

Topic Page: [radiation sickness](#)

Definition: **radiation sickness** from *Processing Water, Wastewater, Residuals, and Excreta for Health and Environmental Protection: An Encyclopedic Dictionary*

Sickness that results from overexposure to ionizing radiation, e.g., from X-rays, gamma rays, neutrons, weapon fallout, etc., symptoms of which may include nausea, vomiting, diarrhea, bleeding, hair loss, and death.

Summary Article: **radiation sickness**

From *The Columbia Encyclopedia*

harmful effect produced on body tissues by exposure to radioactive substances. The biological action of radiation is not fully understood, but it is believed that a disturbance in cellular activity results from the chemical changes caused by ionization (see ion). Some body tissues are more sensitive to radiation than others and are more easily affected; the cells in the blood-forming tissues (bone marrow, spleen, and lymph nodes) are extremely sensitive. Radiation sickness may occur from exposure to a single massive emanation such as a nuclear explosion (such as Hiroshima and Nagasaki), or it may occur after repeated large exposure or to even very small doses in a plant or laboratory, since radiation effects are cumulative. Moreover, exposure to the ultraviolet radiation of the sun can cause tissue destruction and trigger mutations that can lead to skin cancer. Radiation sickness may be fairly mild and transitory, consisting of weakness, loss of appetite, vomiting, and diarrhea. Since even in a mild dose of radiation the blood-forming tissue is destroyed to some extent, there is a reduction in the supply of blood cells and platelets. This increases the tendency to bleed and reduces the body's defense against infection. After a massive dose of radiation the reaction may be so severe that death quickly ensues. This is usually due to severe anemia or hemorrhage, to infection, or to dehydration. Extremely high doses damage the tissues of the brain, and death usually follows within 48 hr, as was demonstrated at Chernobyl. There is no treatment for radiation sickness, although it is sometimes possible for persons to survive otherwise lethal doses of radiation if bone marrow transplants are performed. Potassium iodide is to protect against thyroid cancer from radiation exposure, but the drug should ideally be taken four hours prior to the exposure. Exposure to radiation can cause genetic mutation; the progeny of those subjected to excessive radiation tend to show deleterious genetic changes. The genetic damage from the atomic bombs dropped on Japan is still evident and such damage will continue to surface in people directly affected by the nuclear diasaster at Chernobyl. Persons working with radioactive materials or X rays protect themselves from excessive exposure to radiation by shields and special clothing usually containing lead. Processes involving radioactive substances are observed through thick plates of specially prepared glass that exclude the harmful rays. A dosimeter, a device measuring the amount of radiation to which an individual has been exposed, is always worn by persons working in radioactive areas.

APA

Chicago

Harvard

MLA

radiation sickness. (2018). In P. Lagasse, & Columbia University, *The Columbia encyclopedia* (8th ed.). New York, NY: Columbia University Press. Retrieved from https://search.credoreference.com/content/topic/radiation_sickness



The Columbia Encyclopedia, © Columbia University Press 2018



The Columbia Encyclopedia, © Columbia University Press 2018

APA

radiation sickness. (2018). In P. Lagasse, & Columbia University, *The Columbia encyclopedia* (8th ed.). New York, NY: Columbia University Press. Retrieved from https://search.credoreference.com/content/topic/radiation_sickness

Chicago

"radiation sickness." In *The Columbia Encyclopedia*, by Paul Lagasse, and Columbia University. 8th ed. Columbia University Press, 2018. https://search.credoreference.com/content/topic/radiation_sickness

Harvard

radiation sickness. (2018). In P. Lagasse & Columbia University, *The Columbia encyclopedia*. (8th ed.). [Online]. New York: Columbia University Press. Available from: https://search.credoreference.com/content/topic/radiation_sickness [Accessed 15 October 2019].

MLA

"radiation sickness." *The Columbia Encyclopedia*, Paul Lagasse, and Columbia University, Columbia University Press, 8th edition, 2018. *Credo Reference*, https://search.credoreference.com/content/topic/radiation_sickness. Accessed 15 Oct. 2019.