used in mobile telephony, are subject to immediate criticism and derision – particularly by those with a vested interest in maintaining the growth of mobile telephony. A good example of this is the ferocious attack by the committee of COST281 on my report for the EU Parliament (commissioned by STOA).’ - Dr G J Hyland, in his December 2003 Paper, “The inadequacy of the ICNIRP Guidelines governing human exposure to the microwave emissions of GSM/TETRA Base-stations.” [11]

Current INDEPENDENT Scientific Research That Proves Mobile Phone Masts Are NOT Safe

All of the Examples Below are Non-Thermal Effects from mobile phone mast emissions that are not covered by the UK Government / ICNIRP Guidelines. (See Point 7 below).

1. Genetic Damage in Blood Cells and Other Cells

Drs Ray Tice and Graham Hook found human blood cell changes following exposure to four different types of cell phone signals. Genetic damage was seen in the form of micronuclei present in blood cells exposed to mobile phone radiation. [1] Also seen with Dr.Lai and Singh [2]

A recent 4-year EU-backed study by twelve partners in seven countries, EU Reflex, repeatedly showed irrefutable evidence of mobile phone emissions, at levels within ICNIRP, and hence UK, guidelines, causing double-strand DNA breaks of the sort that lead to cancer. [3]

Many environmental factors, including sunlight, cause DNA strands to break. However, it is the amount and type of DNA breaks that occur that may or may not lead to cell mutations and therefore cancer. It is possible for the cell to make mistakes when repairing single-strand breaks, but the likelihood of serious mistakes (mutations) increases substantially with double-strand breaks - the type seen from exposure to mobile phone radiation.

Where this type of DNA damage occurs in the blood cancers such as **Breast cancer** and **Testicular cancer** can result.

In one case, in Paris, Orange dismantled a mobile phone mast itself after 8 school children contracted cancer. The company had placed the antennae on the school's roof. This surely is quite damning - indicating that the industry/company knows that these mobile telephone masts DO or MAY WELL cause ill health - why else would they dismantle their mast from the school?

2. Electrical Hypersensitivity (EHS), Chronic Fatigue Syndrome and Sleep Disorders etc.

The most commonly reported adverse effect of mobile phone mast radiation, is EHS. The symptoms are wide ranging, including **headaches** and **nausea, dizziness, recurrent nosebleeds, skin irritations and rashes, sleep disorders, hearing problems, high blood pressure, fatigue, irritability and depression**. Some people with epilepsy report increased incidence of seizures, people with chronic fatigue syndrome and multiple sclerosis report increased debilitation, as do those with or developing fibromyalgia. Further down the time line, reports of localised clusters of thyroid problems, motor neurone disease and cancers require full and proper investigation. Where such studies have been made, especially with regard to cancer, the correlation with mobile phone mast emissions is strong enough now to warrant more formal verification.

The list of symptoms relating to EHS corresponds closely with those for multiple chemical sensitivity (MCS), and contain the aspects of chronic fatigue syndrome (CFS/ME). In the case of MCS and CFS, and indeed fibromyalgia, Prof. Martin Pall of Washington State University has attempted to clarify a common cause and mechanism [15]. It is not surprising that this same cause and effect mechanism can be found widely in the scientific literature from the 1990s to date, regarding electromagnetic fields (EMFs) and the reported outcomes from long-term exposure at normal environmental levels. Prof. Pall has also made the association between MCS and EHS with a common cause in nitric oxide (NO) (personal communication July 2005), and Dr Ulrich Warnke has just published an extensive paper on mobile network EMFs, exacerbated by dietary deficiencies [16].

The common thread underlying all the effects noted is the over-stimulation of nitric oxide synthases (NOS) and the balance between nitric oxide (NO), superoxide (SO: generated in cells as a by-product of energy production) and superoxide dismutase (SOD: the enzyme responsible for clearing excessive superoxide). Nitric oxide reacts rapidly with superoxide to generate peroxynitrite (ONOO) which is toxic at a cellular level. The basic effects result from:

- nitric oxide as a dilator of blood vessels, a neurotransmitter, and as a regulator of dream sleep, also affects the blood-brain barrier and prevents the normal formation of melatonin from serotonin. Several studies have noted the reduction in Melatonin levels when the body is subjected to mobile phone radiation [4]

- imbalance in superoxide regulation in response to reaction with nitric oxide leads to an overproduction of peroxy nitrite
- peroxy nitrite production as reaction between nitric oxide and superoxide leads directly to Motor Neuron Disease (MND)/Lou Gehrig's disease (ALS), exacerbated further by an over-supply of available NO.

There are numerous studies relating to the effects of EMFs on especially inducible nitric oxide synthase (iNOS, such as in cell membranes). The crucial implication for this is that once disturbed, the critical balance between NO, SO, SOD and ONOO is lost, highly damaging free radicals multiply and have prolonged life, whilst at the same time NO-regulated normal cell death is affected, allowing damaged cells to survive, and free radical protection from melatonin (for example) is compromised.

Such is the broad role of NO in the body, that disturbance of its production creates an avalanche of negative effects. Many "modern" trends in disorders from Multiple Sclerosis to autism and ADHD, Alzheimer's to MND may stem directly from altered NO reactive cycles. That Electro Magnetic Fields have been shown to alter the production of NO in living beings is therefore a significant and serious factor in the evaluation of current and growing environmental levels. It is the long-term low level exposure that is predicted as creating cumulative effects and long-latency illness.

3. Weakening of the Blood-Brain Barrier

Many laboratory studies, such as [5], have looked at the effect of pulsed microwave radiation on animals, revealing a wide range of biological changes to tissue structure or function such as the opening of the Blood Brain Barrier, allowing the protein albumen, amongst other substances, to enter the brain, and raising questions about, for example, **Multiple Sclerosis** and **Alzheimer's**, which are linked to proteins being found in the brain. Similarly, the weakening of the Blood Brain Barrier allows toxins in the bloodstream to pass into brain cells, leading to headaches and nausea (as commonly observed around mobile phone masts) - and, potentially, large-scale brain damage in the longer term.

4. Increased Incidence of Epilepsy

When noting the reports of an increased number of seizures in some epileptic children when exposed to the emissions of mobile phone radiation from masts, it should be remembered that exposure to a light (such as that from a stroboscope) flashing at a rate somewhere between 15-20 times per second (Hz) can provoke seizures in the 5% minority of epileptics who suffer from photosensitive epilepsy.

Visible light and microwaves are both different kinds of electromagnetic radiation, and the microwave radiation used in GSM mobile phone telephony similarly 'flashes' (pulses) – in the case of TETRA at 17.6Hz, which is within the 15-20 times per second (Hz) range [9] and is a rate that the brain is able to recognise. Also, unlike visible light, pulsed microwaves are not reliant on the eye and optic nerve to access the brain, since they can penetrate the skull directly, leading to epilepsy risk from mobile telephone mast radiation.

A familiar piece of misinformation quoted by mobile phone operators is that the emissions of a mobile phone mast are comparable to that of only a 60W light bulb, and thus equally harmless. Quite apart from the fact that the light from a 60W light bulb *can be* harmful to a person with photo-sensitive epilepsy, if it is flashed at an appropriate rate, the comparison is solely based on intensities and neglects three important points:-

1. The fact that *more* than one carrier signal is usually transmitted from the mast. Thus, the figure of 60W must be multiplied by the number of carriers that are actually transmitted in any particular case; in order to minimise inter-carrier interference, however, this number is restricted typically to 4 at the most, so the total output wattage can be as high as 240W.
2. Beams from the mast, however, are not emitted uniformly in all directions (as happens with light from a light-bulb), but are instead concentrated in specific directions, the degree of directional focusing being quantified through the so-called 'gain' (G) of the antenna, even omni-directional types, typical values of which, in the case of GSM, range from about 40 to 60. If we use an optimistic figure of 30 the so-called 'effective isotropic radiated power (EIRP), given by the multiplying Power by Gain – is 1800W, which is further increased to 7.2kW if 4 carriers are transmitted – a value that is 120 times higher than the 60W quoted! The maximum EIRP value permitted by law is 1500W per carrier, whilst the maximum number of

carrier signals is 16 (at 1800MHz) and 10 (at 900MHz); in practice, however, the number of carriers is usually restricted to 4 at the most, for the reason mentioned above.

3. The comparison neglects the all important frequency dimension, in particular the difference in the frequency that characterises the visible light from the light bulb from that which defines the radiation to be (invisible) microwave radiation. For whilst the output from such a bulb is, during the day, completely negligible in comparison with visible light of natural origin – i.e. that from the Sun – this is not so in the case of the microwave radiation emitted by a phone mast antenna day and night, which, several hundred of metres away, is typically 10 billion (10^{13}) times higher than the microwave radiation that is emitted by the Sun at the same frequency. Accordingly, the emissions of mobile phone masts have caused an enormous (and relatively sudden) alteration in the natural environment (at this frequency) from that in which life on Earth has, over a very much longer time, evolved. The impact of this altered environment on biology is further enhanced by the high coherence of the mobile phone radiation. **[11]**

5. Naila: 10-year Study of Residents near Mobile Phone Mast Proves Cancer Link

Following a call by Wolfram König, President of the Bundesamt für Strahlenschutz (Federal Agency for Radiation Protection), to all doctors of medicine to actively collaborate in the assessment of the risk posed by mobile phone radiation, the aim of this study was to examine whether people living close to mobile phone transmitter masts were exposed to an increased risk of becoming ill with malignant tumors (i.e. cancer). **[12]**

The basis of the data used for the survey were PC files of the case histories of patients between the years 1994 and 2004. While adhering to data protection, the personal data of almost 1,000 patients were evaluated for this study, which was completed without any external financial support. It is intended to continue the project in the form of a register.

The result of the study shows that the proportion of newly diagnosed cancer cases was significantly higher among those patients who had lived for the past ten years at a distance of up to 400 metres from the mobile phone transmitter site, which has been in operation since 1993, compared to those patients living further away, and that the patients fell ill on average 8 years earlier.

In the years 1999-2004, *i.e.* after five years' operation of the transmitter installation, the relative risk of getting cancer had trebled for the residents of the area in the proximity of the installation compared to the inhabitants of Naila outside the area.

(N.B. Naila is a town halfway between Berlin and Munich, near the German border with the Czech Republic)

Previously, Santini and Santini (2001) and Santini et al (2002) **[7]** surveyed people living up to 300m from GSM (mobile phone) masts. There was a statistical match between distance from mobile phone masts and health problems: tiredness up to 300m; headache, sleep disruption, 'discomfort' up to 200m; depression, memory loss, dizziness, visual disturbances up to 100m. Women were more susceptible than men.

6. International Medical Appeals: Freiburger, IDEA, Lichtenfelser, Hofer, Bamberger, and Helsinki

In the Freiburger Appeal **[6]**, initially 50 doctors in Germany reported reduced therapeutic efficiency of prescribed drugs correlated with the use of pulsed microwaves, such as those from mobile phone masts. Some 40,000 signatories have now supported the appeal, including 1,200 doctors. Alongside the Freiburger Appeal there are now similar appeals from Lichtenfelser, Hofer, Bamberger and Helsinki.

In the Irish Republic, the IDEA group of Doctors has its own reports relating to mobile phone masts **[10]** which confirm the findings of the Freiburger Appeal doctors.

7. Inadequacy of the ICNIRP Guidelines

The Government tell us “If a proposed mobile phone base station meets the ICNIRP guidelines for public exposure it should not be necessary for a local planning authority, in processing an application for planning permission or prior approval, to consider further the health aspects and concerns about them”.

However, the view of Dr. Hyland from Warwick University is that these regulations are completely inadequate:

“... It must thus be concluded that GSM/TETRA telecommunication technology, as currently regulated by the ICNIRP safety guidelines, is less than safe, and constitutes a risk to public health because these guidelines afford **absolutely no protection** against **non-thermal** biological influences exerted by the kind of radiation emitted by the associated Base-stations.” [11]

Dr. Hyland [11] has carried out a lot of research on mast emissions. Relevant research shows how the current ICNIRP Guidelines, as adopted in the UK, are woefully inadequate since they only protect against thermal effects and, vitally, not against non-thermal effects, which are far more relevant.

Since it is accepted that, at the levels given off by the masts, thermal effects on people are negligible, ICNIRP Guidelines are therefore not protecting people at all.

The government as well as the telecommunication industry and other interested parties appear to be deliberately ignoring the non-thermal effects of the radiation from masts - for which there is already a lot of evidence that shows definite effects on the human body, some extremely serious.

It must also be noted that other countries have adopted much stricter guidelines than Britain has, and there are moves in some European cities for much, much lower limits on mast emissions of microwave radiation.

8. Conclusion

“On the basis of many inter-consistent reports of adverse health effects in the vicinity of GSM Base-stations, it must be concluded that such installations poses a **real risk** to the health of people resident at nearby. It is to be stressed that this conclusion is not purely personal, but is one that is shared by many eminent scientists of international standing and medical doctors worldwide.”

And, a warning about government and industry ‘research’ assurances:

“.... The reality of such a risk to public health is not yet officially recognised, however, and those who dare to depart from the ‘official’ line, by warning of potential dangers to human health posed by *non-thermal influences* of the radiation used in mobile telephony, are subject to immediate criticism and derision – particularly by those with a vested interest in maintaining the growth of mobile telephony.” [11]

Other Sources of Information

GRAM website - www.nomasts.org.uk

Mast Sanity – www.mastsanity.org

Mast Action UK – www.mastaction.co.uk

Powerwatch – www.powerwatch.org

Radiation Research – www.radiationresearch.org

TETRAwatch – www.tetrawatch.net

Wikipedia (for general information and guide to technical terms used within this document) - http://en.wikipedia.org/wiki/Main_Page

Future Worries

Note that 3G (UMTS) is a wideband application - users are allocated separate concurrent frequencies, so the total power goes up with use, unlike sequential message blocks on a single carrier with GSM and TETRA. This means that any power readings taken currently with 3G masts are only likely to increase in future!