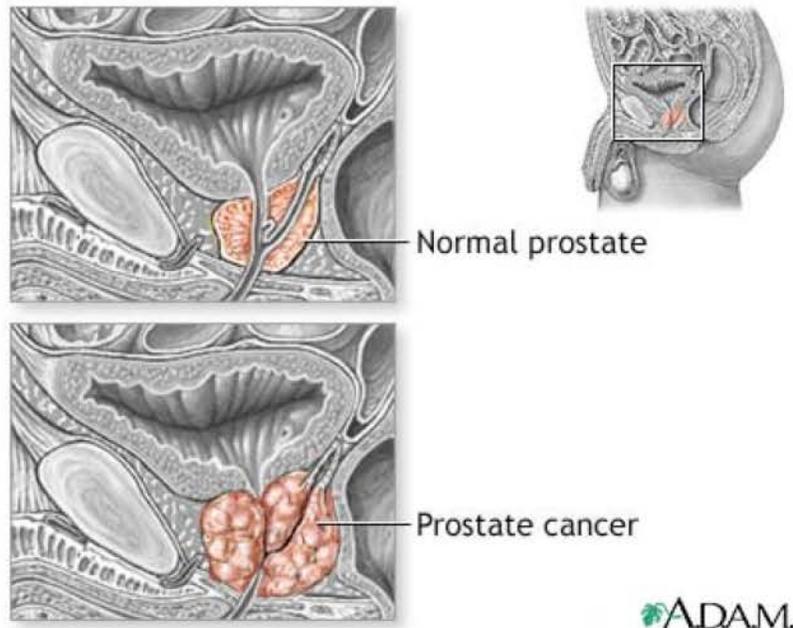


Prostate cancer



Definition [Return to top](#)

Prostate cancer involves a malignant tumor growth within the prostate gland.

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The cause of prostate cancer is unknown, although some studies have shown a relationship between high dietary [fat](#) intake and increased [testosterone](#) levels. When testosterone levels are lowered either by surgical removal of the testicles (castration, orchiectomy) or by medication, prostate cancer can regress. There is no known association with [benign prostatic hyperplasia \(BPH\)](#).

Prostate cancer is the third most common cause of death from [cancer](#) in men of all ages and is the most common cause of death from cancer in men over 75 years old. Prostate cancer is rarely found in men younger than 40.

Men at higher risk include black men older than 60, farmers, tire workers, painters, and men exposed to cadmium. The lowest incidence occurs in Japanese men and vegetarians.

Prostate cancers are classified or staged based on their aggressiveness and how different they are from the surrounding prostate tissue. There are several different ways to stage tumors; one of the more common is the A-B-C-D staging system (also known as the Whitmore-Jewett system).

- A: [tumor](#) not palpable (unable to be felt on physical examination). Usually detected by accident after prostate surgery done for other reasons.
- B: tumor is confined to the prostate and usually detected by physical examination or PSA testing.
- C: extension of tumor beyond the prostate capsule without spread to lymph nodes.
- D: cancer has spread (metastasized) to regional lymph nodes or other parts of the body (bone and lungs for example).

This system also contains several substages.

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With the advent of PSA testing, most prostate cancers are now found before they cause symptoms. Additionally, while most of the symptoms listed below can be associated with prostate cancer, they are more likely to be associated with non-cancerous conditions.

- [Urinary hesitancy](#) (delayed or slowed start of urinary stream)
- Urinary dribbling, especially immediately after urinating
- Urinary retention
- [Pain with urination](#)
- [Pain with ejaculation](#)
- Lower [back pain](#)
- Pain with bowel movement

Additional symptoms that may be associated with this disease:

- [Excessive urination at night](#)
- [Incontinence](#)
- [Bone pain or tenderness](#)
- [Hematuria \(blood in the urine\)](#)
- [Abdominal pain](#)
- [Anemia](#)
- [Weight loss](#)
- [Lethargy](#)

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A rectal exam often reveals the hard, irregular surface of an enlarged prostate.

Testing considerations:

- [PSA](#) (prostate specific [antigen](#)) may be elevated, although other conditions such as [benign prostatic hypertrophy \(BPH\)](#) can cause the PSA to rise. PSA levels are determined by a blood test.
- Free PSA may be more specific in differentiating BPH from prostate cancer.
- [Urinalysis](#) may reveal blood in the urine.
- Urine or prostatic fluid [cytology](#) may reveal atypical cells.
- A prostate [biopsy](#) confirms the diagnosis.
- CT scans may be performed to rule out [metastasis](#) (spread of the [cancer](#)).
- A [bone scan](#) may be performed to rule out metastasis.
- Chest X-ray may be performed to rule out metastasis.

A newer test called [AMACR](#) is more sensitive for determining the presence of prostate cancer than the PSA test and may become more widely used to diagnose disease.

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The appropriate treatment of prostate cancer is often controversial. Treatment options vary based on the stage of the [tumor](#). In the early stages, surgical removal of the prostate ([prostatectomy](#))

and [radiation therapy](#) may be used to eradicate the tumor. Metastatic cancer of the prostate may be treated by hormonal manipulation (reducing the levels of [testosterone](#) by drugs or removal of the testes) or [chemotherapy](#).

SURGERY:

Surgical treatment is usually only recommended after thorough evaluation and discussion of treatment options. A man considering surgery should be aware of the expected benefit of the procedure, as well as its potential risks.

- Removal of prostate gland (radical prostatectomy) -- often recommended for treatment of localized stage A and B prostate cancers. This is a lengthy procedure, usually performed using general or spinal anesthesia. An incision is made through the abdomen or perineal area. You may remain in the hospital for 5 to 7 days. Possible complications include impotence and [urinary incontinence](#), although nerve-sparing procedures can reduce the risk of these complications. This surgery should be performed by a urologist with extensive experience doing this specific procedure.
- Removal of the testes (orchiectomy, castration). This alters hormone production and may be recommended for metastatic cancer. There may be some [bruising](#) and [swelling](#) initially after surgery, but this will gradually subside. The loss of testosterone (hormone) production may lead to problems with sexual function, osteoporosis (thinning of the bones), and loss of muscle mass.

RADIATION THERAPY:

Radiation therapy is used primarily to treat prostate cancers classified as stages A, B, or C. Whether radiation is as good as prostate removal is a debatable topic, and the decision about which to choose can be difficult. In patients whose health makes the risk of surgery unacceptably high, radiation therapy is often the preferred alternative. Radiation therapy to the prostate gland may be performed in a number of ways:

- External beam radiation therapy is performed in a radiation oncology center by specially trained radiation oncologists, usually on an outpatient basis. Prior to treatment, a therapist will mark the location that is to be radiated with a special semi-permanent marking pen. The radiation is delivered to the prostate gland using a device that resembles a normal [X-ray](#) machine. The treatment itself is generally painless. However, there are several side effects associated with radiation therapy -- [loss of appetite](#), [fatigue](#), skin reactions such as redness and irritation, rectal burning or injury, diarrhea, [cystitis](#) (inflamed bladder), and [blood in urine](#). External beam radiation therapy is usually performed five days a week for six to eight weeks.
- Another method consists of implanting small pellets of radioactive iodine, gold, or iridium directly into the prostate tissue through a small incision. The advantage of this form of radiation therapy is that the radiation is directed at the prostate with less damage to the surrounding tissues.

MEDICATIONS:

- Hormonal manipulation -- aims at lowering testosterone levels. Since prostate tumors require testosterone, reducing the testosterone level is often very effective in preventing further growth and spread of the cancer. This can be done either through surgical removal of the testes or by using medications. Hormone manipulation is mainly used to relieve symptoms without curing the prostate cancer, such as in people whose cancer has spread. Preliminary evidence suggests that it may improve cure rates when combined with radiation or surgery; however this is still under investigation.

Synthetic drugs like Lupron or Zoladex that mimic the function of LHRH ([luteinizing hormone releasing hormone](#)) are being used increasingly to treat advanced prostate cancer. These medications suppress testosterone production. The procedure is often called "chemical castration" because it has the same result as surgical removal of the testes, although it is reversible, unlike surgery. The drugs must be given by injection, usually every three months. Possible side effects include [nausea and vomiting](#), hot flashes, anemia, lethargy, osteoporosis, reduced sexual desire, and erectile dysfunction ([impotence](#)).

Other medications used for hormonal therapy include androgen blocking agents (such as flutamide) which prevent testosterone from attaching to prostate cells. Possible side effects include erectile dysfunction, loss of sexual desire, liver problems, [diarrhea](#), and enlarged breasts.

- Chemotherapy is often used to treat prostate cancers that are resistant to hormonal treatments. An oncology specialist will usually recommend a single drug or a combination of drugs aimed at destroying the cancer cells. Medications that may be used to treat prostate cancer include:
 - mitoxantrone
 - prednisone
 - paclitaxel
 - docetaxel
 - estramustine
 - adriamycin

Most people receive their chemotherapy (after the initial dose) on an outpatient basis at a clinic or physician's office. Possible side effects are numerous and specific to a given chemotherapy drug.

LIFESTYLE CHANGES:

Surgery, radiation therapy, and hormonal manipulation all have the potential to disrupt sexual desire or performance on either a temporary or permanent basis. Discuss your concerns with your health care provider. Additionally, several options are available for managing sexual problems related to prostate cancer treatment.

MONITORING:

You will be closely monitored for progression of the disease regardless of the type of treatment you receive. Monitoring will include:

- Serial prostatic-specific [antigen \(PSA\)](#) blood test (usually every 3 months to 1 year)
- [Bone scan](#) and/or [CT scan](#) to evaluate for [metastasis](#)
- [Complete blood count \(CBC\)](#) to monitor for signs and symptoms of [anemia](#)
- Monitor for other signs and symptoms indicating disease progression, such as fatigue, [weight loss](#), increased pain, decreased bowel and bladder function, and [weakness](#)

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[Impotence](#) is a potential complication after [prostatectomy](#) or [radiation therapy](#). Recent improvements in surgical procedures have made this complication occur less often. [Urinary incontinence](#) is another possible complication. Medications can have side effects, including hot flashes and loss of sexual desire.