



TREATING PROSTATE CANCER

If you find out you have cancer, you should discuss your treatment options with a radiation oncologist – a cancer doctor who specializes in treating disease with radiation therapy, a urologist – a surgeon who specializes in the genital and urinary systems and a medical oncologist – a cancer doctor who specializes in treating cancer with chemotherapy.

Prostate cancer treatment options include:

External beam radiation therapy – a radiation oncologist directs high-energy radiation to kill the cancer cells.

Brachytherapy – a radiation oncologist surgically implants high-energy radiation seeds or delivers a high-energy radiation source through catheters within the prostate.

Surgery – a urologist surgically removes the entire prostate.

Active Surveillance – a physician monitors men with low-risk prostate cancer with repeat PSAs and biopsies.

Hormone therapy – radiation oncologists, urologists or medical oncologists prescribe medicine to stop the production of hormones that help prostate cancer grow.

Chemotherapy – a medical oncologist prescribes medication as a pill or medicine delivered through the veins to kill cancer cells.

Cryosurgery – a urologist or interventional radiologist freezes the tumor within the prostate.

High Frequency Ultrasound (HIFU) – a urologist or interventional radiologist uses high-intensity focused ultrasound beam energy to locally heat and destroy prostate tissue.

Sometimes a combination of treatments is best for your cancer, such as hormonal therapy along with external beam radiation therapy.

Ask your doctor about the risks and benefits of all treatment options including active surveillance.

EXTERNAL BEAM RADIATION THERAPY

External beam radiation therapy (also called radiotherapy) involves a series of daily treatments to accurately deliver radiation to the prostate. Research has shown that higher doses of radiation can improve cure rates. Modern radiation therapy is as effective as surgery to cure prostate cancer.

Before treatment begins, your radiation oncologist will develop a treatment plan using information from your biopsy, imaging and physical exam. A **CT scan** is done in the position you will be treated, often with a supportive device to keep you comfortably in the same position for treatment. This is often called a simulation. Sometimes, your treatment plan will include not only the prostate but the seminal vesicles (glands on the back of the prostate) and lymph nodes. Ask your doctor to explain what treatment area is appropriate for you.

With CT scans, 3-D targets of the prostate and normal tissues are created. These treatment plans focus radiation beams on the prostate while limiting radiation to healthy tissues around it such as the bladder and rectum. **Intensity modulated radiation therapy (IMRT) and image guided radiation therapy (IGRT)** are treatment approaches that allow the radiation beams to treat the cancer and lessen the risks of side effects.

External beam radiation therapy can be delivered using a variety of techniques. In most cases, external radiation is in the form of high-energy photons, or X-rays. In a few clinics around the country, proton beam therapy is used to treat prostate cancer. Proton therapy is a form of external beam radiation therapy that uses protons rather than photons to treat cancer cells.

With all external beam therapy, treatment is delivered in a series of daily sessions, Monday through Friday, for several weeks. Each treatment is painless and similar to a long X-ray; you hear noise but will feel nothing.

The length of your treatment will depend on your health and the type of radiation used. The use of even shorter schedules of external beam radiation therapy is being studied for patients with early-stage prostate cancer.

Hypofractionated radiation is a form of daily treatment giving higher doses over four to six weeks compared to a more standard treatment time of seven to nine weeks. **Stereotactic body radiation therapy (SBRT)** is a technique for treating cancers in five or fewer treatments at substantially higher doses. Hypofractionated and stereotactic radiation are currently being evaluated for long-term data and may be considered for certain patients.

PROSTATE BRACHYTHERAPY

Brachytherapy involves treating the cancer by inserting radioactive sources directly into the prostate.

1. Permanent seed, or low-dose-rate (LDR) brachytherapy, consists of inserting small metal “seeds” directly into the prostate gland. This treatment is done as an outpatient surgical procedure and requires anesthesia. The seeds are temporarily radioactive and deliver the radiation to the prostate over several months. After losing their radioactivity, the seeds remain in the prostate. The seeds are then harmless and should not bother you.

For the short time that the seeds are giving off larger amounts of radiation, men should avoid being in close proximity to children or pregnant women. Ask your radiation oncologist or oncology nurse for instructions about radiation safety and exposure for family members or pets.

2. Temporary, or high-dose-rate (HDR) brachytherapy, delivers radiation to the prostate with a few treatments using a single small radioactive source traveling through each of the narrow tubes called catheters. These narrow tubes are inserted into the prostate by your radiation oncologist. You will be under anesthesia and will not feel any pain. The tubes remain in place for one to two days only.

Once the treatment is complete, the tubes are taken out. HDR brachytherapy is temporary and there is no radioactivity left in your body. You will not need to take special precautions around others after treatment. Often multiple treatments are planned to give an effective dose to treat the cancer.

Brachytherapy may be used to treat prostate cancer alone or may be combined with external beam radiation therapy and hormonal therapy. Ask your doctor whether LDR or HDR is a reasonable treatment option for you.

HORMONE THERAPY

Depending on your cancer, you may benefit from adding hormone therapy to radiation. Hormone therapy lowers testosterone production. Testosterone is a hormone that plays an important role in prostate cancer progression. It may be used together with radiation therapy, before radiation to shrink the tumor and also after radiation has been completed. Hormone therapy may be given by your radiation oncologist, medical oncologist or urologist.

Side effects of hormone therapy may include hot flashes, mild breast tenderness, diarrhea, nausea and tiredness. The length of time you will receive hormone therapy depends on your cancer. Ask your doctor for more information.

CARING FOR YOURSELF DURING TREATMENT

Cancer treatment can be difficult. You have many issues to cope with. Your oncology team, along with family and friends, are available to help.

- Get plenty of rest during treatment, and don't be afraid to ask for help.
- Follow your doctor's orders. Ask if you are unsure about anything.
- There are no stupid questions.
- Tell your doctor about any medications, vitamins or supplements you are taking to make sure they are safe to use during radiation therapy.
- Eat a balanced diet.



Possible Side Effects

OF RADIATION FOR PROSTATE CANCER

External beam radiation therapy is not invasive, so it is rare for side effects to show up immediately. With brachytherapy, there may be some swelling, soreness and frequent urination just after the procedure. However, these side effects are from the brachytherapy procedure rather than the radiation itself. Over a period of weeks, other side effects may develop:

- **Urinary frequency**, urgency or a weaker stream are reasonably common side effects. Sometimes there is mild discomfort. The symptoms tend to be more noticeable with brachytherapy. Your doctor can prescribe medication to help relieve these symptoms.
- **Changes in bowel habits** are also common. There is usually some urgency or loose bowel movements. In some cases, you may have some diarrhea, increased gas or some mucus. Less commonly, some men have a flare of hemorrhoids. These side effects are temporary, with long-term symptoms less likely.
- **Mild tiredness** may develop, starting in the middle of treatment. However, tiredness from radiation should improve within a few weeks after radiation treatment ends.
- **Mild skin irritation** may occur with external beam radiation. Clean the area regularly with mild soap and warm water.
- **Impotence** is a common side effect of any treatment for prostate cancer. The risk depends partly upon the ability to have an erection before treatment. Many men treated with radiation can maintain erectile function. Don't be shy about talking to your doctor about your sex life. He or she may be able to suggest remedies or prescribe medication.
- **Infertility** can often occur after radiation. If you are considering having children after radiation treatment, ask your doctor about sperm banking before treatment.

Very rare long-term potential side effects include hip injury, edema (swelling) or a second tumor from the radiation treatment.

Some side effects can be controlled with medications and changes to your diet. Ask your doctor or nurse whether you should make any changes in your diet. Tell them if you experience any discomfort so they can help you feel better.

Visit
www.rtanswers.org
to download a complete
chart of side effects.

Side effects of Prostate Cancer Treatment		
Type of Treatment	Possible Acute Complications (Days-Months after Treatment)	Possible Late Complications (Months-Years after Treatment)
Radical Prostatectomy	<ul style="list-style-type: none"> Leakage of urine from bladder or stool from bladder (incontinence) Shortening of Penis (1-2 cm) 	<ul style="list-style-type: none"> Chronic leakage of urine from bladder Erectile Dysfunction Inguinal Hernia
Brachytherapy	<ul style="list-style-type: none"> Pain Burning on urination Urinary retention Blood in urine Increased urinary frequency 	<ul style="list-style-type: none"> Erectile dysfunction Rectal bleeding (5-10%) Urethral stricture (rare) Urethral stricture (rare)
External Beam Radiotherapy	<ul style="list-style-type: none"> Fatigue Increased urinary frequency Burning on urination Soft bowel movements Diarrhea 	<ul style="list-style-type: none"> Erectile dysfunction Rectal bleeding (5-10%) Changes in bowel habits (5-10%) Radiation induced second cancer (rare)
Hormone Therapy	<ul style="list-style-type: none"> Hot flashes Impaired sexual function Loss of desire for sex Nausea Diarrhea Itching Weight gain 	<ul style="list-style-type: none"> Weakened bones Enlarged and/or painful breast tissue Decreased muscle mass Decreased blood counts

HELPFUL WEBSITES ON PROSTATE CANCER

National Prostate Cancer Coalition
www.fightprostatecancer.org

Prostate Cancer Foundation
www.prostatecancerfoundation.org

Radiation Therapy Answers
www.rtanswers.org

Us TOO International Prostate Cancer Education and Support Network
www.ustoo.org

FACTS TO HELP PATIENTS MAKE AN INFORMED DECISION

Because surgery and radiation can both be equally effective curative treatments for prostate cancer, it is important to review all of your treatment options. Ask your urologist about surgery and your radiation oncologist about radiation therapy. Learn about the risks and benefits to see what best meets your goals balancing cure and quality of life.



LEARNING ABOUT CLINICAL TRIALS

The radiation oncology team is constantly exploring new ways to treat cancer through studies called clinical trials. Today's standard radiation therapy treatments are a result of clinical trials completed many years ago. For more information, ask your doctor or contact the National Cancer Institute at 1-800-4-CANCER or visit www.cancer.gov/clinicaltrials.

ABOUT THE RADIATION ONCOLOGY TEAM

Radiation oncologists are the doctors who oversee the care of each person undergoing radiation treatment. Other members of the treatment team include radiation therapists, radiation oncology nurses, medical physicists, dosimetrists, social workers and nutritionists. For information on what each of these professionals does or to locate a radiation oncologist near you, visit www.rtanswers.org.

ABOUT ASTRO

The American Society for Radiation Oncology is the largest radiation oncology society in the world with more than 10,000 members who specialize in treating cancer with radiation therapies. ASTRO is dedicated to improving patient care through education, clinical practice, advancement of science and advocacy.

AMERICAN SOCIETY FOR RADIATION ONCOLOGY

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ASTRO
TARGETING CANCER CARE

Radiation Therapy for Prostate Cancer



Prostate cancer is the most common cancer in American men. According to the American Cancer Society, one in every six men will develop prostate cancer in his lifetime. This year, approximately 220,800 men will be diagnosed. Prostate cancer is very manageable and often curable. More than 99 percent of men with prostate cancer will live more than five years after diagnosis.

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