

Reducing Electromagnetic Pollution

Hello and thank you for downloading this eBook from Beneficial Environments.

This guide is based on a series of articles I wrote for What Doctors Don't Tell You, the health magazine.

It's an introduction to reducing your everyday exposure to electromagnetic pollution, often called electrosmog.

Many people now feel uncomfortable when exposed to electrosmog from their phone, Wi-Fi or the many other forms electro pollution.

Since there is little guidance or protection offered from government or industry, there is a lot you can do to reduce your exposure without too much inconvenience and interruption to everyday activities.

I hope you find this useful. If you have any questions or need professional advice do contact us at

www.beneficialenvironments.co.uk

Guy Hudson

Unhealthy Rays

You may think you're doing everything right for your health—watching your diet, exercising and taking supplements—but have you thought about the electricity running throughout your home, workplace and environment?

This is something you cannot afford to ignore, according to Dr Sam Milham, retired physician and epidemiologist with the Washington State Department of Health in the US.

As Milham once put it: “There is a high likelihood that most of the twentieth century ‘diseases of civilization’, including cardiovascular disease, cancer, diabetes and suicide, are not caused by lifestyle alone, but by certain physical aspects of electricity itself.” How can a leading doctor make such a claim?

Having spent years studying American medical data, he found a significant correlation between the arrival of mains electricity and the increasing incidence of cancer, diabetes and depression in those areas. He had already been investigating a possible link between cancer clusters in schools and ‘dirty’ mains electricity in classrooms, and suspected an even wider picture. But because almost the entire population of the US had mains electricity by 1956, he had to go back to the 1920s to find medical records of significant numbers of people who didn't have it.

‘Dirty’ electricity, a term used by American power companies, refers to electrical supplies where the voltage doesn't alternate evenly at a steady frequency, as it's supposed to, but instead makes momentary changes by irregular amounts and with irregular frequency, so creating ‘high-frequency voltage transients’—in other words, distortion of the electrical supply.

Dr Milham found that cancer death rates in electrified areas were up by 60 per cent, while diabetes was up by 40 per cent and suicides by 39 per cent (and, by implication, rates of depression as well).

He also tracked a similar progression in the incidences of these diseases in rural areas as they became electrified over the subsequent decades.

There's now a good deal of science to confirm his statistical analyses. In the developed world, a large and growing segment of the population is developing long-term diseases that are debilitating and often ultimately life-threatening.

Many of these, such as heart disease, cancer, severe headaches, arthritis, fibromyalgia, dementia, attention deficit hyperactivity disorder (ADHD) and even diabetes, have been associated with the effects of electrification.

In fact, many scientific studies have pointed out how strongly we are affected by exposure to electromagnetic (EM) radiation. But how have we arrived at this situation where so few have been able to appreciate the full extent of the problem?

Let's take a brief look at the science.

All electrical equipment radiates electromagnetic fields (EMFs) that act at a distance from the equipment itself. And in the modern world, we all use and are surrounded by electrical equipment, both our own and other people's. There are the giant power lines and local substations of the national grid as well as mobile phone and police radio (Tetra) networks, not to mention our own TV sets, fridges, computers, wireless networks, games consoles, mains powered telephones and many others. This constant electrical pollution is called ‘electrosmog’.

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Hard and soft radiation

Science classifies EM radiation into 'hard' (high-energy) and 'soft' (lower energy) waves. High-energy waves 'ionize'— this means they are capable of splitting molecules in the body into electrically charged 'radicals', highly active and biologically dangerous molecules. It has been known for decades that high energy (high-frequency) radiation—like X-rays from scanners, and gamma rays from nuclear power and bombs—all have an impact on our health.

Hard ionizing radiation shows a clear and direct relationship between the amount received and the effect produced: the stronger the radiation, the worse the damage. This means scientists can reliably calculate the level of health risk from events like the Fukushima nuclear disaster in Japan and from medical scans, so the safe dosages for nuclear workers and patients being x-rayed or scanned are well understood and well defined.

Soft, non-ionizing EM radiation includes light waves, infrared heat, microwaves, radio waves and lower frequency waves like mains electricity.

With this form of radiation, the relationship between the amount received and the effect caused is much less direct. And because this radiation has no obvious, measurable effects like ionization, the majority of scientists have traditionally taken the view that it's generally harmless, apart from extreme levels that result in overheating or electrocution.

The Frankenstein effect

Thousands of scientific studies into the health effects of non-ionizing radiation have been carried out over the years, but all have tended to be ignored as they don't conform to the way most scientists and medical practitioners think. This is related to historical issues. In the 18th century, a scientist named Luigi Galvani discovered that muscles are moved by an electrical current: he gave demonstrations in which a dead frog's leg could be made to extend or contract by applying electricity to it.

From this, the mistaken belief arose that dead animals and people could be brought back to life by electricity.

Perhaps the most famous result of this was Mary Shelley's novel Frankenstein; she had read Galvani's work before writing the novel.

Many scientists came to believe that any suggestion of a connection between non-ionizing radiation and biological effects smacked of 'hocus-pocus', and that anyone who made such a suggestion must be either a quack or a fraud.

Yet, because of the work of Sam Milham and many others, scientists and medical practitioners are finally and increasingly taking the view that some parts of the electrosmog are very likely unhealthy.

How is it affecting us?

Are we really like the proverbial frogs in a pan of water being so slowly heated that the frogs fail to notice the rise in temperature and so don't jump out of the pan before being boiled to death?

Are we allowing ourselves to be immersed in slowly (but constantly) increasing levels of electrosmog and failing to take any action to protect ourselves?

If so, then the worse the current impact of this pollution is, the greater the possible improvement in health when we do take simple precautions to reduce our personal exposure to electrosmog.

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You could say 'It's so bad that it's good'—it means that very simple and straightforward precautions could make a lot of people a lot healthier.

Although Milham's revelations may sound like bad news, they can help us make simple changes in the way we use electricity and expose ourselves to everyday EM radiation that, in turn, could do a lot to improve not only our own long-term health, but that of our loved ones too.

How sensitive are we to EM radiation?

The science is still evolving, but there are indications of why the dangers have been difficult to identify: the sheer range of symptoms, the range of response times, the range of triggers and sensitivities all make for a very complex field of study.

Our immune systems are certainly closely involved, as so many electrosensitive people also have other allergies. Consider my own case: I had a technical career in car design and telecommunications that came with very high, long-term use of mobile phones, and then I became intolerant of Wi-Fi and mobile-phone signals; they gave me painful and continuous headaches—a combination of migraine, trigeminal (facial) neuralgia and myalgic encephalomyelitis (chronic fatigue). I now avoid electrosmog as far as possible, particularly while sleeping, and rarely suffer headaches now and live a healthy and fulfilling life again.

As a physicist I understand the scientific issues, and now perform surveys and recommend lifestyle changes and design environmental changes for the homes, offices and vehicles of health conscious people. My aim is always to achieve the best compromise between having a beneficial environment while retaining a functioning level of use of all the technology we now have in our lives.

Cell Phones

Science has been making discoveries about human sensitivity to electromagnetic waves since the 1930s, and for 80 years we have been writing about the health effects of microwave radiation (such as radar sickness). The results of all this research question the common sense of putting a microwave transmitter to your head as you do every time you use a mobile phone, which transmits pulsed microwaves.

The scientific evidence linking phone use with health problems is growing although proving direct links to, say, cancer is difficult, as cancer takes many years to develop after the initial exposure.

A similar example is smoking and lung cancer: convincing authorities and governments that smoking definitely caused cancer took decades because cancer typically appears only after years of smoking.

Unlike cancer, though, other health issues with mobile phones may become apparent far more quickly; for example, the time frame for fertility problems can be measured in a matter of hours or days. Male fertility has been shown to plummet after brief exposure to mobile phone radiation. Worse, exposure to mobile phone radiation has been shown to damage human DNA. Which of course has potentially serious implications for future generations of humans.

More of us are reporting symptoms— which are sometimes severe—during and after using mobiles. Some commentators believe that 5 per cent of us now consider ourselves electrosensitive and perhaps 1 per cent as hypersensitive. According to a Swiss telephone survey of 2,048 people aged 14 and over, 5 per cent of this sample population self-reported electromagnetic hypersensitivity (with complaints of sleep disorders and headaches).

If there truly are such fertility, electrosensitivity and cancer risks, we should be even more aware of the extra susceptibility of unborn babies and children, and keep them well away from this technology. And because of this, some governments have already acted or are planning to act to protect their entire mobile-using populations, with Austria, Russia, Israel, Canada, France and Spain already in the club.

Earlier last year the then CEO of Belgacom (one of Belgium's leading telecoms companies), Didier Bellens, told school children that mobile phones were not safe for them and that mobiles are always switched off in his office.

Not surprisingly, Belgacom asked him to leave in November. In spite of his sacking, Belgium has introduced a ban on mobiles specially designed for under-7s that came into play on 1 March 2014, and has now mandated that specific absorption rates (SARs)—the amount of radiation absorbed by the body during use—be published at points of sale.

The good news is that there's a lot you can do to reduce your current exposure levels by factors of thousands just by making some simple changes in the way you use your phone.

1. For a start, avoid the old-fashioned simple mobiles with a small aerial sticking out of the top, as these aerials physically come into contact with the skin over your skull. More modern phones often have aerials halfway up inside the phone, which keeps the aerial a minimum distance away from your body while the phone is in use.

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2. Phone signal strength falls off strongly with distance and the newer phones create less powerful hotspots of radiation and so also have lower SARs. In fact, the safety instructions for mobiles (hidden in the small print of safety manuals that few read) prohibit using the handset within normally 15 mm or more of any part of your skin—not an easy thing to do! But at least we can use the phone held away from the body.
3. Every few minutes, a mobile phone interacts with local cell masts to confirm that the phone is within range of a particular mast to direct a call to. This is going on all the time, even when a phone is on standby—it's on but not in use. In the area of the transmitter aerial of the mobile phone itself, the phone's signal strength is at maximum and its overall signal strength is measured in SARs.
4. If you really want to minimize risk and reduce your radiation exposure, you have to stop using a mobile— although this may be impossible for work, childcare and other day-to-day needs. So if you must use a mobile, whenever possible divert all mobile calls to your home or office landline when you're at either place, and pick up your voicemail from your landline by dialling your mobile phone's voicemail service. Let people know your mobile isn't on all the time, but that you'll get back to them.
5. You need never hold a mobile to your head again, as you can use either an air tube headset or speaker mode (though this may create privacy and background noise problems). An air tube hands-free headset looks just like a standard headset but, crucially, the microphone unit on your chest also contains the loudspeaker and an empty, air-filled, tube connects up to the ear piece. This tube has no speaker, so there are no associated audio-frequency magnetic fields or microwaves and the voice sound is generated by a tiny loudspeaker at the other end of the tube. Using this kind of headset massively reduces the amount of radiation striking the head of the user. Some versions have two earpieces, but I prefer the single earpiece variety as there are fewer wires to get tangled up.
Tip: Use a bag where you can have the air tube outside. You can then answer the phone with the button on the microphone 'blob' and place the earpiece straightaway in your ear to start talking. Panicked untangling of the wire while trying to answer the phone in your bag strains the wires and means the headset won't last very long.
6. Use the phone in strong-signal areas—and especially not in cars, trains or planes—as the phone will ramp up transmitter power by up to a factor of 1,000 in poor-signal areas. You'll also get a double whammy from the waves bouncing off the vehicle's metal walls.
7. When texting, hold the phone away from your body and text quickly, turning the phone off as soon as possible. If you have a Skype paid account, you can text out from Skype (preferably using a low-radiation PC setup), and it's much easier using a full-size keyboard. If you're adept at using a smartphone, you can get an app to forward your texts to your email; this means you will only need to fire up your smartphone for a few minutes while using the internet service. Keep well away from the device once you have started the job going.
8. With cordless phones and the more common DECT phone charger and docking stations, the pod connected to the phone line radiates a pulsed microwave 24 hours a day and is often one of the worst offenders in your home for creating electrosmog. The handset transmits while it's in use too, so it's better to go back to corded phones or, if you really can't manage without, then replace them with ECO-DECT-Plus cordless phones. These don't transmit when not in use (saving electricity) and also significantly reduce the power output of the transmitters according to the level actually needed when in use.
9. When using landlines, favour ordinary corded phones whenever possible, as their radiation levels are very low. Electrosensitive people should fit an active broadband filter between the

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phone lead and wall socket to filter any broadband signals away from the phone (even if you're not a broadband subscriber, broadband signals are often present). Active filters do a better job than the passive ones usually supplied with broadband hubs. The safety instructions for mobiles (hidden in the small print) prohibit using the handset within normally 15 mm or more of any part of your skin

Kitchens

We all know that hygiene is important in the kitchen.

But while most of us keep our countertops and cooking surfaces sparkling clean, few of us realize there is another sort of 'dirt' that can be just as damaging to our health—electrosmog, the background radiation that comes from electrical devices within the home.

With all the cooking devices and gadgets that have recently become essential for preparing our meals, the kitchen has the potential to be the room with the highest levels of electrosmog.

From the microwave and cooker to the blender, mixer and juicer, and coffee machine, all these add to the kitchen's electrosmog levels.

Up to 5 per cent of people in the developed countries are electrosensitive, or electrohypersensitive (EHS), and a further 25 per cent have symptoms that are made worse by electromagnetic (EM) radiation. Sam Milham, a professor of epidemiology, reckons that many diseases are to some greater or lesser extent worsened by the electrosmog in our environment.

It's interesting how electrosensitivity and food allergies/or intolerances seem to go hand-in-hand. Electrosmog can affect our sense of taste and smell, and it does this by interfering with the nervous system and healthy functioning of the cardiovascular system. Whenever I attend a meeting of electrosensitive people, gluten- and dairy-free foods seem to be the main items on the menu.

So whether you are electrosensitive or not, it makes sense to establish a new kind of hygiene—EM hygiene—in the kitchen. This will require making a few changes in the way we use appliances when cooking, but it could lead to a massive reduction in our EM exposure, allowing us to stay healthy or improve any symptoms we may already have.

THE MICROWAVE

The most electropolluting device in the kitchen is, not surprisingly, the microwave oven. It works by generating high-frequency EM waves that heat up the water molecules in food all at the same time, as microwaves are able to penetrate further, and more quickly, than other conventional heating methods.

The microwave is a sophisticated device that can be immediately hazardous if not used properly, as Norway's former prime minister and head of the World Health Organization Dr Gro Harlem Brundtland can testify. She put a plate decorated with metallic paint into her microwave oven, and the flash that was generated as the microwaves interacted with the metal blinded her for a year. Although her sight eventually returned, she has continued to be sensitive to mobile phones ever since.

Surprisingly for such a common appliance, there are few published papers on the safety of microwaves or their effects on the food they prepare.

The critical papers are often dismissed as being unscientific, while the positive ones have limited themselves to temperature levels. No one is looking to see if any new or unusual chemicals or toxins are being formed by the specific action of microwaves on foods.

But we do know that the microwave leakage from most ovens will cause a field that is much stronger than that emitted by cordless phones and cellphone transmitters. We also know that the nutritional

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value of baby food and milk is lowered by microwaving, and that there's also a greater risk of scalding as the contents are far hotter than the container.

As an electrosensitive person myself, I find it difficult to be in the same room where a microwave is on. So if you're also electrosensitive, I would advise getting rid of your microwave and using a traditional oven instead; you just need to plan ahead by taking the food you intend to eat that evening out of the freezer that morning so it can defrost during the day.

If you must use a microwave, set it going and then move yourself several metres away—don't stand right in front of it as the food is cooking.

THE COOKER

After the microwave, the cooker or hob and oven are the next biggest electrosmog generators. Using a gas oven may be a simple solution, but often those who are sensitive feel uncomfortable with gas burning openly in the kitchen.

A typical electric cooker gives off strong EM fields, so you should stay a few feet away whenever possible while cooking. Glass-topped hobs use different technologies from traditional rings, but are much the same in terms of their magnetic field strength, while halogen hobs and especially induction hobs are to be avoided by sensitive people. Induction hobs that work with aluminium pans radiate particularly strong 'dirty electricity' frequencies, so if you have one of these, use the back rings and, while it's on, keep away from the unit as much as possible.

KITCHEN APPLIANCES

Some coffee machines that rely on sachets generate extraordinarily high EM fields, so stand well back when the coffee machine is on. The same goes for juicers, blenders and mixers: start them off and then move away. The magnetic field weakens beyond a foot or two (unlike the microwave, which continues on for quite a distance).

The same advice goes for the rest of your cooking equipment as for all your rooms: unplug anything that's not in use at the time.

Avoid fluorescent lamps whether they are the standard straight tubes or the newer small curly ones. Newer LED lights are relatively safe – especially the off-white ones and so are the old-fashioned incandescent light bulbs, which are still available if you look for them; these days they are labelled as 'Rough Service' or 'Industrial Use', or other such similar terms.

Bedrooms

We humans sleep for a third of our lives, the time when our bodies repair and restore our cells. But studies show that we now have an epidemic of poor sleep—a third of the UK population says they have interrupted and poor-quality sleep.

Many have attributed one cause of poor sleep to electrosmog, but the lack of sleep also prevents us from recovering from the damaging daily dose of electrosmog and so encourages the buildup of electrosensitivity along with its plethora of symptoms.

This means it's important to reduce your dosage of electromagnetic pollution to levels where your body can recover to not only ease the debilitating symptoms of electrosensitivity, but also to prevent the development of electrosensitivity in the future.

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Many of my clients are now able to have deeper, longer, restorative sleep with the unexpected bonus of rich dreams after lowering their exposure to electrosmog by following the advice outlined below.

Although the study of electrosmog and its effects is still a rapidly evolving area of research, there's a lot that's already understood that can be used to improve your everyday electromagnetic hygiene.

A lack of sleep prevents us from recovering from the damaging daily dose of electrosmog and so encourages the buildup of electrosensitivity.

Here's my 10-point plan for reducing electrosmog in the bedroom.

1. Sleep earthed and reduce dirty electricity. To start with, when I'm surveying I give absolute priority to creating a beneficial environment for each person's sleeping environment by: a) getting them to sleep earthed and shielded from microwaves; and b) filtering dirty electricity from the mains wiring. These are quickly and easily achieved by using shielding earth sheets—polycotton sheets with stainless steel filaments tightly woven in—for the bed and Stetzer filters— devices that plug into electrical outlets to reduce the amount of dirty electricity in your home—which involve no real changes in habits or use of technology. These devices are available online from www.beneficialenvironments.co.uk.
2. Get fresh air. Usually, it's a good idea to open the windows to allow in good fresh air with its beneficial levels of ions while sleeping.
3. Prepare for sleep. If possible, an hour before you go to sleep, go through your entire house and unplug everything, especially chargers, satellite dishes, TV sets and games consoles.
4. Use a corded phone. If you want a landline phone in your bedroom, I strongly advise having a corded phone that doesn't need mains power. If you must have a cordless phone, I recommend ones that don't radiate when not in use (like the Siemens Gigaset Eco Mode Plus units, although you must go into the set-up menu and set the Eco Mode Plus ON to reduce radiation.) They save on energy use too. The cordless phone transmitter base unit (the one connected to the phone line) should not be in the bedroom, and the cradle (charger) unit in the bedroom should be unplugged at night.
5. Turn off your mobile. Again, ideally your mobile phone should not be in the bedroom at night. If it is (say for use as an alarm clock), it should be in flight mode, not on a charger (which should be unplugged from the wall socket) and at least a metre away from you—and yes, you may have to get out of bed to switch the alarm off, but isn't that why you set the alarm in the first place?
6. Check your lighting. If possible, only use traditional (incandescent) light bulbs in your bedroom. You can still get them from most electrical suppliers. I don't recommend low-energy bulbs, especially the 'curly' fluorescent ones, as they often emit dirty electricity frequencies. Remove dimmer switches and use them full on. LED lights usually have power supplies (similar to a phone charger) that often cause dirty electricity in the mains supply, though they're not as bad as compact fluorescents, especially the better-quality ones.
7. Consider phone masts and neighbours' cordless phones and Wi-Fi. In general, you can't move these or switch them off as they belong to someone else, but having an electromagnetic (EM) survey done of your home is the best way of see what your radiation levels are as measured by professional meters and experienced staff—see our website www.beneficialenvironments.co.uk for details. The typical home survey includes checks for radio/microwave fields, geomagnetic anomalies, extra-lowfrequency electric and magnetic

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fields, and induced body voltages, where the body acts like an antenna to pick up fields from, say, electric blankets, alarm clocks and power lines. I also recommend remedial measures like applying protective film to windows, and shielding materials or paint to walls, and/or moving your bed to a healthier position.

8. Unplug mains-powered devices and chargers. All mains-powered devices should be kept at least two feet from the bed area, including under the bed, and the bed should be at least three inches away from the wall. Unplug clocks, radios and power supplies whenever possible. Electric blankets should never be used by an electrosensitive person, as the wiring the heating elements can act as a grid for transmitting and amplifying EM radiation fields in and around the bed.
9. Consider metal-free mattresses and bedframes. Most metals cause a distortion of the Earth's ambient field that can affect us, and each coil spring within a mattress has its own magnetic properties that can cause a disturbing magnetic field to sleep on. Metal-free mattresses (like memory foam and futons) are free of such effects. (But air such mattresses well before use as the outgassing of chemicals can affect sensitive people.) Occasionally, the building's metal structural beams can also distort the geomagnetic field.
10. Switch off TV sets (plasma and other screens) and computers/tablets. These should be switched off and unplugged from the mains when not in use and placed at least three feet from the viewer. The satellite box and driver for the aerial amplifier should also be turned off, as should games consoles. Avoid wireless if possible and preferably use network cables for computers. You can use dLAN adaptors (to network over mains wiring) and cables if necessary, but switch them off when not in use. Some people are electrosensitive to them, so unplug them whenever possible. Tablets and mobiles can be made to work wired but avoid using them wireless in the bedroom. If you follow these measures, you'll also be surprised by how much electricity you save. In fact, all these measures are based on sound biophysics, physics, and electronic and electrical engineering principles, and a vast number of scientific papers, university departments and specialist interest groups have all contributed to this body of knowledge.

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Well, I do hope you found this book useful. We have enjoyed putting it together. We are here to help – so please don't hesitate to contact us – we have many years' experience of helping people who are electrosensitive or want to protect themselves and their families or colleagues from getting symptoms.

Guy Hudson