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The Electromagnetic Radiation Health Threat - Part III

- Dorothy - 31/7/97

If you are interested in our other articles on this subject you will find them indexed here: [Electromagnetic Radiation Index](#)

To download Dr Neil Cherry's reports and to read more about and his work, please visit his [website](#) for more information.

To answer readers' questions, here is a third article based on a further interview with Dr Neil Cherry. If you have not already—please read [Part I](#) first.

Answers to readers' queries

So much interest has been created by the two earlier articles and there have been so many emails and entries in Backchat that I have interviewed Neil again and we hope that in this article and the references given for further research you will find answers to your questions.



Neil Cherry

Measuring equipment

One reader from Hong Kong inquired about equipment for measuring the electromagnetic fields. A source of good quality equipment is Wandel and Goltermann, email: info@wago.de or take a look at their World Wide Web site: <http://www.wg.com>

In depth information

Several readers want more detailed information which is contained in reviews which Neil has written. Readers may email for these and they can be sent for the cost of copying and airmail which usually works out to approximately \$25.00 U.S. That covers the range of biophysics, biochemistry, animal experiments, and epidemiology and links them together.

Neil's email: cherry@kea.lincoln.ac.nz

The effects of living near cell sites

Local council approval

One Australian reader, Lucy Williams, commented that it appeared that Telstra needed no approval by the Council. Since July 1 1997 new regulations have come into force in Australia which can involve the local council, so Lucy should contact the local council about the current Telecommunications Code.

Dangers of living near a digital phone pole

Two readers, Lucy from Australia and Chris from NE U.S. , have

asked about the dangers involved in this situation. The danger depends on how close you are to the pole. If you are within 200 metres of a typical mobile phone tower it may be associated with an increased low risk of a range of cancers and miscarriage, and a higher risk of sleep disturbance and chronic fatigue which may lead to learning difficulties.

The risk increases the closer you are to the tower. Neil uses the term 'risk' as not everybody is likely to be affected, but some people may well be.

Use of mobile phones

One reader had a job which involved a lot of use of a mobile phone. The aim should be to use them hands free which keeps the antenna away from the head. This means plugging an extension into the mobile phone and using an earpiece and a microphone. This means that the unit can be kept a metre or so away from the user. Many digital mobile phones have a plug-in point for these extensions. Car phones also have hands-free options.

Another alternative is the use of a pager instead of a phone.

In any case it is important to minimise the use of a mobile phone, and so minimise the possibility of becoming a health statistic in the next ten to twenty years with the risk of a brain tumour, for example. Eight studies associate brain tumour risk with EMR exposure.

Cordless phones have a lot lower power than mobile phones, because their range is 200 metres maximum, while the range of mobile phones is several kilometres.

Effect on brain function

There is a lot of evidence that brain function is altered with pulsed microwave and radio signals from mobile phones, including altered E.E.G. and sleep patterns, and altered circadian function which indicates a change in melatonin. Breakage in DNA in rats' brains has been linked to free radical damage which can be eliminated by melatonin.

Recent studies of mobile phone users have found a very significant increase in the incidence of headaches, nausea, vertigo, numbness of the skin or tingling of the skin, confusion and temporary memory loss.

Readers may recall that in an earlier article Neil mentioned that he had been tested for EEG change from using a mobile phone and had not been affected. He still does not risk using a mobile phone, however.

Further reading

Neil recommends two interesting papers on the question of brain function.

'Effects of Pulsed High-Frequency Electromagnetic Fields on Human Sleep' Mann and Roschke in 'Neuropsychobiology' 1996 Vol 33 pp 41-47.

'Low-frequency pulsed electromagnetic fields influence EEG of man' von Klitzing in 'Physica Medica' April - June 1995 Vol 11 pp 77-80

This is a study looking at seventeen subjects in forty five experiments, and 70% of subjects had an altered EEG function.

Experiments in the seventies and eighties

Animal experiments carried out in the seventies and eighties on cats, rabbits and other animals have shown similar sorts of patterns. The two articles listed above were based on work done in the nineties.

Looking at the pattern of material shows that it forms a cohesive set of effects which also starts to address the concern expressed by Gordon Arnold - the need to watch very closely initial early studies because there could be problems with experiments and the way they have been carried out.

Neil agrees with this comment. Individual experiments and papers must be looked at very carefully. The advice Neil has received and gives is, "Don't take them simply on face value, but read them

carefully and look at the set of papers about an issue. See if there is an evolution of understanding and a reinforcement of a pattern which makes scientific sense."

Hawaii experiment

An example is an early experiment in Hawaii which found a cluster of childhood leukaemia near some radio transmission towers. This was followed up by a study of several areas in Hawaii and increased cancer, particularly childhood leukaemia, was found in the tracts that had radio transmission facilities compared with those that didn't.

Wichita research

In Wichita, Kansas, there was an airfield on one side of the town and an airport on the other, both with air traffic control radar. Researchers from the university took tests in this town built on rolling hills, to test whether the electromagnetic radiation from radars might increase cancer.

They compared those who lived in valleys, and on eastern and western slopes of the hills exposed to one radar each, and on ridges exposed to both radars. The incidence of total cancer increased on that gradient, with the lowest incidence in the valleys, an increased incidence on the slopes and the highest incidence on the ridges.

Australian cell site studies

When testing for the safety of cell sites in Australia researchers used the TV towers in North Sydney. This test, the Hocking Study, conducted and funded by Telstra, showed that people living close to the towers had more leukaemia than those living further away.

Tests on the impact of high powered TV/FM towers in the UK

When looking at the very high powered towers in the UK researchers found that people living immediately below the towers had less leukaemia than those a short distance from them. The rate dropped off as the distance from the tower increased further. This closely relates to the ground level exposure, forming a strong dose-response relationship.

Overall pattern

Each test on its own might not be significant. However, from these tests a pattern emerges, growing stronger with each set of new statistical evidence, giving a strong conclusion that exposure to EMR in populations living near transmission facilities increases the incidence of cancer, particularly leukaemia.

Why leukaemia?

Which part of the body does EMR get absorbed in most? It is a whole-body absorption. Which organs involve the whole body? - the skeleton, the bone marrow, the circulatory system, the blood, which are the organs in which leukaemia is formed. It involves lymphoid systems and other key glands.

Lymphoma experiment in Adelaide

Another experiment, conducted at the Royal Adelaide Hospital and funded by Telstra, involved mice which were genetically engineered through a gene tending to increase lymphomas in the immune system. In one group 22% developed lymphomas. In another group which were exposed to a cell phone signal for one hour per day the rate of lymphomas increased to 43%.

Telstra was probably not expecting the experiments which it funded to produce results which confirmed the increased incidence of cancer in those exposed to mobile phone electromagnetic radiation.

In 1959 scientists knew that a radio frequency was a great controllable mutagen and the way to break chromosomes was to use RF radiation.

Early papers looked at thermal effects

There is now a block of solid evidence supporting the view that there are health risks for those exposed to EMR. Up until the late 1980s there were about six thousand papers produced looking at the thermal effects from EMR. Very few papers looked at chronic low levels of radio frequency exposure.

Absence of thermal effects stressed by those with vested interests

Those who benefit from the establishment of cell phone and television towers in residential areas emphasise the results of the research on the thermal effects and seek to downgrade the more recent studies which have investigated the risks of cancer by viewing them separately.

In a recent televised interview a Telstra PR manager said that there had been about six thousand papers and none of them showed that mobile phones pose any risk.

Studies in the nineties look at residential exposure

Now a growing and quite large body of published research is showing that there are health effects from residential exposures. For instance in terms of power lines two recent studies have been published from projects in New Zealand. They looked at people in Auckland living under high voltage power transmission lines. One looked at health effects and found five out of eight health variables investigated had linear dose response relationships with exposure. These variables included asthma, type 2 diabetes, chronic illnesses, and immune-related illness.

Link with psychological problems

A companion study of the same group looking at psychological effects found significant linear dose response relationships between exposure and some psychological and mental health variables, significantly depression. The significance of the dose response relationship is that it is generally regarded as a desirable criterion for the demonstration of causation. The demonstration of a cause/effect relationship is strengthened significantly if there is a known biological mechanism and there are reinforcing animal experiments.

Thus depression and melatonin could be related, and the calcium-ion efflux is a biological mechanism related to immune system problems. Animals exposed to electromagnetic fields have reduced melatonin, and have shown immune system problems and increases in cancer.

Suggested reading

'Neurophysiologic Effects of Radio Frequency and Microwave Radiation'

W. Ross Adey M.D. Bulletin of the New York Academy of Medicine
Vol. 55 No 11 pp 1079-1093, 1979

'Response of Brain Receptor Systems to Microwave Energy Exposure'

Kolomytkin et al

- a chapter from the book 'On the Nature of Electromagnetic Field Interactions with Biological Systems'

ed. Allan Frey, pub 1994, R. G. Landes Company

(This article shows the effects on brain chemistry of rats exposed to 915 MHz down to less than 10 microwatts per sq cm.)

Health risks for welders

One correspondent asked about the effect on a man's health of being a welder and especially working at times with a machine with a very strong magnetic field beside his head. He finds that this work in particular produces stomach and chest pains. Dr Cherry says that several studies show that welders exposed to intense EMR and fumes have increased risk of colon cancer, melanoma, neurodegenerative diseases such as Parkinsons Disease and Alzheimers.

The intensity factor

Some patients with MS and PD experience significant relief from Pico Tesla signals administered by a neurologist as neurophysiological treatment. If exposed to a signal a million times higher than this, then a person is exposed to an increased risk of Alzheimers, cancer, brain tumours and depression.

The significance of this is that if you take some drugs in the appropriate dosage they can be beneficial in balancing body chemistry, but if you were to take a dose a thousand to a million times higher it would be fatal.

The same principles apply to EMR, but because it is invisible, tasteless, and odourless it is ignored.

See also [NZ Expert Discusses EMR Issues](#) by Neil Cherry, or the NZine Hot Topic on [Schools, Cellphone Towers and Children's Health](#) and the response from [Shirley Primary School](#)

In addition, if you are looking for comprehensive technical research on the potential effects of radiofrequency and microwave radiation, then you may want to consider downloading [Dr Neil Cherry's Reports](#).

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