

Health risks of radiation exposure

Exposure to radiation carries two types of health risks: those typically associated with low level, long-term exposure, such as cancer and DNA mutation, and those from short-term, high levels – acute exposure – including burns and radiation sickness

RADIATION SICKNESS

Biological risk of absorbed dose measured in **Sieverts** – typically 0.0022 per year

Prevention: Minimise dose or exposure time, e.g. by use of mask, protective suit

Treatment: Quick removal of radioactive material to prevent prolonged exposure

Symptoms and exposure

Maximum detected level at Fukushima – 0.0082 Sieverts (March 15)



Sieverts (time to onset)

0.05 Blood cell changes

0.5 Nausea (hours)

0.70 Vomiting (hours)

0.75 Hair loss (2 weeks)

0.90 Diarrhoea (hours)

1.0 Haemorrhage (weeks)

4.0 Possible death (2 months)

10.0 Destruction of intestinal lining, internal bleeding, death (1-2 weeks)

20.0 Cognitive impairment, convulsions, death (hours)

Thyroid gland: Absorbs radioactive Iodine-131, with half-life of 8 days. High cancer risk, especially in children.

Taking stable iodine can protect thyroid

Lungs: Inflammation (pneumonitis) and scarring (fibrosis)

Red blood cells: Low platelet count, spontaneous bleeding

Stomach: Internal bleeding

Small intestine: Bleeding

Bone marrow: Depletion of white blood cells – up to 50% within 48 hours – leading to high risk of infection

