

# Radiation Therapy and You





## For More Information

This booklet is only one of many free booklets for people with cancer. Here are some others you may find useful:

- *Biological Therapy*
- *Chemotherapy and You: Support for People With Cancer*
- *Eating Hints: Before, During, and After Cancer Treatment*
- *Taking Part in Cancer Treatment Research Studies*
- *Thinking About Complementary & Alternative Medicine: A Guide for People With Cancer*
- *Pain Control: Support for People With Cancer*
- *When Cancer Returns*
- *Taking Time: Support for People With Cancer*

These booklets are available from the National Cancer Institute (often called NCI). NCI is a federal agency that is part of the National Institutes of Health. Call 1-800-4-CANCER (1-800-422-6237) or visit [www.cancer.gov](http://www.cancer.gov). (See page 59 for more information.)

\*For information about your specific type of cancer, see the PDQ® database. PDQ® is NCI's complete cancer database. You can find it at [www.cancer.gov](http://www.cancer.gov).

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**1-800-4-CANCER (1-800-422-6237)**

# About This Book

Radiation Therapy and You is written for you—someone who is about to get or is now getting radiation therapy for cancer. People who are close to you may also find this book helpful.

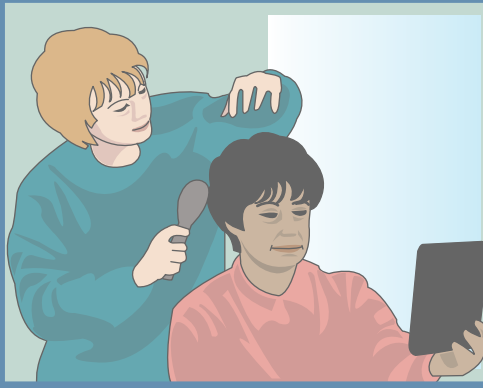
This book is a guide that you can refer to throughout radiation therapy. It has facts about radiation therapy and side effects and describes how you can care for yourself during and after treatment.

## This book covers:

- **Questions and Answers About Radiation Therapy.** Answers to common questions, such as what radiation therapy is and how it affects cancer cells.
- **External Beam and Internal Radiation.** Information about the two types of radiation therapy.
- **Your Feelings During Radiation Therapy.** Information about feelings, such as depression and anxiety, and ways to cope with them.
- **Side Effects and Ways To Manage Them.** A chart that shows problems that may happen as a result of treatment and ways you can help manage them.
- **Questions To Ask.** Questions for you to think about and discuss with your doctor, nurse, and others involved in your treatment and care.
- **Lists of Foods and Liquids.** Foods and drinks you can have during radiation therapy.
- **Words To Know.** A dictionary that clearly explains medical terms used in this book. These terms are in bold print the first time they appear.
- **Ways To Learn More.** Places to go for more information—in print, online (Internet), and by telephone.

Talk with your doctor and nurse about the information in this book. They may suggest that you read certain sections or follow some of the tips. Since radiation therapy affects people in different ways, they may also tell you that some of the information in this book is not right for you.

*Rather than  
read this book  
from beginning  
to end—  
look at only  
those sections  
you need now.  
Later, you  
can always  
read more.*



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# Questions and Answers About Radiation Therapy

## What is radiation therapy?

**Radiation therapy** (also called **radiotherapy**) is a cancer treatment that uses high doses of radiation to kill cancer cells and stop them from spreading. At low doses, radiation is used as an x-ray to see inside your body and take pictures, such as x-rays of your teeth or broken bones. Radiation used in cancer treatment works in much the same way, except that it is given at higher doses.

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## How is radiation therapy given?

Radiation therapy can be **external beam** (when a machine outside your body aims radiation at cancer cells) or **internal** (when radiation is put inside your body, in or near the cancer cells). Sometimes people get both forms of radiation therapy. To learn more about external beam radiation therapy, see page 9. To learn more about internal radiation therapy, see page 15.

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## Who gets radiation therapy?

Many people with cancer need radiation therapy. In fact, more than half (about 60 percent) of people with cancer get radiation therapy. Sometimes, radiation therapy is the only kind of cancer treatment people need.

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## What does radiation therapy do to cancer cells?

Given in high doses, radiation kills or slows the growth of cancer cells. Radiation therapy is used to:

- **Treat cancer.** Radiation can be used to cure, stop, or slow the growth of cancer.
- **Reduce symptoms.** When a cure is not possible, radiation may be used to shrink cancer tumors in order to reduce pressure. Radiation therapy used in this way can treat problems such as pain, or it can prevent problems such as blindness or loss of bowel and bladder control.

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### How long does radiation therapy take to work?

Radiation therapy does not kill cancer cells right away. It takes days or weeks of treatment before cancer cells start to die. Then, cancer cells keep dying for weeks or months after radiation therapy ends.

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### What does radiation therapy do to healthy cells?

Radiation not only kills or slows the growth of cancer cells, it can also affect nearby healthy cells. The healthy cells almost always recover after treatment is over. But sometimes people may have side effects that do not get better or are severe. Doctors try to protect healthy cells during treatment by:

- **Using as low a dose of radiation as possible.** The radiation dose is balanced between being high enough to kill cancer cells yet low enough to limit damage to healthy cells.
  - **Spreading out treatment over time.** You may get radiation therapy once a day for several weeks or in smaller doses twice a day. Spreading out the radiation dose allows normal cells to recover while cancer cells die.
  - **Aiming radiation at a precise part of your body.** New techniques, such as **IMRT** and **3-D conformal radiation therapy**, allow your doctor to aim higher doses of radiation at your cancer while reducing the radiation to nearby healthy tissue.
  - **Using medicines.** Some drugs can help protect certain parts of your body, such as the salivary glands that make saliva (spit).
- 

### Does radiation therapy hurt?

No, radiation therapy does not hurt while it is being given. But the side effects that people may get from radiation therapy can cause pain or discomfort. This book has a lot of information about ways that you, your doctor, and your nurse can help manage side effects.



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## Is radiation therapy used with other types of cancer treatment?

Yes, radiation therapy is often used with other cancer treatments. Here are some examples:

- **Radiation therapy and surgery.** Radiation may be given before, during, or after surgery. Doctors may use radiation to shrink the size of the cancer before surgery, or they may use radiation after surgery to kill any cancer cells that remain. Sometimes, radiation therapy is given during surgery so that it goes straight to the cancer without passing through the skin. This is called intraoperative radiation.
- **Radiation therapy and chemotherapy.** Radiation may be given before, during, or after chemotherapy. Before or during chemotherapy, radiation therapy can shrink the cancer so that chemotherapy works better. Sometimes, chemotherapy is given to help radiation therapy work better. After chemotherapy, radiation therapy can be used to kill any cancer cells that remain.

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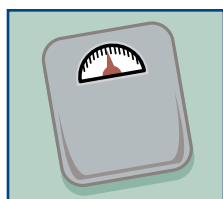
## Who is on my radiation therapy team?



Many people help with your radiation treatment and care. This group of health care providers is often called the “radiation therapy team.” They work together to provide care that is just right for you. Your radiation therapy team can include:

- **Radiation oncologist.** This is a doctor who specializes in using radiation therapy to treat cancer. He or she prescribes how much radiation you will receive, plans how your treatment will be given, closely follows you during your course of treatment, and prescribes care you may need to help with side effects. He or she works closely with the other doctors, nurses, and health care providers on your team. After you are finished with radiation therapy, your radiation oncologist will see you for follow-up visits. During these visits, this doctor will check for **late side effects** and assess how well the radiation has worked.
- **Nurse practitioner.** This is a nurse with advanced training. He or she can take your medical history, do physical exams, order tests, manage side effects, and closely watch your response to treatment. After you are finished with radiation therapy, your nurse practitioner may see you for follow-up visits to check for late side effects and assess how well the radiation has worked.

*You are  
the most  
important part  
of the radiation  
therapy team.*



■ **Radiation nurse.** This person provides nursing care during radiation therapy, working with all the members of your radiation therapy team. He or she will talk with you about your radiation treatment and help you manage side effects.

■ **Radiation therapist.** This person works with you during each radiation therapy session. He or she positions you for treatment and runs the machines to make sure you get the dose of radiation prescribed by your radiation oncologist.

■ **Other health care providers.** Your team may also include a dietitian, physical therapist, social worker, and others.

■ **You.** You are also part of the radiation therapy team. Your role is to:

- Arrive on time for all radiation therapy sessions
- Ask questions and talk about your concerns
- Let someone on your radiation therapy team know when you have side effects
- Tell your doctor or nurse if you are in pain
- Follow the advice of your doctors and nurses about how to care for yourself at home, such as:
  - Taking care of your skin
  - Drinking liquids
  - Eating foods that they suggest
  - Keeping your weight the same

*Be sure to arrive on time for ALL  
radiation therapy sessions.*

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**Is radiation therapy expensive?**

Yes, radiation therapy costs a lot of money. It uses complex machines and involves the services of many health care providers. The exact cost of your radiation therapy depends on the cost of health care where you live, what kind of radiation therapy you get, and how many treatments you need.

Talk with your health insurance company about what services it will pay for. Most insurance plans pay for radiation therapy for their members. To learn more, talk with the business office where you get treatment. You can also contact the National Cancer Institute's Cancer Information Service and ask for the "Financial Assistance for Cancer Care" fact sheet. See page 59 for ways to contact the National Cancer Institute.

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**Should I follow a special diet while I am getting radiation therapy?**

Your body uses a lot of energy to heal during radiation therapy. It is important that you eat enough calories and protein to keep your weight the same during this time. Ask your doctor or nurse if you need a special diet while you are getting radiation therapy. You might also find it helpful to speak with a dietitian.

To learn more about foods and drinks that are high in calories or protein, see the chart on page 54. You may also want to read *Eating Hints*, a book from the National Cancer Institute. You can order a free copy online at <http://www.cancer.gov/publications> or 1-800-4-CANCER.

*Ask your doctor, nurse, or dietitian if you need a special diet while you are getting radiation therapy.*



## Can I go to work during radiation therapy?

Some people are able to work full-time during radiation therapy. Others can only work part-time or not at all. How much you are able to work depends on how you feel. Ask your doctor or nurse what you may expect based on the treatment you are getting.

You are likely to feel well enough to work when you start radiation therapy. As time goes on, do not be surprised if you are more tired, have less energy, or feel weak. Once you have finished your treatment, it may take a few weeks or many months for you to feel better.

You may get to a point during your radiation therapy when you feel too sick to work. Talk with your employer to find out if you can go on **medical leave**. Make sure that your health insurance will pay for treatment when you are on medical leave.

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## What happens when radiation therapy is over?

Once you have finished radiation therapy, you will need **follow-up care** for the rest of your life. Follow-up care refers to checkups with your radiation oncologist or nurse practitioner after your course of radiation therapy is over. During these checkups, your doctor or nurse will see how well the radiation therapy worked, check for other signs of cancer, look for late side effects, and talk with you about your treatment and care. Your doctor or nurse will:

- **Examine you and review how you have been feeling.** Your doctor or nurse practitioner can prescribe medicine or suggest other ways to treat any side effects you may have.
- **Order lab and imaging tests.** These may include blood tests, x-rays, or CT, MRI, or PET scans.
- **Discuss treatment.** Your doctor or nurse practitioner may suggest that you have more treatment, such as extra radiation treatments, chemotherapy, or both.
- **Answer your questions and respond to your concerns.** It may be helpful to write down your questions ahead of time and bring them with you. You can find sample questions on pages 51 and 52.

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## After radiation therapy is over, what symptoms should I look for?

You have gone through a lot with cancer and radiation therapy. Now you may be even more aware of your body and how you feel each day. Pay attention to changes in your body and let your doctor or nurse know if you have:

- A pain that does not go away
- New lumps, bumps, swellings, rashes, bruises, or bleeding
- Appetite changes, **nausea**, **vomiting**, diarrhea, or constipation
- Weight loss that you cannot explain
- A fever, cough, or hoarseness that does not go away
- Any other symptoms that worry you

See “Resources for Learning More” on page 59 for ways to learn more about radiation therapy.



*Make a list of questions and problems you want to discuss with your doctor or nurse. Be sure to bring this list to your follow-up visits. See pages 51 and 52 for sample questions.*



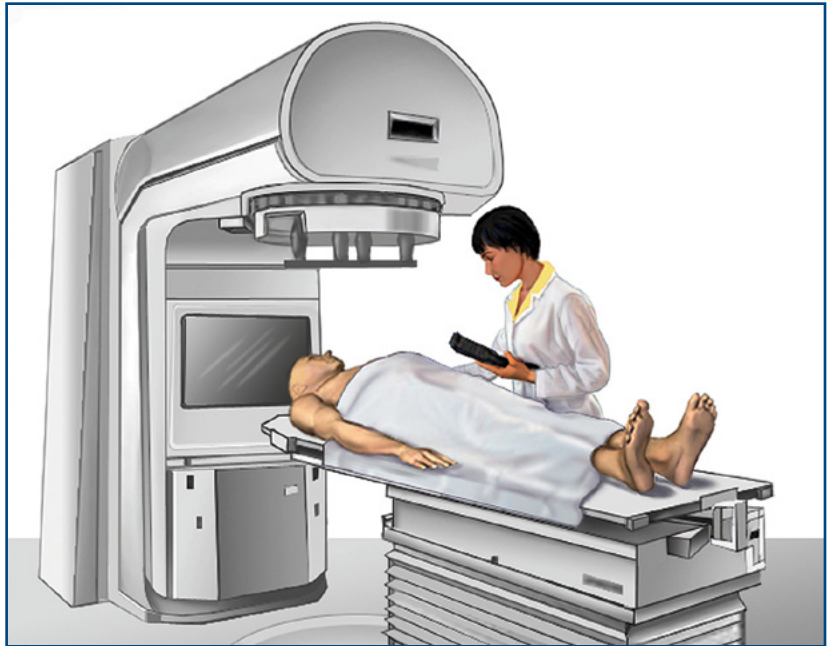


# External Beam Radiation Therapy

## What is external beam radiation therapy?

External beam radiation therapy comes from a machine that aims radiation at your cancer. The machine is large and may be noisy. It does not touch you, but rotates around you, sending radiation to your body from many directions.

External beam radiation therapy is a **local treatment**, meaning that the radiation is aimed only at a specific part of your body. For example, if you have lung cancer, you will get radiation to your chest only and not the rest of your body.



External beam radiation therapy comes from a machine that aims radiation at your cancer.

## How often will I get external beam radiation therapy?

Most people get external beam radiation therapy once a day, 5 days a week, Monday through Friday. Treatment lasts for 2 to 10 weeks, depending on the type of cancer you have and the goal of your treatment. The time between your first and last radiation therapy sessions is called a course of treatment.

Radiation is sometimes given in smaller doses twice a day (**hyperfractionated radiation therapy**). Your doctor may prescribe this type of treatment if he or she feels that it will work better. Although side effects may be more severe, there may be fewer late side effects. Doctors are doing research to see which types of cancer are best treated this way.

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### Where do I go for external beam radiation therapy?

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Most of the time, you will get external beam radiation therapy as an outpatient. This means that you will have treatment at a clinic or radiation therapy center and will not have to stay in the hospital.

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### What happens before my first external beam radiation treatment?

You will have a 1- to 2-hour meeting with your doctor or nurse before you begin radiation therapy. At this time, you will have a physical exam, talk about your medical history, and maybe have imaging tests. Your doctor or nurse will discuss external beam radiation therapy, its benefits and side effects, and ways you can care for yourself during and after treatment. You can then choose whether to have external beam radiation therapy.

If you agree to have external beam radiation therapy, you will be scheduled for a treatment planning session called a **simulation**. At this time:

- A radiation oncologist and radiation therapist will define your treatment area (also called a **treatment port** or **treatment field**). This refers to the places in your body that will get radiation. You will be asked to lie very still while x-rays or scans are taken to define the treatment area.
- The radiation therapist will then put small marks (tattoos or dots of colored ink) on your skin to mark the treatment area. You will need these marks throughout the course of radiation therapy. The radiation therapist will use them each day to make sure you are in the correct position. Tattoos are about the size of a freckle and will remain on your skin for the rest of your life. Ink markings will fade over time. Be careful not to remove them and make sure to tell the radiation therapist if they fade or lose color.

*Tell your radiation therapist if your ink marks begin to fade or lose color.*



If you are getting radiation to the head, you may need a mask.

- You may need a body mold. This is a plastic or plaster form that helps keep you from moving during treatment. It also helps make sure that you are in the exact same position each day of treatment.
- If you are getting radiation to the head, you may need a mask. The mask has air holes, and holes can be cut for your eyes, nose, and mouth. It attaches to the table where you will lie to receive your treatments. The mask helps keep your head from moving so that you are in the exact same position for each treatment.

If the body mold or mask makes you feel anxious, see page 13 for ways to relax during treatment.

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### **What should I wear when I get external beam radiation therapy?**

Wear clothes that are comfortable and made of soft fabric, such as cotton. Choose clothes that are easy to take off, since you may need to change into a hospital gown or show the area that is being treated. Do not wear clothes that are tight, such as close-fitting collars or waistbands, near your treatment area. Also, do not wear jewelry, BAND-AIDS®, powder, lotion, or deodorant in or near your treatment area, and do not use deodorant soap before your treatment.



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