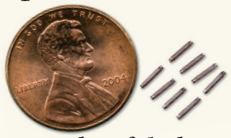
Prostate Cancer Update

Proton radiation is an older technology that has been in use since the 1950's. Because it is new to Florida, some patients have been interested in comparing proton radiation with newer and more precise forms of treatment, such as prostate seed implants and Image Guided Radiation Therapy (IGRT).

The safety and effectiveness of seed implants and IGRT has been thoroughly studied in hundreds of scientific papers, with 15 year outcomes available. There is very little published data on the cure rates with proton radiation, with no studies reporting outcomes beyond 5 years after treatment.

A review of every published study shows that patients treated with proton radiation suffer much higher cancer recurrence rates, are more likely to develop long term complications, and are at a higher risk of developing new cancers than those treated with seed implants.

What is a seed implant?



A seed implant is a simple one-time outpatient procedure that takes less than 1 hour (proton radiation requires 9 weeks of daily therapy). Tiny seeds are implanted directly into the prostate while under anesthesia. No incisions or bandages are required, and most men return to their normal activities within 1 day. Utilizing the real-time intra-operative technique, powerful computers help ensure that each seed is placed precisely. Because of this advanced technology, the risk of urinary incontinence or seeds migrating outside the prostate is less than 1%.[9]

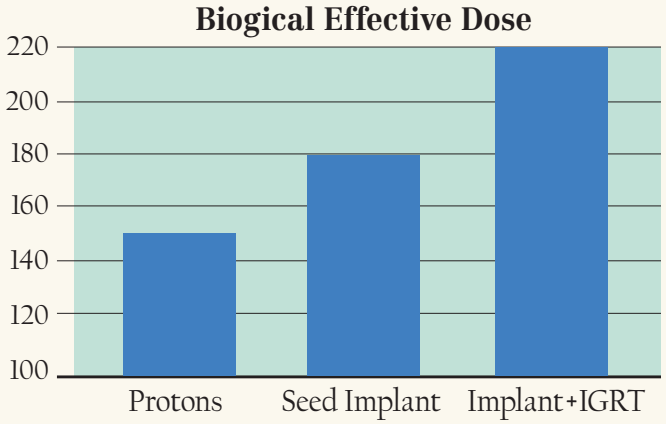
	5 year likelihood of being cancer free (%)			*15 Year likelihood of surviving cancer (%)*		
Risk Group	All	Low	High	All	Low	High
Implant Based Therapy[2,9]	95	98	88	97	99	90
Protons[1,6]	73	79	43	Unknown		

Will seed implant based treatments improve my likelihood of being cured compared to proton radiation?

Yes. Cure rates with seed implants are 20% to 45% better than proton radiation.[1-4] Several long term studies of seed implants show cure rates of 95-99%,[2,3,4] compared to only 73% with protons.[1,6] For low-risk (early stage cancer), seed implants offer a 19% increase in cure rates compared to protons. For more advanced cancer, seed implants combined with low dose IGRT resulted in a 45% increase in cure rate.

Why are seed implants so much more effective than proton radiation ?

Seed implants have the unique advantage of pinpointing the radioactivity directly inside the prostate. The seeds deliver a much greater dose to the cancer, and less to the surrounding organs, than any other form of treatment. The cancer killing power of different types of radiation is measured by the B.E.D. (Biological Effective Dose). Seed implants provide the highest B.E.D., resulting in the highest likelihood of eliminating the cancer.

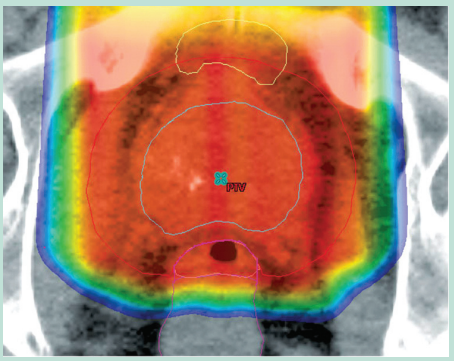


Do seed implants have fewer permanent urinary side effects than proton radiation?

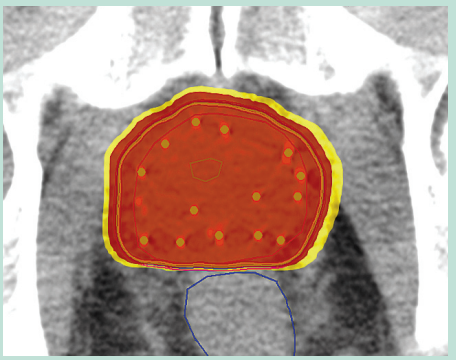
Yes. Urinary incontinence occurs in less than 1% of men following a seed implant. Other severe urinary problems are also very rare. [3,9] In contrast, 47% of men treated with proton therapy suffer from persistent bleeding with urination.[10] Incontinence rates after proton radiation are unknown.

Will proton radiation increase my likelihood of developing a secondary cancer?

Yes. There is excessive production of contaminating neutrons during proton radiation. Neutrons are dangerous particles that can damage normal organs. They are known to increase the likelihood of developing potentially life-threatening secondary cancers.[7]



A dose map of a prostate being treated with protons shows the excess radiation deposited outside the prostate. This is what causes the higher side effects.



A similar dose map of a prostate being treated with a seed implant shows no excess radiation outside the prostate, as the seeds radiate the prostate from within.

Do seed implants more effectively preserve my erectile function than proton radiation?

Yes. The best erectile function preservation rates are obtained with seed implants. By pinpointing the seeds directly in the prostate, there is minimal effect on nerves that control erections. Studies show that up to 90% of men retain their erectile function after a seed implant.[11] Erectile function has never been evaluated after proton radiation.

Do seed implants result in fewer rectal side effects than proton radiation?

Yes. In a direct comparison between proton radiation and conventional therapy published in the Journal of the American Medical Association, protons were associated with a doubling of rectal side effects – such as excessive rectal mucous production and an increased frequency of bowel movements.[6] In a separate study, 41% of patients treated with proton radiation had long term rectal bleeding.[10] In comparison, this risk is less than 2% with seed implant therapy.[9]

What are my options if my prostate cancer recurs after proton radiation?

The physicians with the Florida Radiation Oncology Group have the largest published experience in the world using seed implants to treat patients with recurrent cancer after prior radiation treatment.[12] Some simple tests and a review of your records will help determine if you are a potential candidate for this highly specialized treatment.

Why are seed implants the most accurate and precise method of delivering radiation?

With seed implants, the physician pinpoints the seeds directly in the prostate, where the cancer is. In contrast, high dose proton radiation must pass through normal organs in the body to reach the prostate, giving excess radiation to these areas.

Men with prostate cancer deserve answers clearly backed up by evidence published in medical journals. Questions you must ask your doctor if you are considering proton radiation:

1) Have you personally published your proton radiation results in a medical journal?
2) For my stage of cancer, what is the published likelihood that:
   - I will be cancer free 5 years from now?
   - I will be cancer free 15 years from now?
3) Why is my risk for developing a new secondary cancer greater after proton radiation?
4) What is the published likelihood of maintaining my erectile function after proton treatment?

Summary

Prostate seed implants have the best cure rates and lowest risk of side effects. Seed implants offer 20% - 40% better cure rates than proton radiation. Seed implants are also much less likely to cause urinary or erectile dysfunction than proton radiation.

For further information:

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References

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