

INTRODUCTION TO RADIATION THERAPY

Radiation therapy, or radiotherapy, uses radiation to damage genetic material (DNA) within prostate cancer cells and stop their reproduction. When the damaged cells die, the body naturally eliminates them. Throughout your radiation treatments you will work with a radiation oncologist, a specialist in treating cancer with radiation.

When should I consider radiation therapy?

- As the first treatment for men with localized prostate cancer
- As part of the first treatment with hormone therapy for men with locally advanced prostate
- If the cancer is not completely removed or comes back in the area of the prostate after surgery
- To manage symptoms of bone metastases in men with metastatic prostate cancer

What are the different types of radiation therapy?

The two main categories of radiation therapy are external beam (directed from outside the body) and internal (placed inside the body), which is also known as brachytherapy. These categories are further broken into several types of treatment that vary by method, dose, frequency, and intended use.

EXTERNAL BEAM RADIATION THERAPY

External Beam Radiation Therapy (EBRT) involves treating the prostate and sometimes the pelvic lymph nodes with radiation in daily doses. Most EBRT is delivered using photons (with the exception of proton beam therapy). This radiation is the same kind used for an X-ray or CT scan, except that the dose of radiation and energy used is much higher. Modern radiation therapy is as effective as surgery when used to cure prostate cancer. The image to the right shows the different types of EBRT and if they are used in men with localized or metastatic prostate cancer.

Three-Dimensional Conformal Radiation Therapy (3D-CRT) uses CT scans to precisely map the tumor before treatment. Photon radiation is then delivered directly to that area.

Intensity Modulated Radiation Therapy (IMRT) is a specialized form of external beam radiation, with this method the intensity of each individual beam can be adjusted, allowing for greater precision.

Stereotactic Body Radiation Therapy (SBRT) delivers large doses of radiation precisely to the prostate using techniques that are not achievable by standard conventional radiation therapy, shortening the number of treatments.

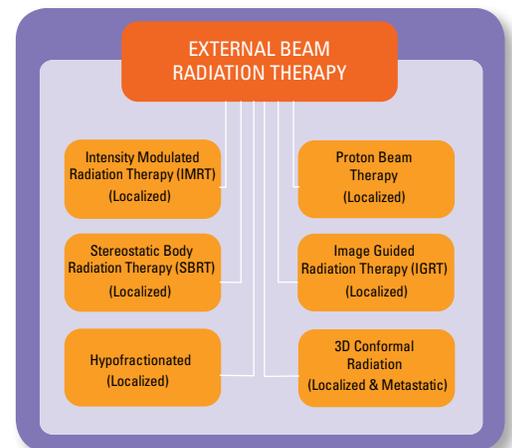
Proton Beam Radiation Therapy uses protons rather than photons to treat prostate cancer. Proton beams stop at a specific depth in tissue, allowing doctors to minimize the radiation delivered to surrounding healthy tissue.

Image Guided Radiation Therapy uses daily imaging techniques such as X-rays or CT during the treatment process. This can result in more accuracy in photon delivery.

QUESTIONS TO ASK



- What type of radiation treatment do you recommend and why?
- How often will I receive treatment?
- What are the possible side effects of this treatment?
- What can be done to manage these?



What are the side effects of external beam radiation therapy?

- Skin irritation at site of radiation
- Edema
- Rectal and urinary irritation
- Changes in bowel habits
- Changes in urinary habits
- Bone weakening
- Erectile dysfunction (although less common)
- Secondary malignancy (sometimes, but rarely, new cancers develop due to radiation)

INTERNAL RADIATION TREATMENTS

The two types of internal radiation therapy are brachytherapy and radiopharmaceuticals. Although they both involve placing radioactive materials inside the body, they are very different options, used for different stages of the disease. Both low and high dose brachytherapy are used for localized prostate cancer, while radiopharmaceuticals are used exclusively for men with metastatic prostate cancer that has spread to the bone.

Permanent Seed, or Low Dose Rate (LDR) Brachytherapy involves the placement of small metal seeds into the prostate. These seeds deliver radiation to the tumor over a period of weeks or months. The seeds remain in the prostate even after the radiation fades. When pursuing this option, talk with your doctor about precautions you should take around children and pregnant women or if traveling.

Temporary or High Dose Rate (HDR) Brachytherapy involves placing tubes (catheters) into the prostate gland to deliver a series of radiation treatments. The tubes are removed after the radiation is delivered and no radiation is left in the body.

What are the side effects of brachytherapy?

- Frequent urination, urinary retention, or burning with urination
- Erectile dysfunction
- Urethral stricture or narrowing of the urethra
- Diarrhea or blood in the stool
- Secondary cancers

Radiopharmaceuticals are radioactive drugs given through a vein to men with metastatic prostate cancer that has spread to the bone. Strontium and samarium are radiopharmaceuticals given to reduce pain. Radium-223, Xofigo®, is a radiopharmaceutical given to reduce pain and prolong life. Radium-223 is taken up by active bone cells and delivers a 'smart bomb' to the cancer cells. Xofigo® is given by injection at your doctor's office every four weeks for six treatments.

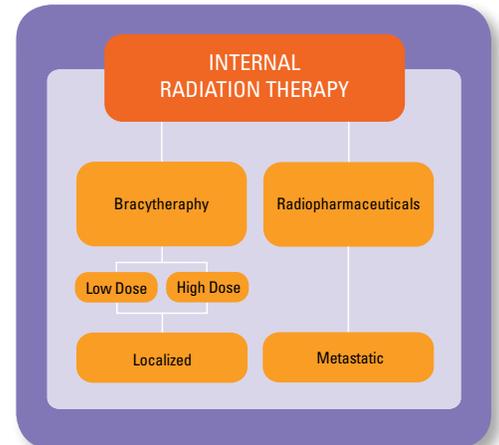
What are the side effects of radiopharmaceuticals?

- Nausea
- Diarrhea
- Vomiting
- Swelling of the leg, ankle, or foot

QUESTIONS TO ASK



- What can I do to get ready for this treatment?
- How much time will each treatment take?
- How will this treatment affect my daily life?



LEARN MORE

We encourage you to use this information in conversations with your health care team about prostate cancer and related topics. For more information about prostate cancer and ZERO – The End of Prostate Cancer, visit our website

www.zerocancer.org/learn.