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Cite This: Acad. Res. J. of Nat. and Pub. Health. 2022, 1, 35-36

Sciforce

Academic Research Journal of Nature and Public Health

Journal homepage: www.sciforce.org

Effect of Environmental Radiation on Public Health

Pranav Adithya Navath, Haris S. Ansari

[a]*Senior High Division, Sachse High School, Sachse Texas, 75048 USA*

ARTICLE INFO

Article history:
Received 20220210
Received in revised form 20220220
Accepted 20220225
Available online 20220226

Keywords:
Radiation;
Cosmic radiation;
Public health;
Effects of radiation

ABSTRACT

A review on effect of environmental radiation on public health is described. Radiation is energy that comes from different sources and exists in different forms in the environment. This energy has an electric field and a magnetic field associated with it, and has electromagnetic properties. The author is discussed about the environmental radiation and its effect on public health.

*Corresponding author. Tel.: +1-972-643-8805; e-mail: pranav.navath@gmail.com

Introduction

For those unfamiliar, radiation is the release of energy in the form of electromagnetic waves or kinetic subatomic particles. Radiation is all around us. It is used extensively in healthcare settings for diagnostic and treatment purposes[1]. There are different types of radiation such as alpha, beta, neutrons, and electromagnetic waves such as gamma rays, x-rays and ultra violet rays based on differ in mass, energy and how deeply they penetrate people and objects.

X-ray equipment and radiopharmaceuticals used in diagnostic or radiotherapy are among the most common artificial sources of radiation exposure to humans today. However, radiation is also found in nature, such as cosmic radiation from space and terrestrial radiation from the earth[2].

Since we are surrounded by radiation at all times, it is essential to understand how it may affect public health. Read on to learn about the radiation effects of nature on public health.

Natural Radiation & Public Health

Depending on the dose and intensity, radiation can cause harm to cells, DNA, and even organs in live organisms[3]. There are a number of variables that could affect the severity of the damage:

- Type of electromagnetic radiation & isotopes
- Duration of the exposure
- Particular fragility of afflicted organs and tissues
- Vulnerable features of the individual, such as age or underlying condition

The amount of radiation exposure you get from cosmic rays changes as you climb higher into the atmosphere. At higher altitudes, you're more vulnerable to cosmic rays. The upper atmosphere is the most vulnerable to cosmic radiation, whereas outer space experiences the highest levels.

We also absorb radiation from the environment every day. Earth's natural radiation comes from the natural decay of radioactive elements. The radioactive decay of radioisotopes in rocks, soil, vegetation, and groundwater is the primary source of radiation found in the earth's environment.

Figure 1.

Radiation from the earth's radioactive materials reaches us just as directly as that from a medical x-ray. However, your radon exposure may vary with your location. The only reliable method to know if you and your family are at risk from radon exposure is

to have your house tested. Sunlight and artificial sources like tanning beds also emit ultraviolet (UV) radiation, a type of non-ionizing radiation. Vitamin D synthesis is one of the positive benefits of UV radiation. However, there are potential dangers associated with prolonged exposure. Therefore, it's crucial to take precautions against sun damage all through the seasons[4].

Effects of Radiation

Extremely high levels of radiation exposure can have devastating short-term consequences, including acute symptoms like nausea and vomiting, skin redness, hair loss, radiation burns, acute radiation syndrome, and even death. The long-term risk of developing some types of cancer after exposure to excessive radiation levels is higher. Inhaling or ingesting radioactive iodine concentrates in the thyroid gland also raises the risk of thyroid cancer[5].

Conclusion

Excessive exposure to radiation light has been linked to numerous health problems, such as damage of endocrine system and also develops cancers. Those areas of the body most frequently exposed to radiation are the most likely to develop them.

Remember, health risks increase with increasing radiation exposure. Radiation is much safer if the dose is minimal or the radiation is spread out over a lengthy period, giving the body more time to heal any cellular or molecular damage.

Acknowledgments

The authors are thankful to and councilor and Principal Sachse high for their constant encouragement.

Conflicts of interest

There is no conflict of interest to note.

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