

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 191,930 men will be diagnosed. Prostate cancer is very manageable and often curable. More than 98 percent of men with prostate cancer will live more than ten years after diagnosis.



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 and targeted therapy.

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 places high-energy (radiation) seeds temporarily or permanently through small tubes 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.

Cryotherapy – 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 to treat your cancer, such as hormonal therapy along with external beam radiation therapy or brachytherapy combined 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. Radiation therapy can be as effective, and sometimes better than surgery to treat 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 pre-treatment mapping (scan). Sometimes, you will be asked to have a full bladder and/or a gel may be placed between your prostate and rectum to minimize side effects. Radiation oncologists may also place marker seeds (not radioactive) in your prostate to help target the prostate better. Your treatment plan will include the prostate, but can sometimes include 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. With all external beam therapy, treatment is delivered in a series of daily sessions, Monday through Friday, for several weeks. Each treatment is non-invasive, painless and similar to a long X-ray; you hear noise but will feel nothing at the time of treatment.

Hypofractionated radiation is a form of external beam treatment giving slightly higher doses over four to six weeks compared to a more standard treatment time of seven to nine weeks. Studies have shown similar results compared to standard treatment times. Stereotactic body radiation therapy (SBRT) is a technique for treating cancers in five treatments at substantially higher doses over 1-3 weeks.



SBRT is currently being studied for long-term side effects and may be considered for certain patients.

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. Protons may be considered for certain patients. Protons compared to photons in treating prostate cancer patients continues to be studied.

The length of your treatment will depend on your health and the type of radiation used.

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 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.

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.

↩ more likely **RT for Prostate Cancer Possible Side Effects** less likely ➔

short term

- urinary frequency/urgency
- straining to urinate
- fatigue
- loose stools/diarrhea
- rectal urgency
- blood in stool
- blood in urine
- skin redness/irritation
- hair loss (in the treated area)

long term

- erectile dysfunction (temporary or permanent)
- urinary frequency/urgency
- rectal urgency
- loose stools/diarrhea
- rectal bleeding
- blood in urine
- urethral stricture

*Larger/darker bubbles show higher likelihood of occurrence. Smaller/lighter bubbles show less likelihood of occurrence. This list doesn't represent all of the possible side effects. Please talk to your doctor about your specific diagnosis.



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.

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 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. Visit www.astro.org for more information.

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