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5G radiation—world-first study

5G radiation from a mobile phone tower affects nearby residents, say researchers.

Can exposure to 5G radiation cause symptoms like sleep problems, dizziness, heart palpitations and breathing problems?

Yes, according to the results of the first study in the world to investigate the effects of 5G radiation from a base station.

The study was conducted by Professor Lennart Hardell, an oncologist at Örebro University Hospital and Mona Nilsson from the Swedish Radiation Protection Foundation. It investigated the symptoms a man and his wife developed following the installation of a 5G base station on the roof of their apartment.

The couple, in their early 60s, had lived in the apartment for ten years, generally enjoying good health. The apartment had a base station on the roof with 3G and 4G antennas. In November 2021, the base station was upgraded to 5G and almost immediately afterwards both the man and the woman developed a raft of symptoms that were so severe that the couple moved from the apartment shortly afterwards.

After the 5G was activated, the man's existing problems of hypertension, tinnitus and nosebleeds worsened, and he developed fatigue, sleeping problems and emotional lability. His symptoms reduced or completely disappeared within a day of moving from the apartment.

The woman developed more symptoms than her partner. 'Most pronounced was difficulty sleeping and dizziness, followed by skin problems (burning sensation, tingling in the skin of hands and arms), difficulty concentrating, irritability, tinnitus, balance problems, impaired short-term memory, confusion, fatigue, tendency to depression, heart and lung symptoms, … palpitations, feeling of heaviness over the chest and feeling of warmth in the body.' The majority of her symptoms reduced or completely disappeared within three days of the move to the new home.

These symptoms are consistent with 'microwave syndrome', a condition described by Russian researchers as early as the 1970s. It includes symptoms such as fatigue, dizziness, headaches and sleeping, concentration and memory

(Continued on page 8)

In This Issue

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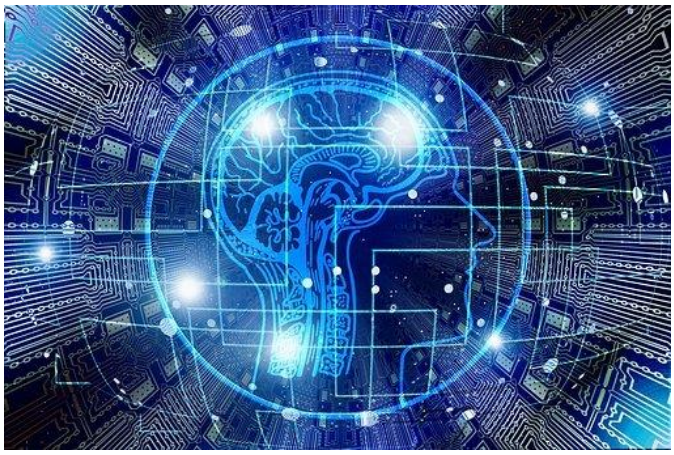
Death by Technology



Technology. We love it. We need it. It makes our lives better. It's the way of the future.

Isn't it?

Maybe not, says Associate Professor John Cook in his new book, 'Death by Technology'.

Cook, a clinical psychologist, says that our love affair with technology goes way beyond the practical and into another realm altogether. He says that people's blind faith in technology and the way they prioritise it in their lives is a kind of deification. 'The new religion of the modern age is technology,' he says.

And like religion, the worship of technology involves believing certain dogmas – in this case, that technology equates with progress and that it will solve all of society's woes. 'A consequence of deifying technology is the belief that anything is possible and that every action must be carried out using the highest level of technology possible.'

But these beliefs are flawed, says Cook.

In fact, history is replete with examples of technologies that augured well but had unintended, and sometimes catastrophic, consequences. In the case of luminous watches – a wonder at the time – the radium that they were painted with killed the workers who applied it. The internet – a more modern marvel – has spawned the dark web, used for pornography, forgery, prostitution and terrorism.

One of the unintended consequences of technology, especially digital technology, is the consumption of vast amounts of energy. 'It requires more energy to power a smart phone (361 kW/h/year) than a refrigerator (322 kWh/year)' he says, and some digital devices use even more power when they're on standby mode. Cook says, 'the explosion in energy use is not caused by people in developing nations getting automobiles …, but rather by digital devices in the developed and developing world.'

'It requires more energy to power a smart phone (361 kW/h/year) than a refrigerator (322 kWh/year)'

Technology isn't solving the problems of the natural world, he says. It's creating problems like these:

- depletion of resources (mining, deforestation)
- decline in populations of plants, animals and insects, including bees (1 million species at risk of extinction)
- pollution (kills 8 million people a year, according to the WHO)
- waste (7 billion tons of plastic waste since 1950)
- damage to waterways (wetland damage, loss of water in aquifers, pollution)
- climate change (melting glaciers, rising sea levels).

'In short, humans are killing everything else on the planet,' he says.

As well, technology is alienating us from nature – in other words, people spend so much of their time and energy in the world of technology, that they no longer spend time in nature. They may even view nature as hostile or threatening.

(Continued on page 3)

(Continued from page 2)

Another consequence of society's worship of technology is the evolution of 'Big data'. 'The use and manipulation of massive data sets that can be used to predict behavior, commerce patterns and extremely personal information, is ubiquitous (behind the scenes) in the cyber world.' It allows people and organisation, even governments, to be spied on and monitored. Cook cites examples of smart phones that sent meta-data to an address in China every 72 hours; of a foreign government infecting US utility computers with a virus ('Black Energy') that allowed them to control the utilities' services; of aps that parents use to monitor their children being used by others to monitor their children, too; and of mobile phones and televisions being used to monitor and record conversations.

He refers to revelations by whistle blower Edward Snowden which revealed the extent and use of datamining of individuals and public figures. 'Snowden stated that intelligence agencies of the United States (and China and Russia) can take control of a cell phone the moment it is turned on, using it to record, photograph and locate individuals' and 'that the NSA [National Security Agency] has the capability to watch messages as they are being typed keystroke by keystroke.'

'The Internet of Things, whereby all manner of devices are connected for remote control and access, is an open avenue for invasions of privacy'

The emerging Internet of Things takes this ability to new levels. Cook says, 'The Internet of Things, whereby all manner of devices are connected for remote control and access, is an open avenue for invasions of privacy.'

Society's love affair with technology has led to technology for technology's sake – whether we need it or not or whether it serves a useful purpose or not. For example, is developing cars that have more and more electronic functions 'progress'? Especially when it makes them harder to repair. What about driverless cars? Cook says, 'Simply put, progress is often defined in terms of technological innovation, not any necessary improvement in outcome.'

Not all the technologies that have survived are necessarily the ones that most deserve to. Beneficial technologies such as solar-powered vehicles have been squashed by competing commercial interests, while other inventions have survived as a result of good marketing. There is a trend to 'producing useless material and wasting resources on the production of needless consumer goods.'

A fundamental problem is that technology is developed in isolation from ethics. Inventors invent something because then can, not because they should. 'Thinking of ideas is not the same as thinking them through,' Cook says. And this has led to the development of technologies that threaten the survival of the planet and its people.

An obvious example is nuclear energy. 'Nuclear power is the ultimate technological delusion. A basket of fish to feed the multitude. A reactor full of plutonium and limitless energy for free. It perpetuates a belief in safe, clean energy at little to no costs. This idea bears no resemblance whatsoever to the realities of nuclear power, which is expensive and filthy, and has a high potential for disaster.' He reports that many countries have nuclear weaponry (Russia has 6850 nuclear warheads and the US has 6550). 'Multiple nations now possess the potential to blow up the world man times over,' he says. As well as intentional nuclear attacks, there is the risk of nuclear accidents and Cook documents a considerable number of these.

Other technologies with a high potential for disaster include artificial intelligence, the genetic manipulation of crops and the genetic manipulation of individuals (yes, it's happened).

Cook makes some interesting comments on the impacts of technology on human evolution. Humans evolve gradually, he says, but technology evolves rapidly and this dichotomy will have 'unpredictable' effects. Already, humans have lost many of the skills necessary for surviving outdoors. Technology has modified the food that we consume and the environment in which we live. Our reliance on machines means that we're losing skills that we once had – like how to grow crops or navigate with a map.

(Continued on page 7)

Digital dementia

Wireless radiation may be contributing to Alzheimer's Disease, says Dr Martin Pall, a professor of Biochemistry at Washington State University.

In a paper published in February, he said that this radiation affects voltage-gated calcium channels. These 'doorways', located on the membranes of some cells, allow the passage of calcium into the cell, where it plays a role in many cell processes. Too much calcium inside a cell can cause inflammation.

It can also cause Alzheimer's Disease, he says.

Pall refers to research showing that exposed rats exhibited signs of neurodegenerative disease and he provides additional evidence supporting his view.

He also expresses concern about smart wireless devices which, he believes, may cause 'widespread very, very early onset AD [Alzheimer's Disease] in human populations.'

Pall L. Martin, 'Low Intensity Electromagnetic Fields Act via Voltage-Gated Calcium Channel (VGCC) Activation to Cause Very Early Onset Alzheimer's Disease: 18 Distinct Types of Evidence, *Current Alzheimer Research 2022*; 19(2),' https://dx.doi.org/10.2174/1567205019666220202114510

Magnetic fields and leukemia

Yet another study has found an association between magnetic fields from powerlines and other electrical sources and childhood leukemia.

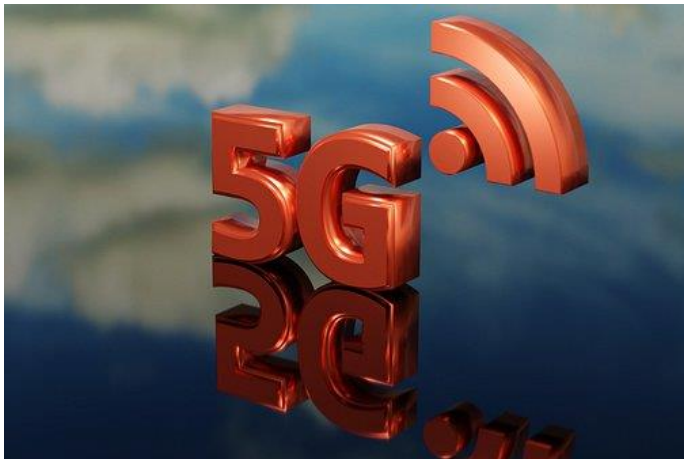
The study was conducted by Christian Brabant and colleagues from the University of Liège in Belgium. The team reviewed relevant studies that looked at different sources of exposure. They found that:

- studies conducted before 2000 were more likely to show this association than studies conducted later
- the magnetic field level associated with childhood leukemia was higher than 4 mG (milliGauss)
- children who lived within 50m of a a powerline had nearly 50% more chance of developing acute lymphoblastic leukemia
- living near wiring with high current configurations increased the risk of childhood leukemia.
- sleeping on an electric blanket more than doubled the risk of childhood leukemia.

The researchers concluded that power frequency magnetic fields of above 4 mG 'can increase the risk of developing leukemia in children, probably acute lymphoblastic leukemia.'

Brabant, Christian, Geerinck, Anton, Beaudart, Charlotte, Tirelli, Ezio, Geuzaine, Christophe and Bruyère, Olivier. "Exposure to magnetic fields and childhood leukemia: a systematic review and meta-analysis of case-control and cohort studies" *Reviews on Environmental Health*, vol. , no. , 2022. https://doi.org/10.1515/reveh-2021-0112

Expert reveals 5G risks



One of the world's leading authorities on wireless radiation has documented the risks of 5G radiation in 'the first book on 5G that outlines the potential dangers of 5G technology, both in Russia and overseas'.

The book, written by Professor Yuri Grigoriev shortly before his death, was recently translated into English by the Oceania Radiofrequency Scientific Advisory Association (ORSAA) and can now be downloaded for free (below).

Many countries (including Australia) base their radiation standards on Guidelines developed by the International Commission on Nonionizing Radiation Protection (ICNIRP). In the book, Prof Grigoriev points out that ICNIRP is not necessarily a credible body and its members are not impartial scientists. The ICNIRP Guidelines, he believes, are inadequate because they are only designed to protect people from the heating effects of radiation. But even this, they don't do properly. Among the problems with these guidelines are that:

- they don't prevent unacceptable increases in temperature
- they don't restrict the intensity of spikes of radiation
- a person would have to hold a 5G mobile phone *8cm from their head or body* to comply with them.

Grigoriev says 'ICNIRP members persist in arguing that the thousands of peer-reviewed studies that have found biological or medical consequences from chronic exposure to non-thermal EMF levels are insufficient to warrant stricter safety regulations.'

Grigoriev refers to studies showing harmful effects of 5G millimetre waves (MMW)s. They include:

- demyelination of nerve cells
- changes to cell membranes, including changes to ion channels
- inhibition of cell cycle progression
- changes to levels of enzyme and proteins in the brain's hippocampus
- double-strand breaks in DNA
- effects on reproduction
- changes to the sensitivity of the skin
- effects on peripheral and central nervous systems
- effects on the hypothalamus and pituitary glands and changes to cortisol and testosterone hormones
- changes to heart rate
- changes to immune function
- degranulation of mast cells in the skin (that can cause allergic-type symptoms).

Grigoriev says that individuals react differently to exposure and this can make it difficult for observers to draw conclusions and can lead to errors in assessing the impacts of radiation.

He writes, 'From our evaluation of the results of preliminary studies on the possible impacts on the health of the population of the 5G MMW-exposures alone …, we consider it reasonable to expect the following adverse effects: impacts on normal functioning in the critical organs of the skin and eyes; mediated systemic reactions in the body as a whole; and, most notable, impacts to the nervous and immune systems.'

Grigoriev refers to calls by doctors, scientists and administrations in different countries to halt the roll-out of 5G until it can be demonstrated to be safe. He says, 'Irradiation of the human population by MMWs without the appropriate precautionary standards is clearly immoral – in the same way as conducting or observing an experiment would be, when it has the possibility of developing pathological processes; eg, according to the notion: "Wait and see … *then* we will be able to establish proper standards". Of course, by then, it will be too late!'

'Frequencies used in Telecommunications – An Integrated Radiobiological Assessment', by Yuri G. Grigoriev, translated by ORSAA [Oceania Radiofrequency Scientific Advisory Association Inc (www.orsaa.org)]. The book can be downloaded free from https://www.orsaa.org/orsaa-research-papers---part-2.html

5G harms insects

Wireless radiation has caused a dramatic decline in insect and animal life on the island of Samos in Greece and 5G signals have seriously exacerbated the situation, says Diana Kordas.

Diana and her husband, Samos residents and wildlife lovers, have documented their observations of declining populations of land and water dwellers from 2012 to 2022. They observed declines in different species, that could not be explained by other environmental factors, concurrent with each generation of wireless technology on the island.

'After the introduction of 3G, all the frogs disappeared. After the introduction of 4G/LTE (2016) all the terrapins disappeared from the wetlands, while bird numbers and species began to decline rapidly, especially small birds such as sparrows, chaffinches, linnets, greenfinches, goldfinches and serins. Insect numbers also declined… In addition, after 4G was deliberately aimed at the southern beaches, sea life declined as well. Octopi, sea slugs, sea hares, nudibranches, starfish and a type of sea horse became very scarce or disappeared altogether… The sea bed close to where we live, which does not get agricultural runoff, has lost all its corals, starfish, lobsters, cuttlefish, sea slugs and sea hares as well as most octopi, flounders and urchins. There are far fewer fish; in fact there is very little aquatic life compared to ten years ago.'

After 5G was activated in July 2021, the decline in animal species reached new levels. 'From late July, overall insect numbers visibly diminished,' Kordas noticed that there were fewer butterflies and moths, beetles, caterpillars, wasps, grasshoppers, crickets, mantises, cicadas, spiders, hornets, flies and bees.

(Continued on page 7)

‘Animals have also been affected by 5G since July,’ Kordas says. She observed changes in behaviour of boar and migratory birds (failing to migrate) and loss of species, including hedgehogs, rodents, stoats, weasels, raptors (eagles, buzzards, owls) and golden jackals.

‘The insect declines we have been seeing on our land since 5G came in are happening everywhere on the island, and in some places they are worse than on our land.’

Kordas’s observations are consistent with a 2017 German study which reported a ‘more than 75 percent decline over 27 years in total flying insect biomass in protected areas’ and eliminated climate change and pesticides as causes.

The 5G frequencies used in Greece include the very high (almost millimetre-wave) frequency of 22.5 GHz. Kordas says, ‘Studies by Thielens et al have shown that 5G will be especially harmful to insects precisely because the size of the millimeter waves fit into their tiny bodies, where they can do the most harm.’

The decline in insect populations has serious implications for humankind. Insects are vital for pollination of crops and form the basis of the food chain on which we all depend. ‘Without insects, there will be no life on earth,’ Kordas says.

What can we do? Kordas advises people to look up from their screens and observe the world around them. ‘If you don’t look you won’t see,’ she says. Further, she recommends we re-evaluate our relationship with technology.

She says, ‘I’m tired of hearing, “Wireless communications are here to stay; we can’t do without them; we can’t go back to the Stone Age.” What we cannot do without—really can’t do without—is nature. A planet with dead seas and dead land will not support us; we will die of oxygen deprivation or starve to death. Who will you call then?’

Diana Kordas, ‘5G Cell Towers Cause Massive Insect Decline on the Greek island of Samos’, 22 February 2022. You can see the paper here.

(Continued from page 3)

‘We have a brain that is wired for the lifestyle of a hunter-gatherer. Our consciousness is constantly on alert for novelty within the landscape. Change signifies that the normal state has been altered. Enter a device that can provide a steady stream of novelty. Energy that would have been devoted to scanning the landscape for food or danger is now channeled into bouncing from one website to another. A primary need at a neurological level seems to be met, yet there is no payoff to the action, no food captured, nor predator eluded. The drive state is aroused and maintained, yet there is no final resolution because the goal is no longer specified.’

Cook’s thoughtful and meticulously researched book challenges conventional thinking about the role of technology in society and raises issues that can help us shape our collective future.

Professor J.R. Cook, ‘Death by Technology: The Road to Hell is Paved with Good Inventions', Jefferson (North Carolina, USA) (McFarland & Company, Publishers), 2021). Also available as an e-book.

Dr Cook is an Associate Professor of Clinical Psychology at Georgia Gwinnett College in Lawrenceville, Georgia, USA.

Mobile phone protection

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Airtube headsets—no wire to conduct radiation into the head

‘’5G will be especially harmful to insects precisely because the size of the millimeter waves fit into their tiny bodies, where they can do the most harm.’

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problems. The same symptoms are often described as ‘electromagnetic hypersensitivity’ (EHS) and were also reported among embassy staff afflicted by the so-called ‘Havana Syndrome’.

Hardell and Nilsson say that it is likely that the incidence of microwave syndrome will increase with the expansion of 5G and other wireless technologies.

The researchers also found that, when the 5G was turned on, the amount of radiation in the couple’s home increased dramatically - from 9000 to 1,690,000 microwatts per metre squared ($\mu W/m^2$) measured at the couple’s bed, directly below the base station.

These levels are considerably lower than the limits of the Swedish radiation standard of 10,000,000 $\mu W/m^2$. The Swedish radiation standard, like Australia’s standard, protects against the heating effects of radiation. The authors say that the Swedish standard ‘only protects against immediate effects caused by such intense radiation that tissues heat up within 30 minutes. This means that the public is completely unprotected against effects other than acute thermal effects, even though these have been shown, including harmful effects on the nervous system, oxidative stress and DNA damage.’

The study’s findings point to the medical implication of exposure to wireless radiation. Hardell and Nilsson say, ‘Microwave syndrome and EHS must be taken seriously by health care professionals. This is not a mental illness. Several somatic symptoms are included in microwave syndrome and chronic diseases, including cancer, are risks factors of chronic exposure.’

The authors advise health practitioners to take careful histories of their patients and to consider the impact of their exposure to wireless radiation at home and work.

Hardell, L and Nilsson, M, ‘Microwave radiation from base stations on rooftops gave medical symptoms consistent with microwave syndrome’, Medicinsk Access no. 1/2022; https://www.stralskyddsstiftelsen.se/wp-content/uploads/2022/02/5g_mikrovagssyndromet_ma_2022.pdf
Swedish Radiation Protection Foundation: https://www.stralskyddsstiftelsen.se/2022/02/22/forsta-studien-av-effekter-av-5g-stralning-pa-manniska-visar-att-5g-orsakar-mikrovagssyndromet/

Digital device use impairs children’s vision

Researchers from Nepal and the United States investigated the effects of digital device use on 180 Nepalese school children, aged 7 to 17. Children were categorized as either non-users, low-device-users (less than 3 hours a day) and high-device-users (more than 3 hours a day).

They found, not surprisingly, that higher device use had the most deleterious effects on several functions of near and distance vision.

Maharjan U, et al, ‘Binocular vision findings in normally-sighted school aged children who used digital devices’, PLoS One. 2022 Apr 7;17(4):e0266068.