

Cancers other than prostate

Physicians with the Florida Radiation Oncology Group are experts in providing state-of-the-art and compassionate care for all types of cancer, including lung cancer, breast cancer, and colorectal cancer. We conduct and participate in major research studies in our quest to provide the best cancer care anywhere in the world.

What should I do now?

If you or a loved one are concerned about prostate cancer, please call us to find out where you can obtain a convenient prostate cancer screening. If you have already been diagnosed with prostate cancer, you owe it to yourself to contact our specialists to discuss your best option for a cure.

Florida Centers for Prostate Care

904-400-6090
floridaprostate.com

Area Locations

Riverside Cancer Center

710-1 Lomax Street
Jacksonville, Florida 32204
904-483-2310

Southside Cancer Center

5742 Booth Road
Jacksonville, Florida 32207
904-636-6911

Flagler Cancer Center

300 Health Park Boulevard, Suite 1008
St. Augustine, Florida 32086
904-824-5189

Cancer Center of Putnam

600 Zeagler Drive
Palatka, Florida 32177
386-325-8140

Orange Park Cancer Center

2161 Kingsley Avenue
Orange Park, Florida 32073
904-276-2303

Baptist Cancer Center

1235 San Marco Boulevard
Jacksonville, Florida 32207
904-202-7020

Baptist South Cancer Center

14546 St. Augustine Road, Suite 105
Jacksonville, Florida 32258
904-821-6890

Florida Cancer Center, Beaches

1375 Roberts Dr., Suite 100
Jacksonville Beach, Florida 32250
904-242-0166

The Center for Radiation Oncology

7315 Green Slope Drive
Zephyrhills, Florida 33541
813-783-8614

Florida Radiation Oncology Group Physicians

Cynthia Anderson, M.D.

Mark Augspurger, M.D.

Jamie Cesaretti, M.D.

Abhijit Deshmukh, M.D.

Allison Grow, M.D.

Douglas Johnson, MD

Johnny Kao, M.D.

Anand Kuruvilla, M.D.

April Mendoza, M.D.

Michael Olson, M.D.

Shyam Paryani, M.D.

Neenad Shah, M.D.

Sonja Schoeppel, M.D.

Dwelvin Simmons, M.D.

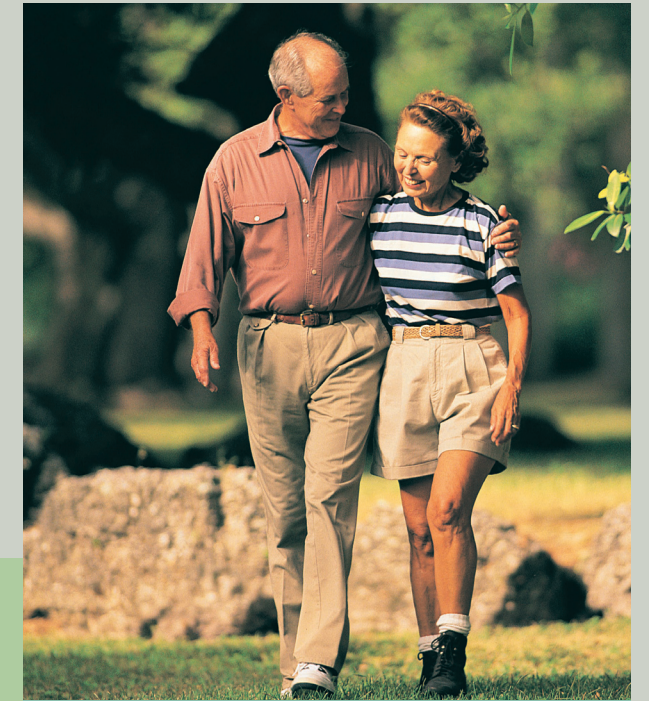
Mitchell Terk, M.D.

Mark Thompson, D.O.

John Wells, Jr., M.D.



frogdocs.com
floridaprostate.com



Prostate Cancer Questions?

We have answers.

FLORIDA CENTERS
for
PROSTATE CARE

floridaprostate.com

In recent years there has been conflicting information regarding the various treatments for prostate cancer. It is not surprising that men and their families may become somewhat confused when considering treatment options. This book presents straight forward and up to date information about prostate cancer, including:

- How to check for prostate cancer and find it at an early curable stage
- The newest non-surgical advances for treating prostate cancer
- Why prostate seed implants are one of the safest and most effective treatments
- Why seed implants offer up to 45% better cure rates than proton beam radiation, with fewer side effects

At the Florida Centers for Prostate Care, you have access to a world renowned team dedicated to the treatment of all stages of prostate cancer, including the treatment of recurrent prostate cancer following proton beam radiation. In recent years, our physicians have treated more than 5,000 men with prostate seed implants, making us one of the three most experienced centers in the world. Our centers also offer image guided radiation therapy (IGRT), the newest technology for the most precise delivery of external radiation therapy. We have patented medical devices and published extensive prostate cancer research in medical journals. Based on our unparalleled experience and reputation, our physicians have trained hundreds of doctors across the United States, Europe, Asia, and Africa on our seed implant and IGRT techniques.

We are dedicated to providing you with the most state-of-the-art treatment for all stages of prostate cancer. Our experience will allow you to feel confident that you have obtained the best possible care anywhere in the world. Once we have given you a full explanation of all the available treatment options, you will be able to best decide which treatment is right for you.



Mitchell D. Terk, M.D.
Florida Centers for Prostate Care
floridaprostate.com

Prostate Location and Function

The prostate gland is a walnut-sized structure located deep inside the pelvis. It is situated just behind the pubic bone, and sandwiched between the bladder and the rectum. Because of its location, one side of the prostate can be felt during a digital examination. The prostate gland surrounds part of the urethra, a tube that runs from the bladder to the tip of the penis. The prostate's primary function is to secrete a fluid that helps to transport sperm. As men age, their prostates typically enlarge in size, making urination somewhat more difficult and frequent.

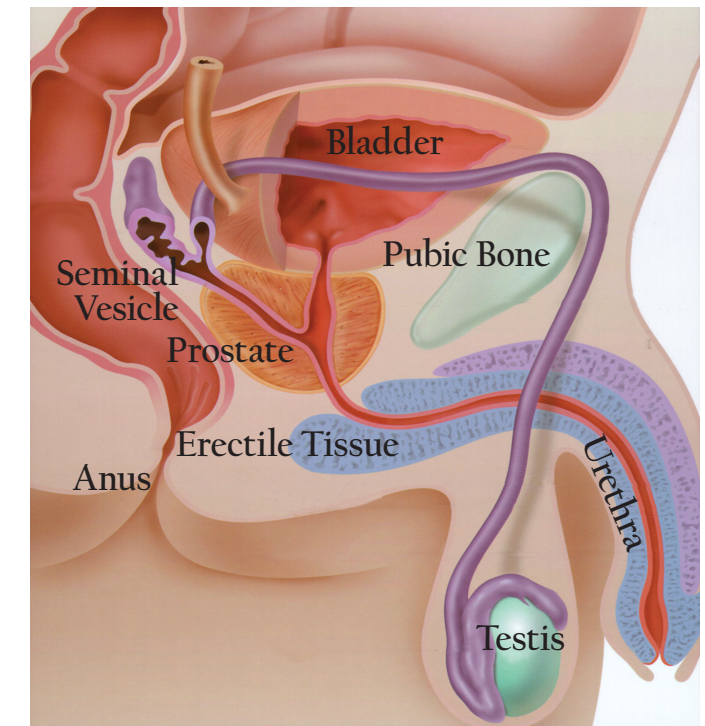
Cancer Screening - Do Not Delay!

The risk of developing prostate cancer increases as men age. Ultimately, one in six men will develop prostate cancer. The exact causes of prostate cancer are unknown. Men with a family history of prostate cancer and African-American men may be at an increased risk of developing the disease. As men continue to live longer and healthier lives, prostate cancer will likely become a more common problem in the future.

Prostate Cancer Screening Guidelines

- African-American Males.....Yearly, starting at age 40
- Men with a family history of prostate cancer.....Yearly, starting at age 40
- All other men.....Yearly, starting at age 50

Early detection is the hallmark of successful treatment of prostate cancer. Usually there are no warning signs for prostate cancer. As the cancer progresses, symptoms can be very non-specific and might include a change in urinary or bowel habits or a new onset of bone pain. Regular physical exams and PSA tests aid in the earlier diagnosis of prostate cancer.



PSA is a simple blood test that can be done in most doctors' offices or laboratories.

The American Cancer Society recommends that beginning at age 50; all men should have yearly PSA blood tests and physical exams. Men with a relative who has had prostate cancer and African-American men should begin screening at age 40. With effective screening, most men are now diagnosed with prostate cancer at an early, curable stage. This is in contrast to 20 years ago, when men were not typically diagnosed until the cancer had already spread to other parts of the body.

What exactly is PSA?

PSA stands for Prostate Specific Antigen. It is a chemical produced only by prostate cells, both normal and cancerous. It is measured by a blood test. Your physician should carefully review your PSA. In the past, a PSA of 4 was thought to be 'normal'. We now know that PSA depends on your age and the size of your prostate, amongst other factors. A PSA of 2.0 may be abnormal for a young man. As men age, the normal level for PSA increases. Your physician will be alerted when your PSA is above what is expected

for your age or if it shows a significant rise from the prior year. Because not all cancers can be found by PSA, it is important that you also have regular physical exams to feel for abnormal growths of the prostate.

What do I do if my PSA blood test or physical exam is abnormal?

If your physician detects an abnormal PSA or a lump in your prostate on exam, you will be referred to a Urologist for evaluation and possible biopsy. This is a simple procedure that can be done in a few minutes in their office. With an ultrasound in the rectum, thin needles are inserted into the prostate to remove tiny fragments of tissue for evaluation. The biopsies are then sent to a lab where a physician will determine if cancer is present. If so, they will then determine how aggressive the cancer is. The Gleason score assigns the cancer a number between 2 - 10; with 2 being a less aggressive cancer and 10 a more aggressive type.

What do I do if I am diagnosed with prostate cancer?

Don't panic. Our experts will thoroughly review your PSA and biopsy results to make sure that all your options are presented in a professional and unbiased manner. Simple and painless tests such as a CT scan, bone scan, and MRI help determine if the cancer has spread outside the prostate. This will help us determine which treatment will offer you the best possible opportunity for a cure.

Do I have any effective choices for treatment besides surgery?

Yes. In past years, treatment for prostate cancer was typically a radical prostatectomy (surgical removal). It is now well known that there are several ways to safely and effectively treat prostate cancer. A consensus panel from the American Urological Association reviewed 1,400 research studies, concluding that seed implants, radical surgery and external radiation were all

effective treatments. They concluded "there was no data providing clear-cut evidence for the superiority of any one treatment." Proton radiation, high dose rate brachytherapy, cryotherapy, and HIFU were NOT recommended as primary treatment due to either poor results or lack of necessary long term data. Because of the different side effects with each treatment, it is important that you investigate all of your options so that you can make a decision that best suits you.



The American Urological Association and the National Comprehensive Cancer Network do NOT recommend proton beam in their treatment guidelines.

Although new to Florida, proton beam radiation is an older technology in use in the U.S. since the 1950's. Remarkably few published studies have evaluated its results, with no long-term data available. In contrast, seed implants and IGRT have been extensively evaluated in hundreds of scientific papers in major peer reviewed medical journals. 15 year outcomes have been published for seed implants, compared to only 5 year results for proton radiation.

Current studies show that patients treated with proton beam radiation suffer up to

45% higher cancer recurrence rates, have a higher risk of developing radiation induced cancers, and have more long-term complications, than men treated with seed implants. Proton radiation is also extremely time consuming; requiring 9 weeks of daily treatment. For these reasons, most major prostate cancer centers have decided not to pursue proton radiation and instead focus their research on more effective seed implant and IGRT programs.

Prostate Seed Implant

Most men with prostate cancer choose a seed implant for treatment due to its superior long-term cure rates and lack of side effects. Recently published studies show that with 15 years of follow-up, a seed implant can cure more than nine out of ten men with early stage disease.

Seed implantation is a simple one-time outpatient procedure that takes less than an hour. Men arrive at the hospital in the morning, and return home a few hours later. Seed implantation is based upon the use of radioactive seeds, each smaller than a grain of rice. The seeds are made of titanium and contain a small amount of radioactive palladium or iodine. After placement, the seeds emit an intense amount of radiation to the cancer, with only minimal radiation outside the prostate, to areas such as the bladder and rectum. The seeds give off radiation only for a few months and then are permanently inactive. Cancer cells are *selectively* killed because they are much more sensitive to radiation than normal cells.

The entire procedure is done through very thin needles, so there is no cutting involved and no stitches required. You will receive a light anesthesia so there will be no discomfort from the needles. Using an ultrasound, a live picture of the prostate is obtained, and needles are



accurately placed in the perineum (the area of skin just above the anus). The Radiation Oncologist then inserts the tiny seeds. Powerful computers instantly calculate the dose of radiation delivered to help ensure a perfect implant. Once the needles are removed and the anesthesia has worn off, you can go home.

Most men experience only temporary side effects after the implant. Because there is no cutting or stitches, there is only minimal discomfort. Most men return to their normal activities within 1-2 days, and are able to return to work, playing golf, etc., at that time. You will NOT experience any nausea or hair loss! The most common complaint is temporary irritation of the urinary stream for a few months. Medications can be given to help alleviate these symptoms.

Long-term side effects following a seed implant are very uncommon. Unlike with surgery, 99% of men are completely able to control their bladder. In addition, up to nine out of ten men treated with a seed implant will preserve their ability to have erections.

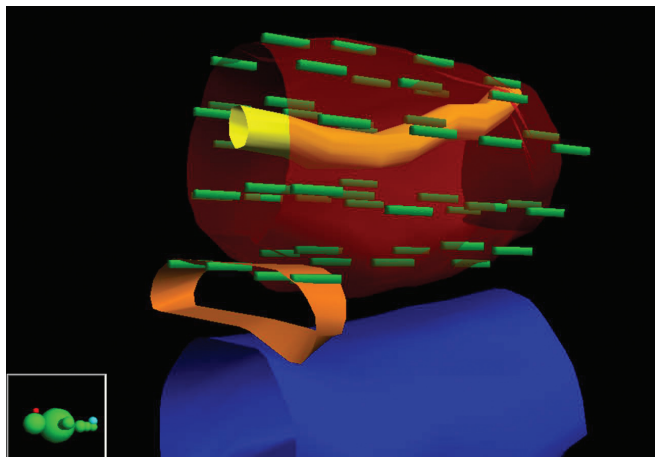
Why is there no concern for seed migration?

With our Procision™ implant technique, seeds are precisely placed in the prostate where they will not move. Research shows that seed migration occurs in less than one in two thousand seeds.¹ Based on our vast experience, the risk of seeds causing any serious or permanent damage to areas outside of the prostate is also extraordinarily low. Rectal and bladder damage are much more common with proton beam radiation.

What is FROG's Procision™ Seed Implant Technique?

To have the best possible results from your seed implant, it is essential that all areas of the prostate are adequately implanted with seeds, and that no sensitive areas outside the

prostate are implanted. Physicians with the Florida Radiation Oncology Group (FROG) helped pioneer the development of powerful computers used during the implant procedure to instantly calculate the dose of radiation received by the prostate and surrounding areas. The computer analyzes live images of the prostate throughout the procedure to help ensure optimal seed placement. This results in minimal risk of placing of seeds too close to the bladder, rectum, or nerves.



Why is intra-operative planning so important?

Our Procision™ Technique is a great improvement over the older Pre-Plan or Seattle Technique, where the needle and seed position is determined before the actual implant procedure. With the pre-planning method, the prostate is mapped out days to weeks in advance by ultrasound. That mapping is then used at a later date to determine where to place the needles and seeds when in the operating room. The pre-plan technique unfortunately does NOT take into account differences in the size, shape or position of the prostate at the actual time of the procedure. This can lead to placement of seeds in the rectum, urethra or bladder, and a lack of seeds in areas with cancer. In contrast, using powerful computers and our experience based on thousands of procedures, FROG's Procision™ Technique takes

all of the above possible changes into account. All of the needles and seeds are placed according to how the prostate looks at the time of the procedure, not weeks before. All radiation doses are calculated live, during the actual implant procedure, not weeks before. Any movement of the prostate during the implant procedure can be immediately taken into account, ensuring optimal seed placement.

Physicians with the Florida Radiation Oncology Group are pioneers of this state of the art technique.

Your Prostate Implant Team

Should you choose to undergo a seed implant with our team, both your Urologist and Radiation Oncologist will be involved in the planning and placement of the seeds. Support will be provided by a dedicated and experienced group of nurses and physicists. Undergoing care by this team will allow you to benefit from their years of training and expertise.



The Florida Centers for Prostate Care, a division of the Florida Radiation Oncology Group, have physicians dedicated to the treatment of prostate cancer, with extensive research publications, lectures, and experience performing and teaching prostate seed implants around the world. This experience will allow you to feel confident that you have obtained the best possible care anywhere in the world.

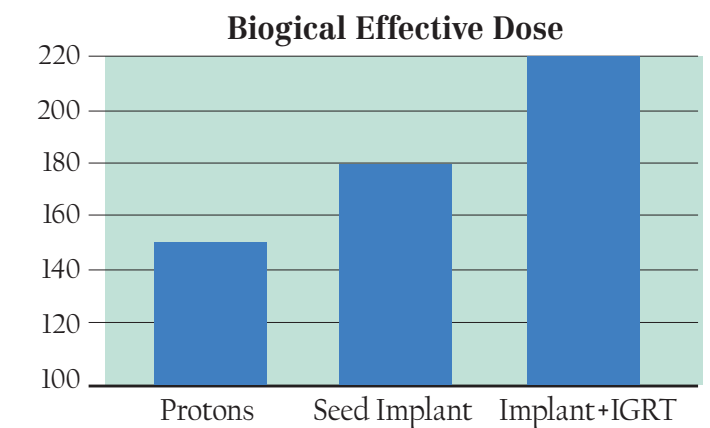
What is proton beam radiation?

Proton radiation is an older technology that has been in use since the 1950's. Rather than treating with photons, as occurs with IGRT, men are treated with a different type of radioactive particle called protons. Some patients have been interested in comparing proton radiation with newer and more precise forms of treatment, such as seed implants or 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 a mere 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 greater risk of developing new cancers than those treated with seed implants.

Risk Group	5 year likelihood of being cancer free (%)			15 Year likelihood of surviving cancer (%)		
	All	Low	High	All	Low	High
Implant Based Therapy ^{3,5}	95	98	88	97	99	90
Protons ^{2,6}	73	79	43	Unknown		

Will seed implants improve my likelihood of being cured compared to proton radiation?

Cure rates for seed implants are 20% to 45% better than proton radiation. A recent study from the nation's leading proton center in Loma Linda reported the overall success rate with proton radiation was only 73%. For those with high risk disease, the success rate was only 43%.² This is in comparison to 98% success rates with seed implants in early stage cancer, and 88% success rates in high risk disease.³



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

Seed implants have the unique advantage of pinpointing the treatment directly inside the prostate, where the cancer is. 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.

Why is proton radiation more dangerous than a seed implant?

Because the high doses of proton radiation are delivered externally, with less sophisticated methods of targeting the prostate than seed implants or IGRT, protons cause far more side effects than seed implants. A paper from a leading proton facility showed that following proton radiation, 41% of men had long-term rectal bleeding and 47% had long-term bleeding with urination.⁴ The risk of these side effects with seed implants is less than 5%.⁵

Why does proton beam radiation sometimes cause other cancers?

Of great concern, the pre-eminent radiation biologist, Dr. Eric Hall, reported that there is excessive production of contaminating neutrons in the patient during proton radiation.⁷

² Slater - IJROBP.59: 2, 2004 ³ Bittner - IJROBP.2008
⁴ Gardner - J.Urology.167: 1, 2002 ⁵ Zelefsky - IJROBP.67: 1, 2007

⁶ Zuczman, A. L. et. al. JAMA. Vol 294, No.10, pp 1233-1239, 2005
⁷ Hall - Tech Cancer Res Treat. 21: 4(5), 2007

Neutrons are dangerous particles that can damage normal organs. They are known to increase the likelihood of developing potentially life-threatening secondary cancers.

Surgical removal of the prostate *(radical or robotic prostatectomy)*

A prostatectomy is a major operation that typically takes three hours. It involves making an incision in the lower abdomen to remove the prostate. Hospitalization is required for a few days, and all men require a catheter in their bladder for a few weeks. Robotic prostatectomy can be done at some institutions. There, the surgeon guides robotic arms to perform the operation. Smaller incisions are used resulting in slightly shorter recovery times. Some studies question whether there is a higher risk of leaving cancer behind following robotic surgery. Long-term side effects are similar to traditional prostatectomy in most studies. Loss of urinary control (incontinence) and loss of sexual function (impotence) can occur with surgery. The likelihood varies greatly with the skill and experience of the surgeon.

A prostatectomy can only cure men if the cancer is completely removed. If surgery leaves behind even a few microscopic cancer cells, these can later grow and ultimately spread. Your Urologist can provide you with more detailed information.

Hormone therapy

Prostate cancer feeds on testosterone, the male hormone. A simple shot and/or pills can temporarily block testosterone. By cutting off the 'food supply' to the cancer, several beneficial effects can occur:

- *The prostate can shrink up to 50% in size*
- *It usually becomes easier to urinate*
- *Cancer cells outside the prostate may actually die*
- *Cancer cells may become more sensitive to radiation and are more likely to be killed*

While hormone therapy alone will not typically kill the cancer, it has been shown to improve cure rates when combined with implants or IGRT in men with more advanced cancer. It also has the ability to make a seed implant possible in men with very large prostates that would otherwise been technically difficult to implant. Some common, but temporary side effects include hot flashes, fatigue, and loss of libido. Fortunately, most of these are treatable.

What is early-stage prostate cancer?

For early-stages, you must have a small risk of cancer being outside the prostate. This risk can be estimated following a review of your records. Several important criteria must all be met:

- *PSA less than 10*
- *Either a small, or no nodule felt in the prostate*
- *Gleason less than 7*

The Journal of the American Medical Association published a study looking at nearly 2,000 men. It showed for men with early stage cancer, a seed implant and radical surgery offered similar cure rates. However, the side effects with the treatments were quite different.⁸

Intermediate-advanced stage cancer

Although surgery (prostatectomy) may be effective for early stage cancer, it becomes less effective as the risk of cancer having spread beyond the prostate increases. This is because it is very difficult to completely remove cancer once it has grown beyond the confines of the prostate without damaging surrounding organs. Several factors identify men at a higher risk for having cancer outside the prostate.

These can include any of the following:

- *PSA greater than 10*
- *Nodule occupying more than half of the prostate*
- *Gleason greater than 6*
- *Cancer invading nerves in the prostate (=perineural invasion)*
- *More than half of the prostate biopsies positive*

⁸ D'Amico - JAMA280: 11, 1998

The case for combined treatment

For any treatment to be effective in intermediate to advanced stage cancer, it must be directed at both the prostate and the surrounding areas where cancer cells may have spread. To accomplish this, a seed implant is combined with safe low dose IGRT and/or a hormone medicine. The IGRT not only treats cancer in the prostate; it can also attack cancer cells outside the prostate. With combined treatment, more than four out of five men with more advanced cancer can be cured; success rates double that seen with proton radiation or surgery alone. This combination is harder on the cancer, and may actually result in fewer side effects than if treated with a seed implant alone.



I.G.R.T. and I.M.R.T.

Intensity modulated radiation therapy (IMRT) allows for maximum radiation to be delivered to the prostate and areas potentially harboring cancer cells, while minimizing radiation to the bladder and rectum. This is done by computers modulating the intensity of the beam, increasing it to areas where cancer cells reside, and decreasing it to areas that need to be protected. Intermediate to advanced stage patients have higher risk of having cancer outside the prostate, beyond the surgeon's reach. IMRT can help treat this area.

Image Guided Radiation Therapy (IGRT) takes IMRT one step further. To accomplish this, we use targeting technologies such as Cone-Beam® CT, Novalis®, or BAT® ultrasound, to track any slight change in the prostate's daily position. The computer adjusts the radiation beam to precisely target the treatment to your prostate's current position. This allows us to further maximize the radiation dose to the prostate and minimize the dose to the surrounding normal organs. It is the newest and most advanced system for the delivery of external radiation, allowing much greater precision than proton radiation.

IGRT treatments are typically given for a few minutes a day. When combined with a seed implant, this part of the treatment is only five weeks. IGRT is completely painless and non-invasive. During treatment, the most commonly reported side effects are mild fatigue and having to go to the bathroom more frequently. You will NOT develop any nausea, abdominal pain, or hair loss. You will NOT lose your ability to control your bowels or bladder. You will be able to continue working full-time and should be able to enjoy your regular activities.



All of the Florida Radiation Oncology Group's facilities utilize the newest IGRT technology.

Frequently Asked Questions

Q: Should I consider Proton radiation?

A: Proton beam radiation is a less effective technology from the 1950's. Current studies show that patients treated with protons suffer up to 45% higher cancer recurrence rates than seed implant based therapies, have a higher risk of developing radiation induced cancers, and have higher rates of long-term complications. For these reasons, most major prostate centers throughout the world have decided not to pursue less effective proton technology and instead focus their attentions on more successful seed implant and IGRT programs.

Q: How experienced are the Physicians with the Florida Centers for Prostate Care?

A: Our physicians have performed more than 5,000 seed-implants making us one of the three highest volume centers in the world. We regularly train other doctors throughout the United States, Europe, Asia, and Africa in our seed implant and IGRT techniques. We have patented medical devices, published cancer research in major medical journals, and presented seminars around the world. Based on our experience, we know that the Radiation Oncologist's expertise plays a critical role in the implant team. This is vital to achieve the best possible results with minimal side effects.

Q: What can I do if I was previously treated with proton radiation and now my cancer has recurred?

A: We are one of the only groups in the world experienced enough to offer salvage prostate seed implants to select men who failed prior proton radiation. At the time of consultation,

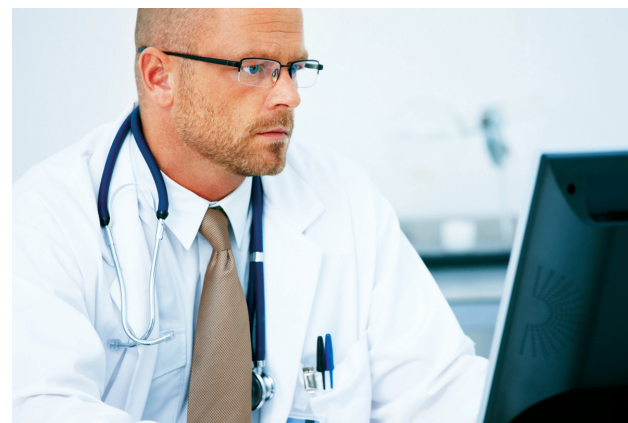
we can recommend some simple tests to help determine if this is a safe and potentially effective option for you.

Q: I have heard some people say that they do not think the PSA blood test is important for cancer screening. What do you think?

A: Both the American Cancer Society and the American Urological Association strongly recommend that annual PSA blood tests and physical exams lead to detection of prostate cancer being diagnosed at an earlier, more curable stage, and thus, can potentially save lives.

Q: Do you participate in research on prostate cancer?

A: Yes. We participate in both national and local studies. All patients treated with seed implants by the Florida Radiation Oncology Group are tracked in a computerized database. Implants are all analyzed for quality and their results are carefully monitored.



Q: What exactly is cryotherapy?

A: Cryotherapy is a technique that freezes the prostate. It is generally used to treat cancer recurrences. At this time, most groups do not recommend cryotherapy for primary treatment of prostate cancer as there is minimal long-term data studying its effectiveness. Impotence and incontinence rates are similar to radical prostate surgery.

Q: What about HIFU (high intensity focused ultrasound) treatment?

A: Some men have been travelling out of the country for this treatment due to false claims. For many reasons, HIFU is NOT permitted to be performed in the United States! Several studies show HIFU has the lowest published success rates ever seen, as much as 65% less than seen with seed implants. A recent European study showed that the 5 year success rate for early stage prostate cancer was only 30% with HIFU.⁹

Q: How long will I be out of work after having a prostate seed implant?

A: Most men can return to their normal activities within 1-2 days.

Q: How does radiation kill cancer cells?

A: Cancer cells are selectively killed because they are much more sensitive to radiation damage than normal cells. This damage removes a cancer cell's ability to multiply.

Q: Since I have radioactive seeds in my prostate, am I a risk to other people?

A: No. The amount of radiation given off outside the body is negligible. In fact, the total exposure is equivalent to a single trip on an airplane from New York to Los Angeles. For peace of mind, we recommend that you avoid close contact with pregnant women and refrain from holding young children for 1-2 months afterwards.

Q: Will I have to wear a urinary catheter after a seed implant?

A: Unlike with surgery, most men go home without a catheter.

Q: How do I know if I was cured by a radical prostatectomy?

A: The answer is quite simple. A PSA blood test done a few months after surgery should reflect an undetectable PSA. If this is not the case, you may have some cancer cells left behind that

should be irradiated. In this circumstance, we may recommend supplemental radiation.

Q: Can I have surgery if the cancer regrows in the prostate after seed implant?

A: Yes, however, it is very unusual for cancer to regrow within the implanted area.



Q: Are all men with prostate cancer eligible for seed implants?

A: We believe that all men without evidence of metastasis (cancer spread to other organs) have a very good chance to be cured of their cancer. Most men are eligible for seed implants with or without supplemental IGRT. We have protocols to treat men with both early and advanced stage disease.

We recommend that all men diagnosed with prostate cancer consult with us before making a decision regarding their treatment. We will review your medical history and discuss the pros and cons of all treatment options and how each could affect your quality of life. At the Florida Centers for Prostate Care we will take the time to help men and their families learn the facts and feel comfortable with their treatment decision.