What is prostate cancer?

The prostate

The prostate gland is found only in males. It is just below the bladder and in front of the rectum. The tube that carries urine (the urethra) runs through the center of the prostate. The prostate contains cells that make some of the fluid (semen) that protects and nourishes the sperm.

The size of the prostate changes with age. In younger men, it is about the size of a walnut, but it can be much larger in older men. The growth is fueled by male hormones (called androgens) such as testosterone.
Benign prostatic hyperplasia (BPH)

BPH is a condition that causes the prostate to get larger as men age. BPH is not cancer and does not change into cancer. But it can cause problems urinating if the prostate gets large enough to press on the urethra. BPH is often treated with drugs that shrink the prostate or relax the muscles in it, which can help urine flow. If drugs aren’t helpful, some type of surgery, such as a transurethral resection of the prostate (TURP) may be needed. (See the “Surgery for prostate cancer” section for a description of this procedure.)

Prostate cancer

Cancer starts when cells in the body begin to grow out of control. Cells in nearly any part of the body can become cancer, and can spread to other areas of the body. To learn more about how cancers start and spread, see What Is Cancer?

There are several types of cells in the prostate, but nearly all prostate cancers start in the gland cells. This kind of cancer is known as adenocarcinoma. The rest of the information here refers only to prostate adenocarcinoma.

Some prostate cancers can grow and spread quickly, but most of the time, prostate cancer grows slowly. Autopsy studies show that many older men (and even some younger men) who died of other causes also had prostate cancer that never caused them problems. In many cases neither they nor their doctors even knew they had it.

Possible pre-cancerous changes of the prostate

Some research suggests that prostate cancer starts out with very small changes in prostate gland cells, although this is not known for sure.

Prostatic intraepithelial neoplasia (PIN)

In PIN, there are changes in how the prostate gland cells look under the microscope, but the cells don’t look like they’ve gone into other parts of the prostate (like cancer cells would). Almost half of all men have PIN by the time they reach age 50.

- In low-grade PIN, the cells look almost normal. There usually is no reason to be concerned about this condition. For men with low-grade PIN, follow-up is most often the same as if nothing abnormal was seen.

- In high-grade PIN, the cells look more abnormal. This is more concerning because men with high-grade PIN have about a 20% chance of having cancer in another part of the prostate. This is why doctors often watch men with high-grade PIN carefully and may advise them to have a repeat prostate biopsy.
**Proliferative inflammatory atrophy (PIA)**

This is another possible finding on a prostate biopsy. In PIA, the prostate cells look smaller than normal, and there are signs of inflammation in the area. PIA is not cancer, but researchers believe that PIA may sometimes lead to high-grade PIN, or perhaps to prostate cancer.

**What are the risk factors for prostate cancer?**

A risk factor is anything that increases a person’s chance of getting a disease. Different cancers have different risk factors. Some risk factors, such as smoking, can be changed. Others, like a person’s age or family history, can’t be changed.

Many people with one or more risk factors never get cancer, while others with this disease may have had few or no known risk factors. While we do not yet know exactly what causes prostate cancer, we do know that certain risk factors are linked to the disease.

- **Age**: Prostate cancer risk goes up as men get older
- **Race**: In the US, African-American men are more likely to get prostate cancer and die of it than in men of other races.
- **Geography**: Prostate cancer is most common in North America, northwestern Europe, Australia, and the Caribbean, and it is less common in Asia, Africa, and Central and South America.
- **Family history**: Men with close family members (father or brother) who have had prostate cancer are more likely to get it themselves, especially if their relatives were young when they got it.
- **Gene changes**: Some inherited genes seem to raise prostate cancer risk, but they account for only a small fraction of cases.
- **Diet**: Men who eat a lot of red meat or high-fat dairy products seem to have a greater chance of getting prostate cancer.
- **Obesity**: Some studies have found that obese (very overweight) men may be at greater risk for having more advanced prostate cancer and of dying from prostate cancer, but not all studies have found this.

Some other possible risk factors have been studied as well, but so far their link to prostate cancer is not as clear. Some examples include:

- Smoking
• Being a firefighter
• Prostatitis (inflammation of the prostate)
• Certain sexually transmitted infections
• Having a vasectomy

Can prostate cancer be prevented?

The exact cause of prostate cancer is not known, so it isn’t possible to prevent most cases of the disease. But based on what we do know, there are some things you can do that might lower your risk of prostate cancer.

Body weight, physical activity, and diet

The effects of body weight, physical activity, and diet on prostate cancer risk are not clear, but there are things you can do that might lower your risk, such as:

• Eating at least 2½ cups of a wide variety of vegetables and fruits each day.
• Being physically active.
• Staying at a healthy weight.

For more information, see American Cancer Society Guidelines on Nutrition and Physical Activity for Cancer Prevention.

Vitamin, mineral, and other supplements

Some earlier studies had suggested that taking supplements of vitamin E or the mineral selenium might lower prostate cancer risk. But in a large study, neither vitamin E nor selenium was found to lower prostate cancer risk.

Several studies are now looking at the possible effects of soy proteins (called isoflavones) on prostate cancer risk. The results of these studies are not yet available.

Taking any supplements can have both risks and benefits. Before starting any vitamins or other supplements, talk with your doctor.

Medicines

Two drugs used to treat benign prostatic hyperplasia (BPH), finasteride (Proscar®) and dutasteride (Avodart®), have been studied to see if they might also help lower prostate
cancer risk. The study results did not show a clear advantage of taking these drugs, and so they are not often used just to lower the risk of prostate cancer.

Some research suggests that men who take aspirin daily for a long time might have a lower risk of getting and dying from prostate cancer. But more research is needed to show if the possible benefits outweigh the risks.

Other drugs and supplements are now being studied as well. But so far, none has been proven to lower prostate cancer risk.

For more detailed information, see Prostate Cancer: Prevention and Early Detection.

Can prostate cancer be found early?

Sometimes prostate cancer is found because a man goes to his doctor with symptoms. Often, though, it is found by testing men with no signs or symptoms of prostate cancer. This is called screening.

The test used most often for screening is the PSA (prostate-specific antigen) blood test. Another test that can help find prostate cancer early is when a doctor checks the prostate with his or her finger (a digital rectal exam or DRE). These 2 tests are described in more detail in Prostate Cancer Prevention and Early Detection.

If prostate cancer is found as a result of either one of these tests, it has probably been found at an early, more treatable stage.

There is no question that screening can help find many prostate cancers early, but there are still questions about whether this saves lives. There are clearly both pros and cons to the prostate cancer screening tests in use today.

What the American Cancer Society recommends

The American Cancer Society (ACS) recommends that men have a chance to make an informed decision with their health care provider about whether to be screened for prostate cancer. They should first get information about what is known and what is not known about the risks and possible benefits of prostate cancer screening. Men should not be screened unless they have received this information.

To learn more about prostate cancer screening and the current ACS screening guidelines, see Prostate Cancer Prevention and Early Detection.
Signs and symptoms of prostate cancer

Men with early prostate cancer often have no symptoms. The cancer may be found with a screening test such as a PSA blood test or a digital rectal exam. But more advanced prostate cancers can sometimes cause symptoms, such as:

- Problems urinating or holding in urine
- Trouble having or keeping an erection (erectile dysfunction)
- Blood in the urine
- Pain in the spine, hips, ribs, or other bones
- Weakness or numbness in the legs or feet
- Loss of bladder or bowel control

Other conditions can also cause many of these same symptoms. For example, trouble urinating is much more often caused by benign prostatic hyperplasia (BPH) than cancer. Tell your doctor if you have any of these problems so that the cause can be found and treated, if needed.

How is prostate cancer diagnosed?

If you are having symptoms of prostate cancer or the result of a screening test raises concerns about cancer, you will need to see a doctor and probably have some tests.

Medical history and physical exam

If your doctor suspects you might have prostate cancer, you will be asked about any symptoms you are having, such as any urinary or sexual problems, and how long you have had them. Your doctor may also ask about bone pain, which could be a sign that the cancer might have spread to your bones.

Your doctor will also do a physical exam and will check other parts of your body to see if the cancer has spread.

PSA blood test

Prostate-specific antigen (PSA) is a substance made by the prostate gland. It is found in small amounts in the blood. Most healthy men have PSA levels below 4 (ng/mL). Although the risk of prostate cancer goes up as the PSA level goes up, other things besides prostate cancer can affect PSA levels.
The PSA blood test can be used in different situations:

- It can be used to screen for prostate cancer in men without symptoms.
- It is one of the first tests done in men who have symptoms that might be caused by prostate cancer.
- It can be useful if prostate cancer has already been found. It can help tell if the cancer probably is still just in the prostate gland. It’s also an important test for monitoring the cancer during and after treatment.

Transrectal ultrasound (TRUS)

For this test, a small probe about the width of a finger is placed in the rectum. It gives off sound waves, which enter the prostate and create echoes that are picked up by the probe. A computer turns the pattern of echoes into a black and white picture of the prostate.

The test often takes less than 10 minutes. You will feel some pressure when the probe is put in, but it is usually not painful.

This test can be used to look for tumors in the prostate. It is most often used during a prostate biopsy to guide the biopsy needles into the right area of the prostate. It is also used as a guide during some forms of treatment such as cryosurgery.

Prostate biopsy

If certain symptoms or the results of tests like the PSA blood test and/or DRE suggest that you might have prostate cancer, your doctor will take samples of the prostate to see if cancer is present. This is called a prostate biopsy. Here is how it’s done:

Guided by ultrasound, the doctor puts a thin, hollow needle through the wall of the rectum into the prostate gland. When the needle is pulled out, it takes out a small piece of prostate tissue (called a core). This is done from 8 to 18 times, but most doctors will take about 12 samples. Samples are often taken from different parts of the prostate. Ask your doctor how many samples will be taken.

Although the test sounds painful, it usually isn’t as bad as it sounds because each core is taken very quickly. The doctor can also numb the area ahead of time. You might want to ask your doctor about doing this.

The biopsy takes about 10 minutes and is usually done in the doctor’s office. You probably will be given antibiotics to take ahead of time and maybe afterward to reduce the chance of infection.
For a few days afterward you may notice some soreness in that area, blood in your urine, or light bleeding from the rectum. Many men also see some blood in their semen or have rust-colored semen, which can last for several weeks after the biopsy.

Cancer may only be in a small area of the prostate. Because of this, sometimes the biopsy will miss the cancer even when it is there. This is known as a *false-negative* result. If your biopsy doesn’t show cancer, but your doctor still strongly suspects cancer, you might need a repeat biopsy.

**Grading the prostate cancer**

The biopsy sample will be sent to a lab. A doctor there will look for cancer cells in the sample. If cancer is present, the sample will be graded, which can help predict how fast the cancer is likely to grow and spread.

Prostate cancers are graded based on how closely the cells in the sample look like normal prostate cells. Those that look very different from normal cells are likely to mean a cancer that grows faster.

The system used most often for grading prostate cancer is called the *Gleason system*. Samples from 2 areas of the prostate are each graded from 1 to 5, and the number grades are added to give a *Gleason score* or *sum* of between 2 and 10. Most biopsies have a Gleason score of at least 6. A higher score means the cells look less normal and the cancer is likely to grow more quickly. Ask your doctor to explain the grade of your cancer because it is an important factor in deciding on treatment.

**Other things you may see on a biopsy report**

The biopsy report tells you the grade of the cancer (if it is present), but it also often provides other information that may give a better idea of the scope of the cancer. These can include:

- The number of biopsy core samples that contain cancer (for example, “7 out of 12”)
- The amount of cancer in each of the cores (given as a percentage)
- Whether the cancer is on one side (left or right) of the prostate or both sides (bilateral)

Sometimes when the prostate cells are seen under the microscope, they don’t look like cancer, but they’re not quite normal, either. These results are often reported as suspicious. You might see terms on the biopsy report like:

- Prostatic intraepithelial neoplasia (PIN)
- Atypical small acinar proliferation (ASAP), or just atypia
- Proliferative inflammatary atrophy (PIA)
Your doctor can explain what these results might mean in your case. For more on how biopsy results are reported, see the Prostate Pathology section of our website.

**Imaging tests to look for cancer spread**

Imaging tests use x-rays, magnetic fields, sound waves, or radioactive substances to create pictures of the inside of your body. Men with a normal DRE result, a low PSA level, and a low Gleason score may not need any of these tests because the chance that the prostate cancer has spread is so low. Tests may be done, though, if the doctor suspects your cancer has spread. The imaging tests used most often for prostate cancer include:

**Bone scan**

If prostate cancer spreads to other parts of the body, it often goes to the bones first. A bone scan can show whether the cancer has reached the bones.

For this test, a small amount of radioactive material is put into your vein (given IV). The dose of radiation is very low. The substance is drawn to damaged areas of bone throughout the body and shows up on the bone scan as “hot spots.” These places could be cancer, or they could be caused by arthritis or other bone diseases. To find out, more tests may be needed.

**CT scan (computed tomography)**

This test can sometimes tell if prostate cancer has spread into nearby lymph nodes. If your prostate cancer has come back after treatment, the CT scan can often tell if it is growing into other organs in your pelvis.

A CT scanner has been described as a large donut, with a narrow table that slides in and out of the middle opening. During the scan, a series of x-rays is taken from many angles while you lie on the table. A computer combines the pictures to give a detailed image.

For some scans, you might be asked to drink 1 or 2 pints of a contrast liquid before the test. You might also have a contrast dye put into your vein (given IV). A few people are allergic and get hives. Rarely, more serious problems, like trouble breathing or low blood pressure, can occur. Be sure to tell your doctor if you have any allergies or have ever had trouble with any contrast material used for x-rays.

**MRI (magnetic resonance imaging)**

This test is like a CT scan except that it uses radio waves and strong magnets instead of x-rays. The MRI gives a very clear picture to help the doctor see whether the cancer has spread from the prostate to other nearby structures. Because the scanners use magnets,
people with pacemakers, certain heart valves, or other medical implants may not be able to get an MRI.

MRI scans take longer than CT scans – often up to an hour. During the scan you lie in a narrow tube which is confining and can be upsetting to some people. To get a better picture, many doctors will place a probe inside the rectum, which can be uncomfortable. Like CT scans, a contrast dye might be put into your vein, but this is done less often.

**ProstaScint™ scan**

Like the bone scan, the ProstaScint scan uses an injection of low levels of a radioactive substance to find cancer that has spread beyond the prostate. But this substance is attracted to prostate cells instead of bone. You will be asked to lie on a table while a special camera takes pictures of your body. This is usually done about half an hour after the injection and again 3 to 5 days later.

This test isn’t often used for men who have just been diagnosed with prostate cancer, but it is sometimes used to look for cancer that may have come back after treatment.

**Lymph node biopsy**

In a lymph node biopsy, one or more lymph nodes are removed to see if they have cancer cells. If your cancer has spread to nearby lymph nodes, surgery to cure the cancer may not be an option, and you and your doctor will have to look at other treatment choices. Lymph node biopsies are rarely done unless your doctor is concerned that the cancer has spread. A lymph node biopsy might be done at different times:

- **During surgery:** The surgeon may remove lymph nodes in the pelvis during the same operation to remove the prostate gland.

- **As a separate procedure:** This is sometimes done when surgery isn’t going to be used to treat the cancer (such as for some men who choose radiation therapy). This type of biopsy can be done laparoscopically. The surgeon uses a long, thin tube with a small camera on the end to remove lymph nodes through a small cut. It can also be done as a fine needle aspiration (FNA), where a thin needle is placed through the skin and into lymph nodes to remove some cells.

**Staging prostate cancer**

The stage (extent) of a cancer is one of the most important factors in determining your treatment options and the outlook for your recovery.

The stage is based on the prostate biopsy results (including the Gleason score), the PSA level, and any other exams or tests that were done to find out how far the cancer has spread. These tests are described in the section “How is prostate cancer diagnosed?”
After looking at your test results, the doctor will tell you the stage of your cancer. Be sure to ask to have your stage explained in a way you can understand. This will help you work with your doctor to decide on your treatment.

**AJCC TNM staging system**

Most doctors use the AJCC (American Joint Committee on Cancer) TNM system to stage prostate cancer. This system is based on 5 key pieces of information:

- The extent of the main **tumor** (T category)
- Whether the cancer has spread to nearby lymph **nodes** (N category)
- Whether the cancer has **metastasized** (spread) to other parts of the body (M category)
- The PSA level at the time of diagnosis
- The Gleason score, based on the prostate biopsy (or surgery)

These factors are combined to determine an overall stage, using Roman numerals I through IV (1 - 4). The lower the number, the less the cancer has spread. A higher number, such as stage IV (4), means a more advanced cancer.

You can ask your doctor to explain more about the stage of your cancer and how it relates to your treatment choices.
How is prostate cancer treated?

About prostate cancer treatment

You have a lot to think about when choosing the best way to treat or manage your cancer. There may be more than one treatment to choose from. You might feel that you need to make a decision quickly. But give yourself time to take in all the information you have learned. Ask questions of your cancer care team. See What are some questions I can ask my doctor about prostate cancer? for some ideas about what to ask. Depending on each man’s case, the treatment options might include:

- Expectant management (watchful waiting) or active surveillance
- Surgery
- Radiation treatment
- Cryosurgery (cryotherapy)
- Hormone therapy
- Chemotherapy
- Vaccine treatment
- Treatment aimed at cancer spread to bone

These treatments are most often used one at a time, although in some cases they may be combined.

Your treatment for prostate cancer will be based on the stage and grade of your cancer, as well as your age and health, and your thoughts on the pros and cons of the different treatment choices.

Many men may find it helpful to get a second opinion, especially if they have many treatments to choose from. Talking with doctors who specialize in different kinds of treatment may be helpful.

The main types of doctors who treat prostate cancer include:

- Urologists: surgeons who treat diseases of the urinary system and male reproductive system (including the prostate)
- Radiation oncologists: doctors who treat cancer with radiation
• Medical oncologists: doctors who treat cancer with medicines such as chemotherapy or hormone therapy

Your primary care doctor can also be a source of information as you sort through your treatment options. It’s important to discuss all of your treatment options, including goals and possible side effects, with your doctors to help you choose the treatment that best fits your needs.

Many other specialists might be part of your treatment team as well. If you’d like to know more about who may be on your cancer care team, see Health Professionals Associated With Cancer Care.

Thinking about taking part in a clinical trial

Clinical trials are carefully controlled research studies that are done to get a closer look at promising new treatments or procedures. Clinical trials are one way to get state-of-the-art cancer treatment. In some cases, they may be the only way to get access to newer treatments. They are also the best way for doctors to learn better methods to treat cancer. Still, they are not right for everyone.

If you would like to learn more about clinical trials that might be right for you, start by asking your doctor if your clinic or hospital conducts clinical trials. You can also call our clinical trials matching service at 1-800-303-5691 for a list of studies that meet your medical needs, or see the Clinical Trials section of our website to learn more.

Considering complementary and alternative methods

You may hear about alternative or complementary methods that your doctor hasn’t mentioned to treat your cancer or relieve symptoms. These methods can include vitamins, herbs, and special diets, or other methods such as acupuncture or massage, to name a few.

Complementary methods refer to treatments that are used along with your regular medical care. Alternative treatments are used instead of a doctor’s medical treatment. Although some of these methods might be helpful in relieving symptoms or helping you feel better, many have not been proven to work. Some might even be dangerous.

Be sure to talk to your cancer care team about any method you are thinking about using. They can help you learn what is known (or not known) about the method, which can help you make an informed decision. See the Complementary and Alternative Medicine section of our website to learn more.

Help getting through cancer treatment

Your cancer care team will be your first source of information and support, but there are other resources for help when you need it. Hospital- or clinic-based support services are
an important part of your care. These might include nursing or social work services, financial aid, nutritional advice, rehab, or spiritual help.

The American Cancer Society also has programs and services – including rides to treatment, lodging, support groups, and more – to help you get through treatment. Call our National Cancer Information Center at 1-800-227-2345 and speak with one of our trained specialists on call 24 hours a day, every day.

*The treatment information given here is not official policy of the American Cancer Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor. Your doctor may have reasons for suggesting a treatment plan different from these general treatment options. Don't hesitate to ask him or her questions about your treatment options.*

The next few sections describe the types of treatments used for prostate cancer.

**Expectant management, watchful waiting, and active surveillance for prostate cancer**

Because prostate cancer often grows very slowly, some men (especially those who are older or who have other major health problems) might never need treatment for their cancer. Instead, their doctor may suggest approaches known as watchful waiting, expectant management, observation, or active surveillance.

Some doctors use these terms to mean the same thing. For other doctors the terms mean something slightly different:

- **Active surveillance** is often used to mean watching the cancer closely with PSA blood tests, digital rectal exams (DREs), and ultrasounds at regular intervals to see if the cancer is growing. Prostate biopsies may be done as well to see if the cancer is starting to grow faster. If there is a change in your test results, your doctor would then talk to you about treatment options.

- **Watchful waiting** (observation) is sometimes used to describe a less intense type of follow-up that may mean fewer tests and relying more on changes in a man’s symptoms to decide if treatment is needed.

Not all doctors use these terms exactly this way. **No matter which term your doctor uses, it’s very important to understand exactly what they mean when they refer to it.**

Either of these methods may be a good choice if the cancer is not causing any symptoms, is likely to grow slowly, and is small and contained in the prostate. It is less likely to be a good choice if you are young and healthy, or have a cancer that is likely to grow fast (based on the Gleason score).
Some men choose this approach because they feel that the side effects of treatments like surgery or radiation might outweigh the benefits for them. Others are willing to accept the possible side effects of these treatments to try to remove or destroy the cancer.

**Surgery for prostate cancer**

Surgery is a common choice to try to cure prostate cancer if it is not thought to have spread outside the gland.

The main type of surgery for prostate cancer is known as a *radical prostatectomy*. In this operation, the surgeon removes the entire prostate gland plus some of the tissue around it. A radical prostatectomy can be done in different ways.

**Open approaches to prostatectomy**

In the more traditional approach to doing a prostatectomy, the surgeon operates through a single long cut (incision) to remove the prostate and nearby tissues. This type of surgery, sometimes referred to as an *open* approach, is now done less often than before.

**Radical retropubic prostatectomy:** In the retropubic approach, a cut is made in the lower belly (abdomen), as shown in the picture below. The doctor will then remove the prostate and some nearby tissues. He or she can also remove nearby lymph nodes to check for cancer spread. A small tube (catheter) will be put in your penis to help drain your bladder after surgery. The catheter usually stays in place for 1 to 2 weeks while you are healing.

You will probably stay in the hospital for a few days after the surgery, and your activities will be limited for about 3 to 5 weeks.

**Radical perineal prostatectomy:** In the perineal approach, the surgeon makes the cut in the skin between the anus and the scrotum, as shown in the picture below. This approach is used less often because it’s more likely to lead to erection problems and because the nearby lymph nodes can’t be removed. But it might be an option if you aren’t concerned about erections and you don’t need lymph nodes removed. It also might be used if you have other medical problems that make retropubic surgery hard to do.
The perineal approach often takes less time than the retropubic approach, and may result in less pain.

A tube for draining urine (called a catheter) will be put into the bladder through the penis to drain urine for 1 to 2 weeks while you are healing.

You will probably stay in the hospital for a few days after the surgery, and your activities will be limited for about 3 to 5 weeks.

**Laparoscopic approaches to prostatectomy**

These approaches use several smaller incisions and special long surgical tools to remove the prostate. This can be done with the surgeon either holding the tools directly, or using a control panel to precisely move robotic arms that hold the tools.

**Laparoscopic radical prostatectomy (LRP):** For an LRP, the surgeon makes several small cuts in the skin, through which special long tools are inserted to remove the prostate. One of these has a small video camera on the end, which lets the surgeon see inside the body.

LRP has some advantages over the open approach: less blood loss and pain, a shorter hospital stay, and faster recovery time. It is often possible to spare the nerves controlling erections with LRP. The rates of erection problems and most other side effects from LRP, such as trouble holding urine, seem to be about the same as for open prostatectomy.

**Robotic-assisted laparoscopic radical prostatectomy (RALRP):** In a newer approach to LRP, the surgeon sits at a panel near the operating table and controls robotic arms to do the surgery through several small cuts in the patient’s belly.
RALRP has some advantages over the open approach in terms of pain, blood loss, and recovery time. But there is little difference between direct LRP and RALRP for the patient.

In terms of the side effects men are most concerned about, such as urinary or sexual problems (described below), there does not seem to be a difference between RALRP and other approaches to prostatectomy.

No matter which type of surgery you choose, the most important factors are likely to be the skill and experience of your surgeon. Be sure to find a surgeon with a lot of experience doing the type of surgery you choose.

**Risks and side effects of any type of radical prostatectomy**

There are possible risks and side effects with any type of surgery for prostate cancer.

**Surgical risks**

The risks with this surgery are like those of any major surgery. They can include problems from the anesthesia, a small risk of heart attack, stroke, blood clots in the legs or lungs, infection, and bleeding. Your risk depends, in part, on your overall health, your age, and the skill of your doctors.

If lymph nodes are removed, a collection of lymph fluid (called a lymphocele) can form and may need to be drained.

Rarely, part of the intestine might be cut during surgery, which could lead to infections and might need more surgery to correct.

**Side effects**

The main possible side effects of radical prostatectomy are lack of bladder control (incontinence) and not being able to get an erection. These side effects can also occur with other forms of treatment for prostate cancer, although they are described here in more detail.

**Urinary incontinence:** Incontinence means you can’t control your urine or you have trouble with leaking. Having this problem can affect you not only physically but emotionally and socially, too.

Normal bladder control returns for many men within several weeks or months after surgery. Doctors can’t predict how any one man will do after prostate surgery, although older men tend to have more incontinence problems than younger men. Most large cancer centers, where this surgery is done more often and surgeons have more experience, report fewer problems with incontinence.

If you have problems with incontinence, let your doctors know. Doctors who treat men with prostate cancer should know about incontinence, and should be able to suggest ways
to help you. Even if it can’t be corrected completely, it can still be helped. See Managing Incontinence for Men With Cancer to learn more about this side effect and what can be done about it.

**Impotence (erectile dysfunction):** Impotence means that a man can’t get an erection strong enough to have sex. The nerves that allow men to get erections may be damaged during surgery, radiation treatment, or other treatments.

The nerves that control erections are very close to the prostate and can be injured during surgery. If special care is taken during surgery to avoid harming these nerves, it is called a *nerve-sparing approach*. This lowers – but does not do away with – the risk of erection problems after surgery. If the cancer is growing into or very close to these nerves, the doctor might have to remove them.

Your ability to have an erection after surgery depends on your age, your ability to get an erection before the operation, and whether the nerves were cut or removed. All men can expect some decrease in the ability to have an erection, but the younger you are, the less likely you are to have problems. Each man’s situation is different, so ask your doctor about his or her success rates and what the outcome is likely to be in your case.

If erections return after surgery, this often occurs slowly and takes at least a few months. During the first few months, you may need to use medicines or other treatments to help.

If you are concerned about erection problems, be sure and talk to your doctor. There are ways to help. There are medicines and even devices such as vacuum pumps and penile implants that could prove useful.

For more on coping with erection problems and other sexuality issues, see *Sex and Men With Cancer – Overview*.

**Loss of fertility:** A radical prostatectomy cuts the tubes between the testicles (where sperm are made) and the urethra. This means that a man can no longer father a child the natural way. Often this is not an issue as men with prostate cancer tend to be older. But if this is a concern for you, you might talk to your doctor about “banking” your sperm before the operation. To learn more, see *Fertility and Men With Cancer*.

**Less common side effects** include:

- **Changes in orgasm:** It can become painful, less intense, or even go away completely.

- **Lymphedema:** Swelling of the legs and/or genital region can be a side effect of removing lymph nodes.

- **Change in penis length:** The penis might be slightly shorter after surgery.

- **Inguinal hernia:** Men who have had their prostates removed have a higher risk of having a groin hernia in the future.
More details about surgery for prostate cancer and its side effects can be found in *Prostate Cancer*.

**Transurethral resection of the prostate (TURP)**

A TURP is not done to cure prostate cancer, but it can often relieve symptoms, such as trouble urinating, in men who can’t have other types of surgery. This operation is used more often to relieve symptoms of non-cancerous prostate swelling called BPH (benign prostatic hyperplasia).

During this operation, an instrument called a *resectoscope* is passed through the end of the penis into the urethra to the level of the prostate. Once it is in place, either electricity is passed through a wire to heat it or a laser is used to cut or destroy the part of the prostate around the urethra.

The operation takes about an hour. After surgery you will need a tube to drain urine (called a *catheter*) for about a day. There may be some blood in your urine for a short time after surgery. You can usually leave the hospital after a day or 2 and go back to normal activities in 1 to 2 weeks.

**Radiation therapy for prostate cancer**

Radiation therapy is treatment with high-energy rays (such as x-rays) to kill cancer cells. It may be used to treat cancer in (and near) the prostate. It is also used to treat areas of cancer spread.

Radiation to treat prostate cancer may come from outside the body (external beam radiation) or from radioactive materials placed directly in the tumor (brachytherapy or internal radiation).

**External beam radiation therapy (EBRT)**

For this treatment, beams of radiation are focused on the prostate from a machine outside the body. This type of radiation can be used to try to cure earlier stage cancers, or to help relieve symptoms such as bone pain if the cancer has spread to a specific area of bone.

For earlier stage cancers, men usually have 5 treatments per week in an outpatient center over a period of about 7 to 9 weeks. Each treatment is painless and lasts only a few minutes, although the setup time — getting you into place for treatment — takes longer.

Newer EBRT techniques help doctors treat the prostate more precisely while reducing the radiation exposure to nearby healthy tissues. Some of these methods you may hear about are:

- 3-dimensional conformal radiation therapy (3D-CRT)
• Intensity modulated radiation therapy (IMRT)
• Conformal proton beam radiation therapy
• Stereotactic body radiation therapy (SBRT)

These methods might offer better chances of increasing the success rate and reducing side effects. If you are having one of the newer methods, your doctor can tell you more about it.

**Possible side effects of EBRT**

Some of the side effects from EBRT are the same as those from surgery, while others are different. Some common short-term side effects include:

• **Bowel problems:** Diarrhea, sometimes with blood in the stool, rectal leakage, and an irritated large intestine are problems that usually go away over time, but in rare cases they don’t.

• **Bladder problems:** You might need to urinate more often, feel burning while urinating, and maybe see blood in your urine. Bladder problems usually get better over time, but for some men they don’t go away, with the most common problem being the need to urinate often.

• **Trouble controlling urine (incontinence):** This is less common with radiation than surgery, but the chance of incontinence goes up each year for several years after radiation treatment.

• **Erection problems:** Some men may have erections that are not as firm as they once were, while others might not be able to get an erection strong enough to have sex. Erection problems usually don’t happen right after radiation therapy but develop slowly over a year or more. After a few years, the impotence rate after radiation is about the same as that after surgery. For more on coping with erection problems and other sexuality issues, see *Sexuality for the Man With Cancer*.

• **Feeling tired:** Radiation treatment may cause severe tiredness. It may not go away until a few months after treatment stops.

• **Lymphedema:** Fluid build-up in the legs or genitals is possible if the lymph nodes around the prostate are damaged by radiation. To learn more, see *Understanding Lymphedema: For Cancers Other Than Breast Cancer*.

• **Urethral stricture:** The tube that carries urine from the bladder out of the body may, rarely, be scarred and narrowed by radiation. This can cause problems with urination, and might need further treatments to open it up again.
**Brachytherapy (internal radiation)**

For brachytherapy, radioactive materials are placed in the prostate. The risk of side effects to other areas is lower, because the radiation travels only a short distance. There are 2 main types of brachytherapy:

- **Permanent** or **low-dose brachytherapy** uses small radioactive pellets or “seeds” that are put into the prostate. The seeds are not removed, but they lose their radioactivity over time. Each seed is about the size of a grain of rice.

- **Temporary** or **high-dose brachytherapy** uses stronger radiation sources that are only left in place for a short time (less than 15 minutes). These radiation sources are put into soft tubes (called catheters) that have been placed in the prostate. Usually 3 treatments are given over a couple of days in the hospital. After the last treatment the catheters are removed.

**Possible risks and side effects of brachytherapy**

If you have pellets in place, they will give off small amounts of radiation for several weeks. Even though the radiation doesn’t travel far, you may be told to stay away from pregnant women and small children during this time. You may be asked to be careful in other ways, too, such as wearing a condom during sex.

For about a week after the pellets are placed, there may be some pain in the area and a red-brown color to the urine. There is also a small risk that some of the seeds might move to other parts of the body, but this is rare.

Like external radiation treatment, this approach can have side effects such as:

- **Bladder problems** such as having to urinate often
- **Bowel problems** such as rectal pain, burning, or diarrhea
- **Erection problems**

Talk to your doctor if you have any problems. Often there are medicines or other methods to help.

More details about radiation therapy for prostate cancer can be found in *Prostate Cancer*.

**Cryosurgery for prostate cancer**

Cryosurgery is sometimes used to treat early stage prostate cancer by freezing the cells with cold metal probes (hollow needles). Most doctors do not use cryosurgery as the first treatment for prostate cancer, but it is sometimes an option if the cancer has come back after other treatments. It may not be a good option for men with large prostate glands.
The doctor uses transrectal ultrasound (TRUS) to guide the probes into the prostate through the skin between the anus and the scrotum. Cold gases are then passed through the probes, which creates ice balls that destroy the prostate gland.

During the procedure, warm salt water is circulated through a catheter that has been placed into the bladder through the penis to keep the urethra (the tube that empties the bladder) from freezing. The catheter is left in place to drain the bladder after surgery, and is removed a few weeks later.

You may need to stay in the hospital for a day, but many patients can leave the same day. Compared to surgery or radiation treatment, doctors know much less about how well this method works in the long run.

**Possible side effects of cryosurgery**

After the procedure, there will be some bruising and soreness in the area where the probes were inserted. You may have some blood in your urine for the first few days. Short-term swelling of the penis and scrotum after cryosurgery is also common. Freezing may also damage the bladder and intestines. This can cause pain, a burning sensation, and the need to empty the bladder and bowels often. These problems usually improve with time.

Freezing often damages nerves near the prostate, which leads to erection problems. These are more common than after surgery. Problems controlling urine (incontinence) occur less often.

For more details about cryosurgery for prostate cancer, see *Prostate Cancer*.

**Hormone therapy for prostate cancer**

The goal of hormone therapy (also called *androgen deprivation*) is to lower the levels of the male hormones (androgens), such as testosterone, or to stop them from affecting prostate cancer cells.

In men, the main source of androgens is the testicles. The adrenal glands also make a small amount of androgens.

Androgens cause prostate cancer cells to grow. Lowering androgen levels or stopping them from getting into prostate cancer cells often makes prostate cancer shrink or grow more slowly for a time. Hormone therapy alone can control the cancer and help with symptoms, but hormone therapy alone does not cure prostate cancer.

Hormone therapy is often used:

- In men who can’t have surgery or radiation for some reason or who can’t be cured by these treatments because the cancer has already spread too far.
• For men whose cancer remains or has come back after earlier treatment with surgery or radiation.

• Along with radiation as the first treatment in men who are at high risk of having the cancer return after treatment.

• Before radiation to try to shrink the cancer and make treatment more effective.

Several types of hormone therapy can be used to treat prostate cancer. Some lower the levels of testosterone or other androgens (male hormones). Others block the action of those hormones.

**Hormone therapy that lowers androgen levels**

**Orchiectomy:** Even though this is a type of surgery, its main effect is as a form of hormone therapy. In this operation, the surgeon removes the testicles, where most of the androgens are made. This is a fairly simple operation and it is not as costly as some other options, but it is permanent and many men have trouble accepting this operation.

**LHRH analogs:** These drugs lower testosterone levels just as well as orchiectomy. LHRH analogs (also called LHRH agonists or GnRH agonists) are given as shots or as small pellets of medicine put under the skin. Depending on the drug used, they are given anywhere from once a month to once a year. Although the testicles stay in place, they will shrink over time. They may even become too small to feel.

Some LHRH analogs available in the United States include: leuprolide (Lupron®, Eligard®), goserelin (Zoladex®), triptorelin (Trelstar®), and histrelin (Vantas®).

When LHRH analogs are the first given, the testosterone level goes up briefly before going down to low levels. This is called flare. Men whose cancer has spread to the bones may have bone pain during this flare. To reduce flare, drugs called anti-androgens can be given for a few weeks before starting treatment with LHRH analogs.

**LHRH antagonists:** LHRH antagonists work like LHRH analogs, but they reduce testosterone levels more quickly and do not cause tumor flare like the LHRH analogs do. Degarelix (Firmagon®) is an LHRH antagonist used to treat advanced prostate cancer. It is given as a monthly shot under the skin.

**Abiraterone (Zytiga®):** Even when the testicles aren’t making androgens, other cells in the body can still make small amounts of male hormones. Abiraterone helps block these cells from making certain hormones, including androgens.

This drug is taken as pills each day. Since this drug doesn’t stop the testicles from making testosterone, men who haven’t had their testicles removed need to stay on LHRH agonist (or antagonist) treatment. Abiraterone also lowers the level of certain other hormones in the body, so prednisone (a cortisone-like drug) needs to be taken during treatment.
Drugs that stop androgens from working

**Anti-androgens:** Androgens have to bind to a certain protein in the prostate cancer cell to work. Most anti-androgens block androgens in the body from binding to that protein. This stops the androgens from working.

In the US, these drugs aren’t often used alone. They are sometimes used along with orchiectomy or LHRH analogs.

**Enzalutamide (Xtandi®):** This is a newer type of anti-androgen. It doesn’t block androgens from binding to the protein in the cell. Instead it stops the protein from sending a signal telling the cell to grow and divide. This can often help shrink tumors and help men with advanced prostate cancer live longer, even if other hormone treatments no longer work.

All of these drugs are pills and are taken daily.

**Common side effects of hormone therapy**

Orchiectomy, LHRH analogs, and LHRH antagonists can all cause side effects because of changes in the levels of hormones. These side effects can include:

- Less sexual desire
- Erection problems
- Hot flashes (which may get better or even go away with time)
- Breast tenderness and growth of breast tissue
- Shrinking of testicles
- Shrinking of penis
- Bone thinning (osteoporosis), which can lead to broken bones
- Low red blood cell counts (anemia)
- Decreased mental sharpness
- Loss of muscle mass
- Weight gain
- Extreme tiredness (fatigue)
- Increased cholesterol
- Depression
Some research has suggested that the risk of high blood pressure, diabetes, strokes, and heart attacks, and even death from heart disease is also higher in men treated with hormone therapy. But not all studies have found this.

Many side effects can be prevented or treated. If you are thinking about hormone therapy, ask your doctor to explain what side effects you might expect to have and what can be done to manage these problems.

For more information about hormone therapy for prostate cancer, see *Prostate Cancer*.

**Chemotherapy (chemo) for prostate cancer**

Chemo is the use of drugs to treat cancer. The drugs are often injected into a vein (given IV). Some can be swallowed in pill form. Once the drugs enter the bloodstream, they go throughout the body to destroy the cancer cells.

Chemo is sometimes used if prostate cancer has spread outside the prostate gland and hormone therapy isn’t working. Chemo is not a standard treatment for early prostate cancer, but some studies are looking to see if chemo could be helpful if given for a short time after surgery.

Chemo is not expected to destroy all the cancer cells, but it may slow the cancer’s growth and reduce symptoms.

Chemo is given in cycles, with each period of treatment followed by a rest period to allow the body time to recover. Each cycle typically lasts for a few weeks.

There are many different chemo drugs. For prostate cancer, chemo drugs are typically used one at a time. The chemo drugs used most often are docetaxel (Taxotere®) and cabazitaxel (Jevtana®).

**Side effects of chemo**

While chemo drugs kill cancer cells, they also damage some normal cells, which can lead to side effects. The side effects of chemo depend on the type of drugs, the doses, and the length of treatment. They could include:

- Nausea and vomiting
- Diarrhea
- Loss of appetite
- Hair loss
- Mouth sores
Because normal cells are also damaged, you may have low blood cell counts. This can cause:

- Increased risk of infection (from a shortage of white blood cells)
- Bleeding or bruising after minor cuts or injuries (from a shortage of blood platelets)
- Tiredness (from low red blood cell counts)

Also, each drug may have its own unique side effects.

Most side effects go away once treatment is over. If you have problems with side effects, talk with your doctor or nurse about what can be done. There is help for many chemo side effects. For example, drugs can prevent or reduce nausea and vomiting.

For more on chemotherapy for prostate cancer, see *Prostate Cancer*.

**Vaccine treatment for prostate cancer**

Sipuleucel-T (Provenge®) is a cancer vaccine used to treat advanced prostate cancer.

This vaccine has to be made special from each patient’s own blood cells. To make it, white blood cells are removed from the patient’s blood and sent to a lab, where they are exposed to a certain protein from prostate cancer cells. These cells are then sent back to the doctor’s office and given back to the patient through a vein (IV). This process is done twice more, 2 weeks apart, so that the patient gets 3 doses of cells. In the body, the cells cause other immune system cells to attack the prostate cancer.

Side effects tend to be mild and can include fever, chills, fatigue, back and joint pain, nausea, and headache. A few men have more severe symptoms, including problems breathing and high blood pressure, which usually get better after treatment.

**Preventing and treating prostate cancer spread to bones**

If prostate cancer grows outside the prostate gland, it often first grows into nearby tissues or spreads to nearby lymph nodes. After this, prostate cancer nearly always spreads to the bones. Spread of cancer to the bones can be painful and can also cause other problems, such as broken bones or high blood calcium levels.

Treatments mentioned earlier, such as hormone therapy, chemo, and vaccines may help with the cancer spread overall. Often, though, other treatments that target cancer spread to the bones are also needed.
Drugs to protect the bones

Drugs that help stop the cancer cells from breaking down the bone lower the chance of serious problems like bones breaking. They also can help with bone pain and high calcium levels. Two types of drugs can be used for this.

- **Bisphosphonates**: The one most often used is called zoledronic acid (Zometa®), but sometimes others are used. Zoledronic acid is given into the vein (IV), usually once a month.

- **Denosumab (Xgeva®)**: This drug works in a slightly different way.
  - It is given as a shot (injection) under the skin once a month.

Men taking these drugs are often advised to take a supplement with calcium and vitamin D to prevent problems with low calcium levels. Bisphosphonates can cause side effects such as flu-like symptoms and bone or joint pain. They can’t be used in men with kidney problems because they can damage the kidneys.

Common side effects of denosumab include nausea, diarrhea, and feeling weak or tired. This drug doesn’t cause kidney damage and is safe for people with kidney problems.

Some men have a very rare, but serious side effect from these drugs. Part of the jaw bone loses its blood supply and dies. This can lead to loss of teeth or infections of the jaw bone. These problems seem to be more common after having dental work done (like having a tooth pulled). Doctors often advise patients to have a dental check-up and have any tooth or jaw problems treated before they start taking either of these drugs.

Radiation

**External radiation treatment** can be used to treat bone pain caused by cancer that has spread to one or a few areas of bone.

**Radiopharmaceuticals** are drugs that contain radioactive elements. They are given into a vein. They settle in areas of bones that contain cancer, and the radioactive part kills the cancer cells there. Because they go throughout the body, they are a way to treat many areas of cancer in the bones at once. This can be very helpful in treating bone pain. The most serious side effect of these drugs is lower blood cell counts. This could increase your risk of getting an infection or bleeding easily.

Pain medicines

Pain medicines work very well. When the drugs are used as prescribed to treat cancer pain, it is very rare for them to cause addiction or dependence. Pain medicines work best when they are taken on a regular schedule. They do not work as well if they are only used when the pain becomes severe.
Constipation and feeling sleepy are the most common problems, but there are things you
can do to help prevent these. Side effects can often be managed by changing the dose or
by adding other medicines.

It is very important that you get good treatment for your pain. This will help you feel
better and allow you to focus on the things that are most important to you. There are
many ways to treat your pain, so be sure and tell all members of your prostate cancer care
team about your symptoms.

More details about the treatments discussed in this section can be found in Prostate
Cancer.

More information about the treatment of cancer spread to bones can be found in Bone
Metastases.

**What are some questions I can ask my doctor about prostate cancer?**

It’s important to have honest, open talks with your doctor. Ask any question, no matter
how small it might seem. Here are some questions you might want to ask. Be sure to add
your own as you think of them.

- Would you please write down the exact type of cancer I have?
- May I have a copy of my pathology report?
- What is the chance that the cancer has spread beyond my prostate? If so, can it still be
cured?
- What other tests (if any) do you think I need, and why?
- Are there other types of doctors I should talk to before deciding on treatment?
- What is the clinical stage and Gleason score of my cancer? What do those mean in
my case?
- Is watchful waiting (active surveillance) an option for me? Why or why not?
- Do you advise a radical prostatectomy or radiation? Why or why not?
- If I have a radical prostatectomy, would it be nerve sparing? Would it be
laparoscopic?
- What type of radiation treatment might be best for me?
- What other treatments might be right for me? Why?
- Among my treatment options, what risks or side effects should I expect?
• 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?

• How quickly do I need to decide on treatment?

• What should I do to be ready for treatment?

• How long will treatment last? What will it be like? Where will it be done?

• How would treatment affect my daily activities?

• What are the chances of the cancer coming back with the treatment you suggest? What would be our next step if this happened?

• What is my expected survival rate based on clinical stage, grade, and various treatment options?

• What type of follow-up will I need after treatment?

• Where can I find more information and support?

Be sure to write your questions down so you remember to ask them during visits with your cancer care team. Also keep in mind that other members of your health care team, such as nurses and social workers, may be able to answer to some of your questions. You can find out more about speaking with your health care team in Talking With Your Doctor.

Moving on after treatment for prostate cancer

For most men with prostate cancer, treatment can remove or destroy the cancer. Completing treatment can be both stressful and exciting. You may be relieved to finish treatment, but find it hard not to worry about cancer growing or coming back. (When cancer comes back after treatment, it is called recurrence.) This is a very common concern in people who have had cancer.

It may take a while before your fears lessen. But it may help to know that many cancer survivors have learned to accept this uncertainty and are living full lives. Living With Uncertainty: The Fear of Cancer Recurrence talks more about this.

For other men, the cancer may return or may never go away completely. These men may get hormone or other treatments to help keep the cancer in check for as long as possible. Learning to live with cancer as a more of a chronic disease can be difficult and very stressful. It has its own type of uncertainty. When Cancer Doesn’t Go Away talks more about this.
Follow-up care

Even if you have finished treatment your doctors will still want to watch you closely. It’s very important to go to all of your follow-up visits. During these visits, your doctors will ask questions about any problems you are having and may do exams and lab tests or scans to look for signs of cancer or treatment side effects. This is a good time for you to ask any questions and discuss any concerns you might have.

Your doctor should give you a follow-up plan. This plan usually includes regular doctor visits and PSA blood tests, with digital rectal exams if your prostate hasn’t been removed. This will likely begin within a few months after you finish treatment.

Almost any cancer treatment can have side effects. Some might last for a few weeks or months, but others might last the rest of your life. Tell your cancer care team about any symptoms or side effects that bother you so they can help you manage them.

Prostate cancer can come back (recur) even many years after treatment. This is why it’s important to keep regular doctor visits and report any new symptoms, such as bone pain or problems with urination. Should your prostate cancer come back, your treatment options will depend on where it is thought to be located and what types of treatment you’ve already had. For more on dealing with a cancer recurrence, see When Your Cancer Comes Back: Cancer Recurrence.

It’s also very important to keep your health insurance. While you hope the cancer won’t come back, it could happen. If it does, you don’t want to have to worry about paying for treatment.

Seeing a new doctor

At some point after your cancer is treated, you may be seeing a new doctor. It’s important to be able to give your new doctor the details of your diagnosis and treatment. Gathering this information soon after treatment may be easier than trying to get it at some point in the future. Make sure you have this information handy (and always keep copies for yourself):

- A copy of your pathology report from any biopsy or surgery
- If you had surgery, a copy of your operative report
- If you stayed in the hospital, a copy of the discharge summary that the doctor wrote when you were sent home
- If you had radiation treatment, a summary of the type and dose of radiation and when and where it was given
• Copies of imaging tests (CT or MRI scans, etc.), which can usually be stored digitally (on a DVD, etc.)

• If you had hormone therapy, chemo, or other drug treatments, a list of your drugs, drug doses, and when you took them

• The names and contact information of the doctors who treated your cancer

Lifestyle changes after treatment for prostate cancer

Having cancer and dealing with treatment can take a lot of time and energy, but it can also be a time to look at your life in new ways. Maybe you are thinking about how to improve your health over the long term.

Make healthier choices

For many people, having had cancer helps them focus on their health in ways they may not have thought much about in the past. Are there things you could do that might make you healthier? Maybe you could try to eat better or get more exercise. Maybe you could cut down on alcohol, or give up tobacco. Even things like keeping your stress level under control may help. Now is a good time to think about making changes that can have healthy effects for the rest of your life.

You can start by working on those things that worry you most. Get help with those that are harder for you. For instance, if you are thinking about quitting smoking and need help, call the American Cancer Society for information and support.

Eating better

Eating right is hard for many people, but it can be even harder during and after cancer treatment. If you are still in treatment and are having eating problems related to your treatment, you might want to read *Nutrition for the Person With Cancer During Treatment*. We also have *Nutrition and Physical Activity During and After Cancer Treatment: Answers to Common Questions*.

One of the best things you can do after treatment is to start healthy eating habits. You may be surprised at the long-term benefits of some simple changes. Getting to and staying at a healthy weight, eating a healthy diet, and limiting your alcohol intake may lower your risk for many types of cancer, as well as having many other health benefits.

Rest, fatigue, and exercise

Feeling tired (fatigue) is a very common problem during and after cancer treatment. This is not a normal type of tiredness but a bone-weary exhaustion that often doesn’t get better with rest. For some people, fatigue lasts a long time after treatment and can keep them
from staying active. But exercise can actually help reduce fatigue and the sense of depression that sometimes comes with feeling so tired.

If you are very tired, though, you will need to balance activity with rest. It’s OK to rest when you need to. To learn more about fatigue, see *Fatigue in People With Cancer*.

If you were very ill or weren’t able to do much during treatment, it’s normal that your fitness, staying power, and muscle strength declined. You need to find an activity plan that fits your own needs. Talk with your health care team before starting. Get their input on your plans. Then try to get an exercise buddy so that you’re not doing it alone.

Exercise can improve your physical and emotional health.

- It improves your heart fitness.
- Along with a good diet, it helps you get to and stay at a healthy weight.
- It makes your muscles stronger.
- It reduces fatigue.
- It lowers anxiety and depression.
- It can make you feel happier.
- It can help you feel better about yourself.

Long term, we know that getting regular physical activity can help lower the risk of some cancers, as well as having other health benefits.

**Can I lower my risk of the cancer growing or coming back?**

Most people want to know if they can make certain lifestyle changes to reduce their risk of cancer growing or coming back. Unfortunately, for most cancers there isn’t much solid evidence to guide people. This doesn’t mean that nothing will help – it’s just that for the most part this is an area that hasn’t been well studied. Most studies have looked at lifestyle changes as ways of preventing cancer in the first place, not slowing it down or keeping it from coming back.

Some recent research has suggested that men who exercise regularly after treatment may live longer than those who don’t. It’s not clear exactly how much activity might be needed, but more seems to be better. More intense activity may also be more helpful than less intense activity. Further studies are needed to follow up on these findings.

Other recent research has suggested that men who smoke are more likely to have their prostate cancer come back than men who don’t smoke. More research is needed to see if it helps to quit smoking, although quitting is already known to have a number of other health benefits.
Other healthy behaviors such as eating well and getting to or staying at a healthy weight might also help, but no one knows for sure. But we do know that these types of changes can have good effects on your health that can extend beyond your risk of prostate or other cancers.

So far, no dietary supplements have proven to help lower the risk of prostate cancer progressing or coming back. Again, this doesn’t mean that none will help, but it’s important to know that none have been proven to do so.

How about your emotional health after prostate cancer?

During and after treatment, you may find yourself overcome with many different emotions. You may find that you think about the effect of your cancer on things like your family, friends, and career. Money may be a concern if medical bills pile up. Or you may begin to think about the changes that cancer has brought to your relationships with those around you. Unexpected issues may also cause concern – for instance, as you get better and need fewer doctor visits, you will see your health care team less often. This can be hard for some people.

This is a good time to look for emotional and social support. You need people you can turn to. Support can come in many forms: family, friends, cancer support groups, religious or spiritual groups, online support communities, or private counselors. Whatever your source of strength or comfort, make sure you have a place to go with your concerns.

The cancer journey can feel very lonely. You don’t need to go it alone. Your friends and family may feel shut out if you don’t include them. Let them in – and let in anyone else who you feel may help. If you aren’t sure who can help, call your American Cancer Society at 1-800-227-2345 and we can put you in touch with a group or resource that may work for you.

You can’t change the fact that you have had cancer. What you can change is how you live the rest of your life – making healthy choices and helping your body and mind feel well.

If treatment for prostate cancer stops working

When a person has had many different treatments and the cancer has not been cured, over time even newer treatments might not be helpful. At this time you may have to weigh the possible benefits of a new treatment against the downsides, like treatment side effects and clinic visits. Everyone has their own way of looking at this.

This is likely to be the hardest time in your battle with cancer – when you have tried everything within reason and it’s just not working anymore. Your doctor might offer you new treatment, but you will need to talk about whether the treatment is likely to improve your health or change your outlook for survival.
**Palliative care**

No matter what you decide to do, it is important for you to feel as good as you can. Make sure you are asking for and getting treatment for pain, nausea, or any other problems you may have. This type of treatment is called *palliative* treatment. It helps relieve symptoms but is not meant to cure the cancer.

**Hospice care**

At some point you may want to think about hospice care. This is special care that focuses on quality rather than length of life. Most of the time it is given at home. Your cancer may be causing symptoms or problems that need to be treated. Hospice focuses on your comfort. You should know that having hospice care doesn’t mean you can’t have treatment for the problems caused by your cancer or other health issues. It just means that the purpose of your care is to help you live life as fully as possible and to feel as well as you can. You can learn more about this in *Hospice Care*.

Staying hopeful is important, too. Your hope for a cure may not be as bright, but there is still hope for good times with family and friends – times that are filled with joy and meaning. Pausing at this time in your cancer treatment gives you a chance to focus on the most important things in your life. Now is the time to do some things you’ve always wanted to do and to stop doing the things you no longer want to do. Though the cancer may be beyond your control, there are still choices you can make.

You can learn more about the changes that occur when treatment stops working, and about planning ahead for yourself and your family, in *Advance Directives* and *Nearing the End of Life*. You can read them online or call us at 1-800-227-2345 to have free copies mailed to you.

**What’s new in prostate cancer research?**

Research about prostate cancer is being done in many medical centers around the world.

**Genetics**

New research on gene changes linked to prostate cancer helps scientists better understand how prostate cancer grows. Tests to find abnormal prostate cancer genes could also help tell which men are at high risk. They could then be tested more often. Further research will help provide answers about the gene changes that lead to prostate cancer. This may make it possible to design drugs to target those changes.

One of the biggest problems now facing doctors and their patients with prostate cancer is figuring out which cancers are more likely to spread. Knowing this could help decide which men need treatment and which could be better served by watchful waiting.
Researchers are now trying to find genetic clues about which cancers are more likely to grow fast and spread.

**Prevention**

Researchers continue to look for foods that affect prostate cancer risk. Scientists have found some substances in tomatoes and soybeans that may help prevent prostate cancer. They are trying to develop related compounds that are even more powerful and might be taken as supplements. So far, most research suggests that a balanced diet that includes these foods as well as other fruits and vegetables is better than taking these substances as supplements.

Some studies have suggested that certain vitamins and minerals could lower prostate cancer risk. But a large study found that neither vitamin E nor selenium supplements lowered prostate cancer risk after daily use for about 5 years.

Some studies have found that men with high levels of vitamin D seem to have a lower risk of getting the more lethal forms of prostate cancer. Overall though, studies have not found that vitamin D protects against prostate cancer.

Although many people believe that vitamins and other natural substances cause no harm, some research has shown that high doses may be harmful. For example, one study found that men who take more than 7 multivitamin tablets per week may have a higher risk of getting advanced prostate cancer.

Some research has suggested that men who take aspirin daily for a long time might have a lower risk of getting and dying from prostate cancer, but more research is needed to confirm this.

**Early detection**

Doctors agree that the prostate-specific antigen (PSA) blood test is not a perfect test for finding prostate cancer early. It misses some cancers, and in other cases the PSA level is high when cancer isn’t present. Researchers are now studying several new blood and urine tests to see if they might be better at finding prostate cancer early.

**Treatment**

Many newer treatments for prostate cancer are being developed, and current treatment methods are being improved.

**Surgery:** Doctors are improving the surgery techniques used to treat prostate cancer. The goal is to remove all of the cancer while lowering the risk of complications and side effects from the surgery.
**Radiation treatment:** Better technology is making it possible to aim radiation more precisely than in the past. The goal is to treat only the prostate gland and any cancer just outside the gland. Studies are going on to find out which techniques are best for which patients.

New computer programs allow doctors to better plan the radiation doses and approaches for both external radiation therapy and brachytherapy.

**Newer treatments for early-stage cancers:** Researchers are now studying newer forms of treatment for early-stage prostate cancer, either as the first treatment or as treatment after unsuccessful radiation treatment.

One treatment, known as *high-intensity focused ultrasound (HIFU)*, destroys cancer cells by heating them with highly focused ultrasonic beams. While it has been used more in Europe, it has only recently become available in the United States. Studies are now going on to find out if it is safe and effective.

**Nutrition and lifestyle changes:** Some early research has found that in men with a rising PSA after surgery or radiation therapy, drinking pomegranate juice or taking a pomegranate extract may slow the time it takes for the PSA level to double. Larger studies are now trying to see if these substances affect prostate cancer growth.

Some good early results have also been reported with flaxseed supplements, which seemed to slow the rate at which prostate cancer cells multiplied. More research is needed to confirm this finding.

Another study found that men who choose not to have treatment for their localized prostate cancer may be able to slow its growth with major lifestyle changes. The men in the study ate a vegan diet (no meat, fish, eggs, or dairy products) and exercised a lot. They also went to support groups and yoga. After a year the men saw a slight drop in their PSA level. It isn’t known if this effect will last since the study only followed the men for a year. Also, some men may find it hard to make these lifestyle changes.

**Hormone treatment:** Several newer forms of hormone therapy have been developed in recent years.

**Immunotherapy:** Doctors are now looking for ways to boost the body’s immune response to fight prostate cancer.

One way to do this is with special vaccines that help the immune system attack the cancer cells. Several vaccines are now being studied.

Another approach is newer drugs called *immune checkpoint inhibitors*. These drugs basically take the brakes off the immune system, which seems to help it attack cancer cells. These drugs have shown a lot of promise in treating some other types of cancer, and they are now being studied for use against prostate cancer.
Blood vessel growth: In order for cancers to grow, blood vessels must grow to nourish the cancer cells. This process is called angiogenesis. Drugs that stop or slow the growth of these blood vessels have been studied for use against prostate cancer.

Preventing or treating spread of cancer to the bones: Several newer medicines can help prevent or treat prostate cancer spread to the bones.

Doctors are also looking at radiofrequency ablation (RFA) for treating bone pain. RFA has been used for many years to treat tumors in other organs such as the liver. Its use for bone pain is still fairly new, but early results are promising.

More information about prostate cancer

More information from your American Cancer Society

We have a lot more information that you might find helpful. Explore www.cancer.org or call our National Cancer Information Center toll-free number, 1-800-227-2345. We’re here to help you any time, day or night.

Other organizations and websites*

Along with the American Cancer Society, other sources of information and support include:

Urology Care Foundation
Toll-free number: 1-800-828-7866
Website: www.urologyhealth.org

Offers free brochures on prostate cancer and screening as well as online information on diseases of the prostate, bladder, and other urology health issues in the “Urology A – Z” section of their website.

National Association for Continence
Toll-free number: 1-800-252-3337 (1-800-BLADDER)
Website: www.nafc.org

Offers information and support to all people who are living with incontinence and has information for men who have had prostate surgery. Also available in Spanish.

National Cancer Institute
Toll-free number: 1-800-422-6237 (1-800-4-CANCER); TYY: 1-800-332-8615
Website: www.cancer.gov
Has accurate, up-to-date information about cancer for patients, their families, and the general public; also helps people find clinical trials in their area.

**National Coalition for Cancer Survivorship**
Toll-free number: 1-888-650-9127
1-877-622-7937 (1-877-NCCS-YES) for publications and Cancer Survivor Toolbox® orders
Website: www.canceradvocacy.org

Offers information on work, health insurance, and more. The Cancer Survival Toolbox is a free, self-learning audio program to help cancer survivors and caregivers develop practical tools needed to deal with the diagnosis, treatment and challenges of cancer. Listen online or order CDs. Also in Spanish and Chinese.

**Prostate Cancer Foundation (formerly CaPCURE)**
Toll-free number: 1-800-757-2873 (1-800-757-CURE) or 1-310-570-4700
Website: www.pcf.org

Has information on prostate cancer and treatment options as well as patient guides and survivor stories.

**US Too International, Inc.**
Toll-free number: 1-800-808-7866 (1-800-80-US-TOO)
Website: www.ustoo.org

Offers information about all stages of prostate cancer, different treatment options, new research findings and current clinical trials, and some referrals to local support groups.

*Inclusion on this list does not imply endorsement by the American Cancer Society.*

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