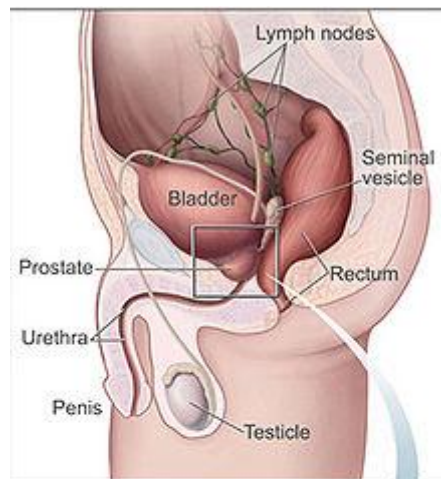


PROSTATE CANCER:

UNDERSTANDING THE DISEASE AND ITS CAUSES.

WHAT IS PROSTATE CANCER? Prostate cancer is cancer that starts in the prostate gland. The prostate is a small structure that makes up part of a man's reproductive system. It wraps around the urethra, the tube that carries urine out of the body. Prostate cancer will usually occur in **older men of age over 60-70 yrs**. This cancer is very rare in males under the age of 40. In a young man, the normal prostate gland is small (<30g). During normal aging, however, the gland usually grows larger. This hormone-related enlargement with aging is called **benign prostatic hyperplasia (BPH)**, but this condition is not associated with prostate cancer. Both BPH and prostate cancer, however, can cause similar problems in older men. For example, an enlarged prostate gland can squeeze or impinge on the outlet of the bladder or the urethra, leading to difficulty with urination. The resulting symptoms commonly include slowing of the urinary stream and urinating more frequently, particularly at night. **Patients should seek medical advice from their urologist or primary-care physician if these symptoms are present.**



This shows the prostate and nearby organs.



This shows the inside of the prostate, urethra, rectum, and bladder.

RISK FACTORS FOR DEVELOPING PROSTATE CANCER:

1. **AGE AND FAMILY HISTORY:** Prostate cancer is very uncommon in men younger than 45, but becomes more common with advancing age. The average age at the time of diagnosis is 70.
2. **Family history and prostate cancer risk**
A family history of prostate cancer is one of the strongest known risk factors for this disease. Risk increases two to three times for men with a first-degree relative diagnosed with prostate cancer.
3. **RACE:** black African men have approximately two to three times the risk of being diagnosed or dying from prostate cancer than white men, while Asian men generally¹ have a lower risk than the national average.
4. **Diet and prostate cancer risk:** Diet has been extensively researched because of the large variation in prostate cancer incidence between different cultures and their traditional diets around the world, particularly the Asian versus 'western' diet, **but much of the research is at present inconclusive.**
5. Recent evidence has suggested that sexually transmitted infections are risk factors for developing prostate cancer. Men with a history of sexually transmitted infections have a 1.4 times greater chance of developing prostate cancer as compared men without this history.
6. Although still unproven, environmental factors, such as cigarette smoking and diets that are high in saturated fat, seem to increase the risk of prostate cancer. There is also a suggestion that obesity leads to an increased risk of having more aggressive, larger prostate cancer, which results in a poorer outcome after treatment.
7. Additional substances or toxins in the environment or from industrial sources might also promote the development of prostate cancer, but these have not yet been clearly identified.

SIGNS AND SYMPTOMS OF PROSTATE CANCER:

In early stages, prostate cancer often causes no symptoms for many years. As a matter of fact, these cancers frequently are first detected by an abnormality on a blood test (the PSA, discussed below) or as a hard nodule (lump) in the prostate gland.

- Delayed or slow start to urinary stream
- Frequent urination especially at night
- Sometimes pain on urination
- Dribbling or leakage of urine, most often after urinating
- Slow urinary stream
- Straining when urinating, or not being able to empty out all of the urine
- Blood in the urine or semen
- Weight loss
- Bone pain or tenderness, most often in the lower back and pelvic bones (only when the cancer has spread) or chest pain.

What are the screening tests for prostate cancer?

Screening tests are those that are done at regular intervals to detect a disease earlier. These screening tests are a **digital rectal examination** and a blood test called the **prostate specific antigen (PSA)**.

In the digital rectal examination, the doctor feels (palpates) the prostate gland with his gloved index finger in the rectum to detect abnormalities of the gland. Thus, a lump, irregularity, or hardness felt on the surface of the gland is a finding that is suspicious for prostate cancer. **Doctors usually recommend doing a digital rectal examination in men age 40 and over.**

The PSA test is a simple, reproducible, and relatively accurate blood test. It is used to detect a protein (the prostate specific antigen) that is released from the prostate gland into the blood. The PSA level is usually higher than 4ng/mL in people with prostate cancer than in people without cancer.

DIAGNOSIS:

How is prostate cancer diagnosed and graded?

Prostate cancer is diagnosed from the results of a biopsy of the prostate gland. If the digital rectal exam of the prostate or the PSA blood test is abnormal, a prostate cancer is suspected. A biopsy of the prostate is usually then recommended. Biopsies will help in the staging of the disease.

Chest X-rays and bone scans/or CT scans or MRIs may be done to determine whether the cancer has spread to the adjacent organs.

TREATMENT OPTIONS:

Treatment for prostate cancer may involve active surveillance (monitoring for tumor progress or symptoms),

1. Surgery (i.e. radical prostatectomy) to remove the tumor.
2. Radiation therapy.
3. High-intensity focused ultrasound (HIFU),
4. Chemotherapy, oral chemotherapeutic drugs.
5. Cryosurgery,
6. Hormonal therapy, or some combination of the methods above.

Prostate cancer prevention

Prostate cancer can sometimes be associated with known risk factors for the disease. Many risk factors are modifiable though not all can be avoided.

Age: The risk of developing prostate cancer increases as a man gets older.

Chemoprevention: is the use of specific natural or man-made drugs, vitamins, or other agents to reverse, suppress, or prevent cancer growth. Several agents, selenium, vitamins D and E and lycopene (found in tomatoes) have shown potential benefit in studies. Further studies are needed to confirm this.

Diet and lifestyle: The effect of diet on prostate cancer risk is under study. A diet high in fat, especially animal fat, may be associated with an increased risk of prostate cancer. More studies are needed to determine if a low-fat diet with more fruits and vegetables helps prevent prostate cancer.

Eat foods rich in omega-3 fatty acids- oily fish has been known to reduce the risk of certain cancers

Eat soy products and legumes. Soybeans and other legumes contain phytoestrogens, which are plant-based chemicals that behave like the hormone estrogens in the human body. These chemicals might help to prevent prostate cancer. In fact, one possible explanation for lower rates of prostate cancer in Asian men is that they eat more soy protein.

Drink green tea. Green tea contains antioxidants such as polyphenols that may help prevent certain cancers and other health problems.

Get enough vitamin D. Not many foods contain vitamin D, but fish liver oil, cheese and egg yolks contain some

Studies show that a diet high in dairy products and calcium may be linked to an increased risk of prostate cancer, although the increase may be small.

Hormonal prevention: Studies are underway to discover the role of certain drugs, such as finasteride, that reduce the amount of male hormone as preventive agents for prostate cancer.

Race: The risk of prostate cancer is dramatically higher among blacks, intermediate among whites, and lowest among native Japanese. However, this increase in risk may be due to other factors associated with race. Studies have shown a link between levels of testosterone and prostate cancer risk, with black men having the highest levels

Obesity: Researchers have not established a direct link between obesity and incidence of prostate cancer. However, obesity might affect levels of hormones related to prostate cancer risk. It may also increase the risk of dying of prostate cancer.

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