Lung Cancer: Radiation Therapy

If you need radiation therapy for lung cancer, you might be feeling overwhelmed or scared. That's understandable. Learning more about this treatment can help you feel better.

What is radiation therapy?

Radiation therapy uses beams of high energy from X-rays or particles to kill cancer cells. It helps reduce the growth and spread of cancer.

When might radiation therapy be used?

Radiation therapy can be used many ways to treat all stages of lung cancer.

For non-small cell lung cancer (NSCLC)

- Radiation may be used as part of the main treatment if the tumor can't be removed with surgery. The tumor may be very big or in a place that makes it hard to get out. Or maybe you don't want surgery or are not well enough to have it. In this case, radiation is often given along with chemotherapy (chemo). This is called chemoradiation. Or if the cancer is at a very early stage, the radiation may be given on its own.
- After surgery, radiation (maybe with chemo) might be given to help kill any remaining cancer cells.
- If you're going to have surgery for NSCLC, you may get radiation therapy (often along with chemo) before surgery. The goal is to shrink the tumor so it's easier to remove.
- Radiation can be used to treat a single area of cancer spread (metastasis), like a tumor in the brain or in an adrenal gland.
- If you have problems caused by NSCLC that has spread to other parts of your body, radiation may help ease them. For instance, radiation can help ease bone pain, trouble swallowing, or nerve problems. Radiation used in this way is called palliative therapy. It can help you feel better. But it won't cure or control the growth of the cancer.

For small cell lung cancer (SCLC)

- If you have limited stage SCLC, the cancer is in 1 lung and in 1 area. Radiation therapy is often used along with chemo as the main treatment.
- Radiation may be given after chemo for people with extensive stage SCLC if they responded well to the chemo. Or it may be used if a person has limited stage SCLC and can't tolerate chemoradiation. This approach could help keep the cancer under control for as long as possible.
- You may get radiation therapy to your head to help keep the cancer from spreading to your brain. This is called prophylactic cranial irradiation. It's most often used for limited stage SCLC. But it can also be used for extensive stage SCLC.
- If you have problems caused by SCLC that has spread to other parts of your body, like the brain or bones, radiation may help ease them. For instance, it can help with coughing, trouble swallowing, pain, problems with coordination, or shortness of breath. This palliative therapy can help you feel better. But it won't cure the cancer.

You will meet with a team of cancer specialists to make a treatment plan that's best for you. Your team might include a surgeon, radiation oncologist, and medical oncologist. A radiation oncologist specializes in treating cancer with radiation therapy. A medical oncologist specializes in treating cancer with medicines.

What are the kinds of radiation therapy?

The most common form of radiation therapy uses a machine outside the body to give off beams of radiation. This is called **external beam radiation.**

A less common method places the radiation source next to or inside a tumor. This is called **internal radiation** or **brachytherapy.**

What is external beam radiation therapy?

External beam radiation therapy is an outpatient procedure. It takes place in a hospital or clinic. As an outpatient, you won't need to spend the night in the treatment center. Treatment is often done 5 days a week. It can take 3 to 7 weeks, depending on the type of radiation used and the reason it's being given.

Stereotactic body radiation therapy (SBRT) is 1 type of external radiation therapy. It uses higher doses of radiation. The beams are directed at the tumor from many different angles.

SBRT is often used when lung cancer is affecting the brain. It may also be used to focus on small tumors within the lungs. This is often the case if surgery is not part of your treatment plan. Because of the high dose, this type of therapy takes less time. It can be done in 1 to 5 treatments.

Whole-brain radiation therapy (WBRT) is another approach used when lung cancer is affecting the brain. It is used when there are many cancer lesions in the brain. This treatment is often given 10 times over 2 weeks.

How do I get ready for external beam radiation therapy?

Before the first treatment, you'll meet with your healthcare providers to figure out where the radiation beam will focus on your body and how you will be positioned during treatment. This session is called **simulation.** It can take up to 2 hours. No radiation is used in the simulation.

During this session, the radiation therapist will ask you to lie on a table. They will find the treatment area. They will mark the area with small dots of semi-permanent ink or with very tiny tattooed dots. The marks will help make sure the radiation is angled in the right direction. This area is also called the **treatment port.**

You may have more than 1 treatment port depending on the plan you and your provider talked about.

You might also have **imaging tests,** such as CT scans, during simulation. Before the test, you may be given a contrast dye through an IV (intravenous) line in your hand or arm. Or you may be asked to swallow the contrast. This dye makes the CT images clearer. These tests give your healthcare providers more information about the exact location of any tumors.

Your provider might also make **body molds.** These are plastic or plaster forms of a part of your body. Using these can help you lie in the same position for each treatment. They make the treatment more precise and effective.

What happens during external beam radiation therapy?

On treatment days, you'll lie down on a table while a machine scans your body. It focuses on the treatment ports marked during simulation. You may have to wear a hospital gown.

Your radiation therapist helps you get in the right position. They might use the body molds made for you. They also might use blocks or shields. These objects prop up your body or cover parts of it that don't need radiation. All these items help support your body during the process and can make the treatment safer.

Next, the therapist will adjust the machine so that the radiation beam will be in line with the treatment port. When you're ready, the therapist will leave the room and turn on the machine. You may hear whirring or clicking noises while the machine moves. The machine won't touch you.

The machine will scan your body. It will focus on the treatment ports marked during simulation. During treatment, you'll be able to hear and communicate with the therapist over an intercom.

You can't feel radiation, so it doesn't hurt. You won't be radioactive afterward. The session might feel like getting an X-ray. The treatment itself is short. But you may be at the clinic or hospital for about 1 hour.

What is internal radiation therapy (brachytherapy)?

You might have this type of radiation if your NSCLC is blocking airways and making it hard to breathe. Sometimes these tumors respond best to high doses of radiation placed near them for a short time. This treatment is called endobronchial brachytherapy. During it, a small radioactive source is placed near the tumor in the airway to help shrink it and ease problems breathing.

A long, thin, lighted tube called a **bronchoscope** is used to place the tube that delivers the radiation source. The back of your nose and throat are numbed. The scope is put into your nose and down your throat to your windpipe (trachea) and lung. A camera on the end of the bronchoscope lets your provider see the tumor. A small plastic tube (catheter) is put into the bronchoscope. The scope is then removed leaving the tube in place. Through the tube, your provider is able to send the radiation source to the tumor. How long the radiation source stays close to the tumor will depend on your treatment plan. After the treatment, the radiation source is withdrawn and the catheter is removed. You can go home after recovering for an hour or 2.

Another type of brachytherapy uses radiation seeds or pellets. These seeds are placed during surgery. They deliver low dose radiation over a long period of time.

How do I take care of myself during radiation therapy?

The following tips can help you feel better during treatment:

- **Get plenty of rest.** This can help ease side effects during and between treatments.
- **Eat healthy foods that are easy to swallow.** Talk with your care team about what you can do to try to maintain your weight during treatment. Your provider can also connect you with other resources, such as a nutritionist. They can offer more tips.
- **Take care of your skin.** The skin near and in the treated area will be sensitive. Don't use ice packs or heating pads on it. Gently wash your skin with warm water and mild soap. Use only topical lotions your provider advises.
- **Wear loose, soft clothing.** This will help prevent irritation of the treated area.
- **Tell your provider about any discomfort or side effects.** They can make changes to your treatment plan.

What are the potential side effects of radiation therapy?

Radiation treatment may cause side effects. If you’re getting chemotherapy, too, that may also contribute to side effects. Your provider can help you with any side effects you may have.

Most side effects go away after your treatment is done. But it’s still helpful to tell your provider about them.

Side effects may include:

- Feeling more tired than normal (fatigue)
- Red, blistering, or peeling skin in the treated area
- Loss of hair in the treated area
- Loss of appetite
- Nausea and vomiting
- Sore throat and problems swallowing
- Coughing
- Shortness of breath

- Trouble thinking or remembering things (more common for people who get treatment to their brain)

Try keeping track of your side effects in a journal or on an app. Note the time, duration, and description of the symptom. This information can help you during appointments. It'll also make it easier for you and your healthcare team to create a plan to manage your side effects.

Based on how you're tolerating radiation, your provider may change your dose or the frequency of treatments. Treatment might even be paused until the side effects ease up.

In case any side effects need urgent care, make sure you have your providers' contact information handy. Know how to get in touch with them outside of office hours, including weekends and holidays. Your care team can help you get through this challenging time.