

Risks of Radiation

Although it can be a useful medical tool, excess radiation exposure can be dangerous.

Effects of radiation exposure

Experts say even small radiation doses, as low as 100 millisieverts (mSv), can slightly raise cancer risk.

Exposure in mSv

10,000	Single dose, fatal within weeks
5,000	Single dose; would kill half of those exposed within a month
1,000	Single dose could cause radiation sickness; nausea, but not death
100	Recommended limit for radiation workers every five years
16.00	CT scan, heart
10.00	CT scan, full body
2.00	Radiation most people are exposed to per year
0.01	Dental x-ray

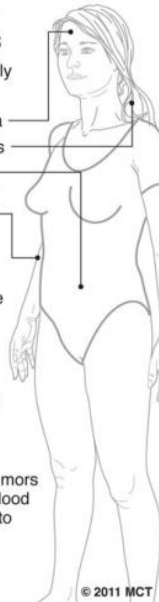
Immediate effects

Cell damage, especially fast-growing cells
Brain Fatigue, nausea
Hair follicles Hair loss
Intestine lining Diarrhea, malnutrition
Skin cells Sores, peeling
White blood cells and bone marrow Immune system failure

Later

DNA damage in cell nucleus
Egg and sperm cells with damaged DNA can produce babies with birth defects
Body cells develop tumors or abnormal growth; blood cell damage can lead to leukemia

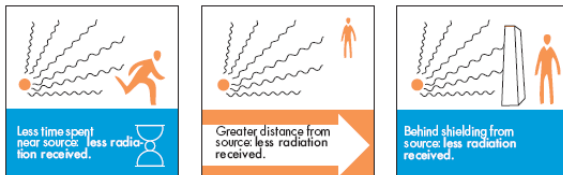
Source: U.S. Environmental Protection Agency, Reuters
 Graphic: Melina Yingling



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Source: US Environmental Protection Agency, Reuters. Melina Yingling

All measures should be taken to reduce any unnecessary radiation exposure.



Source: <http://www.nrc.gov>

If you would like more information, please visit:



[HTTP://WWW.NRC.GOV](http://www.nrc.gov)

Radiation Risks and Safety



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What is Radiation?

Similar to the ripple waves created by a droplet falling onto a puddle, radiation is energy traveling through space.



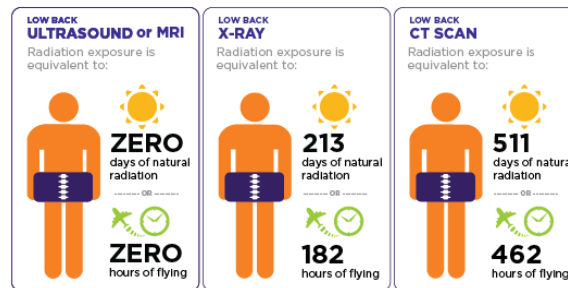
It can be produced by unstable atoms found in nature. These atoms are unstable because they have excess energy. They stabilize by releasing that energy, which we call radiation.

Radiation can also be created, using magnets and electricity. Because of its ability to penetrate tissue and deposit energy, it can be used in the medical setting to image the human body as well as the treat certain medical conditions.

Radiation in the medical setting

Electromagnetic radiation and radioactive isotopes can be incredibly powerful tools in medicine.

In fact, diagnostic x-rays or radiation therapy have been administered to about 7 out of every 10 Americans.

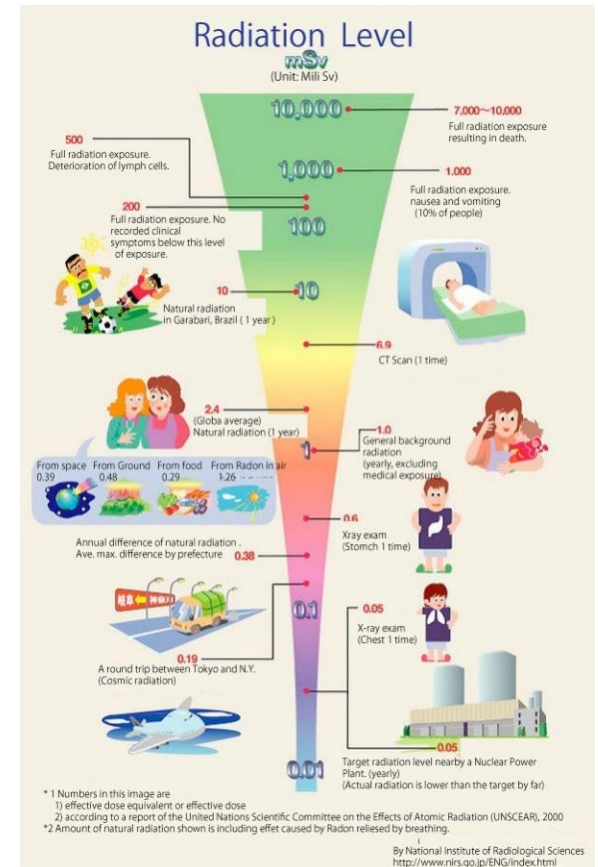


Source: <http://www.antarcticajournal.com/radiation-from-medical-scans/>

Although many imaging modalities, including X-Rays, CT scans, Bone scans, and PET Scans, involve radiation exposure, not all imaging does!

Ultrasounds and MRIs require no radiation to take images, however, they may not always be the appropriate image needed for you.

Radiation in our daily lives



Source: <http://www.nea.gov.sg>

We are exposed to radiation every day! From sunlight, to a cross-country flight, to living in certain parts of the world, your daily radiation exposure can vary.