Prostate Cancer Awareness

What is Prostate Cancer?

Prostate cancer occurs when cells in the prostate start to grow uncontrollably. In general, men with prostate cancer have several small tumors in the prostate.

It is the most common cancer among Canadian men.
1 in 7 men will be diagnosed with the disease in 2011.

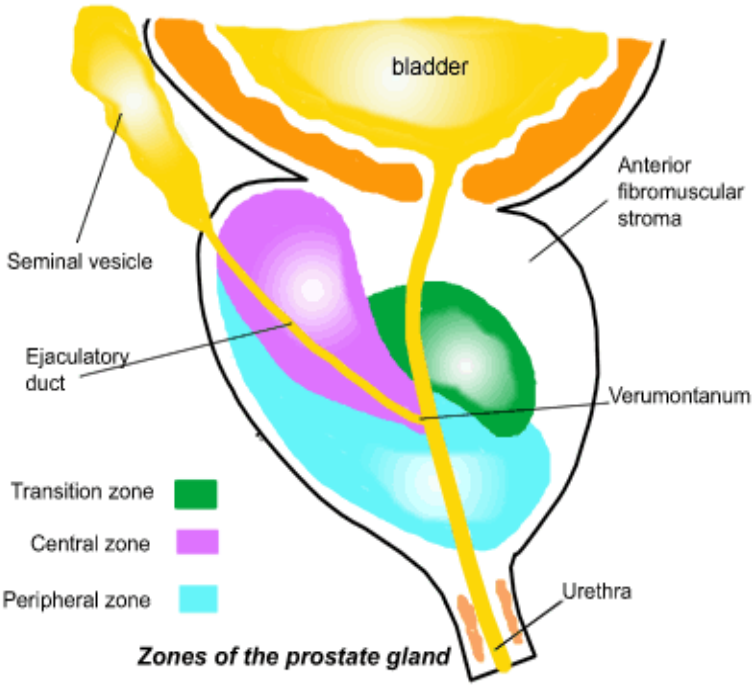
Where is it?

The prostate is divided into three internal zones: the peripheral zone, the transition zone and the central zone.

The **peripheral zone** is located in the back near the rectum. It contains the majority of the glands is (for reasons which are not clear) the region **where most prostate cancers develop**. In younger men, the peripheral zone makes up over half of the prostate.

The **transition zone**, next to the urethra, is the zone that enlarges with benign prostatic hyperplasia (BPH), a non-cancerous enlargement of the prostate. Beginning around age 40, the transition zone begins to increase in size and eventually becomes the largest zone of the prostate.

The **central zone** is involved in the connection of seminal vesicles to the prostate and contains most of the rest of the organ's glands.



Zones of the prostate gland

Functions of the Prostate

1) ***Semen Production***
   The main role of the prostate is to create a thin, clear fluid for semen. During orgasm, muscular contractions cause semen to be ejaculated through the urethra and from there out of the penis.
2) ***PSA Production***
   The prostate also makes prostate specific antigen (PSA). PSA is added into semen and turns it into liquid after ejaculation. In healthy prostates, a small amount of PSA leaks out into the blood. However, prostate cancer cells leak more PSA, so early-stage prostate cancer can often be caught by a blood test that measures PSA levels.
3) ***Urine Flow Control***
   The urethra, the tube that carries urine from the bladder through the penis, passes through the prostate gland. Muscle fibers in the prostate contract to slow the flow of urine.

Prostate Cancer Disease States

Phase 1: Localized Disease
The cancer is confined to the prostate. The best-case scenario is that prostate cancer is detected in this phase. At this early stage there are several treatment options that may completely eliminate the cancer. Radial prostatectomy (surgery) is the "gold standard" for treatment of localized disease. The likelihood of cure is as high as 97% and patients generally live longer.

Phase 2: Recurrent Disease
There are signs the cancer has recurred following Phase 1, but there is no evidence of Phase 3. After therapy, there is always a chance the cancer will return, often because cancer cells escaped from the prostate before treatment began. The best way to monitor for recurrence of prostate cancer is to test PSA levels regularly. In general, doctors recommend testing PSA levels every year.

Phase 3: Metastatic Disease
In this advanced stage, the cancer has spread beyond the prostate. Current treatment options include hormonal therapy (suppression of the male hormones that feed the growth of prostate cancer cells) and chemotherapy.

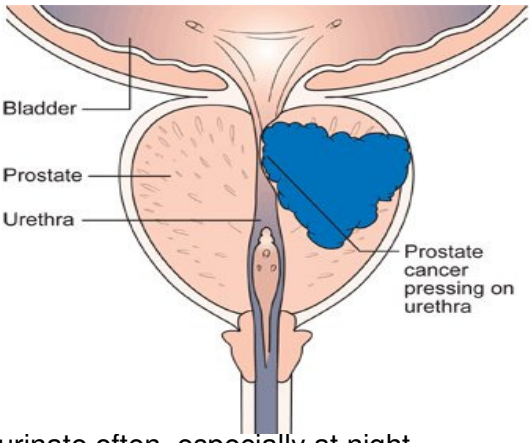
Phase 4: Hormone Refractory Disease
The cancer continues to grow even though the male hormones that help cancer cells grow, have been suppressed with hormone therapy. Treatment options at this stage include chemotherapy which may lengthen life span and lessen the pain caused by cancer spreading to the bones.

Important Notes:

- Not all men progress through all phases
- Always possibility that localized disease may recur or
- Cancer may not be diagnosed until it has spread beyond the prostate

Signs and Symptoms:

Signs and symptoms may not be apparent in the early stages. It may be found when you have had a PSA test or digital rectal exam. They may appear if the prostate enlarges and starts to press on the urethra.



Don't ignore the symptoms.
If you have any of these symptoms, don't ignore them. See your doctor and take some tests. Most enlargements of the prostate are not cancer.

- Need to urinate often, especially at night
- Intense need to urinate
- Difficult in starting or stopping the urine flow
- Inability to urinate
- Weak, decreased, or interrupted urine stream
- A sense of incompletely emptying the bladder
- Burning or pain during urination
- Blood in the urine or semen
- Painful ejaculation

Causes

There is no single cause, but some factors may increase the risk. Having these risk factors does **not** mean that you will develop prostate cancer. It means that your chances of developing it are higher.

You may be at higher risk if you:

- Are older than 65
- Family history of prostate cancer
- African ancestry

You can't change some of the risk factors for prostate cancer such as your age or ancestry. What you may be able to change is your diet. Eating a healthy diet is good for you in general and may help reduce your risk of prostate cancer.

How to reduce the risk:

- **eat less fat**
- **eat a diet high in vegetables and fruit**

Early Detection Guidelines

Prostate Cancer Canada advises men and their doctors take the time to discuss the merits of prostate specific antigen (PSA) blood testing followed by a digital rectal examination (DRE) for early detection of prostate cancer.

When is it time to talk?

It's time to talk with your doctor if you're a male and you:

- will soon be 50 years old
- are over 50 and you haven't talked about prostate cancer with your doctor yet
- may be at a higher risk of developing prostate cancer because you have a family history or if you are of African ancestry
- have symptoms of prostate cancer

Men should consider the following schedule for prostate cancer monitoring using PSA blood testing:

Age 40

Establish a **baseline PSA value**. Although the threat of prostate cancer is minimal at this age, it also precedes the onset of BPH, the natural enlargement of the prostate that commonly occurs with age. The onset of BPH often results in rising PSA over time, and can be confused with the onset of prostate cancer. Your doctor can observe whether your PSA levels have risen, and if so, how quickly.

Unless your doctor is concerned, PSA need only be repeated every 5 years until age 50. Men at higher risk of prostate cancer (family history, and/or those of African or Caribbean descent) should **begin annual PSA and DRE monitoring at age 40**.

Age 50

All men **should begin annual or semiannual PSA monitoring** if they have not yet done so. A minimal increase in PSA levels against your baseline score often (in consultation with your physician) requires no further action until your next annual test. A significant increase should prompt a discussion with your doctor or urologist about follow up PSA blood tests.

The PSA blood test not only helps to diagnose prostate cancer, but helps monitor for recurrence of prostate cancer after treatment. It allows a patient and his doctor to monitor if cancer is suspected, if lifestyle changes have had an impact or if cancer has regressed or spread.

Combining results of PSA and DRE increases both the diagnostic power and accuracy of these early detection methods!

Selenium
Selenium and Vitamin E Cancer Prevention Trial (SELECT) was the first study to look directly at the effects of selenium on the risk of prostate cancer. Klein et al (2003) found:

- Higher levels of Selenium were linked to a reduced risk of prostate cancer.
- Slowed down prostate cancer progression.
- An extra 200 micrograms of selenium a day cut prostate cancer risk in half

Recommended intake: 50 – 200 mg/day. Do not exceed 200 mg/day.

3 ounces of cod	40 micrograms
3 ounces of tuna	69 micrograms
4 ounces of shrimp	45 micrograms

Lycopene
Lycopene is the pigment that gives tomatoes and other fruits like guava, papaya, red grapefruit and watermelon their red colour. Lycopene is a powerful antioxidant, meaning it helps prevent cell damage. Research studies have also found that it prevents and slows the growth of prostate cancer, but currently, no one knows how this happens.

Recommended intake: 30 – 60 mg/day

Grapefruit, pink or red, ½ cup	2 mg
Tomato, chopped, ½ cup	3 mg
Guava, 1 medium	5 mg
Ketchup, 2 tbsp	5 mg
Watermelon, 1 cup	8 mg
Tomato paste, 2 tbsp	10 mg
Tomato soup, 1 cup	12 mg
Tomatoes, canned/diced, ½ cup	12 mg
Tomato salsa, ½ cup	12 mg
V-8 100% vegetable juice, 8 ounces	17 mg
Spaghetti/tomato sauce, ½ cup	20 mg
Tomato juice, 8 ounces	22 mg

Vitamin D
Vitamin D is a vitamin that is found in food and is also produced by the body and activated after exposure to ultraviolet light from the sun. Studies suggest that activated vitamin D may be broken down in the prostate, where it may play a role in preventing cancer.

Vieth, Chan & MacFarland (2001) from the University of Toronto where the first to report positive results for a vitamin D compound (cholecalciferol) to date in human cancer.

Recommended Intake: 600 IU/day (15 mcg).

Special Note: Canada's Food Guide recommends that all Canadians over the age of two consume 500mL (two cups) of milk or fortified soy beverages every day. These foods are fortified with vitamin D. Health Canada recommends that, in addition to following Canada's Food Guide, everyone **over the age of 50** should take a **daily vitamin D supplement of 400 IU**.

Food	IUs per serving	Percent DV
Salmon (sockeye), cooked, 3 ounces	447	112
Mackerel, cooked, 3 ounces	388	97
Tuna fish, canned in water, drained, 3 ounces	154	39
Orange juice fortified with vitamin D, 1 cup (check product labels, as amount of added vitamin D varies)	137	34
Milk, nonfat, reduced fat, and whole, vitamin D-fortified, 1 cup	115–124	29–31
Yogurt, fortified with 20% of the DV for vitamin D, 6 ounces (more heavily fortified yogurts provide more of the DV)	88	22
Margarine, fortified, 1 tablespoon	60	15
Liver, beef, cooked, 3.5 ounces	49	12
Sardines, canned in oil, drained, 2 sardines	46	12
Egg, 1 large (vitamin D is found in yolk)	41	10
Ready-to-eat cereal, fortified with 10% of the DV for vitamin D, 0.75–1 cup (more heavily fortified cereals might provide more of the DV)	40	10
Cheese, Swiss, 1 ounce	6	2

Resources: http://ods.od.nih.gov/, http://www.hc-sc.gc.ca/, http://www.prostatecancer.ca/, http://www.cancer.ca/, http://www.pcf.org/

Vieth, R., Chan, P.C., & MacFarlane, G.D. (2001). Efficacy and safety of vitamin D3 intake exceeding the lowest observed adverse effect level. *American Journal of Clinical Nutrition, 73*, 288-294.

always check with your doctor prior to any change in your diet, supplementation, exercise or medications