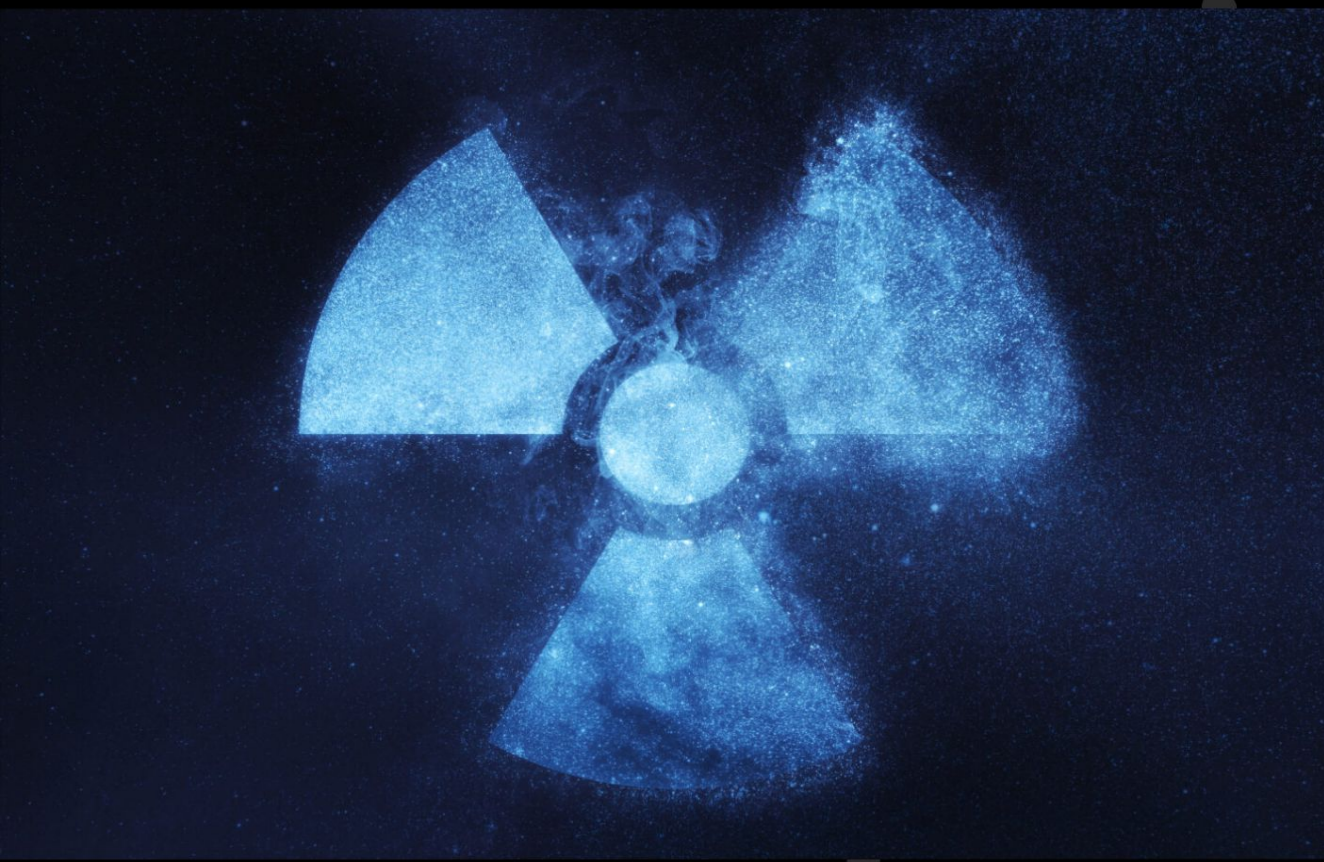
Iris Technologies

WARNING! RADIATION!



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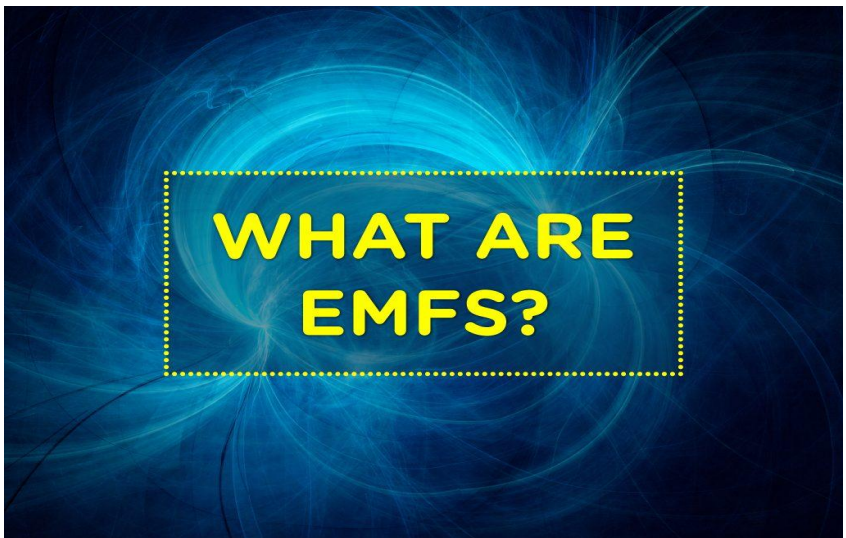
Electric and magnetic fields (EMFs) are invisible areas of energy, often referred to as radiation, that are associated with the use of electrical power and various forms of natural and man-made lighting.

Disclaimer: This is not an article about the highest rated tv show on IMDb, Chernobyl.

An interesting sentence to begin with, but I felt obligated to state that the title might be a little bit misleading for some of you.

Not that I did not enjoy watching 'Chernobyl', I just thought there is another (somehow related) topic more people should be aware of.

That, ladies and gentlemen, are the so called EMFs - electromagnetic fields.



1. Introduction

The majority of people can not even imagine to live without the conveniences of twenty-first-century life, yet to give them up.

But only a small percentage of ‘modern’ people are actually aware of the possible health consequences our gadgets may have on us.

In recent years, many articles have claimed that EMFs can cause cancer, endocrine disruption, sleep disturbances, sperm mutations, behavioral problems, and other health conditions.

Manufacturers have even designed products to help reduce EMF exposure.

But are these fears justified?

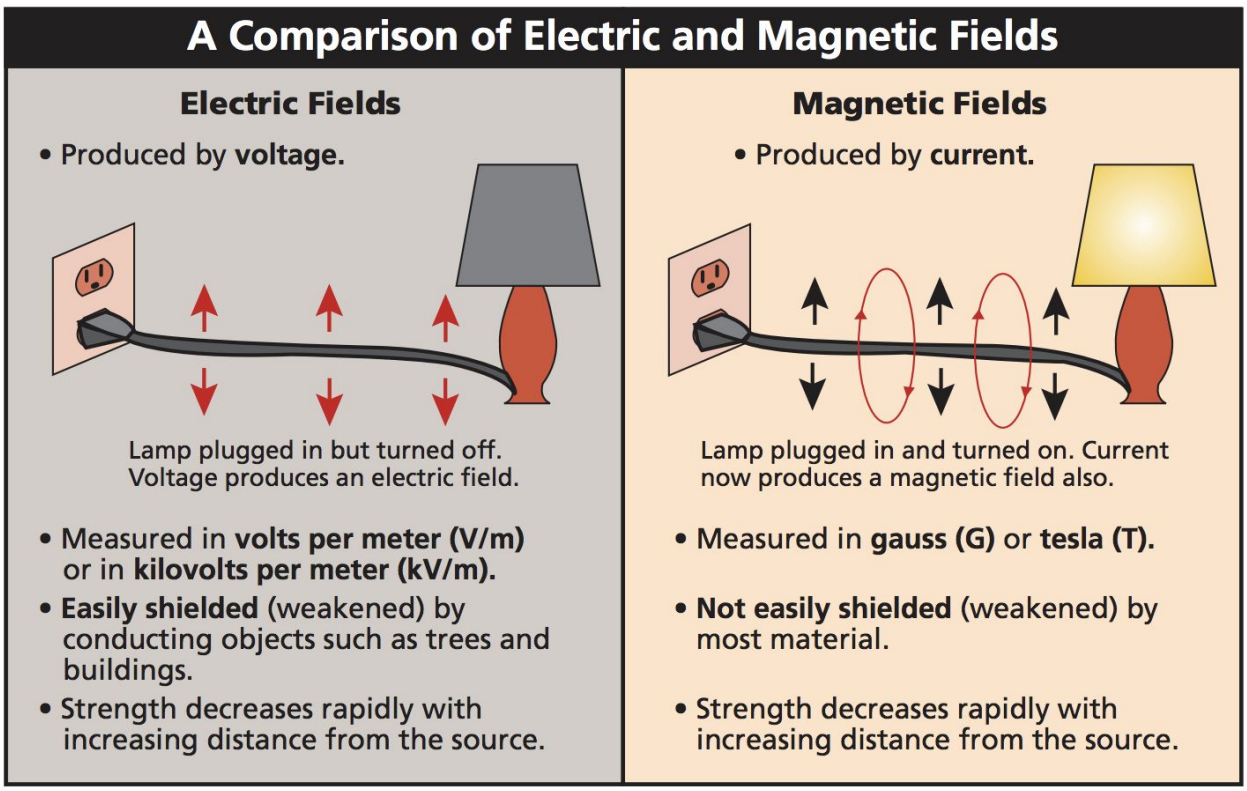
Later on in this article we are going to try to answer this exact question.

Let’s start with the basics:

2. Types of EMF exposure

First of all, we have to understand what the EMFs are.

EMFs are a form of radiation emitted from cell phones, electronics, power lines, and other man-made (as well as naturally occurring) objects.

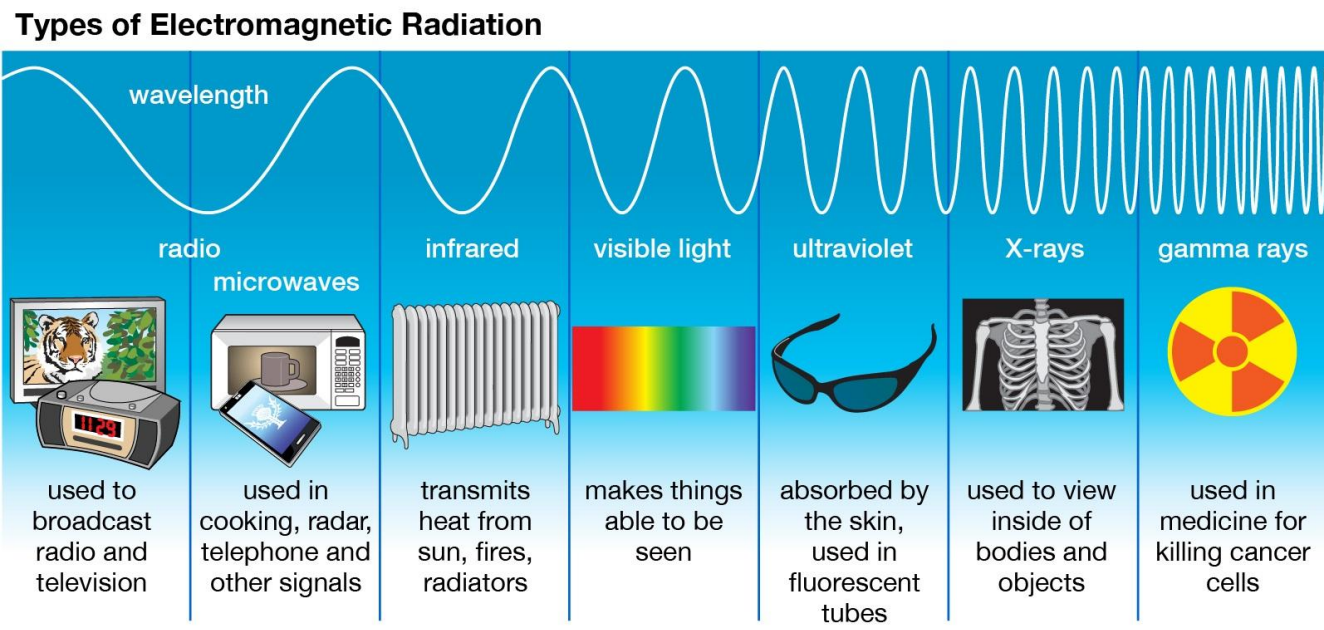


An appliance that is plugged in and therefore connected to a source of electricity has an electric field even when the appliance is turned off. To produce a magnetic field, the appliance must be plugged in and turned on so that the current is flowing.

From a technical standpoint, EMFs are physical fields created by the motion of electrically charged objects.

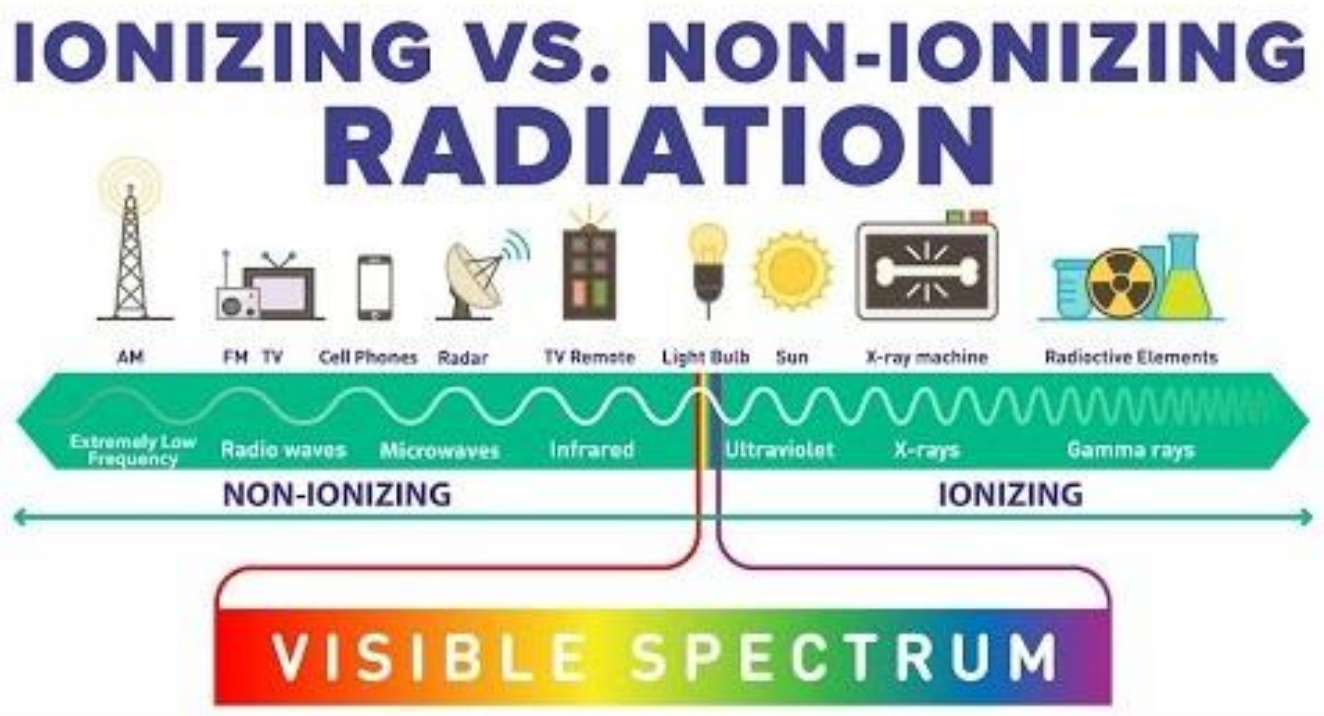
The full electromagnetic spectrum is broad, including both natural and manmade forms of radiation.

It extends from extremely low frequencies (like power lines, at 50-60 Hz) to extremely high frequencies (like cancer treatment radiation, at 500-5,000 EHz).



Mobile phones, microwave ovens and even visible light produce radiation on the EMF spectrum.

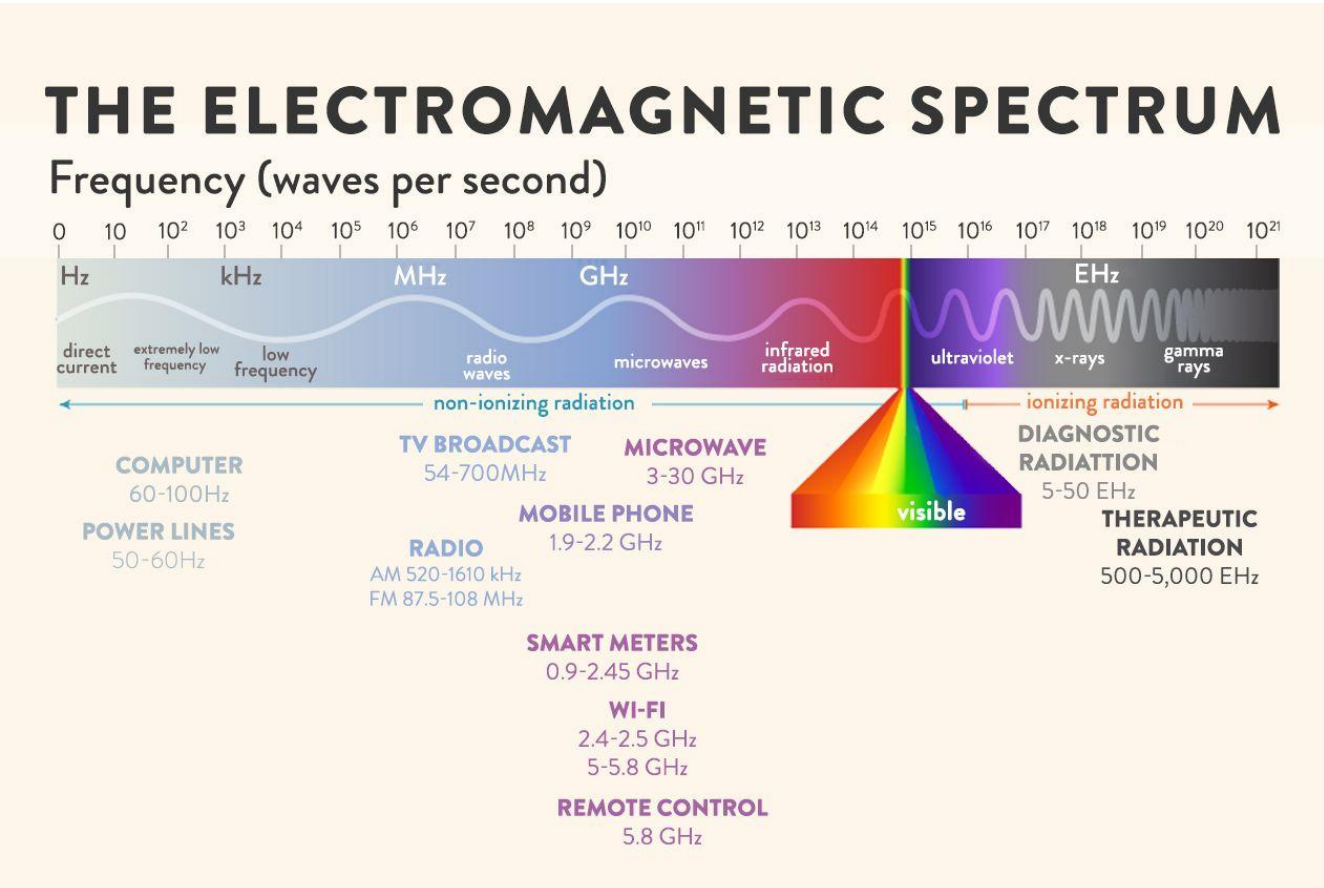
But we can separate two types of EMF exposure: non-ionizing radiation (which is a low-level radiation) and ionizing radiation (high-level radiation).



Sources of low-level radiation and high-level radiation are:

Non-ionizing radiation: microwave ovens, computers, WiFi, cellphones, Bluetooth devices, power lines.

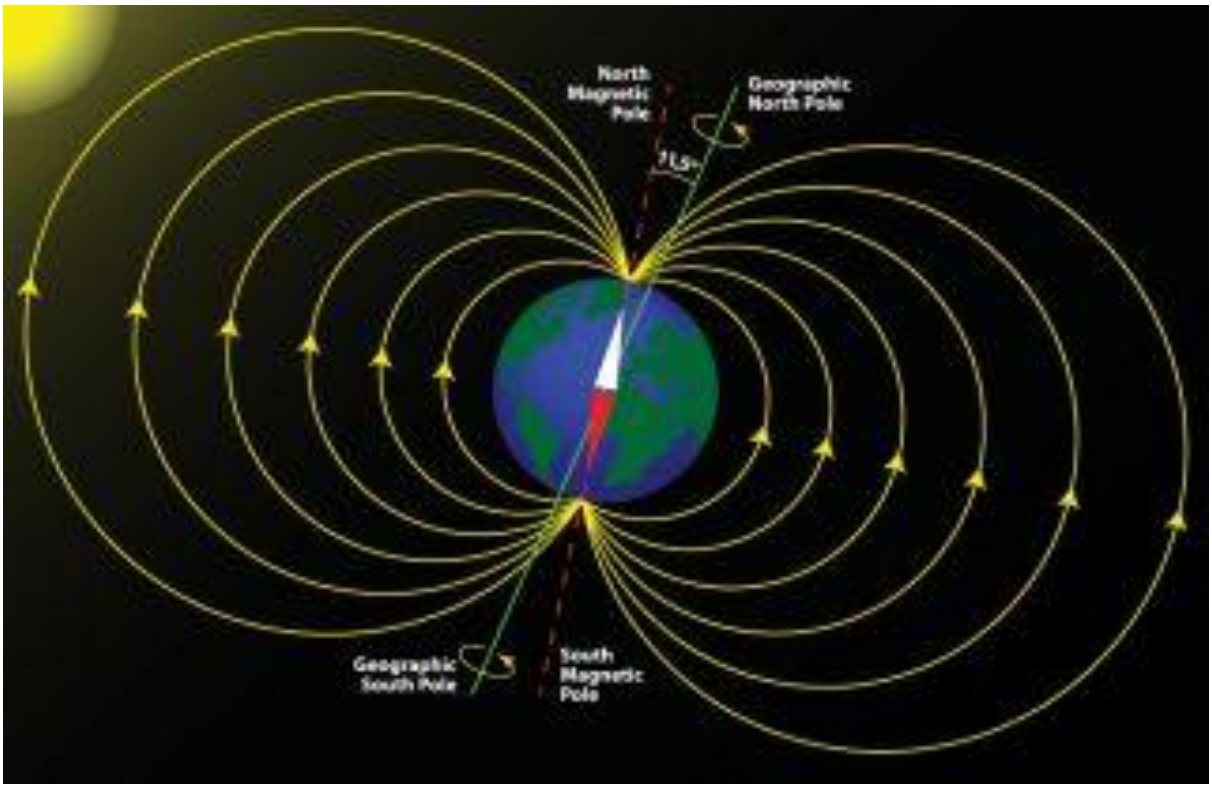
Ionizing radiation: ultraviolet light, X-rays.



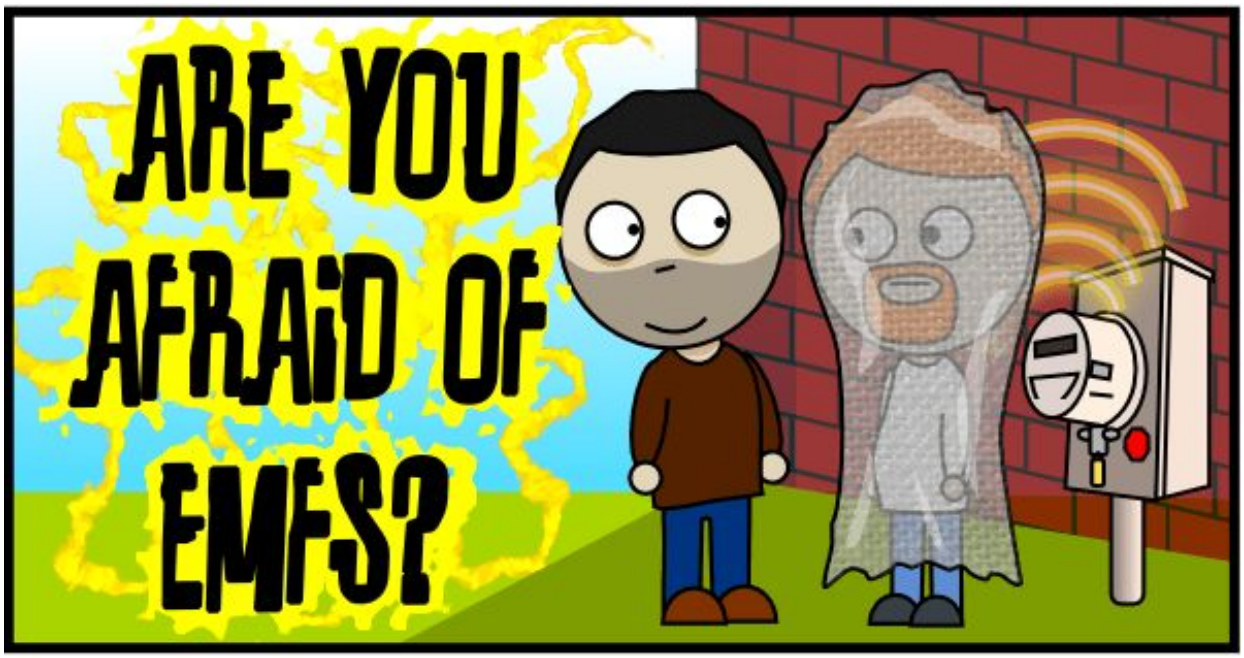
EMF exposure intensity decreases as you increase your distance from the object that's sending out waves.

It is well known that the high-level radiation can cause damage to tissue and DNA but today's concern is about the low-frequency EMF, to which we are exposed every single day.

Something interesting to keep in mind is that the earth's magnetic field, the sun and even our own bodies (the nervous and cardiovascular systems) produce low levels of EMFs, meaning we have always been exposed to EMFs to some degree.



3. Official organizations on EMF



All around the world different health organizations have released statements and policies on the safety of EMF exposure.

Two of the most popular are:

The World Health Organization (WHO), via the International Agency for Research on Cancer (IARC), classifies EMFs as a Group 2B carcinogen: “possibly carcinogenic to humans.”

But don’t be scared, this only means that it is not excluded EMFs to be a carcinogen.

The WHO acknowledges the potential for an increased risk of one type of rare cancer, glioma, from cell phones (later on we shall find out what does the research says about it).

To make it a little less scary, let me inform you that other items considered Group 2B carcinogens include aloe vera leaf extract, goldenseal root powder, and pickled vegetables!

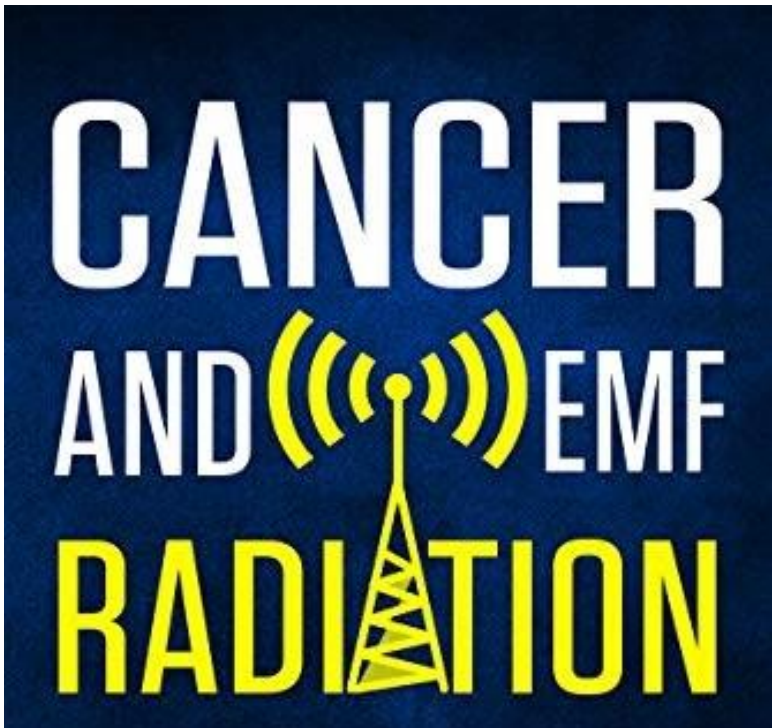
Dr. Steve Novella, an assistant professor of neurology at Yale and the editor of Science-Based Medicine, says: “you have to look at all the other things they classify as a possible carcinogen.

They put it in the same class as things like caffeine.

That is such a weak standard that it basically means nothing.

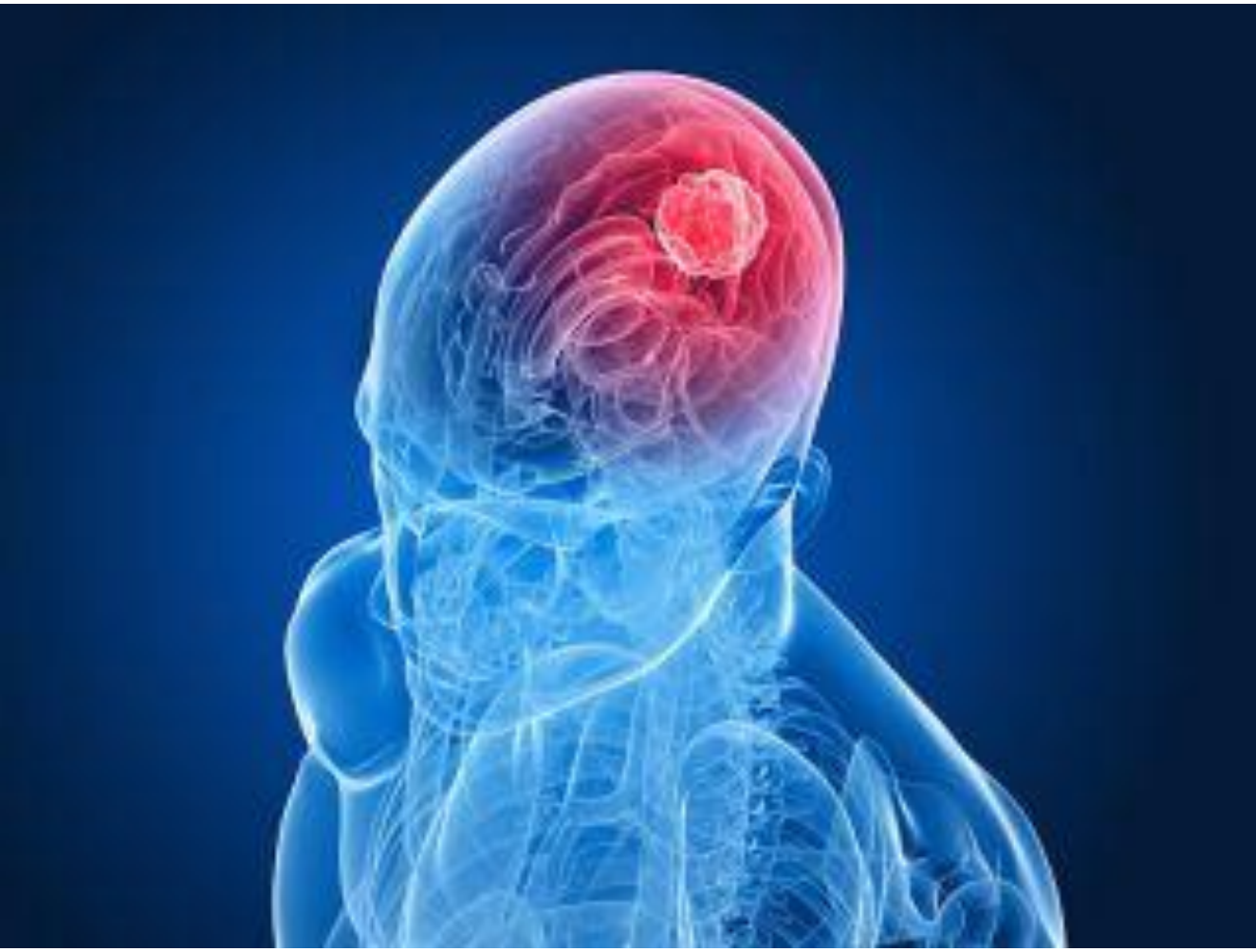
It's like saying 'everything causes cancer.'"

The European Commission Scientific Committee on Emerging and Newly Identified Health Risks has identified a potential risk of childhood leukemia related to high EMF exposure (0.3 to 0.4 μT daily), only that we don't have any experimental studies to support the validity of this link.



Furthermore the commission found no evidence that EMFs cause brain cancer.

If you are skeptical about the statements of the official organizations, let me present to you the findings of conducted research throughout the years.



4. Research on harmfulness

More than 40 years, researchers have tried to find out whether or not exposure in the extremely low frequency range (such as electronics) is related to cancer and other medical conditions.

Since the results of animal studies, human studies and mechanistic studies are so contradictory, it is very hard to establish a consensus.

However let's have a look at what both animal studies and human studies have uncovered.

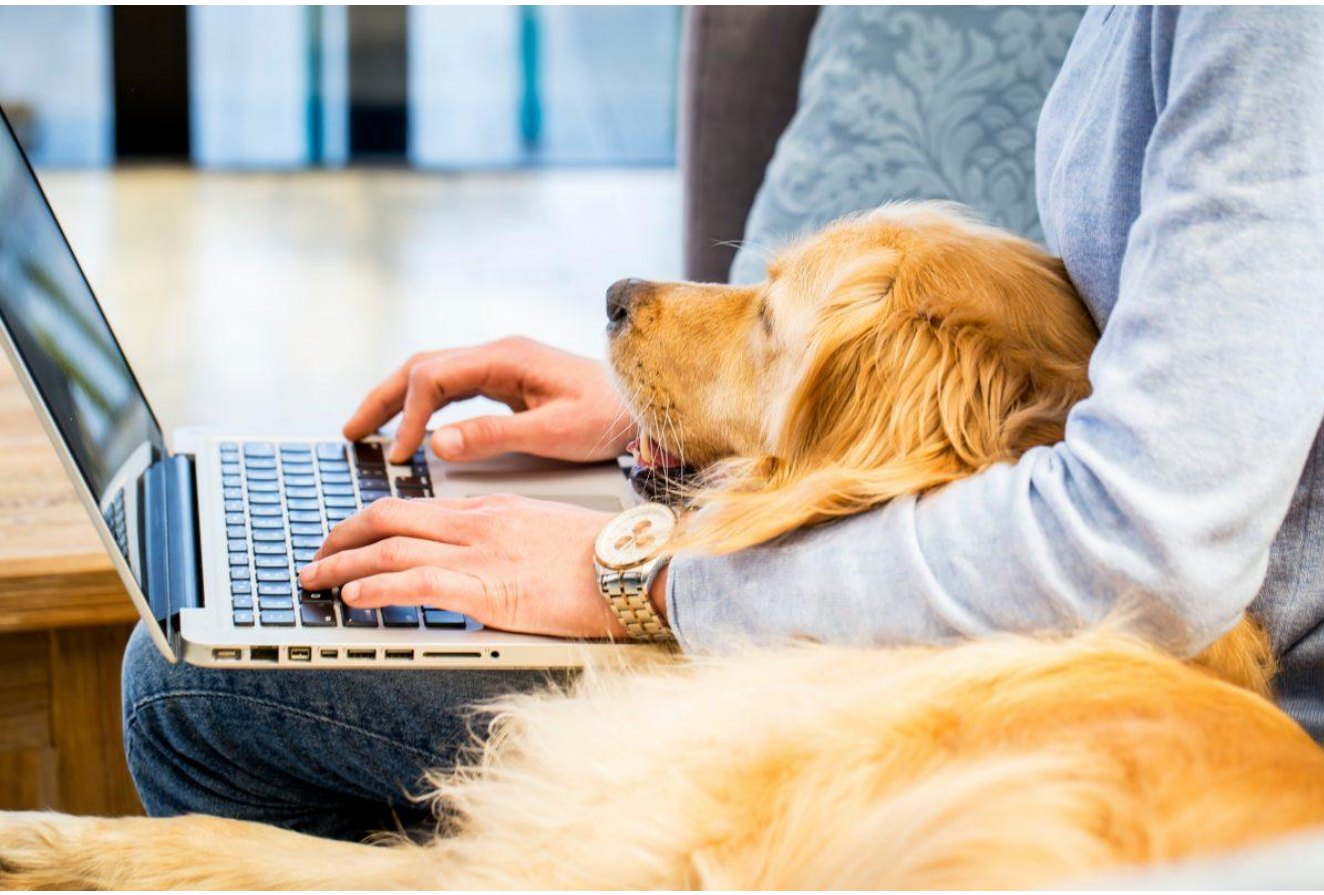
4.1. Animal studies

Most animal studies have shown that EMFs in general don't have any clear association with cancer.

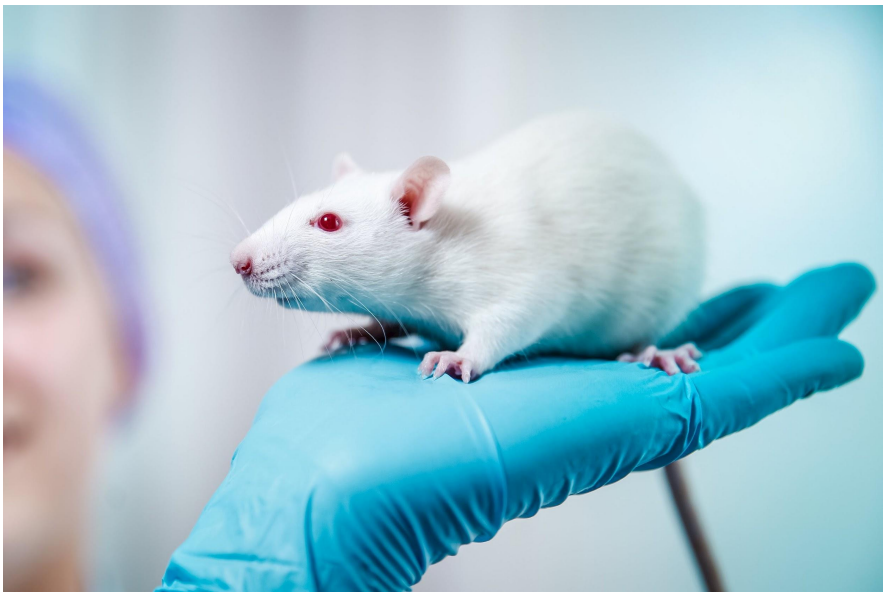
Specific forms of EMFs (like WiFi) too.

The more recent, high quality animal studies have generally failed to demonstrate any consistent cancer-causing potential of EMFs.

Although one group of investigators seemed to find that EMFs caused DNA damage in rodent brain cells, later studies failed to replicate those findings.

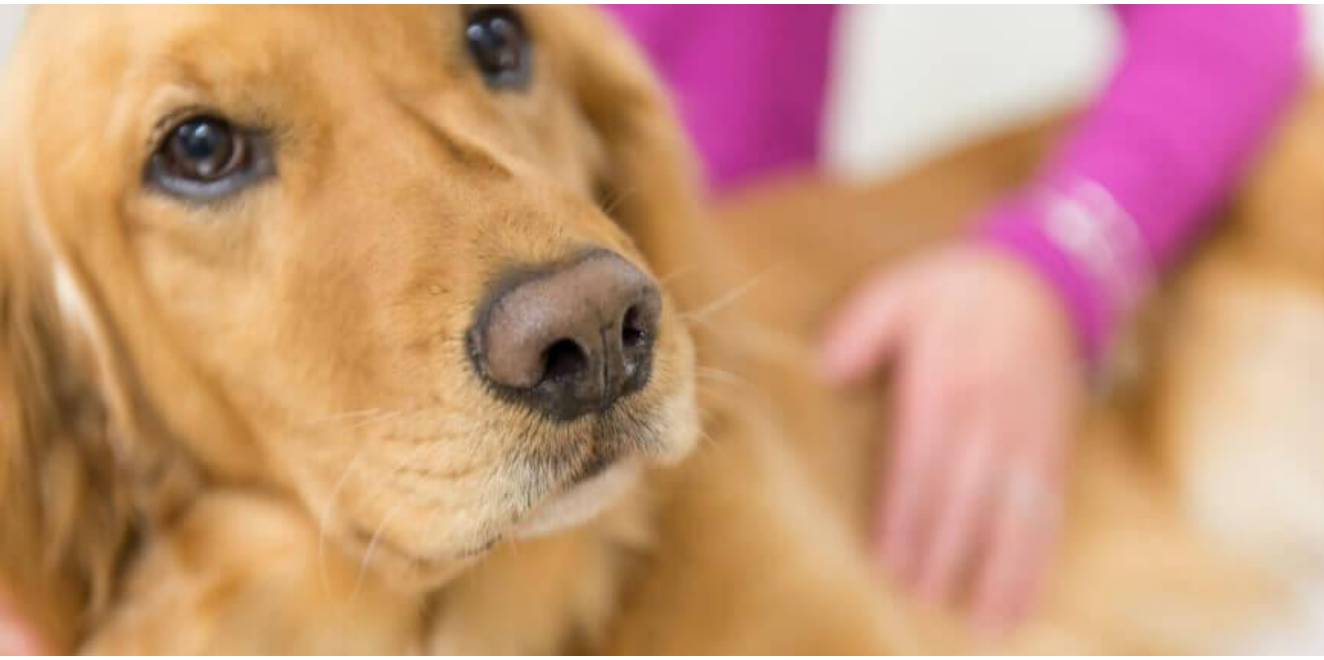


Another found an increase in chronic myeloid leukemia in rats exposed to even higher-strength EMFs (50 μT) for twelve hours per day for a week, but these levels are almost impossible to attain for the average human (estimates vary, but our daily exposure tends to be well under 0.2 μT plus we're a little bit bigger than rats, meaning the equivalent cancer-causing dose for us would be something like 25,000X more than we get on average).



The majority of rodent studies show a lack of toxicity from EMFs at biologically feasible levels (and in many cases, even at unrealistically high levels).

The largest set of animal tests conducted—an eight-year long, $10 million project called Perform-A, organized by the European Commission—didn't find any evidence that EMFs from cell phones promoted cancer in rodents.



After all it’s important to remember that animal studies may give us some clues but are completely different to what actually happens with humans.

The biological difference, as well as the usage of a single frequency or intensity of EMF exposure, contradict to the human exposure to a mixture of sources and intensities throughout the day.

4.2. Human studies

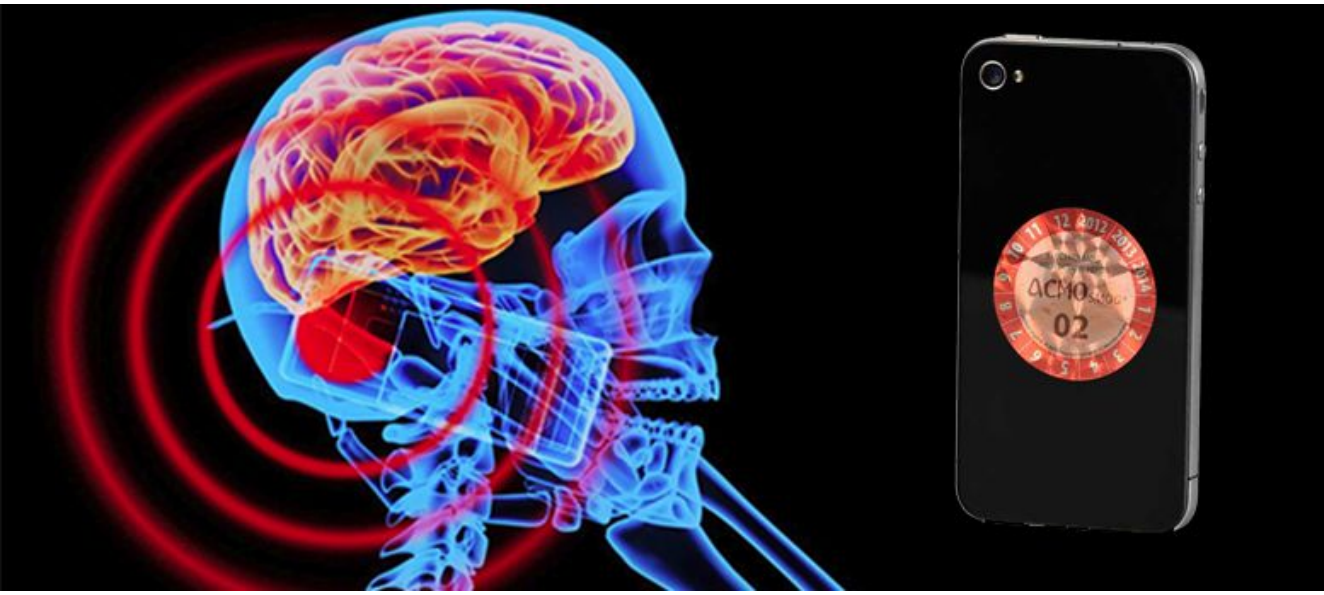
There’s been some concern that EMF exposure could raise the risk of certain cancers, such as childhood leukemia and brain cancer in children.

A study in 1979 found a potential association between childhood leukemia and living near electric power lines.

But the majority of more recent studies show no association at all or only an association for children living in homes with unusually high EMF levels.

More research and monitoring is needed though.

The parental exposure to EMF may also have an influence on the child.

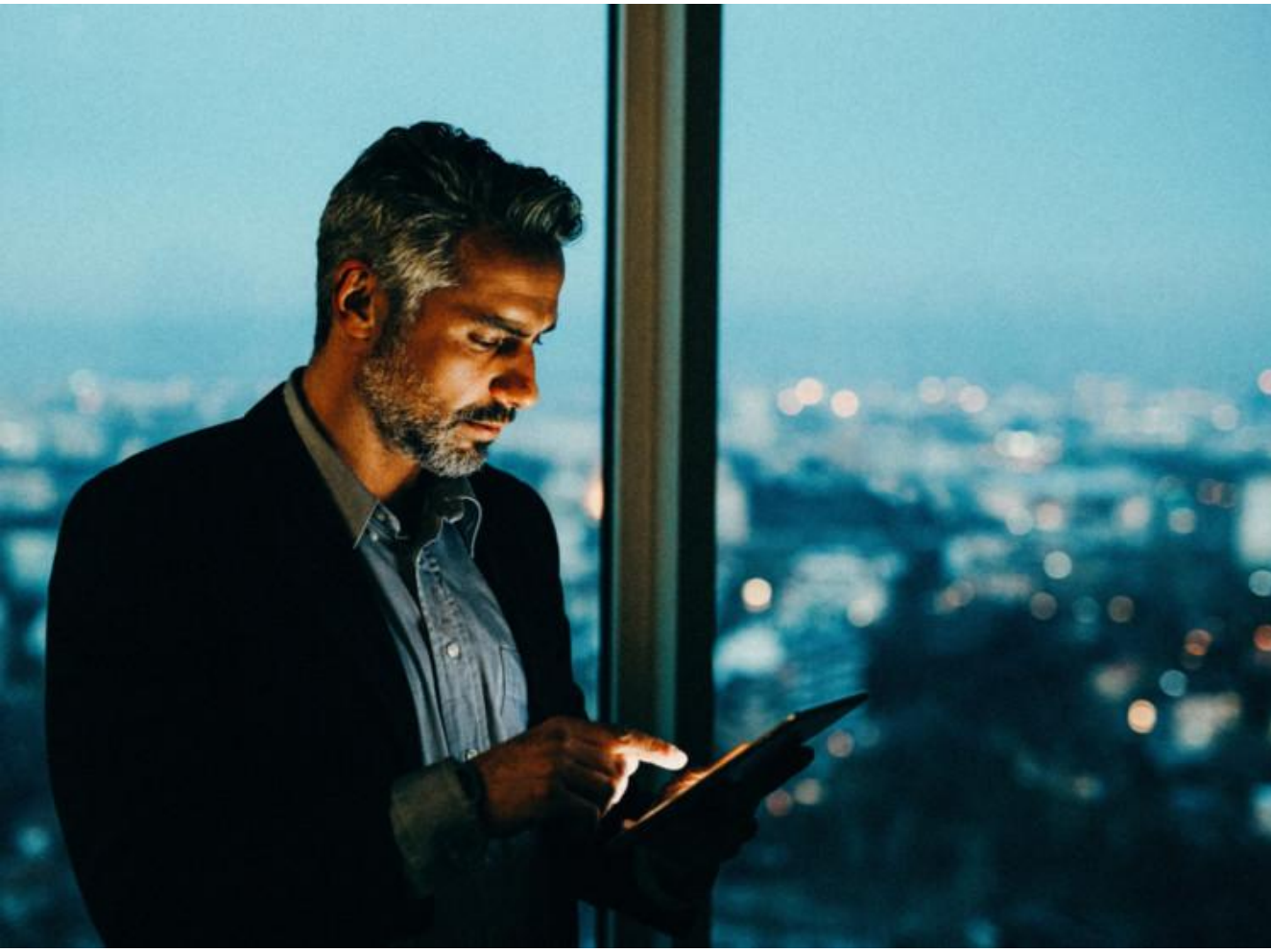


Some studies suggest that children have a higher risk of leukemia if their mother was exposed to very high occupational levels of EMFs during pregnancy (if being an x-ray technician for example).

In adults only a few studies have found an association between EMF exposure and cancer risk.

While a study did find that women living near high-voltage power lines had a higher risk of breast cancer, additional studies found no link at all.

Once again, more recent studies haven’t established a consistent link between EMF exposure and cancer risk.



4.3. Cell phones

Since the introduction of cell phones in our everyday lives, there’s been fears concerning the potential link with cancer.

As a result multiple studies have been launched and the largest two of them are:

The INTERPHONE study which studied phone usage and cancer risk in thirteen different countries (Australia, Canada, Denmark, Finland, France, Germany, Israel, Italy, Japan, New Zealand, Norway, Sweden, and the United Kingdom).

The main findings included: an overall lack of risk for acoustic neuroma, a benign brain tumor, associated with cell phone use; and an overall lack of risk for glioma or meningioma, cancerous brain tumors, associated with cell phone use.

The UK-based Million Women study of more than one million women aged 50 and over.

The findings were: no increased risk of cancerous brain tumors (glioma or meningioma) for women who were mobile phone users versus those who never used them, but there was an increased risk of benign acoustic neuroma among the longest-time mobile phone users.

Most smaller studies have either found no link between cell phone use and brain cancer, or an increased risk in people who have a heavy usage.

4.4.Smartphones

Nowadays the average person spends around 2.5 hours per day on his smart phone.

We sleep, we eat, we party, we live with our phones and we rarely think of the consequences this might have.

What they are is not fully known yet and further research needs to be done in order to give answers.

Until then we could try some of the protection tips, given at the end of this article.

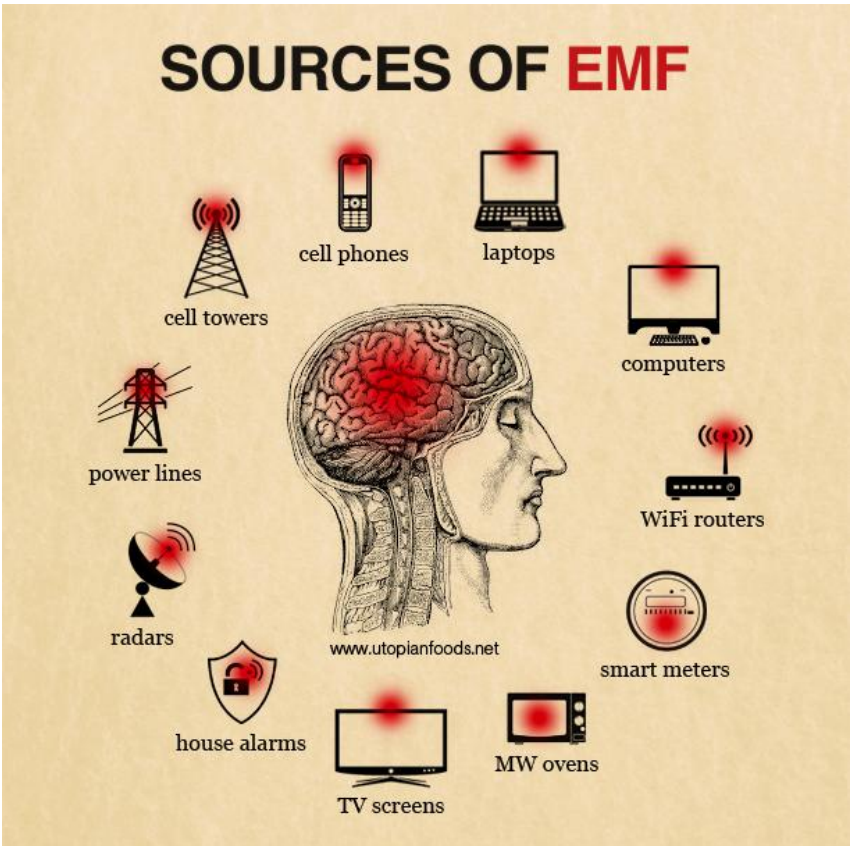
5. Danger levels

The International Commission on Non-Ionizing Radiation Protection (ICNIRP) maintains international guidelines for EMF exposure, which are based on the findings of many years of scientific research.

Most electrical appliances sold by reputable brands test their products to ensure EMFs fall within the ICNIRP's guidelines.

Public utilities and governments are responsible for managing EMFs related to power lines, cell phone towers, and other sources of EMF.

- natural electromagnetic fields (like those created by the sun): 200 V/m
- power mains (not close to power lines): 100 V/m
- power mains (close to power lines): 10,000 V/m



- electric trains and trams: 300 V/m
- TV and computer screens: 10 V/m
- TV and radio transmitters: 6 V/m
- mobile phone base stations: 6 V/m
- radars: 9 V/m
- microwave ovens: 14 V/m

According to the ICNIRP, most people's maximum exposure to EMF is very low in everyday life.

6. Symptoms of EMF exposure

According to some scientists, EMFs can affect the function of the body's nervous system and damage cells.

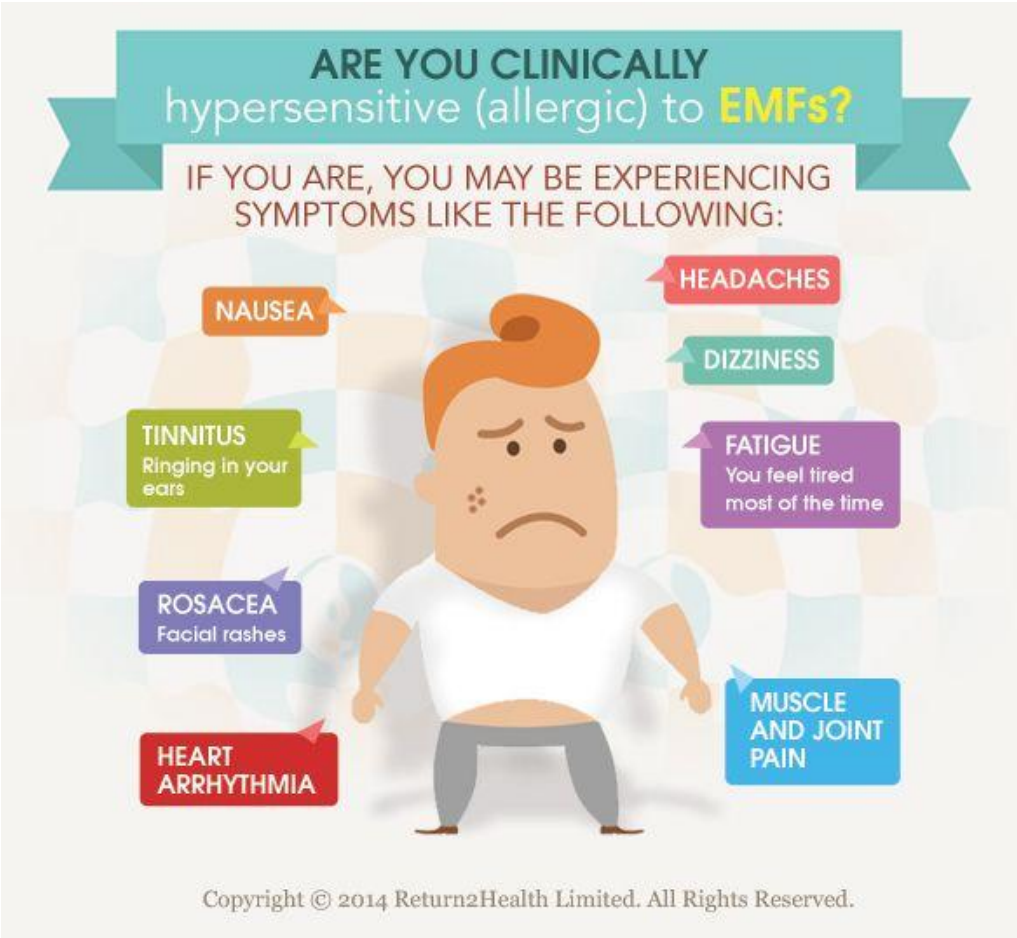
Cancer may be one symptom of very high EMF exposure (but we are not Marie Curie, carrying test tubes containing radioactive isotopes in our pockets after all).

Other symptoms may include:

- sleep disturbances, including insomnia

- headache
- depression and depressive symptoms
- tiredness and fatigue
- dysesthesia (a painful, often itchy sensation)
- lack of concentration
- changes in memory
- dizziness
- irritability
- loss of appetite and weight loss
- restlessness and anxiety
- nausea

- skin burning and tingling
- changes in an electroencephalogram (which measures electrical activity in the brain)



However we need more research to be able to say 100% surely what effects do EMFs have on our health and do they have any.

7. How to stay safe?

Meanwhile we can stay safe by following some very easy advices:

- use earbuds, speakerphone, headset while making calls, instead of holding the phone directly to your head. Remember - the further away the object is, the lower EMFs exposure intensity!

- don’t use your phone without a blue light filter before bed (Iris will help you with this one) and make sure you set it to Do Not Disturb overnight.
- avoid using your cell phone when the signal is weak (this increases EMF emissions, because the phone has to work harder to communicate with the base station).
- eat a nutrient-dense diet high in antioxidants!

8. 5G - should you be worried?

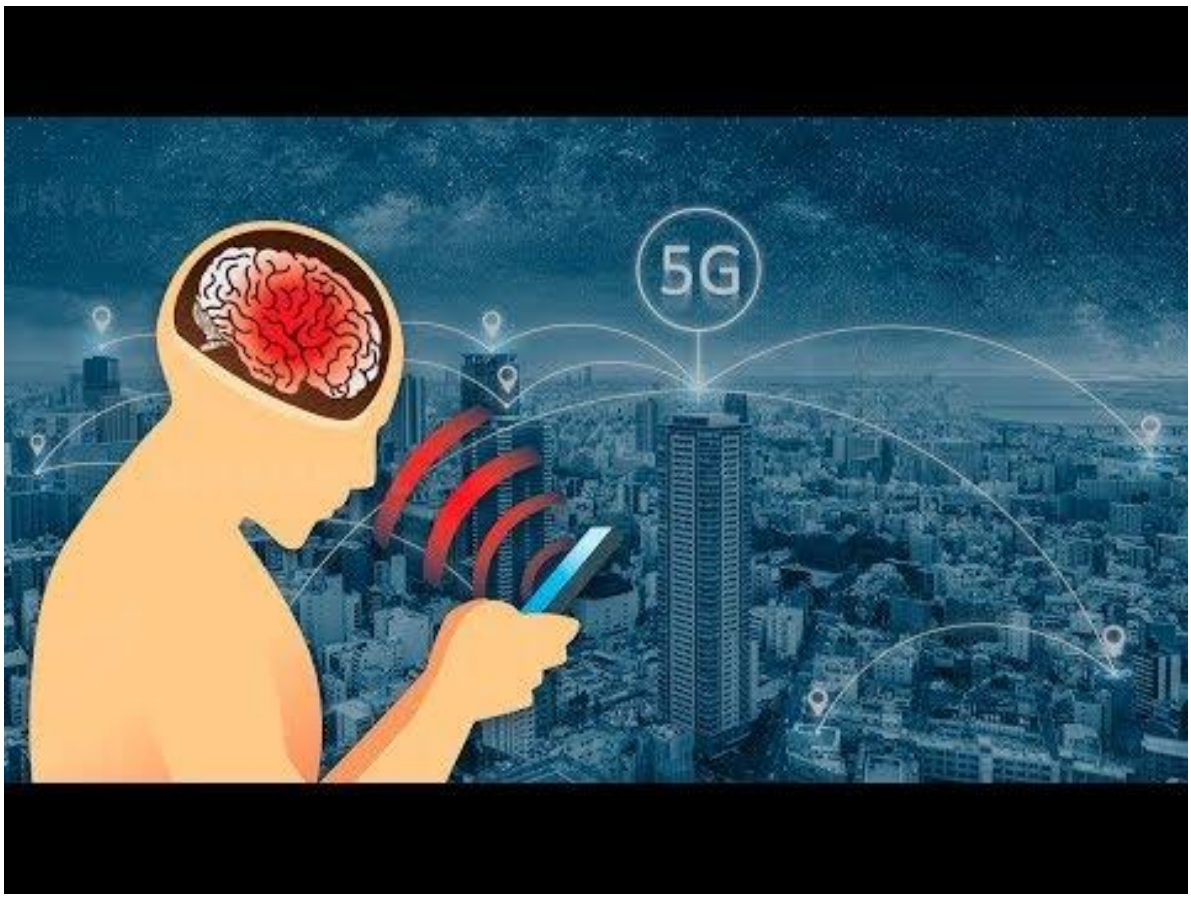
5G is the next generation of cellular technology.

With it, of course, there's a concern about the health risk of this more powerful network. But should you be worried?

As we understood in this article, the studies on the link between EMFs and cancer are very contradictory.

So are the opinions on the 5G, despite the initial claims how harmful it is.

The Environmental Health Trust contends that “5G will require the buildout of literally hundreds of thousands of new wireless antennas in neighborhoods, cities, and towns.”



Again according to Dr. Novella: “We’re still talking about power and frequency less than light. You go out in the sun, and you’re bathed in electromagnetic radiation that’s far greater than these 5G cell towers.”

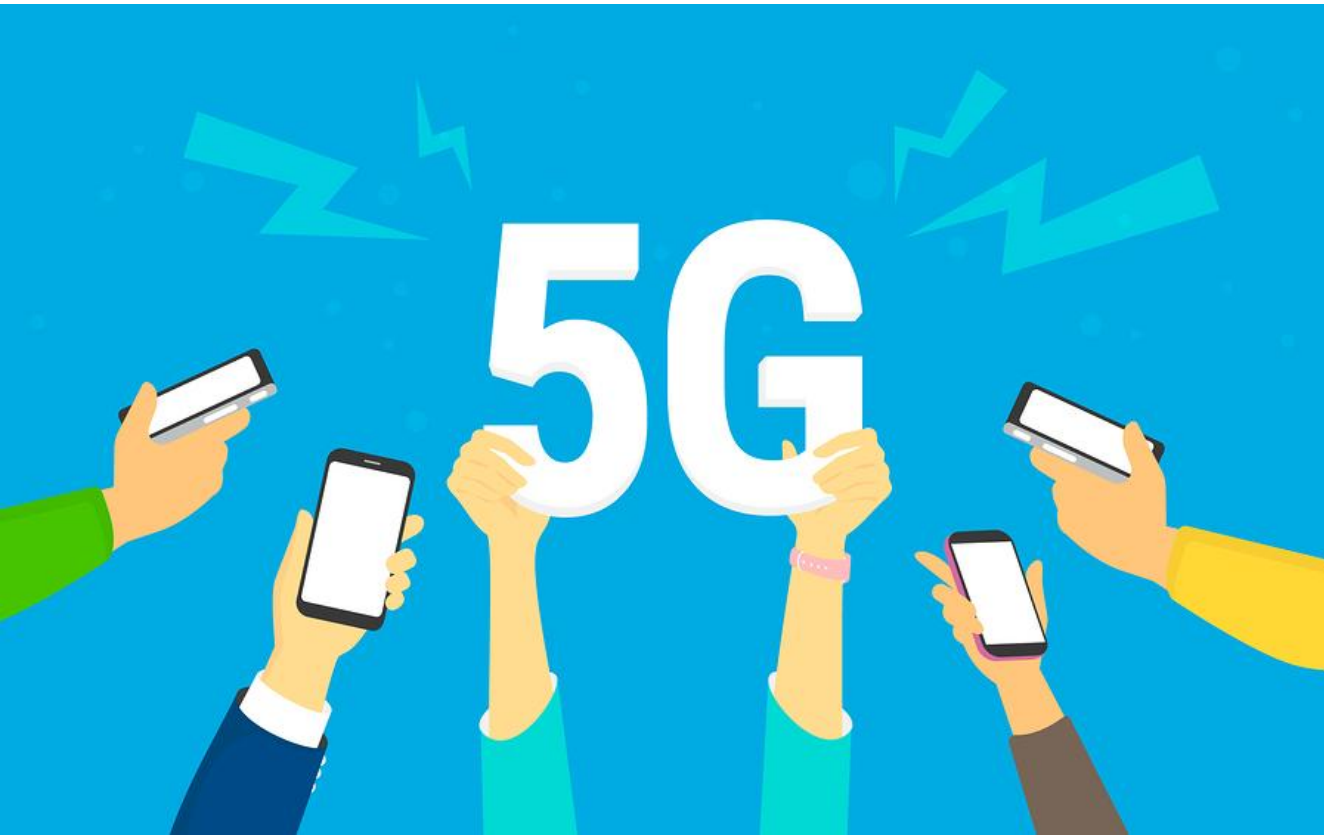
RadiationHealthRisks.com observes that “1G, 2G, 3G and 4G use between 1 to 5 gigahertz frequency.

5G uses between 24 to 90 gigahertz frequency," and then asserts that "Within the RF Radiation portion of the electromagnetic spectrum, the higher the frequency, the more dangerous it is to living organisms."

But this remains just an assertion after all, because 5G is non-ionizing in nature.

Scientists will continue to test new networks and technologies in order to keep our environment safe.

As for now, we should not be alarmed about the 5G since there are many technologies we use every day which have higher measurable risk.



Read more:

https://iristech.co/emf-exposure/

https://iristech.co/eye-diseases/

Sources:

EMFs: What's the link between electromagnetic fields and disease?

How worried should you be about the health risks of 5G?

Should you be worried about EMF exposure?