Radiation sickness is illness and symptoms resulting from excessive exposure to ionizing radiation.

There are two basic types of radiation: ionizing and nonionizing.

- Nonionizing radiation comes in the form of light, radio waves, microwaves and radar. This kind of radiation usually does not cause tissue damage.

- Ionizing radiation is radiation that produces immediate chemical effects on human tissue. X-rays, gamma rays, and particle bombardment (neutron beam, electron beam, protons, mesons, and others) give off ionizing radiation. This type of radiation can be used for medical testing and treatment, industrial and manufacturing purposes, weapons and weapons development, and more.

References:
- Nuclear Crisis Adds Urgency to Develop Radiation Drugs
- David Brenner, Radiation Expert, in Spotlight in Japan Nuclear Crisis
- At U.S. Nuclear Sites, Preparing for the Unlikely
- Japan Radiation Risk Seen as Low so Far
- Columbia Scientists Prepare for a Dirty Bomb
- Chernobyl's Reduced Impact
- Chernobyl Is Said to Affect Health of Thousands in a Soviet Region
- House Votes Funds For Western Victims Of Radiation Illness
- No Detectable Health Risk Is Found Outside Chernobyl Vicinity
- The Trial Begins At Chernobyl

Illustrations:
- Radiation Therapy
• Total body exposure of 100 roentgens/rad (or 1 Gy) causes radiation sickness.
• Total body exposure of 400 roentgens/rad (or 4 Gy) causes radiation sickness and death in half the individuals. Without medical treatment, nearly everyone who receives more than this amount of radiation will die within 30 days.
• 1,000,000 roentgens/rad (1000 Gy) causes almost immediate unconsciousness and death within an hour.

The severity of symptoms and illness (acute radiation sickness) depends on the type and amount of radiation, how long you were exposed, and which part of the body was exposed. Symptoms of radiation sickness may occur immediately after exposure, or over the next few days, weeks, or months. The bone marrow and gastrointestinal tract are especially sensitive to radiation injury. Children and babies still in the womb are more likely to be severely injured by radiation.

Because it is difficult to determine the amount of radiation exposure from nuclear accidents, the best signs of the severity of the exposure are: the length of time between the exposure and the onset of symptoms, the severity of symptoms, and severity of changes in white blood cells. If a person vomits less than an hour after being exposed, that usually means the radiation dose received is very high and death may be expected.

Children who receive radiation treatments or who are accidentally exposed to radiation will be treated based on their symptoms and their blood cell counts. Frequent blood studies are necessary and require a small puncture through the skin into a vein to obtain blood samples.

Causes
The causes include:
• Accidental exposure to high doses of radiation such as a nuclear power plant accidents
• Exposure to excessive radiation for medical treatments

Symptoms
• Bleeding from the nose, mouth, gums, and rectum
• Bloody stool
• Bruising
• Confusion
• Dehydration
• Diarrhea
• Fainting
• Fatigue
• Fever
• Hair loss
• Inflammation of exposed areas (redness, tenderness, swelling, bleeding)
• Mouth ulcers
• Nausea and vomiting
• Open sores on the skin
• Skin burns (redness, blistering)
• Sloughing of skin
• Ulcers in the esophagus, stomach or intestines
• Vomiting blood
• Weakness

Your doctor will advise you how best to treat these symptoms. Medications may be prescribed to help reduce nausea, vomiting, and pain. Blood transfusions may be given for anemia. Antibiotics are used to prevent or fight infections.

First Aid
• Check the person’s breathing and pulse.
• Start CPR, if necessary.
• Remove the person’s clothing and place the items in a sealed container. This stops ongoing contamination.
• Vigorously wash body with soap and water.
• Dry the body and wrap with soft, clean blanket.
• Call for emergency medical help or take the person to nearest emergency medical facility if you can do so safely.
• REPORT EXPOSURE TO EMERGENCY OFFICIALS.

If symptoms occur during or after medical radiation treatments:
Tell the health care provider or seek medical treatment.

Handle affected areas gently.

Treat symptoms or illnesses as recommended by the doctor.

**DO NOT**

- DO NOT remain in area where exposure occurred.
- DO NOT apply ointments to burned areas.
- DO NOT remain in contaminated clothing.
- DO NOT hesitate to seek emergency medical treatment.

**Prevention**

- Avoid unnecessary exposure to radiation.
- Persons working in radiation hazard areas should wear badges to measure their exposure levels.
- Protective shields should always be placed over the parts of the body not being treated or studied during x-ray imaging tests or radiation therapy.

**References**


**More Information on This Topic**

**News & Features**

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