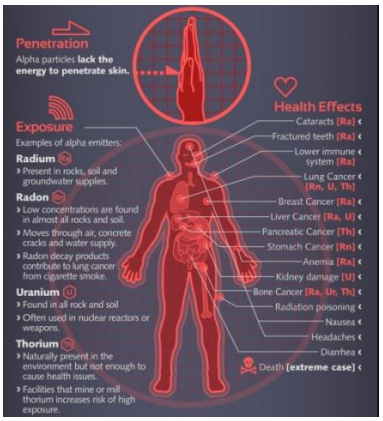
RADIATION SICKNESS ABOARD a NUCLEAR SUB



Radiation is emitted when the unstable nuclei of atoms decay and release particles. When those particles touch organic material (like human tissue), damage will likely result. Whether there actually IS damage depends on how much radiation has reached living tissue.

When human beings are exposed to radiation, the dosage measurement is called "rem" which stands for "**r**oentgen **e**quivalent in **m**an." It represents the amount of radiation needed to damage living tissue.

Total body exposure above 100 rems causes radiation sickness, although smaller doses may produce detectable levels in human blood. As the rems increase, so do the symptoms and the illness severity. An exposure of 450 roentgens has caused radiation sickness and death in half the individuals measured. Someone exposed to 100,000 rems could be dead in an hour.

Captain Zateyev knew that radiation conditions aboard his ship were worsening. It wasn't just the men in Compartment Six who were exposed - everyone was. Zateyev thought about a way to help the men ward off the effects of the radiation:

> *Radiation conditions continued to deteriorate. I summoned my starpom, Captain Lieutenant Yenin, to the cockpit and authorized him to give the entire crew 100-gram servings of liquor. I knew that under the influence of alcohol (which is also a narcotic) the cells of the body are less susceptible to radiation; in other words, resistance to external irritants goes up...On the strength of my experience of an accident in Obninsk, when an operator had dosed himself up on liquor before going to work on a reactor core and radiation had not affected him, I authorized this measure.*
> (*K-19*, page 134.)

What are the symptoms of radiation sickness?

- Smaller doses produce nausea and vomiting initially, then headaches and some loss of white blood cells. (White blood cells, or leukocytes, help the body's immune system fight infection.)

- Three hundred rems, or more, cause temporary hair loss and internal injuries to nerve cells and digestive-lining cells.

- Besides the leukocyte problem, radiation exposure can also reduce the body's ability to produce platelets, which help the blood to clot. Victims of radiation sickness are therefore prone to hemorrhaging.

- Doses of 800 rems or more are always fatal.

Eight of the *K-19* sailors who repaired the leak in the nuclear reactor's primary cooling loop sustained doses of 5,000 - 6,000 rems!

Widowmaker

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http://www.awesomestories.com/asset/AcademicActivities/RADIATION-SICKNESS-ABOARD-a-NUCLEAR-SUB-K19-Widowmaker