

Evidence that Electromagnetic Radiation is Genotoxic: The implications for the epidemiology of cancer and cardiac, neurological and reproductive effects

by Dr. Neil Cherry, June 2000

Excerpted quotes from Dr. Neil Cherry study, located at: <http://www.whale.to/b/cherry6.html>

For scientific studies on cell phones / cellular towers go to: www.buergerwelle.de/body_science.html

“It is observed that both biological effects and epidemiological effects appear to be the same or very similar from ELF exposure and from RF/MW exposures, including calcium ion efflux, melatonin reduction, DNA strand breakage, chromosome aberrations, leukaemia, brain cancer, breast cancer, miscarriage and neurological effects.”

“These experiments give substantial proof that extremely small natural and artificial ELF signals interact significantly with human brains. **The signal level of this interaction is 2,000,000,000 times below the ELF standard.** This standard is based on avoiding acute shocks and not on avoiding proven neurological effects. The maintenance of the standard is obtained by ignoring or rejecting any and all evidence that contradicts it.” (Emphasis added)

“Many studies have shown that radiofrequency/microwave (RF/MW) radiation and extremely low frequency (ELF) fields cause increased DNA strand breakage and chromosome aberrations. This has been shown in cell lines, human blood, animals and living human beings. This means that epidemiological studies of people exposed to electromagnetic radiation (EMR) are likely to show increased cancer, miscarriage and reproductive adverse effects. In fact many epidemiological studies have shown these effects, Goldsmith (1995, 1996, 1997, 1997a), Szmigielski (1991, 1996).”

“Blood samples were taken from the staff of the U.S. Embassy in Moscow. They had been chronically exposed to a low intensity radar signal. Significant increases in chromosome damage was reported, Tonascia and Tonascia (1966) cited in Goldsmith (1997a).”

“Many studies, from independent laboratories, have shown that ELF, RF/MW and cell phone radiation, significantly increases chromosome aberrations in exposed cells, including cells taken from human beings who have been exposed to EMR in occupational situations. Even at very low intensity radar exposures that were experienced at the U.S. Embassy in Moscow, significant increases in chromosome damage was measured from human blood samples. This evidence shows conclusively that across the EMR spectrum, EMR is genotoxic. Hence it is carcinogenic and teratogenic.”

“Four independent laboratories have also published data on ELF induced DNA strand breaks confirming that ELF EMR damages DNA strands; Lai and Singh (1997a), Svedenstal et al. (1998), Phillips et al. (1998a), and Ahuja et al. (1997). Lai and Singh (1997a) also demonstrate the involvement of free radicals and the protective effect of melatonin. With the evidence above that EMR reduces melatonin this confirms that reduced melatonin causes higher concentrations of free radicals which produce more DNA strand breaks from EMR exposure from ELF to RF/MW frequencies. Increased DNA strand breaks will result in increased chromosome aberrations.”

“DNA strand breaks, Chromosome Aberrations, impaired immune system competence and many other biological and health effects, are caused by reduced melatonin, Reiter and Robinson (1995). Light-at-night and electromagnetic radiation, are proven to reduce melatonin and hence pose significant adverse health effects.”

“There is more than sufficient evidence of chromosome aberrations, DNA strand breakage altered oncogene activity and neoplastic transformation in cells to conclude that EMR across the spectrum from ELF to RF/MW is genotoxic. This is independently confirmed by the established biological mechanisms of calcium ion efflux and melatonin reduction.”

“Brains are very electromagnetically sensitive because our sight, thoughts, memories, learning and
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emotions use complex electromagnetic signals. Research in Germany in the post war period proved that human brains detect and use extremely small natural low frequency (ELF) EMR signals, Wever (1974), Konig (1974). Since RF/MW signals induce higher currents in human tissues and low frequency signals it is inevitable that we will observe neurological effects from chronic RF/MW exposures.”

“Recent studies have revealed some neurological dose response relationships for sleep disturbance, Multiple Sclerosis and Suicide at extremely low exposures to RF and ELF exposures. Beale et al. (1997) found significant dose response for psychological symptoms, including anxiety and depression, living in proximity to high voltage power lines. This strongly confirms the sensitivity of human brains to EMR exposure.”

“These studies have early roots in U.S. Embassy in Moscow study. Lilienfeld et al. (1978), showed significant neurological effects from chronic low level radar exposure, including Depression ($p=0.004$), Irritability ($p=0.009$), Memory Loss ($p=0.008$) and Difficulty in Concentrating ($p=0.001$).”

“Since human brains detect and use naturally occurring ELF signals under $1\text{pW}/\text{cm}^2$ then our brains can detect and react to signals many orders of magnitude higher than this. Interactions include resonant absorption of signals with particular ELF signal or modulation frequency ranges, and interference with the natural signals so that they cannot reliably perform their functions. These functions include regulations of hormones such as melatonin and thyroid stimulating hormone (TSH). Both of these have been shown to be reduced by cell phone exposures. Reduced melatonin leads to increased DNA strand breaks and chromosome aberrations. These in turn lead to cancer and reproductive effects.”

“Many multiple independent laboratories have shown the ELF and RF/MW radiation causes chromosome aberrations and DNA single- and double-strand damage. These include many dose response relationships and extremely low RF/MW exposure levels including cell phone radiation. Multiple studies also show significantly altered proto oncogenes expression and activity with ELF and RF/MW exposure. This also includes cell phone radiation. Several studies show impairment of the immune system health.”

“Since calcium ion efflux and melatonin reduction are established biological effects of EMR exposure from ELF to RF/MW, impair immune systems should be observed in EMR exposures. Multiple independent evidence is available for RF exposures, down to extremely low chronic mean levels, and many dose response relationships are established to prove that these biological effects from EMR exposure is genotoxic. Significant DNA strand breakage has been observed down to $1\text{ m W}/\text{cm}^2$, Phillips et al. (1998), with elevated DNA damage below this. Therefore there is extremely strong evidence that EMR across the spectrum is genotoxic, even at very low exposure levels found in the vicinity of cell sites.”

Cell Phone Conclusions:

- Cell phones will highly probably increase many neurological diseases and brain tumours over the next 10 to 20 years.
- Cell sites will highly probably increase miscarriage, many cancers, many diseases, significant neurological and cardiac diseases and death.
- Thousands of cell sites being installed in communities, are significantly raising the exposure of millions of people to RF/MW at levels that are known to cause serious adverse health effects.
- The problems are going to increase unless rapid, drastic and determined moves are made to reverse the trend and only install new sites in locations that produce extremely low mean residential exposures, **somewhat less than 10 nW/cm² (0.01m W/cm²)**.