Radiation Oncologist

A Radiation Oncologist is a doctor who specializes in curing cancer with radiation therapy. Radiation therapy is a way to use the energy from specialized machines to kill cancer cells. Sometimes radiation therapy is used to destroy a dangerous tumor (a clump of cells growing out of control). Other times it is used to keep new cancers from forming or to prepare the patient for another type of treatment.

Career Path

In addition to being a good doctor, a radiation oncologist must know a lot about nuclear physics. If you are interested in studying physics and medicine, you would make a good radiation oncologist.

The machines used to treat cancer patients with radiation look big and scary, but the treatment doesn't hurt a bit! The picture on the right shows a new kind of radiotherapy machine called the "Novalis". This machine sends a beam of radiation to destroy cancer cells. The doctor must adjust the machines very carefully so the radiation goes only where it is needed. This machine is so smart that it makes sure the beam hits the correct spot even if that spot moves slightly each time the patient takes a breath! In just 20 - 60 minutes, the treatment is complete and the patient can go home.

Technology Spotlight

To understand how the Novalis machine focuses radiation on just the cells that have cancer, try the activity described below:

1. Draw an outline of a human body on a blank sheet of paper.
2. Draw a spot about the size of a quarter inside the body. This represents the cancerous tumor. You can color it in if you like.
3. In a dark room, use a flashlight or a small desk lamp to shine a beam of light on the tumor. This represents the radiation that will kill the cancer cells. Can you aim the light beam so it can hit only the tumor and nothing else?
4. It may be difficult to keep the light from hitting the area around the tumor, because a beam of light from the flashlight or lamp is not focused well.
5. Cut a small hole in a thin piece of cardboard or cardstock that matches the shape of the tumor and hold it over your light. This should help focus the light.
6. Now can you focus the light so it hits only the tumor?