

### Prostate Radiation Therapy Induces Changes in Penile Bulb, Causing Erectile Dysfunction

DECEMBER 5, 2016

Erectile dysfunction, one of the consequences of radiation therapy in men undergoing treatment for prostate cancer, may be associated with changes in the volume of the penile bulb (the bottom part of the penis), according to a new study.

The study, "Effect Of Dose And Image Guided Radiation Therapy (IGRT) On Patient-Reported Sexual Function In Prostate Radiation Therapy," was published in the International Journal

of Radiation Oncology.

Prostate radiation therapy can cause erectile dysfunction in patients undergoing this type of treatment, and previous research has suggested that the penile bulb may be related to this negative outcome. However, the relationship between the dose of radiation and changes in penile bulb volume have remained elusive.

To address this matter, researchers compared the changes in penile bulb volume of a subgroup of prostate

cancer patients from the CHHiP trial who were treated using prostate image-guided radiation therapy (IGRT) with their self-reported erectile dysfunction after the treatment.

The subgroup included 293 untreated prostate cancer patients who were randomly assigned to receive radiation therapy with or without daily IGRT, with standard or reduced CTV-PTV margins (which define the tumor and target volumes for radiation therapy).

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*Thanks!*

**Next Meeting:** January 19th, 2017

Dr. Sabine Mai,  
(Sr. Investigator, Manitoba Institute of Cell Biology";  
Director, The Genomic Center  
for Cancer Research and Diagnosis)

**Topic:** "Prostate Cancer Research "

**Location:** Cindy Klassen Recreation Complex  
at 999 Sargent Avenue

**Time:** 7 – 9 pm.

*Free Admission Everyone Welcome*



The Manitoba Prostate Cancer Support Group offers support to prostate cancer patients but does not recommend any particular treatment modalities, medications or physicians ; such decisions should be made in consultation with your doctor.

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*Thought of The Day*

*"Artificial intelligence is no match for natural stupidity."*

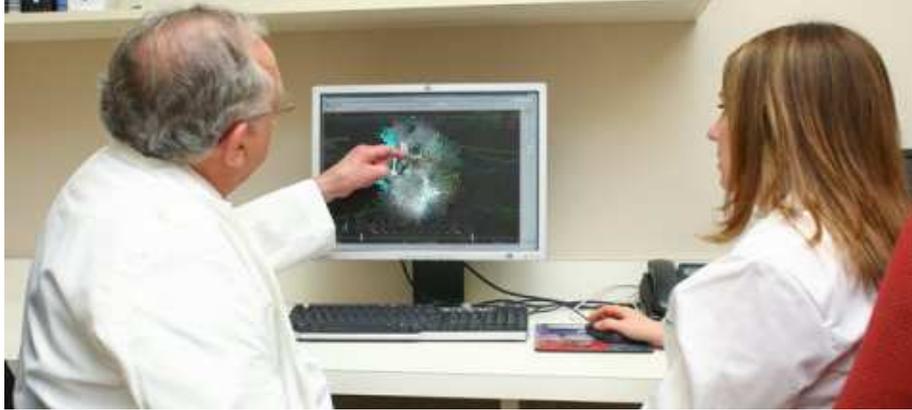
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At least two years after the end of radiation therapy, patients were given the EPIC and IIEF-5 questionnaires to evaluate patient sexual function and erectile dysfunction, respectively.

Patients also received an additional IIEF-5 questionnaire to retrospectively report on their status before the therapy. Researchers also analyzed parameters of penile bulb volume and developed an algorithm to compare this data with that provided by the questionnaires.

Of the initial group of 293 patients, 182 returned complete questionnaires, but data on their radiation dose was available only for 138. Also, patients who reported severe erectile dysfunction before therapy were excluded, leaving a final group of 90 patients.

The analysis showed that the median time between the end of radiation therapy and completion of the test was of 46.5 months. The team found evidence that patients with higher penile



bulb volume and who submitted to higher radiation doses had severe erectile dysfunction or moderate/big sexual problems.

These results not only show that there is indeed a relationship between the penile bulb and erectile dysfunction in patients who undergo radiation therapy, but also that the planning of this type of therapy should perhaps avoid the penile bulb.

According to the authors, this analysis will be carried out in an additional group of patients to confirm the results.

**By Joana Fernandes, PhD**

*Joana brings more than 8 years of academic research and experience as well as Scientific writing and editing to her role as a Science and Research writer. She also served as a Postdoctoral Researcher at the Center for Neuroscience and Cell Biology in Coimbra, Portugal, where she also received her PhD in Health Science and Technologies, with a specialty in Molecular and Cellular Biology.*

<https://prostatecancernewstoday.com/2016/12/05/prostate-radiation-therapy-can-cause-erectile-dysfunction-changes-penile-bulb-volume>

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## Bipolar Androgen Therapy Yields Promising Results in Prostate Cancer

DECEMBER 8, 2016 Özge Özkaya, PhD

The first arm of the study looked at 30 men who were treated with testosterone after their disease became resistant to Xtandi and started to progress. The results showed the levels of prostate specific antigen (PSA) declined in about 40% of the patients. This decline was more than 50% in 30% of the patients.

In addition, the disease progression was halted in several patients for more than a year. In some patients, the size of the tumor decreased. In one case, PSA levels dropped to zero after three months and have remained at that level for 22 cycles of treatment.

In the second arm of the study 17 of the 30 patients whose disease had started to progress again after treatment with Zytiga, received testosterone. PSA levels also dropped in this group. In six patients, the levels of a protein associated with resistance to treatment with Xtandi dropped to zero, and two patients had 50% or more decline in PSA levels.

“We think the results are unexpected and exciting,” Denmeade said. “We are still in the early stages of figuring out how this works and how to incorporate it into the treatment paradigm for prostate cancer.”

“The benefits of the treatment are particularly evident in men who have had no sexual function for many years due to impotence caused by hormone deprivation. These men are quite happy with the new treatment,” he added. “Other positives include increase in muscle strength, increased energy and decreased fatigue. This does not occur in every man and we are not sure exactly why.”

The treatment was well-tolerated by all men. One patient reported an increase in pain and one had urine retention problems.

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According to the researchers, more research is needed to fully understand the effect of bipolar androgen therapy. Denmeade warned that testosterone treatment definitely can worsen pain in men with prostate cancer who have pain from their disease.

“This therapy should only be given to men who are asymptomatic,” he said.

A second trial called TRANSFORMER (NCT02286921) is testing bipolar androgen therapy in men with metastatic castrate-resistant prostate cancer whose disease had progressed after being treated with Zytiga.

Traditionally, prostate cancer has been treated by lowering the levels of

testosterone because it was thought that testosterone induced tumor growth. But according to Denmeade, there is no evidence that testosterone promotes cancer.

“Indeed, earlier research in prostate cancer cell lines has shown that treatment with high doses of testosterone could inhibit growth and kill cancer cells,” he said. “The exact mechanism is not known and there may be many things happening since the androgen receptor is the key signaling pathway in prostate cancer.”

Denmeade added that previous research in his laboratory has shown that “testosterone interferes with part of the cell division process in cancer cells called DNA licensing and also makes

breaks in the DNA of tumor cells, causing them to die.”

Jean-Charles Soria, PhD, of the Institut Gustave Roussy in France and the chair of the scientific committee for the symposium, said the use of testosterone in men with castration-resistant prostate cancer “is an intriguing concept that was previously advocated some years ago, but this is the first time we have clinical data in patients whose disease has progressed after treatment with [Zytiga] or [Xtandi].”

<https://prostatecancernewstoday.com/2016/12/08/bipolar-androgen-therapy-prostate-cancer-shows-promise>

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## Ultrasounds May One Day Replace Invasive Biopsies For Prostate Cancer, Say Researchers

Sharon Nadeem December 14, 2016

Invasive biopsies that are currently required for diagnosis and treatment of prostate cancer could one day be replaced with relatively painless ultrasounds, say researchers at the University of Alberta.

Prostate cancer patients are expected to undergo frequent biopsies to help their doctors understand the progression and nature of the disease.

“A biopsy involves 14 needles through a walnut-size gland, the prostate. As you might imagine, it’s a very uncomfortable and invasive procedure,” said John Lewis, associate professor of oncology at the U of A and a cancer biologist involved in a new study.

Lewis and his team hope to replace these biopsies with a combination of ultrasound and nanotechnology. The procedure will use high-intensity focused ultrasound and nanoparticles that increase the detection of cancer

biomarkers in the blood.

“Separately, the ultrasound and nanodroplets have very little effect. But when we added the two together they had a very big effect,” says Robert Paproski, first author of the study and a U of A research associate.



“It allows us to detect roughly 100 times more vesicles than would normally be there, that are specific from the tumour.”

Specific information about the tumor could help doctors administer specialized treatment for the patient. “If we can sequence the genome of the cancer and learn if it is sensitive to

specific drugs then ideally, we can select the drugs that could kill those tumors,” says Lewis.

“That is the eventual goal of the project,” he added.

The research is easy to implement as both the technologies required are already in use. “Forced ultrasound systems are already used in the clinic. Nanoparticles are already used in the clinic. So, I think the movement of this into the clinic is relatively straightforward,” said Lewis.

Researchers say that the benefits of the research are not limited to prostate cancer and could be used for other forms of cancer.

The researchers are expected to begin their clinical trial late next year.

Source: <http://edmontonjournal.com/news/local-news/ultrasounds-may-one-day-replace-invasive-biopsies-for-prostate-cancer-say-researchers>

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## What You Need to Know About Prostate Surgery

### What is prostate surgery for?

The prostate is a gland located underneath the bladder, in front of the rectum. It plays an important role in the part of the male reproductive system that produces fluids that carry sperm.

Surgery for partial or complete removal of the prostate is called a prostatectomy. The most common causes for prostate surgery are prostate cancer and an enlarged prostate, or benign prostatic hyperplasia (BPH).

Pretreatment education is the first step to making a decisions about your treatment. All types of prostate surgery can be done with general anesthesia, which puts you to sleep, or spinal anesthesia, which numbs the lower half of your body.

Your doctor will recommend a type of anesthesia based on your situation.

The goal of your surgery is to:

- ◆ cure your condition
- ◆ maintain urinary continence
- ◆ maintain the ability to have erections
- ◆ minimize side effects
- ◆ minimize pain before, during, and after surgery

### Types of prostate surgery

The goal of prostate surgery also depends on your condition. For example, the goal of prostate cancer surgery is to remove cancerous tissue. The goal of BPH surgery is to remove prostate tissue and restore the normal flow of urine.

#### *Open prostatectomy*

Open prostatectomy is also known as

traditional open surgery or an open approach. Your surgeon will make an incision through your skin to remove the prostate and nearby tissues.

There are two main approaches, as we explain here:



**Radical retropubic:** Your surgeon will make the cut from your bellybutton to your pubic bone. In most cases, your surgeon will remove only the prostate. But if they suspect the cancer may have spread, they will remove some lymph nodes for testing. Your surgeon may not continue the surgery if they discover that the cancer has spread.

**Radical perineal approach:** Your surgeon will make a cut in the space between the rectum and scrotum. This is often done when you have other medical conditions that complicate retropubic surgery. In this position, your surgeon can't remove the lymph nodes. This surgery takes less time than retropubic surgery, but there is a higher risk for erectile dysfunction.

For both approaches, you can be under general anesthesia or spinal or epidural anesthesia.

#### **Laparoscopic approach**

Laparoscopic surgery is a minimally

invasive approach to prostate surgery. There are two main approaches for this kind of procedure as well:

#### ***Laparoscopic radical prostatectomy:***

This surgery requires multiple tiny cuts so the surgeon can insert small surgical instruments. Your surgeon will use a thin tube with a camera to see into the area.

#### ***Robotic-assisted laparoscopic radical prostatectomy:***

Some surgeries include a robotic interface. With this type of surgery, the surgeon sits in an operating room and directs a robotic arm while viewing a computer monitor. A robotic arm may provide more maneuverability and precision than the other procedures.

#### **Are there differences between ORP, LRP, and RALRP?**

According to a 2010 review of different surgery types for prostate cancer, the outcomes for open radical prostatectomy (ORP), laparoscopic (LRP), and robotic-assisted prostatectomy (RALRP) are not significantly different.

#### **New prostate cancer treatment?**

Clinical trials show that laser surgery to remove cancerous prostate tissue may be more effective. Eight men who went through this treatment had zero side effects. But they needed longer follow-up than traditional surgeries.

#### ***But people who choose LRP and RALRP may experience:***

- ◆ less blood loss

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- ◆ less pain
- ◆ shorter hospital stay
- ◆ faster recovery time

Also, people who choose RALRP report faster recovery in continence (the ability to control the bladder and bowels) and decreased hospital stay, in comparison to LRP. But the overall outcomes still depend on the surgeon's experience and skill.

### **Types of prostate surgery that help with urine flow**

#### ***Prostate laser surgery***

Prostate laser surgery primarily treats BPH without making any cuts outside of your body. Instead, your doctor will insert a fiber-optic scope through the tip of the penis and into your urethra. Then your doctor will remove prostate tissue that's blocking urine flow. Laser surgery may not be as effective.

#### ***Endoscopic surgery***

Similar to the laser surgery, endoscopic surgery doesn't make any incisions. Your doctor will use a long, flexible tube with a light and lens to remove parts of the prostate gland. This tube goes through the tip of the penis and is considered less invasive.

#### ***Widening the urethra***

Transurethral resection of the prostate (TURP) for BPH: TURP is the standard procedure for BPH. A urologist will cut pieces of your enlarged prostate tissue with a wire loop. The tissue pieces will go into the bladder and flush out at the end of the procedure.

#### ***Transurethral incision of the prostate (TUIP):***

This surgical procedure consists of a few small cuts in the prostate and bladder neck to widen the urethra. Some urologists believe that TUIP has a lower risk for side effects than TURP.

### **What happens after the surgery?**

Before you wake up from the surgery, the surgeon will place a catheter into your penis to help drain your bladder. The catheter needs to stay in for one to two weeks. You may need to stay in the hospital for a few days, but generally you can go home after 24 hours. Your doctor or nurse will also give you instructions on how to handle your catheter and care for your surgical site.



A healthcare worker will remove the catheter when ready and you'll be able to urinate on your own.

Whatever type of surgery you had, the incision site will probably be sore for a few days. You may also experience:

- ◆ blood in your urine
- ◆ urinary irritation
- ◆ difficulty holding urine
- ◆ urinary tract infections
- ◆ inflammation of the prostate

These symptoms are normal for a few days to a few weeks after recovery. Your recovery time will depend on the type and length of surgery, your overall health, and whether you follow your doctor's instructions. You may be advised to decrease activity levels, including sex.

#### **General side effects of prostate surgery**

All surgical procedures come with some risk, including:

- ◆ reaction to anesthesia
- ◆ bleeding
- ◆ infection of the surgical site

- ◆ damage to organs
- ◆ blood clots

Signs that you may have infection include fever, chills, swelling, or drainage from the incision. Call your doctor if your urine is blocked, or if the blood in your urine is thick or getting worse.

#### ***Other, more specific side effects in relation to prostate surgery may include:***

***Urinary problems:*** This includes painful urination, difficulty urinating, and urinary incontinence, or problems controlling urine. These problems typically go away several months after surgery. It's rare to experience continuous incontinence, or loss of ability to control your urine.

***Erectile dysfunction (ED):*** It's normal to not have an erection eight to 12 weeks after surgery. The chances of long-term ED increase if your nerves are injured. One UCLA study found that choosing a doctor who has performed at least 1,000 surgeries increases the chances of post-surgery recovery of erectile function. A surgeon who is gentle and handles the nerves delicately also can minimize this side effect. Some men noticed a slight decrease in penis length due to the shortening of the urethra.

***Sexual dysfunction:*** You may experience changes in orgasm and loss in fertility. This is because your doctor removes the semen glands during the procedure. Talk to your doctor if this is a concern for you.

***Other side effects:*** The chances of accumulating fluid in the lymph nodes (lymphedema) in the genital area or legs, or developing a groin hernia is also possible. This can cause

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pain and swelling, but both can be improved with treatment.

### **What to do after your surgery**

Give yourself time to rest, as you may feel more tired post-surgery. Your recovery time will depend on the type and length of surgery, your overall health, and whether you follow your doctor's instructions.

### **Instructions may include:**

- ◆ Keeping your surgical wound clean.
- ◆ No driving for one week.
- ◆ No high-energy activity for six weeks.
- ◆ No climbing stairs more than

necessary.

- ◆ No soaking in bathtubs, swimming pools, or hot tubs.
- ◆ Avoiding one sitting position for more than 45 minutes.
- ◆ Taking medications as prescribed to help with pain.

While you'll be able to do everything on your own, it may be a good idea to have someone around to help you for the time period where you have the catheter.

It's also important to have bowel movements within a day or two. To help with constipation, drink fluids, add fiber to your diet, and exercise. You can also ask your doctor about laxatives if these options don't work.

### **Self-care**

If your scrotum starts to swell after surgery, you can create a sling with a rolled towel to lessen the swelling. Place the towel roll underneath your scrotum while you're lying down or sitting and loop the ends over your legs so it provides support. Call your doctor if the swelling doesn't go down after a week.

*Written by Ann Pietrangelo*

Medically Reviewed by Graham Rogers, MD on 29 November 2016

<http://www.healthline.com/health/prostate-surgery#Overview1>

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## **Accurate Risk Status Assessment Critical to Prostate Cancer Care**

*Gina Columbus Thursday, Aug 25, 2016*

Determining whether a patient with prostate cancer has low- or intermediate-risk disease is a significant distinction to make, as the 2 subsets are managed quite differently, explains Julio Pow-Sang, MD.

In a lecture at the 2016 OncLive State of the Science Summit on Genitourinary Cancers, Pow-Sang, MD, chair of Urological Oncology at Moffitt Cancer Center, discussed the significance of assessing risk status, options for patients whose risk status falls in a "grey-zone," and how technology is helping oncologists more accurately characterize risk. He expanded on these topics in an interview with OncLive during the meeting.

Pow-Sang: The goal is to clarify the distinction between risk groups with localized prostate cancer because that drives a lot of the decisions in management. One of the fortunate things happening is that, with better molecular testing and imaging, one is better able to characterize the tumors.

Traditionally, cancers that were localized—specifically in prostate cancer—were divided into organ-confined cancer, localized cancer, and locally extensive cancer. That was the extent of the stratification, and it was very difficult to determine what treatment to give.



*Julio Pow-Sang, MD*

As we learned more and imaging [evolved], we were able to define better risk categories. The most traditional, modern one is the D'Amico Classification System, which divides localized cancer into low, intermediate, and high risk. When we are talking

about low and intermediate risk, that classification blurs a little bit because there's an overlap between low and intermediate groups.

More importantly, at present, one of the main options for low-risk patients is to do active surveillance. Initially, the sophistication of the testing to determine that a man was really truly a low-risk patient was very rudimentary. There was an approximate 30% chance that, with further testing, the patient was actually an intermediate-risk one. That was critical because intermediate-risk patients are more likely to have cancer spread and, eventually, die from their cancer. Therefore, they need treatment. That would be the general recommendation.

We also recognize that there is a subset of men who have cancer and are never going to have problems for the rest of their life—and they start dying from something else. Newer tests and a better understanding of the

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behavior of the cancer have helped us determine who those men are versus the ones who might need treatment.

### **What are some of the key considerations for oncologists when treating patients?**

One of the most important things is to define—as best as one can with the technology available—what risk that the man really falls into. That’s going to drive the discussion about potential management options—whether active surveillance is an option or not.

If one defines that the man [has] very low-risk disease, one could feel very comfortable with watching that person and explaining the reasons why.

When dealing with an intermediate-risk patient, we start moving into the area of truly intermediate, high-intermediate, or even going into the high-risk territory—in which one might have to consider clinical trials because conventional treatments are not very good, or one might try to consider more aggressive local treatments, or a combination of treatments.

### **You mentioned the technology that’s available today. How can this technology be improved?**

We have very good technology [now] compared with what we had only 5 or 10 years ago, and it keeps improving. The big push now is to better characterize the tumors by molecular markers. There are several available. There are sets of genes that one can test for and then better determine the behavior of the cancer into the future. One big field is molecular markers of different types; they are tissue, urine, or blood-based markers.

The other big field is related to

imaging. Until several years ago, we didn’t have a good way to assess for the cancer when it was very early. There is now technology with MRI that allows us to better define the tumors and, in many cases, help with the distinction between low and intermediate risk. We think the intermediate-risk [category] can be even better defined whether one is an intermediate “low,” “medium,” or “high.” There is more of a precision in characterizing the tumor so one could make better decisions with management.



### **What research questions do you think can or should still be answered?**

The main research question with localized prostate cancer is [determining how] to get a better definition of which men would be safe with active surveillance. Secondly, in men with intermediate-risk disease, there are a subset of men who are traditionally called intermediate; however, they have more probability of cancer progressing and not responding to local treatment. It is likely that upcoming improvements in technology and molecular testing are going to help define that.

The other big research question concerns the [role] of focal therapy. Within the armamentarium for local

treatment, there is a treatment called focal therapy. Here, the cancer is only [in] one area of the prostate; an oncologist only treats that area. This is what one would compare with women—many years ago—with breast cancer in which one had the concept of radical mastectomy.

As the years went on and there was more knowledge, many of these women would be treated with a lumpectomy—with removal of part of the breast. The concept is similar, in which one may now characterize men who have what is called local disease. If I could use an expression, prostate cancer—in the majority of cases—is “peppered” throughout the prostate, so the whole prostate has to be treated.

In some cases, the cancer is localized to half of the prostate or a quarter of the area. There is technology, which is pretty reasonable, to determine if that is the case. In men who have intermediate-risk cancer—not the ones who are a candidate for active surveillance—we could treat that subset of men with focal treatments.

There is a technology called high-intensity focused ultrasound, and there is a lot of talk about it. It was just approved last year by the FDA to treat prostate conditions. Also, there is an old technology called cryosurgery; there is laser, and there are types of radiation therapy that can be used to focally treat the prostate if there is an indication that the cancer is in only one area of the prostate.

<http://www.onclive.com/web-exclusives/accurate-risk-status-assessment-critical-to-prostate-cancer-care>

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**2017 MEETINGS**

**January 19th** Dr. Sabine Mai, (Sr. Investigator, Manitoba Institute of Cell Biology"; Director, The Genomic Center for Cancer Research and Diagnosis)  
*" Prostate Cancer Research "*

**February 16th** Pamela Klassen  
 (Registered Dietician, Cancercare Manitoba)  
*" Fact, Fiction and Opinion:  
 Understanding Nutrition and Prostate Cancer "*

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 All meetings (except September)  
 will be held at :  
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All meetings are 7 – 9 pm.  
*Everyone Welcome*

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