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### THE CELL PHONE CONTROVERSY

#### Demonstrating Detrimental Effects of Cell Phone Radiation

The cell phone industry has a vested interest in proving cell phones are not harmful to the human body. Hence, their researchers design experiments using conditions unlikely to produce effects. A good example of poor experimental design is the use of electromagnetic fields (EMF) containing the individual frequencies known to be emitted by cell phones. Since the body responds very differently to individual frequencies, in contrast to the complex mixture of frequencies emitted from an actual cell phone, results from these experiments do not reflect real-life situations associated with cell phone use. Another example of poor experimental design is the use of ultra-low strength EMF which can be significantly different from the radiation actually emitted from a cell phone. Such experiments would not be expected to produce detrimental effects on biological systems. This phenomenon was clearly demonstrated in a recent study at Pisa University in Italy where it was shown that human immune cells exposed to cell phone radiation showed DNA damage which was highly dependent on the intensity (and duration) of the radiation. The same study also demonstrated a large variability from one individual to another. These conclusions are similar to those previously obtained by researchers studying the harmful effects of radiation from power lines. Thus, the damaging effects of cell phones only occur under certain experimental conditions. Experiments using experimental conditions outside the known effective "windows" (as they are called) will show no biological effects.

Unfortunately, all of the effective experimental conditions for demonstrating detrimental effects from cell phones are not yet known. For example, the sub-population of humans most sensitive to cell phone radiation is unknown, although children and teenagers are known to be more sensitive to radiation from power lines. Most studies use acute exposure conditions, but the situation is worse after long-term exposures because if the required conditions are not met on a given day, they are likely to be met the next time the cell phone is used.

Finally, we must consider the issue of interpretation of data. Studies examining different experimental conditions will often conclude cell phone radiation has no detrimental effects, even if one of the conditions does in fact show such an effect. This bias in the design and interpretation of scientific data is assumedly due to the fact that the cell phone industry has funded much of this research.

Despite these experimental difficulties, some investigators have found the right conditions and discovered that cell phone radiation is indeed harmful to the human body. The effects have been demonstrated by numerous laboratories at major universities in several countries. Detrimental effects have been demonstrated with humans and animal models measuring effects at the molecular (e.g., DNA, cellular (e.g. human immune cells) and clinical levels. Detrimental effects have been observed using individual cell phone frequencies and the actual radiation emitted from cell phones. In general, experiments have measured harmful effects on the nervous system, the immune system, the cardiovascular system and carcinogenesis (induction of cancer). In some cases the biochemical mechanisms underlying these physiological effects have been elucidated.

Molecular and cellular experiments have indicated the sensitivity of DNA to cell phone radiation which has been shown to be genotoxic - direct damage to the structure of DNA similar to that seen by ionizing radiation (X-rays). At the clinical level, there is increasing evidence for the ability of this radiation to induce tumors in human and animal models. This effect is similar to that observed by other man-made EMF which are considered co-carcinogens acting in conjunction with chemicals known to cause cancer. These effects are particularly important in children who are known to show increased sensitivity to chemical carcinogens.

Several neurological effects have also been observed including detrimental effects on the cognitive functions of the brain (alertness, task performance, memory), direct damage of nerve cells, altered sleep patterns, headaches and depression.

In 1966 the WHO established an International EMF Project to address health risk assessment from exposure to power lines, VDTs (computers) and cell phones. The newly recognized phenomenon of electromagnetic hypersensitivity has been confirmed in several independent studies. These studies reveal that some people show particularly strong responses to relatively short exposures to EMF from man-made electrical devices.

### **Protection from Harmful Effects**

1. Cell phones damage DNA. Aulterra research demonstrated that cell phone radiation causes a characteristic change in the shape of the DNA helix as measured with a photometer. Cell phones with the Neutralizer show no damaging effects, completely (100%) blocking the detrimental effect on DNA. This effect was repeated and confirmed using cell phones from different manufacturers. Similar effects were seen whether the phone was actively transmitting or in standby mode.
2. Cell phones disrupt the bioelectricity in the body which can be measured by several devices which apply a weak current to the body and measure the immediate response. Aulterra research demonstrated that cell phones with the Neutralizer completely reverse this effect.
3. Cell phones increase the temperature of the brain as measured using thermography. Aulterra research demonstrated that cell phones with the Neutralizer show no increases in temperature.

Other competitor products have been reported to have similar bio-protective properties, although at best these products have only been tested on one of these three endpoints. In contrast, the Aulterra Neutralizer works at all three biological endpoints. Furthermore, one in-house study

compared the efficacy of the Aulterra Neutralizer with the Biopro shield. The Neutralizer was markedly more effective at reversing the abnormal bioelectric patterns generated from a cell phone.

The Safe Wireless Initiative under the umbrella of the Science and Public Policy Institute has classified the various protective devices on the market. Technologies, like the Neutralizer, which block the detrimental biological effects of cell phones, are classified as secondary bio-protective. Technologies, like the ear phone, actually reduce the amount of radiation the brain receives and are therefore characterized as primary bio-protective.

Recent Aulterra research has demonstrated that the Neutralizer also reduced the actual radiation emitted by cell phones. In these experiments the radiation was detected with an antenna and the signal sent to a highly sensitive spectrum analyzer. Cell phones with a Neutralizer showed a 76% reduction in the strength of the emitted radiation and an alteration in the shape of the waveform detected by the spectrum analyzer. This effect was seen across the entire EMF spectrum emitted by cell phones and was independent of the experimental conditions; i.e., whether or not there were interfering cell phone signals in the immediate environment or whether there were human voices being transmitted over the line. This new data indicates that the Aulterra Neutralizer also has a primary bio-protective effect and is the only device on the market that offers both primary and secondary protection.

The results presented here demonstrate the efficacy of the Aulterra Neutralizer to reduce the damaging effects of cell phone radiation by affecting the body at three different levels- molecular, electrical and thermal. Furthermore, the Neutralizer reduces the intensity of the radiation emitted from cell phones. Taken together, there is now strong scientific evidence for the ability of the Neutralizer to protect the body from the harmful effects of cell phone radiation.