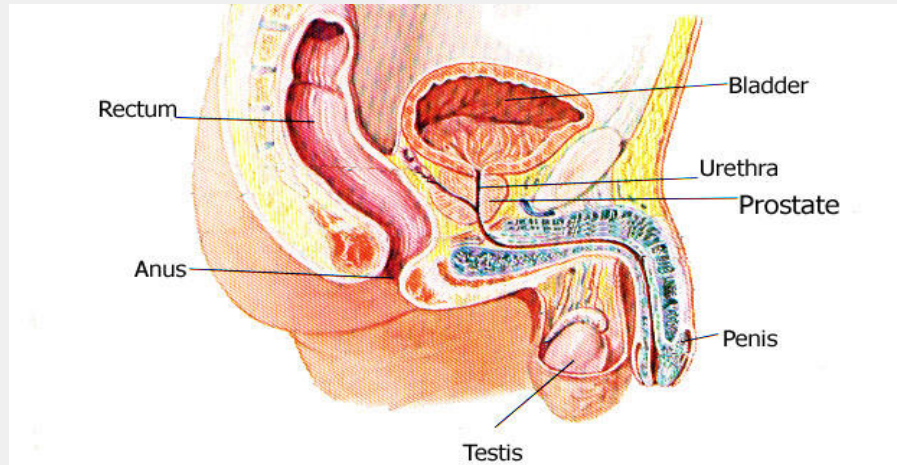


Prostate Seed Implant Patient Information



1). General Information: What Is Brachytherapy?

Brachytherapy refers to the placement of radioactive sources directly into, or in some cases adjacent to a cancer. Brachytherapy for prostate cancer involves the insertion of radioactive seeds (usually Iodine 125) into the prostate. The seeds are put in place under transrectal ultrasound (TRUS) guidance, while you are under anesthetic, and remain permanently in the prostate. They are radioactive for about 6 months, and during this time they deliver a high dose of radiotherapy to your prostate.

2). Who Is Eligible?

Over the past decade brachytherapy has become an increasingly popular treatment for the early stages of prostate cancer. But it's generally used only for small, non-aggressive tumours (low grade, low stage) that are completely contained inside the prostate capsule. For these patients, a permanent seed implant will be the only treatment needed.

The Cancercare Ontario Evidence-based Guideline recommends that this form of treatment be applied only to those men with:

T1c/T2a tumours, which either aren't palpable (felt) on rectal exam, or are palpable as small nodules.

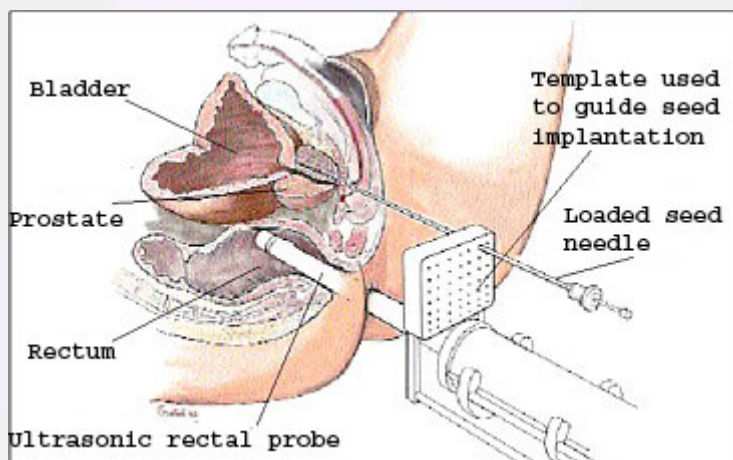
A Gleason score less than or equal to 6.

A presenting PSA less than 10 ng/mL

Outside these guidelines, there's considerable risk that prostate cancer cells have spread into tissue surrounding the prostate. Because radioactive seed implants have a very short range, any tumour cells located outside the prostate may not receive a sufficient dose to be eradicated.

3). Description Of Procedure

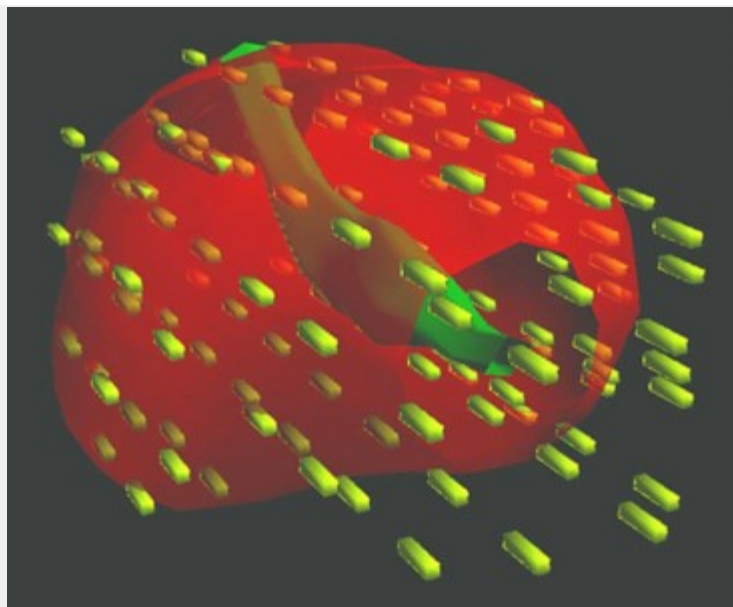
The volume study is the first step in planning your implant. This is a transrectal ultrasound (TRUS) procedure in which cross sectional images of the prostate are taken every 5mm through the prostate. You do not require an anesthetic for this. The images are reassembled on the computer to make a three dimensional model. Using this model, we can determine the exact placement of each seed. After a careful review by each member of the team, (doctor, physicist and dosimetrist) a map of the gland is created which describes the correct coordinates for needle and seed placement. This map is taken into the operating room and followed closely. Additional seeds are available in order to make adjustments at the time of implantation, if necessary.



Placement of seeds under TRUS guidance

One important factor in deciding whether seed implantation is technically possible is the position and shape of the pubic arch. The implant requires placing needles into the prostate. If the pubic bone, which is shaped like an upside down V or arch, is too narrow, it can be difficult or impossible to place the needles accurately. Determining whether the pubic arch will prevent a good implant is essential. If your prostate gland is too large and arch interference is present, the prostate can often be reduced sufficiently by a short course (3-4 months) of hormone therapy.

Typically, the seed implant takes about two hours and can be done under either general or spinal anesthesia. Most patients prefer general anesthesia. If you prefer spinal anesthesia, please let us know ahead of time. If you are having spinal anesthesia it is a good idea to bring a portable "Walkman" or similar device so that you can listen to relaxing music during the procedure. We do monitor the seed placement with fluoroscopy but only at infrequent intervals as most of the guidance is by ultrasound. Thus, "watching on the monitor" is not very worthwhile.



A prostate brachytherapy plan showing the planned location of the seeds in the prostate

[View A 3D Seed Placement](#)

4). How Does It Work?

Radiation kills cells primarily by affecting a critical target in the cell. This critical target is believed to be the DNA elements of the cancer cell, which are important for growth. Cancer cells don't die after radiation until they try to divide into two cells. At that time, the effect of the radiation on the DNA prevents the cancer cell from dividing properly and the cell dies. Since prostate cancer cells often divide slowly, the cancer may not die for months after the implant. This is why it sometimes takes a long time for the PSA to drop to low levels.

All cells are sensitive to radiation. Normal prostate cells may also die as a result of the implant radiation. Some remain however, which explains why PSA is still present years later. The decrease in the number of healthy cells markedly reduces the amount of prostatic fluid for ejaculation. The presence or absence of an ejaculate does not reflect whether the cancer is cured or not, and does not effect potency.

There may be some regrowth of normal cells, but for the most part regrowth, if it happens at all, is probably very slow. This regrowth of normal prostate cells is believed to be responsible for slight increases in PSA values in some patients years after the implant.

How long will the seeds be radioactive after implantation?

“Half life” describes the time it takes for a radioactive substance to lose half its strength. For example, Iodine, which has a half-life of 60 days, will be half its original strength 60 days after the implant. As the Iodine loses its strength it delivers radiation to your prostate. This means that 2 months after your implant you will have received half your radiation dose. In the next 2 months you will receive another $\frac{1}{4}$, and in months 5 and 6 you will receive another $\frac{1}{8}$. Thus at 6 months after your implant the Iodine is 10 % of its original strength and you have received 90% of your radiation dose. After 1 year the seeds are no longer radioactive.

What PSA level should be hoped for over the long term?

Your serum PSA will generally decrease to a reading < 1.0 ng/ml within 12-24 months. However, a stable non-rising PSA is a more important indication of cancer control than the actual level achieved. Occasionally in the first 3 years after implant, the PSA can take a benign “bounce” or “spike”, rising briefly and then falling again spontaneously. Although this can be a worry, no intervention is required and it does not indicate recurrence.

5). Side effects

a) General

Like all procedures, patient response is varied. The procedure causes minimal trauma to the region behind the scrotum, but there can be some tenderness and bruising which will last from 3-7 days. Ice packs are useful the first day, and you may want to avoid sitting for an extended period of time. If the trip home is long, bring a “doughnut” cushion to sit on. Usually only minimal pain medications such as Tylenol extra strength are required. You may be tired and want to relax, but normal activities (walking around, eating dinner, etc.) are permitted.

After the implant, there typically is some soreness underneath the scrotum. Some men have described feeling like they are “sitting on a golf ball”. This is due to swelling associated with the needle punctures and with the effect of the radiation. Anti-inflammatory medication such as Motrin or Advil helps, as do mild analgesics like Tylenol extra strength. Narcotic pain medication is rarely necessary.

Avoid heavy lifting or strenuous physical activity for the first few days. After that you may return to your normal activity level. Occasionally, vigorous activity may cause some minor blood in the urine.

b) Urinary side effects

After your implant, it is normal to experience a moderate degree of difficulty with urination. You may experience a burning sensation when you pass urine the first few times and small amounts of blood or clots. The bleeding usually resolves in a day or two. Other common urinary side effects are a need to urinate more frequently and a strong need to urinate (urgency). You may also experience more difficulty in emptying your bladder.

NOTE: On rare occasions, complete blockage of urination may occur. If this happens, you will need to see your physician or go to the hospital Emergency room to have a catheter placed in the bladder. Usually the catheter can be removed within a few days, but occasionally is required for longer.

[About Self-Catheterization](#)

Do you recommend any strategies for relieving urinary problems?

Alpha-blockers (Flomax / tamsulosin) can often help a lot. Other techniques to improve flow are: walking around, getting into a warm shower or bathtub and urinating, taking Motrin or other anti-inflammatory drugs.

Should I continue to drink fluids throughout the day and evening or should I reduce or stop fluid intake in the evening?

The advantage of taking fluids (particularly water) after seed implantation is that it dilutes and neutralizes the urine pH. Concentrated or acidic urine can be irritating while dilute urine is easier to pass. The disadvantage is that it means more frequent urination, and having to get up more times at night. Although more fluid is helpful, the type of fluid may be more important. Fluids that cause the urine to be acidic such as fruit juices, coffee, etc. probably should be kept to a minimum.

For what period of time is it possible to pass seeds through urination?

If a seed is going to be passed, it usually will happen during the first few urinations. We recommend straining the urine for 3 days, using the strainer that we provide. The kit also contains a small lead pouch in which to place any seed that is passed.

What is the likelihood of blood in the urine and passing blood clots after the procedure?

It is likely that blood or clots will be noticed in the urine immediately after the procedure. This usually resolves within twenty-four hours. If it lasts longer or recurs some time after the implant, an evaluation is appropriate.

Do you recommend Kegel exercises before or after the implant?

Kegel exercises are exercises of the external urinary sphincter, a muscle that allows one to control the urge to urinate. Kegel exercises can increase the strength of this muscle, allowing for more control when you get an urge to urinate. This can be helpful since your urge to urinate will be much stronger after the implant. It doesn't hurt to do them and they may help.

What are the chances I will be affected by prostatitis after seeding?

Some inflammation of the prostate (prostatitis) after seeding is normal but typically resolves as the seeds lose their energy. If prostatitis is present prior to seeding it could be exacerbated by the radiation..

What is the effect of a TURP, either in the past or following the seed implant?

A TURP (Trans Urethral Resection of the Prostate) is an operation performed by a urologist which improves urinary obstructive symptoms by removing the central portion of the prostate. In some patients the presence of a TURP defect prevents a technically good implant. If this is the case you will be offered external beam radiotherapy instead. Even if a good implant is possible, there may be an increased risk of urinary incontinence if you have had a previous TURP.

TURP after seed implant should be avoided. If it is absolutely necessary for obstructive symptoms that last more than a year after the implant, it should only be done in consultation with your implant team. It should NEVER be done in the first 6 months.

c) Sexual side effects

Most men will resume intercourse in the first month after the implant, after the bruising and discomfort have subsided. Studies so far indicate that approximately 85% of men who were able to achieve a good erection prior to the implant will maintain their potency afterwards. About 25% will experience a decrease in the quality of erections but will still be able to have intercourse.

Does the radiation from seed implants pose any danger to my sexual partner?

No, the seeds are of low energy and pose little risk to your partner. You may resume sexual activity very soon after the procedure. Occasionally seeds are placed into the seminal vesicles and thus it is possible, but extremely unlikely, that a seed might be mixed with your ejaculate. For this reason, we recommend that you initially masturbate, and/or wear a condom for the first few encounters. The initial climaxes may also be slightly painful or the semen will be brownish or bloodstained, both of which may be undesirable. This will clear after 2-3 climaxes. The seminal fluid is not radioactive.

d) Bowel side effects

Radiation side effects on the bowel or rectum are uncommon after seed implant. Diarrhea is rare. We recommend that you avoid constipation and eat a healthy high fiber diet and use a psyllium bulk-laxative if necessary (such as Metamucil or Novo-mucilax).

6). Medications

What medications do you prescribe before and after the procedure?

Typically we prescribe an alpha-blocker (Flomax or tamsulosin) after the procedure. These are medications that relax the smooth muscle of the bladder neck, allowing for improved urination.

After the procedure patients typically continue Flomax for several weeks, longer if necessary. In addition patients are given an antibiotic (Cipro) to take for 1 week. An anti-inflammatory drug such as Motrin or Advil helps to reduce swelling and inflammation of the prostate, which reduces discomfort as well as often improving the urine flow.

Cipro (ciprofloxacin) 500 mg.

This is an antibiotic. Please take it in the evening after your implant and then twice a day until it is gone (approximately eight days). An allergic reaction to this medication is possible and if you should develop a rash or unusual reaction please call for advice.

Motrin (also known as Advil or Ibuprofen) 200 mg.

This is an anti-inflammatory drug usually given for arthritis symptoms. This is an “over the counter” drug, and does not require a prescription. It should be taken with food 3 times per day. It reduces the inflammation from the implant but if you feel it is not helping, you may discontinue it. Take it for at least one week and we generally advise that you continue it for one month.

NOTE: This medication can worsen ulcer symptoms. If your stomach is irritated or you have black stools after taking this medication, stop it and inform your doctor.

Flomax (tamsulosin) 0.4 mg

This medication should be started 3-7 days before the implant at a dose of 0.4 mg once daily and will improve urinary stream and bladder emptying. It is best to take it in the evening. You will need to take it for at least 3 months after the implant. If necessary, the dose can be increased to 0.4 mg twice daily. It may cause some lightheadedness.

New

Xatral™ (Alfuzosin HCl)

XATRAL, for easy patient management, is a once-daily 10mg tablet with no titration required, and no dosage adjustment needed for elderly patients.

Pyridium (phenazopyridine) 200 mg

This is taken 3 times per day for the first 2 weeks and then as required. It lessens the burning and urgency that you will likely experience with urination. It colours your urine a dark orange. It may cause cramping in your legs or calves. If this happens, you should stop the medication and notify your doctor.

Tylenol Extra Strength

This is an “over the counter” pain medication. Take 2 pills every three to 4 hours as needed to relieve pain and help you sleep. These may be taken with Motrin.

Tylenol with Codeine

Take 2 pills every three to 4 hours as needed for pain. Use as directed to relieve pain. Note that codeine may cause constipation. These may be taken with Motrin.

7). Diet

A regular diet is recommended unless you are on some special diet for other reasons. Some foods and liquids such as those listed below can be slightly irritating to the bladder, causing increased frequency of urination, discomfort and slower stream. Generally it is not necessary to eliminate these foods from the diet but you may wish to decrease the amount, particularly if you are having a lot of symptoms. It is generally a good idea to keep the bowel movements soft. Metamucil and other similar agents (Novomucilax, psyllium) work well. Constipation should be avoided and dealt with promptly, using milk of magnesia or a similar laxative.



Eating Right for Life: Prostate Cancer Nutrition & You.

Foods that may cause bladder irritation

Alcoholic beverages	Cranberries / Cranberry juice
Apples / Apple juice	Grapes / Grape juice
Guava	Cantaloupes

Peaches	Carbonated beverages
Pineapple	Chilies / Spicy foods
Plums	Citrus fruits and drinks
Tea	Coffee / Including decaf.
Tomatoes	Strawberries
Chocolate	Vinegar
Vitamin B complex	

Additional foods that may cause bladder irritation

Avocados	Nutra-sweet
Bananas	Nuts
Brewer's Yeast	Onions
Canned Figs	Pickled Herring
Champagne	Cheeses (aged)
Prunes	Chicken livers
Raisins	Rye Bread
Corned Beef	Saccharine
Sour Cream	Fava Beans
Soy Sauce	Lima Beans
Wines	Mayonnaise
Yogurt	

Substitutions

Low acid fruits - Pears, Apricots, Papaya, Watermelon	For coffee drinkers- Non-citrus herbal teas
Calcium ascorbate	

8). Radiation Safety

Radiation safety is everyone's concern. After your implant, objects that you touch or items that you use are NOT radioactive. Your bodily wastes (urine and stool) are NOT radioactive.

The iodine seeds that are used for prostate implants emit low energy radiation and lose activity relatively quickly. The low energy of the seeds means that most of the radiation is delivered within the prostate gland. A small amount reaches the surrounding structures such as the rectum and bladder. A very small amount of radiation may go far enough to exit the body. We ask you to observe the precautions below to ensure that those around you are protected from unnecessary radiation.

PRECAUTIONS

Any pregnant or possibly pregnant woman should avoid prolonged personal contact with you for the first two months. She should not hug you or sit next to you. She can greet you briefly and then move to a distance of six feet or more away. At the six-foot limit, there is no limit to the length of time she can be in the same room.

Children should not be allowed to sit on your lap during the first two to four months following the implant. They can sit next to you however, with no time limit.

[New Article From The American Society for Therapeutic Radiology and Oncology.](#)

[Prostate Seed Implants Do Not Put Family Members at Risk for Radiation Exposure.](#)

9). Follow-up

Four weeks after the implant, you will be asked to return to the Princess Margaret Hospital for a CT scan, a PSA blood test and a chest x-ray. The CT scan will enable the physicians to determine the exact position of each seed in the prostate. We may also request an ultrasound or an MRI scan for additional verification of seed position. This is necessary to determine that your prostate is receiving the proper amount of radiation throughout the entire gland as well as being a permanent record of the implant. This assessment requires performing dose calculations, which may not be completed for several weeks after the implant. If additional therapy is required, your doctor will notify you, but in our experience this is quite rare. The chest x-ray is performed to determine if any seeds have traveled to the lung. Seeds in the lung are uncommon and have not caused any symptoms or problems.

Follow up with your urologist and radiation oncologist will be done on a regular basis, usually every 2-3 months in the first year and then every 3-4 months in the second year and every 6 months thereafter. You may alternate checkups between your urologist and your radiation oncologist. Digital rectal exams (DRE) and PSA will be done at the intervals indicated, along with a questionnaire evaluating your bladder function. DRE's are not performed until at least 6 months after the implant. If you are out of the area, we ask that you send us the results of each PSA. We encourage a biopsy at the two-year mark.
