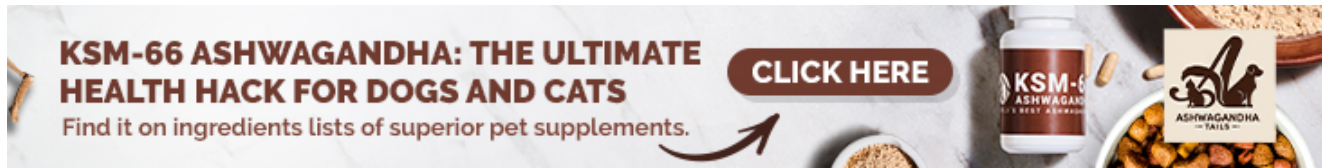




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How is electro-pollution affecting your pet?

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Electro-pollution from cell phones, power lines, microwaves and more is having an adverse impact on the health of our dogs and cats (and ourselves!). Learn what these effects are, and how to protect your pet.

Within the last two decades, wireless technology has exploded. Most people and their companion animals are now living in a dense sea of electromagnetic energy waves, termed electromagnetic radiation (EMR). Current EMR levels are estimated to be 100 to 200 million times greater than they were just a century ago. Numerous studies reveal that the homeostasis within our bodies – and those of our dogs and cats – is dramatically affected by these increasing EMR levels, with negative consequences on health.

Electromagnetic fields

There are two main categories of electromagnetic fields (EMFs):

- Higher-frequency EMFs include x-rays and gamma rays. These EMFs are in the **ionizing** radiation part of the electromagnetic spectrum.
- Low- to mid-frequency EMFs include magnetic fields from electric power lines and appliances, radio waves, microwaves, infrared radiation and visible light. These EMFs are in the **non-ionizing** radiation part of the electromagnetic spectrum.

Common sources of non-ionizing EMFs

Sources of non-ionizing EMFs can be either natural or manmade. The earth's magnetic field is an example of a naturally-occurring EMF. Human-made EMFs fall into both the ELF (extremely low frequency EMFs) and radio frequency categories of the non-ionizing electromagnetic spectrum, and can come from a number of sources – power lines, electrical wiring, and appliances such as shavers, hair dryers and electric blankets.

Common sources of radio frequency radiation are wireless telecommunication devices such as cell phones, tablets and laptop computers; they also include Wi-Fi, cell phone towers, radio and TV signals, satellite stations, MRI devices, microwave ovens, and digital electric and gas meters (“smart meters”).

Effects of electro-pollution

Ionizing EMFs are known to cause direct damage to cells and DNA. Although non-ionizing low frequency EMFs have not yet been “definitely proven” to directly damage DNA or cells, an increasing and overwhelming amount of data suggests they do. Although the wireless industry and the US government claim controversy despite mounting data and research, current evidence is prompting many countries outside the US to issue public health risks regarding mobile devices, and to decrease the number of cell phone towers.

As an important reminder, magnetic field levels are highest near the radiation source, and decrease rapidly the farther away you get from the source. It has been shown that magnetic fields are significantly decreased at a distance of about 12” from most appliances. For computer screens, a distance of 12” to 20” offers a dramatically lowered magnetic field.

The World Health Organization International Agency for Research on Cancer classified radio frequency radiation as a possible carcinogen in 2011, and as a probable carcinogen in 2013.

Many experts report that electro-pollution-induced biological stress profoundly compromises normal physiology and intercellular communication, leading to the breakdown of healthy cellular processes. Specifically, cell function deteriorates, cell membranes harden, free radical damage occurs, nutrients cannot enter the cell, and toxins cannot be excreted. Numerous studies have shown the harmful effects of EMR on the immune system, enzyme syntheses and nervous system, as well as on learning, moods and behavioral patterns. All aspects of physiology at molecular, cellular and biochemical levels can potentially be damaged by EMR exposure.

Expanding knowledge regarding EMR toxicity

In the early days of radiation technology, it was believed the only risk associated with EMR came from a thermal effect (i.e. the heating of tissues, as in a microwave oven). Since cell phones do not produce enough power to heat tissue, the US government did not require any studies to investigate potential health problems caused by these devices. However, emerging science has found that the problem with cell phones does not come from their power output (thermal effect) but rather from the information in the carrier waves. These information-carrying radio waves (ICRW) use frequency to

convey specific packets of information that allow for the transmission of voice, text, graphics, etc. This is what creates the problem.

ICRW is a frequency that has never before existed in nature. The cells of an animal or human body are totally unfamiliar with it and perceive it as a dangerous foreign invader.

The latest research has clearly identified the biological mechanisms of harm caused by ICRWs. Cells have special receptor sites that sense frequencies and perform signal transduction, converting extracellular signals into intracellular signals. Because cell receptors interpret ICRWs as an unknown “threatening” energy, the cell membrane quickly goes into protective lockdown mode.

This means nutrients cannot get into the cell, and toxins (<https://animalwellnessmagazine.com/animal-toxins/>) and waste products cannot get out. This induced protective mode also prevents vital cell-to-cell communication. The effects are immediate and last as long as the cells are exposed to ICRWs. The longer the exposure persists, the greater the biological damage, leading to a loss of cellular energy as well as free radical damage, genetic mutation, premature aging and degenerative disease. In fact, specific studies have identified that information-carrying radio waves trigger protein membrane responses at the cell membrane level, leading to disruption of intercellular communication and the build-up of free radicals inside the cell.

- Endocrine function appears particularly harmed by the effects of EMR. And we have seen a marked increase in endocrine diseases in pets over the last 20 years.
- Electromagnetic radiation is known to act as a hormone disrupter and specific studies have shown that EMR has a direct effect on melatonin production. In 2001, a Japanese study showed that human breast cancer cells treated with melatonin resumed growing when exposed to power-frequency EMR. The results demonstrated that magnetic fields disrupt the cells’ signaling system, which explains why reduced melatonin levels from EMR exposure have been shown to cause a number of cancers in people including breast, prostate and colorectal as well as melanoma, ovarian malignancies and childhood leukemia.

Although melatonin is well known for its association with regulating the circadian rhythms governing the sleep/wake cycle, this hormone also happens to be one of the most efficient destroyers of free radicals. Through various mechanisms, melatonin supports the immune system and counteracts stress-induced immune suppression. Melatonin not only inhibits the release of estrogen and suppresses the development of breast cancer, it has the ability to increase the cytotoxicity of the immune system’s killer lymphocytes and enhances the ability of vitamin D to inhibit tumor growth.

- Neurotransmitters such as serotonin and dopamine play a major role in moods, and decreased serotonin levels are associated with depression. One study found

that serotonin and dopamine levels were significantly depressed immediately following exposure to magnetic fields, and only dopamine returned to normal levels several months later.

Companion animals, like people, are facing exponentially increasing exposure rates to EMR toxicity, since they (via their human counterparts) are surrounded with multiple devices much of the time. Animals and people who live in (or near) densely-populated cities are exposed to dramatically higher EMR, since there are many more towers and electric systems in these regions as compared to rural areas.

Protecting your pet (and yourself!) from electro-pollution

Leading authorities in hormone health and EMR safety are recommending three levels of intervention to adequately protect against electro-pollution. These interventions can help protect both you and your dog or cat.

1. Primary intervention involves **reducing exposure as much as possible**. This can be done by avoiding constant proximity to EMFs, using headsets for mobile phones, keeping phones in airplane mode as often as possible, etc.
2. Secondary intervention focuses on **minimizing the effects of radiation**. Specific options include subtle energy technologies, diodes and pendants. These tools are designed to “harmonize” the stressful EMFs. Many of these devices are created by reputable energy design companies. They can be used in homes, attached to mobile phones and other personal devices, and/or placed on animal collars or worn as pendants.
3. The third level of intervention is directed at **strengthening the body’s metabolic systems to support correction of cell damage**. This is done through a healthy diet and lifestyle. As always, the value of a nutrient-rich diet containing foods and/or supplements that either deliver or promote antioxidant activity are beneficial. Some of the most effective antioxidants include melatonin, N-acetylcysteine, SAME, lipoic acid, green tea, CoQ10, selenium, and vitamins A, C and E. As always, talk to a holistic or integrative vet before giving your pet any new supplements.

Interestingly, ginkgo biloba was the first herbal supplement to be tested against cell phone radiation. Pre-treatment with this brain-protective herb was shown to reverse cell phone-induced oxidative stress and depletion of antioxidant enzymes. Resveratrol and grape seed extract are also reported to protect against the oxidative stress induced by cellphones.

Defining electric and magnetic fields

Electric and magnetic fields (also called radiation) are invisible areas of energy produced by electricity; i.e. the movement of electrons, or current, through a wire.

- An electric field is produced by voltage, and as voltage increases, the strength of the electric field increases.
- A magnetic field results from the flow of current through wires or electrical devices, and this energy field increases in strength as the current increases.

Electric fields are produced whether or not a device is on, but magnetic fields are produced only when current is flowing, which usually requires a device to be turned on. However, power lines produce magnetic fields continuously because current is always flowing through them. Electric fields are easily blocked or weakened by walls and other objects, but magnetic fields can pass through buildings, living things, and most other materials. It is important to note that the strength of a magnetic field decreases rapidly as the distance from its source increases.

In conclusion, electro-pollution is a very real threat to both present and future generations of animals and people. Companion animals can be expected to have very high exposure rates due to often constant proximity to their human caretakers' multiple EMR-emitting devices.

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