

ILL HEALTH FROM WI-FI

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A What ill health may I suffer from Wi-Fi?

What short-term symptoms does Wi-Fi cause?

Symptoms include headaches, dizziness, short-term memory loss, a fuzzy head, aches, sleep disturbance, irritability, digestive problems and heart-rate changes, in children and adults.

How many people are ill from Wi-Fi?

Surveys suggest 30% of people are slightly allergic to radio exposure, usually without knowing it, 3% moderately, and under 1% severely. Numbers for long-term effects are not yet known.

What long-term illnesses does Wi-Fi cause?

Long-term or high-level exposure to similar radiation is linked with cancers and neurological illnesses. Wi-Fi began in 2000, so long-term effects are not yet known and no studies exist.

How does Wi-Fi cause ill health?

Electromagnetic radiation can affect the autonomic nervous system, protein expression and the thyroid. Mechanisms include calcium efflux at ion cyclotron resonance on cell membranes, reduced melatonin, mast cell degranulation, free radicals, DNA effects, biogenic magnetite, cryptochromes and metal implants. Some genetic variants are more sensitive to EM radiation.

Are Wi-Fi and similar radiation linked with heart conditions?

Yes. Evidence shows that this type of radiation can cause heart changes in some people.

Do Wi-Fi and similar radiation affect the brain?

Yes. Evidence shows that this type of radiation can cause changes in brain function.

Is it true that some engineers fitting Wi-Fi have become ill from it?

Yes. Within a few years of the start of Wi-Fi in 2000 engineers installing it reported headaches.

What do authorities think about the health dangers of radiation from Wi-Fi?

In 2011 the World Health Organisation's IARC classified Wi-Fi radiation as a 2B possible carcinogen. Studies show that Wi-Fi and similar radiation can affect the brain, heart and male fertility. In 2000 the Nordic Council of Ministers categorised "EI-allergy" as IDI-10-R68 and in 2005 the World Health Organisation stated that electromagnetic sensitivity is "certainly real".

B What ill health have other people suffered from Wi-Fi?

Examples of people made ill by Wi-Fi:

- "I had Wi-Fi installed in my home about 3 weeks ago. Since then I have experienced terrible headaches. I notice that I don't have these headaches as much during the day when I am out of the house."
- "I installed a wireless router in my apartment about six year ago and my wife started getting headaches. Now anytime an office has Wi-Fi, she knows because she gets a

headache. We have proven it with evidence because, when she is out of range of the router, the headache slowly goes away.”

- “When I was switching my new internet wireless router to ‘Disable the Wi-Fi’, I saw my partner swaying and looking ill. She said that she was feeling weird, with tingles and dizziness. She had no idea I’d turned on the internet wireless router. Without her noticing, I turned it off again and asked her how she then felt. Quickly regaining her balance, she was surprised that suddenly it had all gone away. Only then did I tell her I had switched on the internet router.”
- “I suffer headaches when I go where Wi-Fi is used, like supermarkets and DIY’s. I cannot use Wi-Fi at home as I suffer from headaches.”
- “Every day in my classroom (it’s the only classroom that physically has the little Wi-Fi white box on the ceiling) I get the same headache: everyday, same spot, same feeling.”
- Steve Miller, DJ: “Allergic to Wi-Fi”: www.dailymail.co.uk/health/article-1201896/

C How can I protect myself and others from Wi-Fi?

Can I switch off Wi-Fi?

You can switch off Wi-Fi on many laptop computers and iPads. It is difficult or impossible to switch off Wi-Fi on some BT Home Hubs and printers. Wireless routers only work with Wi-Fi. Turn off the power for a Wi-Fi device at night, as doctors advise, to stop the radiation.

Should I replace Wi-Fi?

Yes. Replace a wireless internet router with a wired internet router. Then use (a) a direct cable or (b) dLAN plugs (e.g. Devolo) to link your computer through your house wiring; this produces some radiation, but far less than Wi-Fi. Some tablets can access the internet by wire.

Should I use a Wi-Fi-enabled laptop, tablet, phone or iPad?

No. Try to avoid all Wi-Fi devices as much as you can. Some can have the Wi-Fi switched off.

How can I prevent my neighbours’ Wi-Fi from entering my house and garden?

This has not yet been resolved legally. Protection and shielding are currently the only possibilities, but they are expensive and difficult, especially for gardens. Wi-Fi radiation can remain strong for 30 to 100 metres and goes through walls. Unless you can build from scratch, start with a single room, using special carbon paint. Some people line walls with kitchen aluminium foil. These must be earthed. Silver-lined netting, used in electromagnetic warfare, can be expensive. See www.es-uk.info/docs/20110111_products_services.pdf

How can I protect my child, or a pregnant or elderly person from Wi-Fi?

Parents can inform school authorities who should then take action. Pregnant or elderly people should not sleep or sit for long periods near a Wi-Fi router or a wall near a neighbour’s Wi-Fi.

How can a school or office replace Wi-Fi?

Cables can be plugged directly into wired sockets, along a wall or on each desk or work station, or in a multi-socket box. A wired network is quicker and more secure than wireless. dLAN plugs can be used, but they emit a some bio-active radiation nearby.

Why am I particularly ill from Wi-Fi in some trains, buses and shops?

The steel carriages of trains and buses can reflect and intensify the Wi-Fi signal to unusually high levels. Some shops have little idea of how much radiation their systems are emitting and allow them to be set far too high both for the comfort of people allergic to this type of radiation and probably for the long-term health of employees.

What can I do if I feel ill while passing other people’s Wi-Fi?

If driving, you can do little. If walking, you can cross the road to avoid known problem houses.

Is ill health from Wi-Fi and similar radiation always immediate?

Some people are so sensitised that symptoms start at once. Others know roughly how long it takes for a given strength of radiation to trigger symptoms. Others react later with, for instance, pains, stomach upsets, internal bleeding or muscular impairment.

D What is a safe distance from Wi-Fi?

How far should I be from Wi-Fi to avoid all health effects?

Many leading experts on the non-thermal health effects of man-made radiation state that there are no safe limits. To avoid all the health effects of Wi-Fi, therefore, you need to be up to several miles from the router and many metres from a Wi-Fi laptop. Since the radiation power decreases by the inverse of the square of the distance, in practice a few hundred metres may be enough for a person highly sensitised to radiation. Remember that Wi-Fi radiation can penetrate walls and floors. In addition electro-magnetic radiation can cause cumulative health effects, so other radiation, such as from phone masts and cordless phones, adds to ill health.

THRESHOLDS AND LIMITS: BIOLOGICAL AND HEATING								
(Electric fields: Volts/metre, peak to peak)								
NB: for most toxins safety limits are usually 10 times lower than the human threshold								
nature	biological response threshold	Non-thermal, biological limit Burger-form proposed	Non-thermal, biological limit Salzburg indoors	conscious symptom threshold (some EHS)	conscious symptom threshold (30% gen. population)	Non-thermal, biological limit Bio-initiative indoors	Non-thermal, biological limit Bio-initiative outdoors	Heating, 6 minute average, limit HPA UK, ICNIRP
<0.00002	0.0001	0.002	0.02	0.02 - 0.05	< 0.06	0.2	0.6	*61.0

* 1,952 V/m peaks

A Wi-Fi router or access point can work at 100-200 mW. Measured exposures vary greatly.

TYPICAL MEASURED EXPOSURE LEVELS			
(Electric fields: Volts/metre, peak to peak)			
distance (metres)	laptop	Wi-Fi router	
		transmitter power (milliWatts)	
	25 mW	*100 mW	
		Minimum	Maximum
0	(3)	(2)	(7)
0.5	0.14	1.1	4.9
1	0.07	0.7	2.8
2	0.03	0.4	1.5
5	0.01	0.1	0.7
10	0.007	0.05	0.4
20	0.003	0.03	0.2
50	0.002	0.01	0.1
100	0.001	0.006	0.05

*Some 100 milliWatt values come from the Swiss government report *Electrosmog in the Environment* (2005, p.54).

E What radiation does Wi-Fi emit?

What type of radiation does Wi-Fi use?

Wi-Fi has a carrier frequency at 2.45 GHz, the same as a microwave oven, or 5.2-5.7 GHz. The digital pulsed signal on top of the carrier wave is effectively at a much lower frequency of 10-250 Hz. This penetrates walls, floors and ceilings, as well as humans. Access points and routers emit a continuous signal. Wi-Fi laptops, iPads and mobiles phones with Wi-Fi emit an intermittent signal, often every 3-30 seconds at full power while in standby, and a continuous signal when downloading or uploading data.

Which devices use Wi-Fi?

Devices include computer laptops, palmtops, iPads, BT Home Hubs, printers, internet routers and some mobile phones. Some cafes, shops and public places have Wi-Fi access points.

F Why are "non-thermal" and "heating" limits so different?

Is ill health from Wi-Fi caused by "non-thermal" or "heating" effects?

Wi-Fi radiation is far below "heating" levels. Wi-Fi causes ill health by "non-thermal" effects.

How does Wi-Fi compare with "non-thermal" and "heating" safety limits?

(a) Electric fields (mV/m)

Location	Electric fields	Nature	"Non-thermal" limit	"Heating" limit*
Near transmitter	mV/m	mV/m	mV/m	mV/m
				61,000 (61.0 V/m)
Wi-Fi router	6,000 (6.0 V/m)			
Wi-Fi laptop	1,000 (1.0 V/m)			
phone mast	900 (0.9 V/m)			
			194 (0.19 V/m)	
		0.02 (0.00002V/m)		

*1,925,000 (1,925 V/m) peaks allowed

(b) Power density (uW/cm²)

Location	Power density	Nature	"Non-thermal" limit	"Heating" limit*
near transmitter	uW/cm ²	uW/cm ²	uW/cm ²	uW/cm ²
				5,800 (UK)
mobile phone (*a few)	3-40(-400*)			
50W Wi-Fi, 20m outdoor **	70			
Wi-Fi access point	1 - 8 - 40			
mobile phone mast	5-40			
			Russia, Italy outdoors	10
			China outdoors	6
			Switzerland outdoors	4
			Bioinitiative outdoors	0.1
			Bioinitiative indoors	0.01
		0.00001		

** www.astrosurf.com/luxorion/qs1-em-radiation2.htm

0.01 uW/cm² = 100 uW/m²

Can I trust UK government advice on ill health from Wi-Fi?

The UK government's Health Protection Agency claims that the only effect of radiation like Wi-Fi is "thermal" or heating, like a microwave oven. The HPA also claims that there is "no consistent evidence" ("no evidence" until 2008) of ill health in the "general" population. In contrast, Russia accepted ill health at "non-thermal" levels in 1958 and set much lower safety limits than the UK, while many medical procedures now use "non-thermal" radiation. "Non-thermal" ill health appeared in radio and radar workers in the 1930s, but has now spread into the general population. The US National Academy of Sciences' NRC accepted "non-thermal" effects in 1986. The UK Stewart report of 2000 advised that no child should use a mobile phone except in an emergency. Wi-Fi radiation is similar; Denis Henshaw, emeritus professor of Human Radiation Effects at Bristol University, says the UK government is "poorly advised".

What do other countries advise on Wi-Fi and similar "non-thermal" radiation?

Germany and Israel advise against Wi-Fi. Many organisations regard the UK's "heating" limits as obsolete and call for "non-thermal" limits: the International Commission for Electromagnetic Safety, the EU Environmental Agency, the EU Parliament, and the Council of Europe.

What do other authorities think about "non-thermal" radiation from Wi-Fi?

The World Health Organisation's IARC classifies Wi-Fi radiation as a 2B possible carcinogen.

How relevant are SAR data from mobiles to Wi-Fi radiation?

The Specific Absorption Rate for mobile phones has two serious limitations.

- (a) SAR is designed to prevent heating. For Wi-Fi the danger is from "non-thermal" biological effects. This needs to be set at a much lower safety level.
- (b) SAR is particularly designed to prevent heating in the head. For Wi-Fi the danger is from "whole body" exposure. This should be set at a lower safety level.

Are there health warnings on devices with Wi-Fi?

Some countries are introducing health warnings for mobiles, but the UK has not yet done so.

Is the UK government more interested in tax revenue than my health?

Some people note that the UK government raises £20 billion from annual mobile phone taxes. Others note the total cost of cancers and illnesses linked to EMFs greatly exceed this income.

G Do people made ill by Wi-Fi have any human rights?

How do I cope with Wi-Fi in shopping centres, buses, trains and airports?

Electro-hyper-sensitivity is a functional disability. Under the UK Equality Act of 2010 public places are required to make reasonable adjustments for disabled people.

How do I cope with Wi-Fi at work?

Electro-hyper-sensitivity is a functional disability. The UK Equality Act of 2010 requires employers to make reasonable adjustments. Employers also have a duty of care. Trade Unions expect employers not to use Class 2B carcinogens like Wi-Fi when other means are available.

Does use of Wi-Fi radiation require a risk assessment?

Wi-Fi frequencies are not pre-empted by UK law, meaning that the each person or organisation using Wi-Fi should undertake their own Health and Safety risk assessment based on current international medical studies. It appears from legal cases in the EU that it is not sufficient simply to rely on external agencies and industry-backed "heating" groups like ICNIRP. These may not be up-to-date in their assessments and they may not allow for sub-groups of the population which are known to be affected by such radiation.

Can Wi-Fi radiation be insured against claims for ill health?

Many insurers now refuse to underwrite electromagnetic radiation claims because of the established evidence for non-thermal harm.

Should the polluter pay for harm from Wi-Fi?

Under the Rio Declaration, principle 16, the polluter should pay for environmental damage.

What are our basic Human Health Rights as regards to ill health from Wi-Fi?

1. The right to homeostasis in our own bodies.
2. The right to normal central nervous system function.
3. The right to natural environmental cues which synchronise our circadian rhythms.
4. The right to sleep.
5. The right to heal.
6. The right to hear.
7. The right to reproduce.
8. The right to learn and retain memories.
9. The right to an intact genome.

If one of these rights is at risk from involuntary Wi-Fi exposure, it is a breach of human health rights and the Wi-Fi should be halted.

Which articles of the United Nations' Universal Declaration of Human Rights could apply to people made ill by Wi-Fi?

3: "Everyone has the right to ... security of person."

5: "No one shall be subjected to ... degrading treatment."

21. "Everyone has the right of equal access to public service in his country."

23. "Everyone has the right to work, to ... favourable conditions of work."

25. "Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including housing."

27: "Everyone has the right freely to participate in the cultural life of the community."

H Where can I find out more about ill health from Wi-Fi?

A video overview of Wi-Fi health dangers: Havas (2011) "Wi-Fi in schools is safe ... false?"

Videos on the health dangers of Wi-Fi:

- Havas, Dr Magda (2011) "Wi-Fi in schools is safe: True or False?"
www.youtube.com/watch?v=6v75sKAUFdc
- HealthRanger7 (2012) "The Dangers of Wi-Fi" www.youtube.com/watch?v=LiO7ofDGoD8
- 16:9 The Bigger Picture (2010) "Wi-Fi in schools proven dangerous"
www.youtube.com/watch?v=KN7VetsCR2I

Videos and reports with more detailed discussions on the health dangers of Wi-Fi:

- BBC Panorama (2007) "Wi-Fi a warning signal" (1)
www.youtube.com/watch?v=IuNaDj6VLHw (2) www.youtube.com/watch?v=aGplfEnWptk
(3) www.youtube.com/watch?v=-VqnPtq4GbU
- OECTA (2012) "A position regarding ... Wi-Fi" wifiinschools.org.uk/resources/OECTA.pdf
- Trower, Barrie (2010) "Wi-Fi is not safe for kids" www.youtube.com/watch?v=SS_ivzKaEME
- Trower, Barrie (2011) "The Dangers of Wi-Fi to Women and Children"
www.youtube.com/watch?v=mRLSPWviyzQ&

Video news reports on the health dangers of Wi-Fi:

- BBC London News (2007) "More research needed into Wi-Fi in schools"
www.youtube.com/watch?v=rtjVv3IAiA&
- CBC News (2010) "Health Dangers of Wi-Fi in Schools"
www.youtube.com/watch?v=YKyL_brkY5U&
- CTV Southwestern Ontario (2010) "Long-term, low-level Wi-Fi exposure a concern"
www.youtube.com/watch?v=8Hi4NmQEsdg&

Video on the dangers of a Wi-Fi router:

- Lloyd Burrell (2010) "WiFi Radiation – Is Your Modem Router Safe?"
www.youtube.com/watch?v=OII90VI59S8&

Videos and books: people sensitive to electro-magnetic radiation

- Havas, Dr Magda (2010) "DECT Phone affects the Heart"
www.youtube.com/watch?v=EI9fZX4iww
- Havas, Dr Magda (2010) "Diabetes and Electrosensitivity"
www.youtube.com/watch?v=gJcM6RZwyfA
- Havas, Dr Magda (2010) "Evidence of Electrosensitivity"
www.youtube.com/watch?v=k5xFLi-ip_g
- Havas, Dr Magda (2010) "Live Blood and Electrosmog"
www.youtube.com/watch?v=L7E36zGHxRw&feature=related
- (2011) "Symptoms of electrosensitivity" www.youtube.com/watch?v=DskKap_1Po4
- Bevington, Michael (2010) "Electromagnetic Sensitivity and Electromagnetic HyperSensitivity: A Summary" (ISBN: 9781872072203)
- Philips, Alasdair & Jean (2006) "Electrical Hypersensitivity, A Modern Illness" (ISBN: 0952450348) <http://www.powerwatch.org.uk/library/index.asp>

Websites including material on the health dangers of Wi-Fi:

- www.wifiinschools.org.uk/
- www.wifiexposure.com
- www.emfields.org/faq.asp#AcoustimeterWiFi
- <http://electromagneticman.co.uk/>
- www.es-uk.info/
- www.powerwatch.org.uk/rf/wifi.asp
- <http://wiredchild.org/sciencealias/43-what-the-science-tells-us/67-what-the-science-tells-us-wireless-products.html>
- www.cavisoc.org.uk/Wi-fi.html
- www.mastsanity.org/info-guides-/wi-fi-guide.html

How can I measure Wi-Fi radiation?

You can hire or purchase a meter. A professional measurer is helpful but can be expensive.

www.es-uk.info/docs/20110111_products_services.pdf