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# Prostate Specific Antigen (PSA)

## Definition

**PSA** stands for **prostate specific antigen** (substance secreted by prostate cells, used in diagnosing cancer). The PSA test measures the amount of PSA in the blood.

The test is done by drawing blood from a vein, usually from the inside of the elbow or the back of the hand.

Routine PSA testing, with rectal examination of the prostate (using the doctor's finger), helps to find prostate cancer earlier.

## The Prostate Gland

The prostate gland is between the bladder and the **urethra** (channel that carries urine from the body). The prostate's function is to make **semen** (the body fluid in males that contains sperm), but it also makes PSA.

PSA increases the sperms' ability to move around, which is necessary for reproduction. Only the prostate gland can make PSA.

## Why PSA is Measured

PSA is present in all prostate glands. In normal conditions, most of the PSA is contained within the prostate and only a small amount leaks into the blood.

However, prostate cancer cells tend to leak more PSA into the blood. In other words, the blood levels of PSA will generally be higher if prostate cancer is present. This is why PSA is routinely measured to help determine risk for prostate cancer.

## PSA Levels

Men with normal prostate glands generally have a PSA value of 4.0 or less. However, you should keep in mind that almost any condition that affects the prostate can make the PSA rise, so an elevated PSA level does not, by itself, indicate cancer.

Some studies have shown that twenty percent of prostate cancer cases occur in men with normal PSA levels. Thus, this test is used in conjunction with others to diagnose prostate cancer.

To be certain of the presence of cancer, other tests are needed, such as **biopsy** of the prostate. This is the removal of a small amount of tissue to examine it for disease or infection.

## Noncancerous Causes of High PSA Levels

Some of the common causes of false elevation of PSA values include:

- **Benign prostate hyperplasia (BPH)**. This is the **benign**, or noncancerous, enlargement of the prostate, which usually causes urinary symptoms. As men age, the prostate usually gets bigger. Although this benign enlargement is not cancer, it may cause a false elevation of PSA values.
- **Prostatitis**. This is inflammation of the prostate gland. This might lead to an elevated PSA if the inflammation causes PSA to leak into the blood. Some men with prostatitis have no symptoms, while others have symptoms similar to a bladder infection.
- **Ejaculation**. This is the discharge of the body fluid that contains sperm. This discharge has been shown to increase the PSA value. If possible, the patient should not ejaculate for 48 hours before a PSA test. Otherwise, a repeat test might be required.

In some cases, even a simple rectal exam may cause the PSA to rise somewhat.

## Adjusting PSA for Age

Generally, doctors expect men with larger prostates to have higher PSAs. Because the prostate enlarges with age, which can make the PSA rise, some researchers believe a man's age should be a factor when evaluating PSA.

Studies have suggested that 4.0 is too low to be considered normal for older men, and too high for younger men. However, more time is needed determine if adjustments need to be made in evaluating PSA levels.

## Monitoring PSA

Any PSA level that is rising is of concern. Thus, it is important to have regular PSAs checked in order to make comparisons of the values.

A man with a stable PSA of 8 over a three-year period may be at less risk of prostate cancer than a man with a PSA of 2, 4, and 6 over the same time frame.

A biopsy was probably recommended to the patient with the PSA of 8 when it was first discovered. However, if the biopsy was negative, there may be no need to repeat biopsies if the PSA stays at 8. If this patient's level jumps to 10 for no apparent reason, then repeat biopsies and other studies may be recommended.

## Follow-Up

The American Cancer Society and the American Urological Association suggest that men over the age of 50 have a yearly PSA test along with a rectal examination of the prostate. It is recommended that high-risk groups, such as African-American men, or men with a family history of prostate cancer, start screening at an earlier age.

You should talk to your doctor about these suggestions. Discuss the benefits and risks of screening. It is important to ask your doctor if you have any questions about the PSA.