



SAFETY OF EXPOSURE TO ELECTRIC AND MAGNETIC FIELDS FROM COMPUTER MONITORS AND OTHER VIDEO DISPLAY TERMINALS

The Issue

There are concerns about possible health effects related to electric and magnetic fields from computer monitors and other types of video display terminals (VDTs). Headaches, skin disorders and adverse pregnancy outcomes (e.g., miscarriage, birth defects) are some of the concerns raised by people who use VDTs.

Background

Video display terminals, such as computer monitors, are common in the work-place and the home. All electrical appliances, including computer monitors, are surrounded by invisible electric and magnetic fields (EMFs).

There are two basic types of video display terminals: one uses liquid crystal technologies and the other is based on cathode-ray tubes. The cathode-ray VDTs have been the main focus of concern.

No Evidence linking VDTs to Health Risks

Over the years, a number of organizations, including Health Canada, have done studies to assess potential health risks related to electric and magnetic fields from VDTs. Much of this research was prompted by the findings in the late 1970s of what appeared to be higher than normal rates of adverse pregnancy outcomes in some groups of women who worked with VDTs. However, other risk factors, such as exposure to solvents, may explain these findings. The majority

of human health studies completed since then have found no increased risk of miscarriage or birth defects when female office workers are exposed to EMFs from VDTs. The overall results from animal experiments have also failed to show a concrete link between EMFs from VDTs and adverse reproductive outcomes. The scientific evidence to date does not support allegations that EMFs from VDTs cause problems related to pregnancy.

There is also no convincing evidence that problems such as skin disorders, headaches, dizziness, tiredness, eye fatigue and pain are caused by EMFs from VDTs. However, it is possible that these symptoms could be caused by other factors in an office, such as lighting, poor air quality, room temperature or improper posture while working in front of VDTs.

Concerns about Jitter

Office workers may notice image movement (jitter) on their computer screens if the monitors are in an area where magnetic fields are slightly above typical levels found in offices. Some sources that generate these slightly elevated levels are the cables that bring electrical power into an office area, and common electrical equipment, such as power transformers.

Do not be alarmed if the image on your computer monitor jitters. Magnetic fields that cause jitter on VDTs are well below the levels that would cause human



health effects. To solve the jitter problem, simply move the computer to another part of the room where the magnetic fields are weaker.

Minimizing Your Risk

There is no need to take action regarding exposure to electric and magnetic fields from video display terminals. The scientific evidence to date shows that VDTs are not a health hazard.

You may have seen products on the market that claim to offer protection from adverse health effects caused by VDTs.

Examples of these products include anti-radiation shields, special aprons and pendants. In fact, these products offer no practical value since EMF levels at the normal VDT user position (about 30 cm from the screen) are barely above the levels typically found in Canadian homes and offices.

Health Canada's Role

Over the past 25 years, Health Canada has carried out many scientific surveys to determine the levels of EMFs emitted from VDTs. The following summarizes the findings:

- Radiofrequency EMFs – The average electric and magnetic fields at the normal VDT user position are well below the acceptable limits for general public exposure. These limits are set out in Health Canada's Safety Code 6 -

Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz.

- Extremely low frequency EMFS – The average electric and magnetic fields at the normal VDT user position are well below all published exposure guidelines.

Health Canada continues to conduct research and monitor scientific information about the possible health effects of exposure to electric and magnetic fields.

Need More Info?

For further information contact:

The Consumer and Clinical Radiation Protection Bureau
Health Canada
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Ottawa, Ontario K1A 1C1
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Also, visit the following Web sites:

Health Canada, Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz: Safety Code 6 at <http://www.hc-sc.gc.ca/hecs-sesc/ccrpb/pdf/99ehd237.pdf>

World Health Organization (WHO), Video Display Units (VDUs) and Human Health, Fact Sheet 201 at http://www.who.int/docstore/peh-emf/publications/facts_press/efact/efs201.html

Institute of Electrical and Electronic Engineers (IEEE), Biological and Health Effects of Electric and Magnetic Fields from Video Display Terminals at <http://ewh.ieee.org/soc/embs/comar/vdt.htm>

It's Your Health, Electric and Magnetic Fields at Extremely Low Frequencies at <http://www.hc-sc.gc.ca/english/iyh/environment/magnetic.html>

Additional It's Your Health articles can be found at:

www.healthcanada.ca/iyh
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