

Tips for naturally lowering PSA levels

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The prostate-specific antigen blood test (PSA) is one of two exams used in the [early screening of prostate cancer](#). Approved by the FDA in 1986, the test was intended to monitor the development of the disease among those who were [already diagnosed](#), according to the National Cancer Institute (NCI).

Eight years later, however, it was mandated that even those who were asymptomatic would be given both the PSA and the digital rectal exam (DRE). Since then, the use of routine population screening has remained up for debate. As more is understood about both potential risks and benefits of early screening, some professionals in the field have begun to caution against annual PSA screening, though many insurers, both private and public, continue to cover them yearly, according to the NCI.

Elevated PSA levels

Cells within the prostate gland are responsible for producing PSA, which is typically found in semen, but may sometimes leave small traces in the blood as well. Among men who do not have prostate cancer, typically numbers from this screening test will indicate [PSA levels](#) that are under 4 nanograms per milliliter (ng/mL) of blood, according to the American Cancer Society (ACS). As PSA levels rise, so does the risk for cancer. For those with a PSA level over 10, the chance of developing prostate cancer is more than 50 percent.

However, heightened levels do not always indicate that cancer is present, and there is also no guarantee that PSA levels below 4 eliminate the risk altogether. An elevated PSA may also point toward conditions such as prostatitis or benign prostatic hyperplasia (BPH), reported the ACS. As men grow older, many are affected by BPH, a non-cancerous enlargement of the prostate which causes PSA levels to rise. Ejaculation, male hormone medications and some urologic procedures can also provoke an elevated reading. Additionally, prostate levels tend to slowly rise with age, even if there is no abnormality within the prostate.

Reduced PSA levels

At the same time, there are also external factors that can cause a lowered PSA level reading than what is actually present, according to the ACS. Those who carry extra weight, frequently take aspirin or use certain cholesterol-lowering drugs may see lowered levels. Drugs used to treat urinary symptoms of BPH, such as finasteride or dutasteride, may also lead toward erroneous numbers.

Natural ways to reduce PSA levels

Though an elevated PSA is not the cause of the cancer, but merely an indicator of the problem, a low PSA level is still a [strong sign of good prostate and overall health](#), pointed out the Prostate

Cancer Institute (PCI). And as such, all men should aim to have a low PSA level. While age and genetics are two big constituents affecting PSA levels, lifestyle factors actually play the largest role, reported the source. Thus, by making simple changes to health, lifestyle and diet, there are several ways to naturally bring down PSA levels.

1. Engage in regular physical activity

According to the PCI, engaging in regular aerobic exercise may help to reduce PSA levels in men. Excess estrogen, which can negatively affect prostate health, is often promoted by weight gain. Studies have shown that those who take part in activities such as yoga, running, swimming or meditation can help to lower their levels not only by losing weight, but by simultaneously reducing stress-related inflammation.

A 2011 study from the Harvard School of Public Health in collaboration with the University of California, San Francisco analyzed 2,705 men who were diagnosed with prostate cancer over the course of 18 years. Each participant recorded the average time per week spent biking, walking, running, working outdoors or playing sports. The researchers' findings concluded that those who were actively engaging in three or more hours of vigorous physical activity each week had a [61 percent lower risk of prostate cancer-specific death](#) in comparison to the men who completed less than one hour each week. Additionally, results showed that both vigorous activity and non-vigorous activity were beneficial to overall survival.

Vigorous, weekly physical activity can help to reduce prostate cancer-related death.

"Our results suggest that men can reduce their risk of prostate cancer progression after a diagnosis of prostate cancer by adding physical activity to their daily routine," said Stacey Kenfield, lead study author and researcher at the Harvard School of Public Health. "This is good news for men living with prostate cancer who wonder what lifestyle practices to follow to improve cancer survival."

2. Add more tomatoes to your diet

Getting the recommended daily serving of both fruits and vegetables is extremely important for your overall health, as well as avoiding disease. In particular, consuming tomatoes can help to lower PSA levels and reduce the risk of prostate cancer, according to an article published in the Journal of the National Cancer Institute. Tomatoes contain lycopene, a micronutrient and antioxidant that is released when these juicy red vegetables are cooked. In the experimental study of 43 men with PSA levels between 4 and 10, study authors found a [10.77 percent decrease in PSA levels](#) among patients with BPH who were submitted to daily ingestion of tomato paste.

Moreover, the PCI reported on another study showing that PSA levels in men with advanced prostate cancer can be lowered by 65 percent simply by adding more tomato products to a diet. However, it is important to avoid canned tomatoes as they often contain toxins such as bisphenol-A.

3. Consume less meat and dairy

Both meat and dairy products can lead to increased production of hormones, which can affect [prostate enlargement](#), according to the Physicians Committee for Responsible Medicine. In fact,

those who eat meat on a daily basis have a tripled risk of prostate enlargement, reported the source. Limiting the amount of each and consuming more vegetables can help lead to lowered PSA levels. Additionally, the unhealthy fats in meat can lead to weight gain – another factor in raised PSA levels.

In an early 2016 press release, the American Society for Radiation Oncology (ASTRO) named open [dialogue between prostate cancer patients and physicians](#) as crucial for the treatment decision-making process. With such a diverse disease, prostate cancer has no tried and true answer. When the risks, benefits, preferences, outcomes and costs of the numerous treatment options are weighed, they deviate significantly from one male to another. Thus, the importance of honest, candid and detailed conversations between patients and doctors can't be stressed enough.

Understanding the risks

Open discussion is important from the very beginning, as early as the question of testing and screening. While it is agreed that prostate cancer can be found early with screening, the question remains as to whether or not the potential benefits of screening and early detection actually outweigh the risks. Prostate-specific antigen screening was once widely encouraged for all men starting at age 50 and though that is no longer the case, it's widely agreed that all patients considering the PSA test are fully informed of all potential harms and benefits from screening and treatment, reported the National Cancer Institute (NCI).

Any patient considering the PSA test should be fully informed of all potential harms and benefits.

The American Cancer Society (ACS) outlined the [limitations](#) that exist among prostate cancer screening, including PSA tests and digital rectal exams. Neither test is 100 percent accurate and both false-positive results – an abnormal outcome when a man does not actually have cancer – and false-negative results – a normal result when a patient actually does have cancer, are known to occur. At this point, these abnormal results could lead to unnecessary treatment or even a false sense of optimism. Confusion, apprehension and fear may also be a result of testing.

Thus, the ACS has advised men to access all available resources, engage in conversation with their physician and assess all side effects and benefits of screening and treatment before making a decision.

Considering the options

Throughout all phases of diagnosis and staging, regardless of the disease, it is usually assumed that a doctor will engage in open dialogue with a patient. If a patient does make the informed decision to move forward with [treatment options](#) for prostate cancer, that need for frank discussion is more important than ever. Though [discussing factors](#) such as life expectancy may be difficult, they are crucial to a patient's health care, stated the National Comprehensive Cancer Network's (NCCN) Guidelines for Patients. Having an initial conversation about risk factors is a good starting point for talking about options to treat the cancer.

Getting a second opinion before deciding on a course of treatment is advised by most health care professionals in the field, even if there is optimal trust between doctor and patient. In fact, some health plans even require a second opinion, according to the NCCN. Another doctor will need test results, a DVD copy of imaging tests and copies of the pathology report. Though asking for copies may be uncomfortable, the source assured that it is a normal part of the cancer care process.

Questions to discuss

The ACS outlined a number of questions that patients are encouraged to [ask their doctor](#) and care team during each phase of prostate cancer. When considering a plan of treatment, the question of active surveillance as an option arises first. Asking your physician how likely the cancer is to cause problems if treatment is not given right away is key for making this decision. Other questions the ACS advises to discuss when engaging in open discussion of treatment options include:

- Is radiation therapy or a radical prostatectomy recommended?
- Should we consider laparoscopic or robot-assisted prostatectomy?
- Which kinds of radiation therapy would treat my cancer best?
- Are there other treatment(s) that may work?
- How soon must a decision on treatment be reached?

On preparing for treatment:

- What will the preparation for treatment look like?
- Where will it be done and how?
- What will the duration of the treatment be?
- Will there be an impact on my daily routine? If so, what?

On risk factors:

- What are the expected side effects and risk factors with this form of treatment?
- What are the chances that I will have problems with incontinence or impotence?
- What are the chances that I will have other urinary or rectal problems?
- Is there a chance the cancer will come back? What is the likelihood?

Open and honest discussion with both your family and care team is crucial for deciding on the best possible treatment.

Almost all questions should be followed by "why?" or "why not?" to ensure further detail and clarification. Overall, open dialogue and discussion should aid in optimizing quality of life for the patient. In an interview with News Medical, professor and Director of the Oncology Centre Antwerp in Antwerp, Belgium, Louis Denis urged that the social and emotional status of a prostate cancer patient must be taken into consideration when deciding on a treatment method. The tumor grade and stage must come second, he said and the doctor should [always put the patient first](#).

"The main challenge is an open, straightforward communication between professionals and patients," said Denis. "Professionals need to learn to provide updated, short and clear information and education to the patient in the different stages of the disease with inclusion of the partners."

A radical prostatectomy is one of the most common surgical approaches to treating prostate cancer in men. This option for treatment removes all or part of the prostate gland and is commonly chosen when the cancer is believed to be confined to just the prostate. As with all options, there is a level of risk associated with a prostatectomy. There are also a number of potential side effects that can range from mild to severe.

Risks

The primary risk of a radical prostatectomy, as with any other major surgery, is of a complication during the operation. Issues that may occur during or immediately following the procedure include infection or bleeding at surgery site, reaction to anesthesia, blood clots in legs or lungs and damage to nearby organs. The American Cancer Society (ACS) also reported on the rare instance of [intestinal damage](#) during the surgery. Accidentally injuring part of the intestine is more likely to occur during laparoscopic or robotic surgeries, than with the open approach. Injury to this organ may result in infection in the abdomen and in some cases require a second surgery to remedy.

Each case is unique and factors contributing to the level of risk include the stage and grade of the cancer, the age and overall health of the patient and the level of expertise by the surgeon.

The most common side effects

Among patients who opt for the surgical approach to treating prostate cancer, there are two major side effects to be aware of. The inability to control urine, urinary incontinence, and trouble getting and keeping an erection, erectile dysfunction (ED) are the most common complications that can occur post-op.

ED can be one of the most distressing side effects of a prostatectomy.

1. Erectile dysfunction

Running along the sides of the prostate are two small bundles of nerves, responsible for [controlling erections and blood flow to the penis](#), according to the Urology Care Foundation (UCF). Due to their proximity to the prostate gland, there is the potential for damage to occur during the procedure, thus hindering a patient's ability to maintain an erection. If a man's ability to do so is fully intact prior to the surgery, a nerve-sparing approach is followed and the surgeon will do his best to avoid damaging the nerves. In some cases, if the cancer has spread very close to these nerves, they may need to be removed altogether.

The rate of risk for ED depends on a number of factors. The younger the patient, the more likely he is to be able to maintain control of his erection following surgery, according to the ACS. When both nerves are removed, the likelihood of immediate function is very low. If just one nerve bundle is removed or damaged, there is slightly less risk of ED and if neither nerve

bundles are injured or cut, it's likely that the patient will regain the ability to have normal erections after the operation. Also known as impotence, erectile dysfunction may take anywhere from several months to two years after the procedure to go away.

Treatment options: According to the ACS, some doctors advise penile rehabilitation for patients experiencing ED. This method of treatment follows the belief that encouraging men to get an erection as soon after recovery as possible will help to regain potency. Several drugs known to help with erections include Phosphodiesterase-5 (PDE5) inhibitors such as sildenafil (Viagra), vardenafil (Levitra), and tadalafil (Cialis). However, these drugs will not work if both nerve bundles were removed and, several side effects may occur.

Another option is alprostadil, a man-created version of the substance naturally made in the body that can produce erections called prostaglandin E1. Several minutes before sexual intercourse, it can be seamlessly injected into the tip of the penis, according to the ACS. Penile implants and vacuum devices are additional options that may help to remedy ED.

2. Urinary incontinence

The Prostate Cancer Foundation (PCF) reported that [urinary incontinence](#) – the leakage of or the inability to control the flow of urine – is the main urinary side effect experienced by patients who undergo a prostatectomy. Though 30 to 50 percent of men with normal baseline function will report an increase in urinary incontinence after the surgery, this is generally reduced when the nerve-sparing method is used. After six months, about one-fourth of men report regular leakage and a need to use absorbent pads, according to the source. However, three years after treatment, less than 10 percent of men report the need to use pads.

There are different levels of incontinence that exist. Most common following a prostatectomy is stress incontinence, the urine leakage or dribbling that can occur from coughing, laughing, sneezing or exercising, according to the UCF. This is typically caused by an issue with the the bladder sphincter, the valve that controls urine flow. Men who experience overflow incontinence have difficulty producing a powerful stream and emptying the bladder completely. An overly sensitive bladder causing frequent need to use the bathroom even when the bladder is not full can also occur. This is known as urge incontinence, or an overactive bladder. According to the ACS it is very rare for men to experience continuous incontinence, the complete loss of control of urinating.

Treatment options: By several weeks or months after surgery, most men will slowly regain total control of their bladder. However, the effects can still take a toll physically, as well as socially and emotionally. The good news is that there are treatment options.

Many doctors will first suggest kegel exercises to help regain strength of the bladder muscles that may have been lost during the surgery. Though pads are an option for staying comfortable, they are often not a patient's first choice. According to Harvard Prostate Knowledge, improving continence relies on not just the strength, but proper action of the [pelvic floor muscles](#) and repeating these exercises multiple times, several times a day can help regain control. Catheters that collect urine and compression devices that prevent urine from coming out may be used. Sometimes, men will opt for surgery if they are experiencing long-term incontinence. Surgical

options include artificial sphincters, bulking agents or bulbourethral sling surgery, according to Harvard Prostate Knowledge. The best option depends on the individual's circumstance and is best decided upon with a doctor.

Additional side effects

Patients who undergo a prostatectomy are also at risk for developing Peyronie's disease, which causes the penis to curve, reported the UCF. Scarring from ED treatment injections in the same spot over and over are one cause of Peyronie's disease, but it can also occur from the buckling of the penis during intercourse if there is not a strong enough erection. Though an orgasm is still possible – and pleasurable – after the procedure, it will be dry. There will be no ejaculation because most of the semen-producing glands will have been cut during the surgery. Occasionally, orgasms become less enjoyable or fade away completely, according to the ACS.

A loss of fertility will also occur after surgery because the vas deferens, the roadways that deliver the sperm to the urethra, will have been cut during the prostatectomy. Though sperm is still produced, it will not be able to leave the body during ejaculation. For men who are concerned about fertility, they should speak to their doctor about banking their sperm prior to undergoing the surgery.

Each of the risk factors and side effects can be daunting to understand and manage, and many complications may be difficult or embarrassing to talk about. However, the best way to find the solution is through [open and honest discussion](#) with a trusted doctor and care team.

Prostate cancer is the most common disease among African-American men, accounting for [31 percent of diagnosed cancers](#) in this population, according to the American Cancer Society (ACS). There is no question that the odds for black men with prostate cancer are much worse than those of their white male counterparts. Not only are African-American men more likely to develop cancer of the prostate, but they are also [2.4 times more likely](#) than Caucasian men to die from the disease.

Searching for answers

Research has uncovered new findings linking mitochondrial dysfunction to the resistance of treatment in African-American men.

Until recently, the reason behind this inconsistency remained largely puzzling for doctors and researchers. Previous findings concluded that lifestyle and [cultural differences](#), access to and quality of medical care, and genetics are some of the primary factors, according to the Prostate Cancer Foundation (PCF). Add those factors to the notion that males are already less likely to seek treatment or engage in open discussions with their physicians. According to the source, a lack of adequate epidemiological studies with sufficient numbers of men across different races that could analyze the discrepancy is also to blame.

Just four years ago, a hallmark bipartisan legislation was led by , Secretary of State John Kerry – a senator at the time – that recognized the cancer as "an epidemic striking African-American men

disproportionately," according to the PCF. Since then, more and more funding and research has gone toward understanding the medical, socioeconomic, and genetic factors attributed to prostate cancer, specifically among black men.

New findings

However, new findings from researchers at the Roswell Park Cancer Institute in Buffalo, New York, may finally point to a link among the discrepancies in treatment response, according to Prostate Cancer News Today. Titled, "Mitochondrial dysfunction-mediated apoptosis resistance associates with defective heat shock protein response in African-American men with prostate cancer," the research paper was published April 26 in the British Journal of Cancer and indicates not only a probable link, but a viable solution by means of restorative therapeutics as well.

"In an earlier study, we provided the first evidence that African-American men possess reduced levels of mitochondrial genetic material in healthy prostate tissues, compared to Caucasian-American men. This new study highlights the importance of mitochondrial dysfunction as one of the main reasons for prostate cancer health disparities," said study leader Dr. Dhyan Chandra.

Found in every cell of the human body, except for red blood cells, mitochondria are responsible for converting the energy from food molecules into the energy that drives the function of cells. In fact, these organelles are responsible for producing more than [90 percent of the energy needed](#) to spur growth and support life in the body, according to the United Mitochondrial Disease Foundation. When mitochondria do not function as they should, the body's systems become disrupted and less energy is distributed throughout the cell. This can result in injury to cells, and even cell death. The cause of this dysfunction is due either to mutations in the mitochondrial DNA, which affects mitochondrial function, or to mutations in genes of nuclear DNA, whose gene products are transferred to the mitochondria.

Resistance in African-American men

The team studied both African-American and Caucasian prostate cancer cells to explore the fundamental functions of cellular proliferation, cellular invasion and cell death, as well as metastasis. Finding that a [mitochondrial dysfunction](#) only occurs in the prostate cancer cells of African-American men, it helps to better explain the reasoning behind greater metastatic potential and more aggression of the disease in this population, reported Medscape.

This dysfunction is what seems to be creating resistance to chemotherapy among black patients, increasing the likelihood of the spread and relapse of prostate cancer, according to Prostate Cancer News Today.

The team led by Chandra also analyzed the effect of dichloroacetate (DCA), a chemical compound that can repair mitochondrial function. In many cancers it also has the potential to lead to decreased tumor growth. It was found that this chemical compound did more to aid in cell death and growth suspension among prostate cancer cells in white men than among prostate cancer cells in black men. Moreover, it did not reduce cancer stem cell populations in African-American cells the way it did for Caucasian cells, reported Medscape.

The prostate cancer cells of African-American men showed more resistance, were more aggressive and metastatic and had a defective heat shock protein response, in comparison to Caucasian cells. In the cells of white patients, DCA induced mitochondrial reactive oxygen species to a higher level than in the cells of black patients. Additionally, DCA did not assist in taxol- and doxorubicin-induced cell death in African-American cells, the way it did in Caucasian cells.

"Since taxane-based therapy is commonly prescribed to prostate cancer patients, this regimen may not be the best treatment strategy for prostate cancer patients with severe mitochondrial dysfunction," Chandra said.

Conclusions

Though it is acknowledged that further research is required, these findings are key for understanding the basis of treatment response between men. The researchers suggested that therapies repairing mitochondrial function in the cells may very well help to improve the results and outcomes of prostate cancer treatments for African-American men, reported Prostate Cancer News Today. More clinical studies and advanced research are still crucial, though currently, the team at Roswell Park Cancer Institute concluded that each case of prostate cancer is so unique, it requires extensive research, personalized care and customized treatment to yield the best possible results.

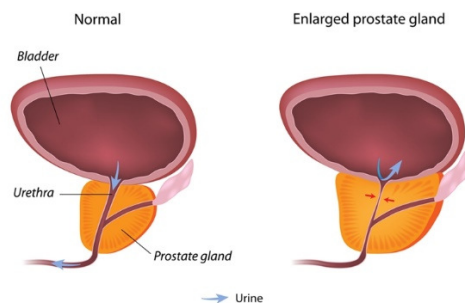
There are some cases in which non-cancerous conditions such as benign prostatic hyperplasia, also known as BPH, can cause symptoms in men that are very similar to those of prostate cancer. However, a man with BPH – an [enlargement of the prostate](#) – is not any more or less likely to develop prostate cancer, reported the Prostate Cancer Foundation (PCF).

Occurrence of BPH

This non-cancerous condition occurs during the second of two main growth periods of the prostate, according to the source. The first phase of growth happens to adolescents during early puberty when the prostate doubles in size, and the second begins around the age of 25. This second period will continue for most of a man's life with problematic symptoms generally occurring during a man's 50s.

BPH is the [most common prostate condition](#) for men over the age of 50, according to the National Institute of Diabetes and Digestive and Kidney Disease (NIDDK). It is rare for this condition to occur before the age of 40, and symptoms and occurrence increase as men age. Close to half of all men between the ages of 51 and 60 will be affected by BPH. That rate increases to 90 percent for individuals over the age of 80.

Benign Prostatic Hyperplasia



Symptoms

Though the exact cause is still not very well understood, there are several symptoms of the lower urinary tract that may indicate benign prostatic hyperplasia. BPH begins in the ring of tissue that forms a natural circle around the urethra, called the transition zone, according to the PCF. Because the growth is inward, it causes tightening around the urethra – the organ that carries urine from the bladder through the prostate to the penis. Thus, urination becomes hindered and symptoms are often difficult to ignore.

One of the most common [symptoms of BPH](#) is the frequent feeling of needing to urinate, even as often as every one or two hours, according to the Urology Care Foundation (UCF). This frequency may increase during the nighttime and is known as nocturia. Other symptoms include:

- A weak or dribbling flow of urine.
- An extremely urgent feeling to urinate.
- Difficulty beginning to urinate.
- The need to stop and start while urinating .
- Straining or pushing while urinating.
- The feeling of a full bladder, even right after using the bathroom.
- Pain or discoloration of urine.

There are occasional instances when BPH may cause a man to be unable to urinate at all. If this happens, it must be treated right away, reported the UCF.

Diagnosing BPH

Unfortunately, there is no guaranteed way to prevent the onset of this condition, according to the UCF. Natural aging, a family history of BPH and erectile dysfunction (ED) are all risk factors that cannot be prevented. However, obesity and a lack of exercise may contribute to an increased risk. Consequently, ensuring that you eat a healthy, balanced diet and engage in regular physical activity may help to prevent it.

To assess the severity of BPH, the American Urological Association developed the self-administered symptom questionnaire known as the BPH Symptom Score Index. After the

patient's score is reviewed by his physician, a medical history will be taken, followed by a physical exam that includes a [digital rectal exam](#) (DRE). Other tests and procedures may include:

- An ultrasound of the prostate.
- A prostate-specific antigen ([PSA test](#)) to screen for prostate cancer.
- A urine test (urinalysis).
- Bladder cancer screening.
- Post-void residual volume (PVR) to measure urine left in the bladder after urinating.
- Uroflowmetry to measure how fast urine flows.
- Cystoscopy to look at the urethra or bladder with a scope.
- Urodynamic pressure to test pressure in the bladder during urinating.

Treatment

Although most men will not experience any issues, BPH typically becomes worse with age, and symptoms may sometimes lead to complications. These complications can include urinary tract infections (UTIs), acute urinary retention, chronic urinary retention and bladder stones, according to the NIDDK. In the worst cases, blood in the urine, bladder damage and infection and even kidney damage can occur.

"Mild symptoms of BPH do not usually require treatment."

Typically, mild or [non-bothersome symptoms](#) of BPH will not require treatment, according to the American Academy of Family Physicians (AAFP). For men who do require treatment, there are a number of options available ranging from lifestyle changes and watchful waiting, to medical therapies and surgical procedures. Surgery may be an option if other medical treatments do not work.

1. Watchful waiting/active surveillance: With watchful waiting, no active treatment is given but the BPH is monitored and a yearly exam will be conducted, according to the UCF. Diet and medication may be altered to help to control symptoms.

Watchful waiting is recommended for those with mild symptoms of BPH.

2. Medical therapies: There are three types of medical therapies available to those with BPH including alpha blockers, 5-alpha reductase inhibitors and combination therapy.

- **Alpha blockers:** This option is best for men who have moderate to severe BPH. Alpha blockers are a medication in pill form that help to relax the muscles of both the prostate and the bladder. This reduces blockage and improves urine flow. And though they do not reduce the size of the prostate, alpha blockers reduce the symptoms of BPH. These pills work almost immediately, though side effects include difficulty ejaculating, dizziness, fatigue and lightheadedness, reported the UCF.
- **5-alpha reductase inhibitors:** These inhibitor medications work to block the production of dihydrotestosterone, which helps to slowly decrease the size of the prostate, according to the AAFP. As the prostate shrinks, urine flow will improve. Older men and those with

very large prostates are good candidates for this treatment option. Though they lower the risk of complications and need for surgery, they must be taken indefinitely. Moreover, the side effects include decreased sex drive and erectile dysfunction.

- **Combination therapy:** This treatment option combines both alpha blockers and 5-alpha reductase inhibitors. According to the UCF, these pills work better together than alone, but taking both will likely increase the number of side effects.

3. Surgery: BPH patients with moderate to severe symptoms that develop related complications should be referred for surgical consultation, according to the AAFP. Other good candidates for surgery are those who did not have success with medical therapies. Both minimally invasive surgeries and more involved surgeries that can remove obstructing prostate tissue are available. Choosing the right surgery for you will depend on personal preference, the size of your prostate and your health.

New advancements in external beam radiation therapy, one of the most common treatment options for prostate cancer today, has led to the development of stereotactic body radiotherapy, or SBRT. The use of sophisticated image-guided techniques in SBRT allows for maximum dose delivery to a precise location, while minimizing the impact of radiation to surrounding healthy tissue and organs.

A popular alternative to invasive surgery, SBRT is an optimal option for those with tumors that are in [close relation to vital organs](#). It's also beneficial for those in difficult to reach locations, such as tumors of the prostate, according to health source Radiology Info, a site produced by the Radiological Society of North America and the American College of Radiology. This method of treatment can be helpful for tumors that are prone to movement within the body. If you or a loved one are considering SBRT, here is what you should know.

Consultation

Prior to any treatment, an initial consultation with your care team will take place.

Prior to any treatment, an initial [consultation](#) will take place with a radiation oncologist and care team, according to the UC Davis Department of Radiation Oncology. This visit will include a medical history review, a physical exam and an analysis of MRI, CT or other imaging scans. Your doctor will walk through the various treatment options with you and together you will decide on a customized plan. This will depend on your overall health, your preferences and the stage of your cancer. It is helpful to come prepared to this consultation with a list of any concerns or questions that you may have. If a follow-up visit is not necessary, you will schedule a start date for the radiation process.

Stimulation

One of the very first steps of [treatment planning for SBRT](#) is stimulation, sometimes called a "marking session," the American Cancer Society (ACS) reported. This procedure is to properly locate and mark the radiation field, or treatment port, which is exactly where the radiation will be aimed. Lying down on a table, your care team will determine the best positioning for treatment

and how to keep you stabilized in that way. Headrests, body molds, casts or even tape may be used during treatment to keep you in place. This immobilization is often more restrictive than in other forms of external beam radiation, given the high dosage.

"Given the high dose of radiation, precision of SBRT stimulation is crucial."

Imaging tests will likely be used to double check tumor size and location and determine whether or not the cancer has spread. Measurements will be taken and healthy tissue in the surrounding area will be outlined. Marks with permanent markers will be made on your body at the exact radiation field. Again, given the high dose of radiation used in SBRT, the [precision and accuracy](#) of this marking is crucial, according to nonprofit organization ZERO – The End of Prostate Cancer. Additionally, fiducials, or internal, prostate markers may be used as well.

Treatment dosage planning

Once stimulation has been used to plan your treatment, the amount of radiation that will be administered is determined by your radiation oncologist and care team. This can be done through dosimetry, the use of computer systems to analyze the amount of radiation that would impact healthy surrounding organs and tissue if prescribed doses were administered, according to the ACS. The total dose of radiation used in external beam therapy is generally broken down into smaller doses called fractions.

SBRT is different than traditional radiation therapies in that the advanced technology used allows for a higher dose of radiation in a shorter period of time, according to ZERO. This means fewer fractions in fewer treatments. You will receive between one and five treatments over a one to two week period, instead of the multiple dosages given during a standard eight or nine week treatment period. This dramatically cuts down on time and costs.

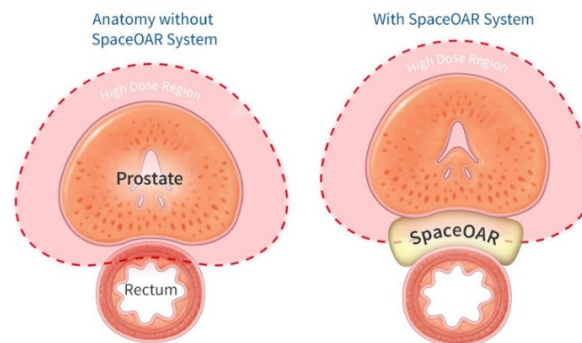
Preparing for treatment

Another benefit of SBRT is that it is generally performed on an outpatient basis, according to Radiology Info. Though each treatment session itself lasts less than an hour, you should expect to spend at least half the day at the clinic. Depending on your individualized treatment, it may be necessary that someone is there to drive you home afterward. Your doctor may advise that you avoid eating or drinking after midnight before the day of your treatment and he will inform you if you should stop taking any medications that day. There should be no pain associated with the radiation therapy treatments, as the procedure is similar to having an x-ray. In most cases, you will be able to resume normal activity within one to two days.

Minimizing the side effects

Though SBRT treatment has proven quite successful in recent years and there are many benefits, it is not free of all side effects. As with any form of treatment for cancer, there are several undesirable after effects that may arise. Most concerning among prostate cancer patients opting for this method of treatment are bowel and urinary dysfunctions. Radiotherapy has the potential to [irritate the rectum](#), bladder and urethra, according to the Prostate Cancer Foundation (PCF).

This irritates the prostate and may cause the leaking or dribbling of urine, inability to control the flow of urine and the need to urinate more often. Pain, blood or a burning sensation during urination is also possible.



Radiation may also lead to [radiation proctitis](#), a condition caused by irritation to the rectum, according to the ACS. Impacting bowel function, radiation proctitis can result in blood in the stool and rectal leakage. Similar to prostate cancer surgery, impotence may also occur following SBRT treatment and fatigue is common.

These side effects can now be significantly reduced however, thanks to the innovative and game-changing [SpaceOAR Hydrogel](#). Acting as a spacer to temporarily push the rectum away from the prostate during treatment, SpaceOAR can effectively minimize rectal injury by moving the rectum away from the region of high dose radiation. Thus, the radiation is more concentrated on the tumor in question and surrounding cancerous cells. With the combination of the higher, stronger doses of radiation from SBRT and the state-of-the-art SpaceOAR technology, prostate cancer patients are able to undergo the most aggressive kind of treatment with the least amount of side effects. For a complete list of potential risk, warnings and precautions, as well as the procedure details, please see the [SpaceOAR system instructions](#).

As with the majority of cancers and even common chronic illnesses, prostate cancer is a perplexing and multifarious disease that can often feel overwhelming to fully digest. Should you take the PSA test? Does treatment necessarily improve your quality of life? Is prostate cancer genetic? As new research continues to fuel advancements in treatment, and more accurate knowledge of prostate cancer emerges every day, there are still different trains of thought and opinion on everything from testing and treatment to quality of life and longevity.

In today's world of bombarding media and the 24-7 news cycle, it's often difficult to decipher fact from fiction. To set the record straight, here are the most common prostate cancer myths and the facts.

Myth #1: Prostate cancer is only possible if there are symptoms

"A lack of symptoms does not equate to being prostate cancer-free."

One of the most common misconceptions surrounding this cancer is that if there are no symptoms, the patient is cancer-free. The truth is that most men with [early stage prostate cancer](#) will not show any symptoms at all, according to Prostate Cancer UK. More often than not, prostate cancer is first detected during a routine check-up rather than from symptoms. If symptoms do occur they may include problems with urinating including pain, weakened flow, discomfort and a sense of urgency. Other signs include blood in semen or urine and painful ejaculation.

Myth #2: The prostate-specific antigen exam tests for cancer

Approved by the FDA in 1986, the PSA doesn't test for cancer cells though it can help lead to the detection of cancer. The cells of the prostate [produce the protein PSA](#) and the exam measures how much PSA is in the blood, according to the National Cancer Institute (NCI).

The PSA test was originally intended to monitor prostate cancer patients who had already been diagnosed. It soon began to do more than just measure the progression of the disease and by 1996 was being used with a digital rectal exam to test asymptomatic men during routine exams. For many years after, routine PSA screening was the norm, advised by the majority of doctors and health care professionals in the field. However, as research and clinical studies began to make clear that early PSA testing may not always outweigh the benefits, and that it may in fact do more harm than good in some cases, several medical organizations have recently changed their stance, noted the NCI.

Myth #3: The PSA exam is a definitive indicator of prostate cancer

Medical experts and doctors remained divided on whether or not the benefits of early screening outweigh the harms.

As explained above, the PSA test is [not perfect](#) and thus, not always the most effective indicator of prostate cancer. Though an elevated PSA level is often caused by prostate cancer, a higher than normal reading can also indicate non-cancerous conditions such as benign prostatic hyperplasia, prostatitis or a urinary tract infection. Moreover, [not all men diagnosed](#) with the disease have high PSA levels, according to the Prostate Cancer Foundation (PCF). In fact, there have been men with very high PSA levels who did not end up having prostate cancer. Men who struggle with weight or obesity also run the risk of a diluted PSA level.

To fully understand what your PSA level may mean, it is best to have an open and thorough conversation with your physician.

Myth #4: Increased sexual activity is a risk factor

Though this was once believed to be true, ejaculation and sexual activity have not been found to link to an increased risk of developing prostate cancer, noted the PCF.

Myth #5: Prostate cancer only affects older men

The likelihood of developing prostate cancer does increase with age, but 1 in 38 men between the ages of 40 and 59 are also diagnosed, according to the PCF. Many young men have been diagnosed with this cancer, so claiming it as an "old man's disease" is not quite accurate.

Additional outside factors such as genetics, lifestyle and race especially play a role, as [African American men are nearly 2.5 times more likely](#) than Caucasian men to die from prostate cancer.

A new study has shed light on the possible link between men who consume high amounts of tree nuts and the decreased risk of prostate cancer death. The study, "Nut consumption and prostate cancer risk and mortality," was published this month in the British Journal of Cancer.

A growing field of research has analyzed the benefits of nut consumption on health in recent decades. However, prior to conducting this study, researchers noted that there was little knowledge available about the connection to prostate cancer incidence and survivorship. Past epidemiological studies have indicated a relationship between individuals who consume nuts and a [reduced risk of chronic conditions](#) such as heart disease and type 2 diabetes, reported Prostate Cancer News Today. Seeking to address whether or not the same condition that leads to type 2 diabetes – insulin resistance – may lead to the progression or risk of prostate cancer, [study](#) authors of the Chan School of Public Health and the Brigham and Women's Hospital in Boston sought to identify a potential link by analyzing existing material.

Study results

The study, funded by the International Tree Nut Council, investigated data from a large prospective cohort study of 47,299 male participants – "Health Professionals Follow-Up Study" – established in 1986, according to a press release. Those taking part in the study answered an initial "semi-quantitative food frequency questionnaire" which evaluated the consumption of a variety of foods including nuts. Every four years, this survey was completed again by participants.

Though the consumption of nuts was not linked to an increase or decrease in prostate cancer diagnosis, it was found to be correlated to a lower risk of mortality among non-metastatic prostate cancer patients, according to Prostate Cancer News Today. In fact, male patients who consumed tree nuts such as pecans, pine nuts, pistachios, almonds, Brazil nuts, cashews, hazelnuts, walnuts or pecans five or more times each week were found to have a 34 percent less chance of dying from the disease. This was compared to patients who ate nuts less than once a month.

In the 26-year period since the study was established, 6,810 of the participants were diagnosed with the disease. Of those men, 4,346 of them had non-metastatic prostate cancer. Non-metastatic means that the cancer is [confined to the site of origin](#), noted the National Cancer Institute. For those with prostate cancer, the disease is localized and has not spread to other organs except for the seminal vesicles.

"This is important since more men live with prostate cancer than die from it," lead researcher Dr. Ying Bao, ScD said in the press release.

The American Cancer Society reported that most men diagnosed with the disease [do not die from it](#). Though it is the second leading cause of cancer-related death among U.S. men, only 1 in 39 will die from it. The source noted that today, there are 2.9 million men across the country still

living with prostate cancer. Of the 4,346 men from the study diagnosed with non-metastatic prostate cancer, just 10 percent died as a direct result of the disease.

The benefit of tree nuts

Research has frequently indicated the numerous health benefits of consuming tree nuts as part of a healthy diet. Peanuts and tree nuts are extremely nutrient dense, packed with several essential vitamins and minerals. A study titled "Health Benefits of Nut Consumption," published in the journal *Nutrients* reported that [tree nuts contain](#) fiber, phytosterols, phenolic compounds, tocopherols and high-quality vegetable protein.

Found to improve heart health and even aid in weight loss, nuts are increasingly linked to lowered risk of many health conditions. One of the more notable benefits of tree nuts, as they relate to prostate cancer, is their ability to improve insulin sensitivity, according to the study. As noted in the aforementioned text, increased research implies that the condition when the body's cells become resistant to the hormone insulin – insulin resistance – is associated with the risk and progression of prostate cancer. Study authors indicate that just 1/3 cup of nuts each day can make a big difference in one's health.

"These findings add to the growing body of evidence showing that nuts can and should be part of a healthy diet," Maureen Ternus, M.S., R.D., executive director of the International Tree Nut Council Nutrition Research & Education Foundation said in the press release.

The symptoms of prostate cancer are not always visible, especially when the disease is in the early stages. For that reason, most men will not have the opportunity to take preventative measures before the time of diagnosis. And while many risk factors are external ones that can't be controlled – race, age and family history – leading medical organizations have continuously cited a [healthy diet](#), regular exercise and a maintained body weight as factors that may help lower the risk of prostate cancer, according to the American Cancer Society.

Diet and cancer: What's the link?

While the direct correlation between diet and prostate cancer risk is still not entirely established, the World Health Organization has deemed [dietary factors](#) the culprit of up to 30 percent of cancers among individuals in the Western world, according to the Physicians Committee for Responsible Medicine (PCRM). More notably, the consumption of meat has been linked to an increased risk of cancers, time and time again.

For years, those in prostate cancer research have been avidly searching for more answers. Recently, a [new study concluded that consuming nuts](#) was found to lower the risk of mortality among patients with non-metastatic prostate cancer. But what about dietary habits linked to an increase or decrease in prostate cancer risk?

Dietary fat consumption

Recommendations from the Prostate Cancer Foundation (PCF), as well as many other patient sources, for preventing prostate cancer include [limiting the consumption of red meats](#) and animal products in order to keep the amount of dietary fat from these foods low. Along with red meat, processed meats, saturated fat and animal fat have been linked to an increased risk of cancer. These dietary fats are especially linked to an increased risk of prostate cancer, noted the PCRM.

Animal products are filled with dietary fat, a fat that has been found to increase the production of testosterone, a steroid hormone. Thus, an increase in dietary fat can lead to a higher risk of prostate cancer. As the PCRM put it, testosterone and similar hormones act as catalysts for the cells of prostate cancer like "fertilizer on weeds." The group concluded that consuming a diet rich in plant-sourced foods is one of the best forms of prevention against the disease.

One of the most in-depth studies on the subject analyzed close to 15,000 male physicians, according to the source. The Physicians' Health Study, conducted at Harvard University, resulted in a positive connection between red meat consumption and prostate cancer incidence. The study found that in comparison to those who consumed red meat less than once a week, men who ate red meat at least five times each week had higher risk of developing prostate cancer.

The power of a plant-based diet

A recent study published in the American Journal of Clinical Nutrition also analyzed diet patterns and prostate cancer occurrence. It was one of the most recent studies to conclude that there may be a strong link between [plant-based diets](#) and lowered risk of developing prostate cancer. Taking part were 26,346 males, assessed by diet and observed for prostate cancer incidence by group:

- Non-vegetarian: Consumed meat as part of their diet.
- Lacto-ovo-vegetarian: Ate dairy products and eggs, but not meat.
- Pesco-vegetarian: Consumed fish and seafood, but not meat.
- Vegan: Refrained from eating any animal products.
- Semi-vegetarian: Sometimes followed the rules of vegetarianism.

Approximately 8 percent of the study participants reported to have strictly followed a vegan diet. These individuals following the vegan, or plant-based diet, showed, "a statistically significant protective association with prostate cancer risk." However, interestingly enough the association of prevention and a plant-based diet was stronger for Caucasian men. African-American men on the same diet showed, "a similar but non-significant point estimate," meaning that although it was recognized in both groups, the CI for African-American men on the same diet was wider and included the null.

Studies have continuously pointed to a link between plant-based diets and lowered risk of prostate cancer.

In a follow-up article in the Huffington Post, it was noted that plant-based diets are commonly linked to positive health outcomes due to the [phytochemicals](#) – compound chemicals that naturally occur in plants – that have continued to be studied for their anti-cancer properties.

Thus, diets based primarily on plant-sourced foods that avoid animal products are found to be more protective than diets that include meat, dairy and even fish.

Overall, consuming a healthy, balanced diet and maintaining a healthy weight through regular exercise are best practices for reducing the risk of developing prostate cancer. The PCRM asserted that diets low in fat, calcium, dairy and red meat can help guard against the disease, while consuming lots of fruits and vegetables can be beneficial for preventing prostate cancer.

One of the most common prostate conditions among older men, an enlarged prostate known as benign prostatic hyperplasia (BPH), affects [20 percent of men in their 50s](#), according to the Prostate Cancer Foundation (PCF). That rate quickly jumps to 60 percent for men in their 60s and continues to increase with age. When the resulting complications of BPH become severe, or if medical therapies have not worked, a surgical consultation is recommended.

There are a wide range of treatment options available for men with BPH that include everything from watchful waiting and medical therapies to surgical procedures, which can be minimally invasive or more involved.

Minimally invasive surgery

The best candidates for [minimally invasive surgeries](#) are men with moderate to severe BPH symptoms who have trouble urinating, according to the Urology Care Foundation (UCF). Those experiencing bladder stones, blood in the urine or urinary tract obstruction are also good candidates. Men with BPH who cannot empty their bladder completely, urinate very slowly and bleed from the prostate may also consider this option. Additionally, when medical therapies and medication treatments have not worked, many individuals will turn toward minimally invasive surgery options.

Minimally invasive surgical procedures to treat BPH are generally done on an out-patient basis. Choosing the right procedure will depend on overall health, the size of the prostate and personal preference, according to the UCF. An in-depth discussion with your physician will help you to choose an option that works best for you. Here are a number of top options:

Prostatic stent

A [prostatic stent](#) is a permanent, flexible spring-like device that is placed inside of the urethra to hold it open, according to the Department of Urology at Cornell. These devices are self-expanding and help to maintain patency of urethra.

- **Best candidates:** Men with a number of medical problems who are at high-risk for surgery.
- **Benefits:** No anesthesia is required and stents result in improved urine flow and decreased symptoms.

- **Side effects:** Bothersome voiding symptoms are common after the procedure and blockage and frequent urination may occur. This treatment may also lead to incontinence, according to the UCF.

Laser prostatectomy

There are multiple forms of this treatment, which is performed with a laser and varying wavelengths. Until recently, this method was rarely used, but as technology continues to evolve, laser prostatectomy is becoming more common. Procedures can range from simple to challenging. Transurethral laser photoselective vaporation of the prostate (PVP) in particular is becoming very popular and there are few side effects, according to the UCF.

- **Best candidates:** Men with larger prostates who hope to avoid invasive surgery.
- **Benefits:** Shorter hospital stays and can often be done on out-patient basis. Decreased risk of complications including impotence, incontinence and intraoperative bleeding.
- **Side effects:** Anesthesia is usually required and in some cases limited long-term benefits have been shown.

High intensity focused ultrasound (HIFU)

This procedure helps to reduce the damage done to surrounding tissue by placing an ultrasound probe into the rectum to transmit ultrasonic energy to heat the prostate to very high temperatures, causing the tissues in the prostate to reduce in size.

- **Best candidates:** Men with large prostates who do not want surgery.
- **Benefits:** Though recovery time is rather quick, there are several risks and side effects, according to the UCF.
- **Side effects:** Blood in the urine, trouble urinating and the risk of needing a catheter after the procedure may result.

Transurethral needle ablation (TUNA)

Similar to HIFU, the TUNA procedure delivers thermal injury to the prostate – but by way of high-frequency radio waves. Inserting a cystoscope into the tip of the penis through the urethra, the surgeon will guide tiny needles to the tissue in the prostate to then deliver the radio waves.

- **Best candidates:** Men who want to limit anesthesia and those who have too many medical problems for surgery.
- **Benefits:** It is rare for serious complications to arise and it is a relatively short procedure.
- **Side effects:** A burning feeling may result after the procedure and BPH symptoms may reoccur.

Additional options for minimally invasive surgery include UroLift, catheterization, transurethral microwave thermotherapy (TUMT) and transurethral electroevaporation of the prostate (TUVP).

Standard surgical procedures

According to the UCF, surgery can be used to remove obstructing prostate tissue if medical therapy fails or in severe cases such as BPH causing kidney damage, frequent urinary tract infections, bladder stones, frequent bleeding or an inability to urinate.

A resectoscope is used in transurethral procedures.

1. Transurethral resection of the prostate (TURP)

According to the Department of Urology at Cornell, the TURP procedure is the "gold standard of effective treatment for BPH." It is also the most common surgery among men with BPH, performed on about 150,000 men each year, reported the UCF.

The TURP procedure does not require an incision. Instead, the surgeon will put a resectoscope through the end of the penis and through the urethra to [remove tissue of the prostate gland](#), according to Johns Hopkins Medicine (JHM). The resectoscope has a lighted camera and electrical loop, as well as valves that maintain irrigating fluid. The tissue is cut and the blood vessels sealed with the loop. At the end of the TURP, the tissue pieces are removed through the irrigating fluid into the bladder and then flushed from the body.

"Less than 5% of TURP patients experience impotence after the procedure."

Outcomes are generally very positive with this procedure. Less than 5 percent of TURP patients experience impotence and only 1 to 2 percent develop incontinence after the procedure, reported the Department of Urology at Cornell. However, there are the usual risk factors associated with any surgery, reported JHM. This may include bleeding, infection, pain when urinating or retrograde ejaculation.

2. Transurethral incision of the prostate (TUIP)

For men that have a smaller prostate with a major blockage, TUIP is a good option. It is commonly used in men with smaller prostate glands and instead of cutting and removing tissue with a resectoscope, reported the UCF, small incisions are made in the prostate as well as where the urethra meets the bladder. This widens the urethra, making urination easier and removing some of the pressure of the prostate on the urethra, making it easier to urinate.

Potential side effects may include incontinence, erectile dysfunction and dry orgasm. Some men experience urine retention temporarily or a urinary tract infection after the procedure.

3. Open prostatectomy

Some men with BPH have such large prostate glands that performing transurethral surgery would not be safe, reported the Department of Oncology at Cornell. For patients with prostate glands larger than 80 grams, an open prostatectomy is performed. After the surgeon makes an incision from the navel to the pubic bone, the bladder is opened and tissue of the prostate is removed. Following the surgery, a urethral catheter will remain in place for one week.

As this procedure is more invasive, it requires a longer hospital stay and complications may include infection and bleeding.

Proper nutrition is essential for overall health and is especially important during prostate cancer treatment. For healthy individuals, eating enough fruits, vegetables and whole grains, avoiding processed foods, sugar and salt, and limiting red meat and alcohol can often be difficult enough as it is. As the American Cancer Society (ACS) explained, both cancer and treatment have the potential to alter the way in which the body [tolerates foods and uses the nutrients](#) it receives. For those undergoing treatment, it is often even more difficult to maintain a healthy diet as side effects may effect the ability to eat certain foods or cause you to feel sick.

If you or a loved one is undergoing treatment for prostate cancer, incorporating guidelines and tactics for maintaining nutrition should be part of the overall plan.

Treatment side effects and eating

During prostate cancer treatment, it is very common for a person's eating habits to change. Apart from active surveillance, [treatments for prostate cancer](#) such as radiotherapy, prostatectomy and hormone therapy kill cancerous cells. However, these treatments also cause damage to healthy cells which in turn creates side effects. These may include, but are not limited to, dry mouth, sore throat, dental and gum complications, loss of appetite, fatigue, nausea, vomiting, diarrhea and constipation. It can also result in changes to a person's sense of taste or smell, which can impact the ability to eat certain foods, according to the ACS.

"Treatment changes how the body tolerates foods and uses nutrients."

These side effects can vary greatly from one individual to another. Some may experience just one of these or even none at all, while other prostate cancer patients experience many side effects. Similarly, the nutrition needs of patients can differ greatly from one case to another. As such, a cancer care team can help to create an individualized plan for nutrition and eating.

Though it may be difficult for some to eat during treatment, this is the time when nutrition is more important than ever. According to Prostate Cancer News Today, [eating well during treatment](#) can help to improve energy levels, reduce fatigue, fight infection and shorten recovery time. Proper nutrition can also help the body tolerate side effects better, as well as maintain body weight and the storage of nutrients.

Essential nutrients

During treatment, as well as before and after, there are several essential nutrients that the body needs. These include protein, fiber, minerals, carbohydrates, vitamins, water and [phytonutrients, such as carotenoids](#), according to ZERO – The End of Prostate Cancer. Each of these help to improve the function of your body during treatment. Protein is important for repairing body tissue and promoting growth. Without it, the body begins to break down muscle to find the fuel it needs and as a result, recovery time may increase, explained the ACS. Eggs, low-fat dairy, fish, poultry and lean red meat are all great ways to get protein. Sources of protein that are plant-based, such as beans, flax and nuts, contain quercetin and lignans, both of which help to suppress the growth of many kinds of cancer including prostate cancer.

For those undergoing prostate cancer treatment, it's better to choose whole-grain sources of carbohydrates.

The body's main source of energy – carbohydrates – can help with the proper function of organs during treatment. When choosing a carbohydrate, it is best to consume whole-grain products as they contain all the essential parts and naturally occurring nutrients of the entire seed of grain. Whole-grain cereals, breads and flours are good choices and other great sources include brown rice and quinoa. There are two types of fiber, both which help aid in digestion: Soluble fiber helps to keep the stool soft, while insoluble fiber keeps food waste moving out of the body in a timely fashion.

Vitamins and minerals are naturally found in foods and they help the body convert calories into energy. However, for those undergoing prostate cancer treatment who find it difficult to eat, there is the option to obtain these important vitamins and minerals through supplements or pills. If this is the case, talking with your doctor first is highly advised, noted the ACS.

Tips for getting the most nutrients

If the side effects of treatment are making it difficult to eat, there are several ways to work around that and still obtain essential nutrients. If a metallic taste is left in your mouth, brush your teeth prior to eating and opt for gum, mints and fresh citrus fruits in between, ZERO advised. It may also help to use plastic utensils or cook in glassware. When sore throat, mouth sores or a gum infection are making it difficult to chew, blending meats or vegetables to make them smoother is a viable option.

Sometimes, even water may not taste very good during or after prostate cancer treatment. If that is the case, it can be obtained through more flavorful liquids such as tea, sports drinks, milk or soup. Flavoring water by adding fresh fruit is also an option. Similarly, if food tastes different or plain, use spices and zesty flavorings to improve the taste. If eating becomes difficult altogether, focus on multiple smaller meals and snacks throughout the day rather than three large meals.

All told, nutrition is essential to health, progress and recovery during prostate cancer treatment. Work closely with your doctor, cancer care team and even a nutritionist to find an eating plan that is right for you or your loved one.

Following most forms of prostate cancer treatment, patient fertility is compromised. Though prostate cancer is most common among men over the age of 60, when many who plan to father children will have done so already, the concern of infertility is still important. Today, the probability of developing prostate cancer before the age of 49 is [1 in 325](#), according to Prostate ZERO. That rate increases for men between the ages of 50 and 59, to 1 in 48. As such, the loss of fertility remains a concern.

Treatment and loss of fertility

The impact of infertility can take an emotional toll as well as a physical one.

Men treated for prostate cancer through one of the most common treatment options, surgery or radiation, are at a [heightened risk of infertility](#), according to the Prostate Cancer Foundation (PCF). Though efforts have been made to preserve one's ability to father children, it is generally not possible following treatment. A prostatectomy, [surgery that removes all or part of the prostate gland](#), is one of the most common methods of treating prostate cancer today. During this surgery, not only is the prostate removed, but the seminal vesicles as well. These seminal vesicles, two small structures located at the base of the bladder, help the prostate to carry semen through the urethra and ejaculate out of the penis. Following surgery, ejaculation is no longer possible due to the loss of semen. Thus, the sperm has no way of reaching the woman's egg.

Hormone therapy generally runs the lowest risk of [fertility loss](#), according to the Prostate Cancer Treatment Guide. If problems with fertility do exist, they will typically only be apparent during treatment. Afterward, the ability to produce sperm should return to normal. For those who undergo radiation therapy, the risk of fertility loss depends heavily on the dose of radiation received. If fertility is able to return to normal again, it may take up to five years. What is promising however, is that the advance of more accurate dose planning has started to reduce this risk of infertility, noted the PCF

Fertility options following treatment

There are options for fertility following treatment for prostate cancer. According to Prostate News Today, men can collect and [store their sperm](#) prior to treatment, known as sperm banking. Another option is that after prostate cancer surgery, sperm is taken directly out of the testicles and used to fertilize the partner of the patient. Often, the best option following infertility is the aforementioned sperm banking.

"There are other options for fertility following treatment."

According to the PCF, all cellular activity ceases when the sperm is frozen in liquid nitrogen during this time. However, after thawing, up to half of all sperm are able to regenerate and then be used in artificial insemination – the injection of the semen into the partner of the patient other than through sexual intercourse.

In addition to this physical side effect of treatment, there are generally emotional side effects as well. As such, it is encouraged to talk through feelings with health care providers, loved ones or professional counselors. Support groups can also provide a great network of encouragement and insight.

A prostate cancer diagnosis impacts not just the patient, but his close network of family, friends and caregivers as well. Though the emotions and experience will likely be different for the individual with cancer compared to his friends and family members, it doesn't make it any easier for them. It's never easy to hear that a spouse, a father, a brother or uncle has been diagnosed with the disease. When facing the long journey ahead, there are several pieces of advice and guidelines that can help you to best support your loved one.

Educate yourself

One of the best things that you can do upon hearing that a loved one has been diagnosed with cancer is to do your research. As ZERO The End of Prostate Cancer explained, [understanding as much as you can about prostate cancer](#), from diagnosis to screening to treatment options and beyond, can prove very beneficial in supporting the patient. A blind search on the internet, however, will not always yield the most positive results. Instead, find reliable sources – such as official organizations – that provide cancer information, talk with the doctors and ask a lot of questions. Moreover, each diagnosis of prostate cancer can be extremely diverse. As such, gaining a grasp on the stage, grade and prognosis of your loved one's cancer is important.

Prostate cancer doesn't just affect the patient, it impacts the whole family.

When it comes time to make a decision on screening or treatment, knowing that you've done your research and can provide valuable knowledge on the risks, benefits and side effects of each, will help to ease the nerves of both you and your loved one with prostate cancer.

Find a support group

Often, it helps to know that you and your loved one are not alone. [Finding a local support group](#) can help to create a sense of community along your family's journey with prostate cancer, noted the Prostate Cancer Foundation. If there isn't one offered at your local hospital, consider checking community centers or libraries. Seeking out the guidance of a counselor can also be beneficial. And if you so choose, there are online support groups that can protect your identity but still provide valuable insight and comfort.

Become a team

As the family member of a man diagnosed with prostate cancer, now more than ever you will need to be there for one another and face the cancer as a team.

Accompany him to important doctors visits and take an active role in the decision making process. If there is a pressing question that he forgets to ask his care team, you'll be there to remind him, or vice versa. Take notes and keep reminders. If you'd rather not focus on the billing and finances, have him take over or hire someone who can. Gradually, you will each pick up on designated responsibilities and work efficiently as a team.

Advice from the National Cancer Institute deems it important to be [open and honest when you are feeling stressed](#), anxious or concerned. Rather than letting it weigh you down or cause unnecessary added tension, talk about it. On the other hand, know your audience. If your loved one has indicated that he would rather not talk about the treatment or scheduled appointment next week, it is probably best to respect his wishes. The most important thing is that you are there for, and help each other.

Take care of your own health

Family members and close friends have to keep in mind that taking care of themselves is equally as important as taking care of their loved one with cancer. As a spouse or caregiver especially,

it's easy to wear yourself thin and spend all of your time consumed by the diagnosis, treatment or recovery. At the end of the day, to be at your best to support your loved one with prostate cancer, you need to take care of yourself.

As a loved one or caregiver, make the prostate cancer journey a team effort.

That means getting enough sleep, eating right and ensuring that you are giving yourself enough down time to do the things that you enjoy. It also means accepting help, noted ZERO The End of Prostate Cancer. No one can do it all on their own so when neighbors, co-workers or friends offer to bring dinner, watch the kids or drive to an appointment, take them up on it. Sharing the responsibilities will help to relieve some of your stress and give you a much-deserved break.

Cancer is a scary thing and it can quickly change lives, so above all, spend time together doing what you love. Make family dinners, go to the movies, take trips and go on dates. Finding a new normal may take time, but when you face prostate cancer together, it's better for everyone.

For some families, the most difficult part of a prostate cancer diagnosis may be telling the children. Though you may be able to put off the conversation for a few days, even very young children can sense when something is wrong. As such, a good piece of advice is to be as open and honest as you can and depending on age, determine how much detail you are willing to disclose. The important thing to remember is that there is no right or wrong way to tell your child that his or her father, uncle or grandfather has cancer.

Considering the age

Normally, the first thing that will impact how and what you tell your kids is how old they are. If you have children of varying ages, such as a toddler and two middle schoolers, the Dana-Farber Cancer Institute advised [speaking with them in separate groups](#). Not only will the language and terminology be different, but the questions that you get back from them will be as well. When talking to children under the age of 5, it is best to use plain and uncomplicated words that will not scare or confuse them. It is likely that they will be more concerned if or when physical side effects of cancer treatment actually become visible.

Age is an important factor to consider when discussing cancer.

Children who are already in school will have a little more knowledge on disease and sickness as well as medicine and treatment. Dana-Farber suggested using a doll or stuffed animal to help explain how the cancer may impact the body and even discussing the "bad" cancer cells. Allow them time to ask questions they may have.

No matter the age of the children, it is important to emphasize that cancer is not contagious, they did not cause it and they cannot catch it. Even if they don't voice these concerns out loud, it may be a lingering thought in the back of their head and reassuring them will help.

Preparing the discussion

It can be beneficial to prepare exactly what information you are going to share with your children and how you are going to relay it. Do you and your partner want to tell the kids together? Do you want to have two separate conversations? If you are having trouble making a game plan, consider [reaching out to the treating doctor or care team](#), advised the patient information site of the American Society of Clinical Oncology (ASCO), Cancer.Net. Even if they do not have all of the answers, they will be able to point you in the right direction. You may even consider asking your child's pediatrician for guidelines in explaining the cancer.

As your family faces the prostate cancer journey ahead, there will likely be more questions that arise and that is perfectly normal. One difficult part may be explaining confusing words that your little one overhears or sees at the doctor's office. Words such as metastasis, chemotherapy, prostatectomy, bone marrow and tumor can all sound daunting to a young child. Consider providing simplified age-appropriate explanations. For example, chemotherapy can be explained as "medicine that helps to get rid of the cancer," and so on.

Handling the emotional impact

Don't be surprised if your children go right back to playing after you tell them about the diagnosis.

Similar to adults learning of a cancer diagnosis, there is no one way that a child will act. Some may be confused and upset, while others run off and continue to play as though nothing is wrong. Both are perfectly normal. According to the American Cancer Society (ACS), it is important to tell your children that [it is in fact OK to cry if they are feeling upset](#) but also that it is equally OK if they don't cry. Some may feel as though they have to put on a brave face for their parents or younger siblings, while others may feel troubled that they aren't shedding any tears. Again, there is no right or wrong way to handle the news.

As the ACS explained, the ideal way to tell your children is to be honest while still being hopeful. Though it is important for them to understand the extent of the situation, it helps to be upbeat and remain positive during the journey. Above all, the best thing that you can do for your children is to be there for them.

For some families, the most difficult part of a prostate cancer diagnosis may be telling the children. Though you may be able to put off the conversation for a few days, even very young children can sense when something is wrong. As such, a good piece of advice is to be as open and honest as you can and depending on age, determine how much detail you are willing to disclose. The important thing to remember is that there is no right or wrong way to tell your child that his or her father, uncle or grandfather has cancer.

Considering the age

Normally, the first thing that will impact how and what you tell your kids is how old they are. If you have children of varying ages, such as a toddler and two middle schoolers, the Dana-Farber Cancer Institute advised [speaking with them in separate groups](#). Not only will the language and terminology be different, but the questions that you get back from them will be as well. When talking to children under the age of 5, it is best to use plain and uncomplicated words that will

not scare or confuse them. It is likely that they will be more concerned if or when physical side effects of cancer treatment actually become visible.

Age is an important factor to consider when discussing cancer.

Children who are already in school will have a little more knowledge on disease and sickness as well as medicine and treatment. Dana-Farber suggested using a doll or stuffed animal to help explain how the cancer may impact the body and even discussing the "bad" cancer cells. Allow them time to ask questions they may have.

No matter the age of the children, it is important to emphasize that cancer is not contagious, they did not cause it and they cannot catch it. Even if they don't voice these concerns out loud, it may be a lingering thought in the back of their head and reassuring them will help.

Preparing the discussion

It can be beneficial to prepare exactly what information you are going to share with your children and how you are going to relay it. Do you and your partner want to tell the kids together? Do you want to have two separate conversations? If you are having trouble making a game plan, consider [reaching out to the treating doctor or care team](#), advised the patient information site of the American Society of Clinical Oncology (ASCO), Cancer.Net. Even if they do not have all of the answers, they will be able to point you in the right direction. You may even consider asking your child's pediatrician for guidelines in explaining the cancer.

As your family faces the prostate cancer journey ahead, there will likely be more questions that arise and that is perfectly normal. One difficult part may be explaining confusing words that your little one overhears or sees at the doctor's office. Words such as metastasis, chemotherapy, prostatectomy, bone marrow and tumor can all sound daunting to a young child. Consider providing simplified age-appropriate explanations. For example, chemotherapy can be explained as "medicine that helps to get rid of the cancer," and so on.

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In early April, the U.S. Preventative Services Task Force (USPSTF) issued a new [draft recommendation statement](#) on PSA-based screening for prostate cancer, raising the grade from a D to a C. Rather than discouraging screening outright, the USPSTF appears ready to embrace more individualized decision-making about the best options for care. The independent group of experts continues to highlight the risk for treatment complications including incontinence and impotence as a driving factor in their conclusion that screening has a small net benefit overall. Advancing clinical research programs and developing new medical technology to help mitigate the risk for treatment complications might have a dramatic impact on screening recommendations for future generations.

The three most common treatment options for localized prostate cancer are surgery, radiation therapy, and active surveillance. Along with an extremely high survival rate if detected early enough, only a small percentage of men diagnosed have an aggressive form of the disease, contributing to the mindset that patients might be generally overtreated. The USPSTF notes that the potential benefit of screening is possible because treatment options can reduce the risk of clinical progression and metastatic disease and may reduce prostate cancer mortality. The draft statement also suggests that men who are not able or willing to tolerate treatment should not be screened in the first place.

Consider radiation therapy specifically. It is a common, proven effective and generally successful prostate cancer treatment, but there are associated risks. Rectal pain, sexual dysfunction, urinary incontinence, and reduced bowel function are the most serious side effects that are often a result of unnecessary radiation exposure to the organs near the prostate. USPSTF notes more than half of men who have radiation therapy experience long-term sexual impotence, and up to one in six men experience long-term bothersome bowel symptoms including bowel urgency and fecal incontinence. The risk for similar complications can be more severe with surgery. About one in five men who have a radical prostatectomy develop long-term urinary incontinence, and more than two in three men experience long-term sexual impotence. These side effects can be life-changing, and in many cases are associated with psychological challenges.

Reducing the risk for these complications has the potential to provide relief for the patient, family, and physician. It is an area of extreme unmet need in prostate cancer treatment. And new medical technology specially designed to address treatment complications is beginning to emerge. For example, using a gel-like barrier to create space between the prostate and surrounding tissue [may limit the impact of radiation on those organs](#).

*After radiotherapy was complete, control patients experienced a clinically significant (1X MID) decline in bowel, urinary and sexual QOL 8 times more often than SpaceOAR patients.^{1,2}

For decades, clinicians have called for more advanced medical technology to mitigate the risk of treatment complications. In their latest recommendation, the USPSTF appears to emphasize the need for safer approaches to treatment in order to improve quality of life, specifically stating the need to refine active prostate cancer treatments to minimize harm. If there was a possibility that prostate cancer treatment was not associated with the risk for side effects, would PSA-based screening become less controversial over time? With a lower risk of complications, perhaps prostate cancer screening and treatment will become a total benefit to both patients and medical professionals in the years ahead.

- 1) [Hamstra D, et al. Continued Benefit to Rectal Separation for Prostate RT: Final Results of a Phase III Trial. Int J Radiat Oncol Biol Phys; Dec. 2016 DOI](#)
- 2) [Hamstra D, et al. Evaluation of sexual function on a randomized trial of a prostate rectal spacer. J Clin Oncol 35, 2017 \(suppl 6S; abstract 69\)](#)