

Radiation Therapy

What it is and what to expect

Radiation therapy is often used to treat cancer and other medical conditions. This handout explains radiation therapy and what to expect before, during, and after treatment.

What are the steps in my treatment?

One of the most common radiation treatments is called *external beam radiation therapy*. With this treatment, beams of radiation are focused from outside your body on areas of diseased tissue. You can imagine this beam like a specialized flashlight.



Before your first treatment, your plan is double-checked to be sure it is accurate.

CT Simulation

After your radiation oncologist decides on your treatment plan, you will usually have a *CT simulation*. CT stands for *computed tomography*, and is a way to create internal images of the body. The purpose of the CT simulation is to make sure you are in the same position every day for your treatment. During this session, you will meet our radiation therapists. The therapists may tattoo small dots on your skin or draw on your skin with a marker. They may also make a custom body mold or face mask, or give you special breathing instructions. The CT simulation is an important part of making sure your treatment delivery is accurate.

CT Scan

Next, you will have a *CT scan*. In a CT scan, technicians use X-rays to create a 3-dimensional computer model of your body. Your doctor and care team will use this CT scan model to design a custom radiation treatment plan for you.

Testing the Treatment Plan

When your treatment plan is ready, *medical physicists* (experts in CT and radiation) will review it. They will test your plan and the machines to make sure your treatment is delivered accurately and safely. One way they do this is by testing your treatment on a special device called a *phantom*, which is made of a type of material similar to a human body.

Before starting treatment, we may ask you to come in for a “virtual simulation” when we run your treatment plan without turning on the radiation beam.

If you have any questions about our safety protocols or how the machines work, ask to speak with a medical physicist and they will be happy to schedule a consultation with you.

What happens on my treatment days?

- First, the radiation therapists will help you get in the same position you were in during your CT simulation. You may notice some lasers pointing at your body, which are used to position you more accurately.
- After you are in position, the therapists will leave the room. While the therapists are out of the room, they continuously monitor you on a TV screen and can talk to you through an intercom system.
- Next, X-ray pictures are taken to make sure you are in the right position. We will adjust your position, if needed. Getting you in an accurate position is often the longest part of your treatment session. These X-ray pictures do **not** show us how your cancer is responding to treatment.
- Once the X-ray confirms you are in position, the radiation beam is turned on. Your treatment is typically completed in a few minutes after positioning is confirmed. If you wish, please ask the therapists to play your favorite song or album during your treatment.



Low doses of X-rays are used to image and precisely position you prior to treatment.



Beams of radiation are precisely directed at diseased tissue for treatment.

What will the radiation feel like?

Just like a CT scan or chest X-ray, radiation treatment sessions are not painful. Most patients say they do not feel any new sensations during a radiation treatment.

Is it safe for others to be around me after treatment?

Yes! After receiving treatment, you are not at risk of spreading harmful levels of radiation to others. And, no, radiation therapy will not cause you to glow in the dark.

What are the different types of external radiation beams?

We use 4 types of radiation using particles called *electrons*, *protons*, *neutrons*, and *photons* (X-rays). Electrons, protons, and neutrons are the 3 particles that make up *atoms* (the smallest unit of matter). Photons are particles of light. These 4 types of radiation travel through tissue differently, because they all have different mass and charge. We can use what we know about these differences to choose the most appropriate type of radiation for your treatment.

Photons

Photons (particles of light) are the most common type of external beam radiation therapy. The photons used in radiation therapy are called X-rays. You may be familiar with X-rays from a chest X-ray or CT scan. The X-rays we use to treat cancer have 100 to 1000 times more energy than X-rays used for a CT scan. X-ray beams have many uses, including treating cancers deep within the body.

Electrons

Electrons do not travel deep into the body, so we use electron therapy to treat cancers on the skin or near the surface of the body.

Protons

Like X-rays, protons can treat cancers deep within the body, and we can control where the protons stop in your body.

Neutrons

Neutrons travel through the human body in the same way as X-rays. However, neutrons deposit far more energy than X-rays, electrons, or protons when they contact a tumor cell. This means neutrons are a good treatment option for certain types of cancers that do not respond to other types of radiation. UWMC is the only medical center in North America that can safely treat cancer patients with this unique form of radiation.

Questions?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

Department or Clinic: Call 206.598.4100 weekdays from 8:00 a.m. to 5:00 p.m.

After hours and on weekends and holidays, call 206.598.6190 and ask to page the nurse on call.