

Proton Therapy Center

Questions and Answers

Welcome to the M. D. Anderson Proton Therapy Center. This information will answer the most commonly asked questions about what proton therapy is and how it works. If you have questions after reading this information, please ask a member of your health care team.

What is a proton?

Billions of tiny particles called atoms make up all types of matter, including the tissue in our bodies. The center of every atom, called the nucleus, is made of two types of particles – neutrons and protons, and electrons surround the nucleus. (See Figure 1) In proton therapy, beams of very fast-moving protons are used to treat cancer.

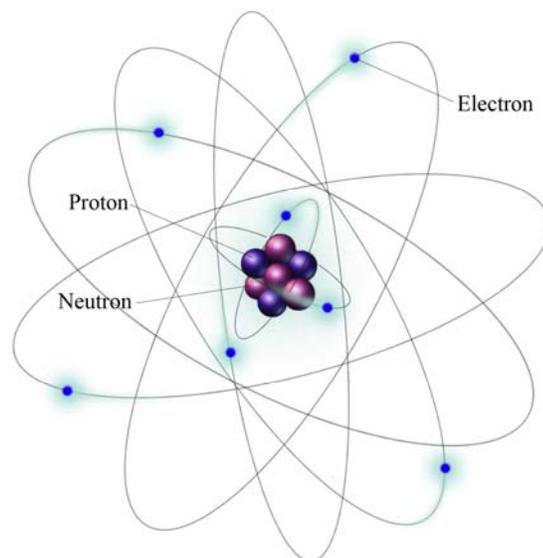


Figure 1
An atom with the neutrons, protons and electrons labeled.

What makes proton therapy different?

In traditional radiation therapy, X-ray beams are typically used to treat cancer. The X-ray beams go through the cancerous tissue (tumor) affecting both healthy and cancerous areas along the path of the beam.

Proton beams enter the body and deposit most of their energy in the tumor. Radiation oncology doctors are able to focus the energy of the proton beam within a tumor -- causing little to no damage to healthy tissue.

For many cancers, proton therapy is one of the most precise and advanced forms of radiation treatment available.

Both proton therapy and traditional radiation therapy do not cause patients to become radioactive.

What are the side effects of proton therapy?

Proton therapy is painless. Patients who are treated with proton therapy have fewer side effects than patients who are treated with traditional radiation therapy.

Is proton therapy ever combined with other forms of cancer treatment?

Yes. Depending on the case, proton therapy may be used in combination with traditional radiation therapy, chemotherapy and surgery. If your type of cancer can best be treated with combination therapy, your doctor will discuss this in detail with you.

What types of cancer are treated with proton therapy?

Proton therapy benefits patients whose tumors are solid with defined borders, meaning that the cancer has not spread to other parts of the body. Your doctor will discuss all of your treatment options with you.

For further information, call the Proton Therapy Center at (866) 632-4PTC or visit <http://www.mdanderson.org/protontherapy>.

What is the cost of proton therapy?

The U. S. Food and Drug Administration approved proton therapy for cancer treatment in 1988. Since then proton therapy has been covered in the United States by Medicare and most insurance providers. Proton therapy may cost more than traditional radiation.

What is the process for receiving treatment?

Consult Visit

Before you receive your first proton therapy treatment, you will have a consult visit with the radiation doctor who will manage your proton therapy treatments and a radiation oncology nurse. During the consult visit, your doctor will examine you and explain the treatment options that he or she recommends for you. Together, you and your doctor will decide which treatment option is best for you.

Next, a radiation oncology nurse will explain the treatment process, review the informed consent that you must sign to participate and answer any other questions you may have. The radiation oncology

All patients at the Proton Therapy Center will participate in clinical trials or protocols for information collection.

Clinical Trials

The main purpose of a clinical trial is to find a better way to prevent, diagnose or treat a disease. Clinical trials are part of a long, careful research process. Every clinical trial has a detailed plan, that explains what will be done in a clinical trial and why. Some patients who participate in a clinical trial through the Proton Therapy Center will receive drugs or procedures in combination with proton therapy.

Information Collection

All patients at the Proton Therapy Center participate in protocols that allow their doctor to use the results of their treatment to further study the effect of protons. Treatment results will be objectively evaluated to answer critical cancer questions and advance the science of proton therapy.

Your Patient Rights

The safety of patients is a top priority. All patients who participate in clinical trials and protocols for information collection are **volunteers**. They can choose to stop their participation at any time. Patients who withdraw from clinical trial studies will receive other forms of cancer treatment.

Many of today's standard cancer treatments – treatments that are accepted and widely used by medical experts – are based on the results of previous clinical trials and protocols for information collection.

nurse will monitor your progress closely throughout the treatment and teach you how to manage the side effects that you may have. He or she will give you written information and show a video of the steps you will follow during your treatment.

Simulation Procedure

Before you begin proton therapy, you will undergo a simulation, which is a treatment planning session. A special immobilization device will be made during this session to help keep you very still during your proton therapy treatments. The simulation team will make a mask for your face or a cradle for your body, leg or arm, depending on the area that will receive treatment.

A simulation therapist will mark the exact treatment area on your skin or on the immobilization device using either special ink or a small permanent tattoo (like a freckle). The marks on your skin and the immobilization device ensure that the proton beam targets the correct area each time you receive treatment. For this reason, **do not** wash off the ink until you are instructed.

You will be positioned in the immobilization device while you undergo imaging procedures, which may include a computerized tomography (CT) scan, a magnetic resonance imaging (MRI), a positron emission tomography (PET) scan and X-rays. The scans will be used to create a custom treatment plan for you. The simulation procedure usually takes 45 minutes to one hour to complete.

You may receive a tentative treatment schedule after completion of the simulation procedure. It is very important that you give your treatment team a local telephone number where they can contact you about future appointments.

You will begin the proton therapy treatment five to ten business days after the simulation procedure.

What happens during the treatment session?

You may be asked to wear a hospital gown for your daily treatments. Your radiation therapist will explain to you the daily routine you will follow and what usually happens during a treatment session. In the treatment room, the radiation therapist will position you in your immobilization device and use the markings from your simulation procedure to deliver your prescribed proton therapy dose accurately. On the treatment table, relax and breathe normally. Do not move during your treatment. (See Figure 2)



Figure 2
Patient lying on the proton therapy treatment table

From a control room, the radiation therapist can see and talk to you at all times by closed circuit television and two-way intercom.

The first one to two days of treatment may take longer than the remaining sessions. You will usually come once a day, Monday through Friday, for up to eight weeks. The length of treatment varies depending on the type of cancer.

Will I see my radiation doctor during my treatment?

You will see your radiation doctor once a week during the course of your treatment. This weekly visit will help your treatment team monitor your progress and help you manage any side effects you may experience.

Each radiation doctor schedules his or her weekly clinic appointments on a specific day of the week. This appointment is your opportunity to discuss questions or concerns with your doctor and nurse. Bring a list of all the medications you are taking with the start and stop dates and all side effects you have experienced with the start and stop dates.

Will I have follow-up appointments?

Four to six weeks after you complete all of your proton therapy treatments, you will have your first follow-up appointment with your radiation doctor. Your doctor will examine you, check your progress, discuss any test results and answer questions you may have. Tests may be scheduled a day or two before your follow up appointments. You will receive appointment schedules by mail. If you are unable to come to your appointments, please contact the Proton Therapy Center at (866) 632-4PTC to reschedule.

Please bring the following items with you to all of your follow-up appointments:

- Test results if done outside of M. D. Anderson
- A list of all medications that you are taking, with start and stop dates
- A list of side effects that have continued after treatment has stopped, with start dates
- A list of questions or concerns you want to discuss with your doctor

Follow-up appointment schedule:

- First follow-up appointment – four to six weeks after completing treatment
- All other appointments – every three months for the first year, then every six months for a year and then annually thereafter

Tests may be ordered before your follow-up visits, which may be scheduled a day or two before your follow-up appointment.

Where can I find additional information?

The University of Texas M. D. Anderson Cancer Center Proton Therapy Center

1840 Old Spanish Trail

Houston, Texas 77054

(866) 632-4PTC or (866) 632-4782

<http://www.mdanderson.org/protontherapy>

Find information about proton therapy and M. D. Anderson's Proton Therapy Center. See Figure 3 for the location of the Proton Therapy Center.

Support by Phone

M. D. Anderson Information Line

Call (800) 392-1611, option 3. Trained health information specialists provide information about M. D. Anderson's clinical trials.

National Cancer Institute's Cancer Information Service

<http://cancer.gov>

Call (800) 4-CANCER or (800) 422-6237. Trained information specialists can help callers determine whether they are eligible for various protocols.

The Learning Center

<http://www.mdanderson.org/departments/tlc/>

The Learning Center is a free consumer health library with the latest information on cancer care, support, prevention and general health and wellness issues. Locations provide a wide range of materials, and each site's resources are different. Please call ahead to learn which location contains the resources you need. The Learning Center staff provides skilled, individualized service and will be happy to help you.

Levit Learning Center

Mays Clinic

Floor 2, near The Tree Sculpture,

Room ACB2.1120

(713) 563-8010

Monday – Friday, 9 a.m. – 4 p.m.

Law Learning Center

Main Building

Floor 4, near Elevator A,

Room R4.1100

(713) 745-8063

Monday – Friday, 9 a.m. – 4 p.m.



Figure 3
M. D. Anderson Campus Map

Proton Therapy Center

Floor 1

Room PTC1.1015

(713) 563-0927

Resources include books, brochures and computers with access to online journals, electronic books and databases

The Learning Center provides materials for information and convenience only. They are not to be substituted for medical advice. Medical information is often controversial and continually changes. Please consult your health care provider to discuss your specific concerns.

The following are resources recommended by The Learning Center:

Pamphlets

National Cancer Institute. *Taking Part in Clinical Trials: Cancer Prevention Studies, What Participants Need To Know*. NIH Publication No. 98-4250.

National Cancer Institute. *Taking Part in Clinical Trials: What Cancer Patients Need To Know*. NIH Publication No. 98-4250.

Videos

Cancer Clinical Trials: An Introduction for Patients and Their Families

Because Lives Depend on It: A Clinical Trial Awareness Video for the General Public

Proton Therapy Center: Questions and Answers

Proton Therapy Center: Questions and Answers – Spanish (Available August 2006)

Internet Resources

The University of Texas M. D. Anderson Cancer Center Clinical Trials

<http://www.clinicaltrials.org>

Find open M. D. Anderson trials listed by type of cancer, treatment, study number and physician name.

The National Association for Proton Therapy

<http://www.proton-therapy.org>

The National Association for Proton Therapy (NAPT) is registered as an independent, non-profit, public benefit corporation providing education and awareness about proton therapy. Founded in 1990, it promotes the therapeutic benefits of proton therapy for cancer treatment.

NCI Clinical Trials Database

<http://www.cancer.gov/clinicaltrials>

Click *Finding Clinical Trials*. Under *Use Other Web-Based Resources*, click *basic* or *advanced* to use the search form. You may also call 1-800-4-CANCER for access to these materials.

Oncolink

<http://www.oncolink.upenn.edu/>

Oncolink was created by the University of Pennsylvania cancer specialists with the mission to help cancer patients, families and health care professionals get accurate cancer-related information free of charge. Oncolink provides information about specific types of cancer, updates on cancer treatments and news about research advances. The information is updated daily and is available at various levels, from introductory to in-depth.