Patient information: Prostate cancer screening (Beyond the Basics)

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PROSTATE CANCER SCREENING OVERVIEW — Prostate cancer screening involves testing for prostate cancer in men who have no symptoms of the disease. This testing can find cancer at an early stage. However, medical experts disagree about whether prostate cancer screening is right for all men, and it is not clear if the benefits of screening outweigh the risks.

This article is designed to review the advantages and disadvantages of prostate cancer screening. You should talk with your healthcare provider to decide what is best in your individual situation.

WHAT IS PROSTATE CANCER? — Prostate cancer is a cancer of the prostate, a small gland in men that is located below the bladder and above the rectum (figure 1). The prostate produces fluid that helps carry sperm during ejaculation.

Although many men are diagnosed with prostate cancer, most of them do not die from their cancer. Prostate cancer often grows so slowly that many men die of other causes before they even develop symptoms of prostate cancer.

PROSTATE CANCER RISK FACTORS
Age — All men are at risk for prostate cancer, but the risk greatly increases with older age. Prostate cancer is rarely found in men younger than 50 years old.

Ethnic background — African American men develop prostate cancer more often than white and Hispanic men. African American men also are more likely to die of prostate cancer than white or Hispanic men.

Family medical history — Men who have a first-degree relative (a father or brother) with prostate cancer are more likely to develop the disease. Men with female relatives with breast cancer related to the breast cancer gene (BRCA) may also be more likely to develop prostate cancer.

Diet — A diet high in animal fat or low in vegetables may increase a man's risk of prostate cancer.

PROSTATE CANCER SCREENING TESTS — Prostate cancer screening involves blood test that measures prostate specific antigen (PSA).

Prostate specific antigen (PSA) — Prostate specific antigen (PSA) is a protein produced by the prostate. The PSA test measures the amount of PSA in a sample of blood. Although many men with prostate cancer have an elevated PSA concentration, a high level does not necessarily mean there is a cancer.
The most common cause for an elevated PSA is benign prostatic hyperplasia (BPH), a noncancerous enlargement of the prostate. Other causes include prostate infection (prostatitis) and trauma (bicycle riding), and sexual activity. You should avoid ejaculating or riding a bike for at least 48 hours before having a PSA test. (See "Patient information: Benign prostatic hyperplasia (BPH) (Beyond the Basics)."

Rectal examination — A rectal examination is often recommended, along with measurement of the PSA, to screen for prostate cancer. However, studies have not shown that rectal examination is an effective screening test for prostate cancer.

If the PSA test is positive — A positive PSA test is not a reason to panic; noncancerous conditions are the most common causes for an abnormal test, particularly for PSA tests. On the other hand, a positive test should not be ignored.

The first step in evaluating an elevated PSA is usually to repeat the test. In some cases, you may be treated for a prostate infection before repeating the test. Even if you are not treated for infection, you should avoid ejaculating and riding a bike for at least 48 hours before repeating the test. If the PSA remains elevated, a prostate biopsy is usually recommended.

Prostate biopsy — A prostate biopsy involves having a rectal ultrasound and use of a needle to obtain tissue samples from the prostate gland. The biopsy is usually performed in the office by a urologist (a doctor who specializes in treatment of urinary, bladder, and prostate issues). After the procedure, most men feel sore and you may see blood in the urine or semen.

PROS AND CONS OF PROSTATE CANCER SCREENING — There are a number of arguments for and against prostate cancer screening.

Arguments for screening — Experts in favor of prostate cancer screening cite the following arguments:

- Results from a large European study of prostate cancer screening found that men who had PSA testing had a 20 percent lower chance of dying from prostate cancer after nine years, compared to men who did not have prostate cancer screening [1].

- A substantial number of men die from prostate cancer every year and many more suffer from the complications of advanced disease.

- For men with an aggressive prostate cancer, the best chance for curing it is by finding it at an early stage and then treating it with surgery or radiation. Studies have shown that men who have prostate cancer detected by PSA screening tend to have earlier-stage cancer than men who have a cancer detected by other means. (See "Patient information: Treatment for advanced prostate cancer (Beyond the Basics)" and "Patient information: Prostate cancer treatment; stage I to III cancer (Beyond the Basics)."

- The five-year survival for men who have prostate cancer confined to the prostate gland (early stage) is nearly 100 percent; this drops to 30 percent for men whose cancer has spread to other areas of the body. However, many early-stage cancers are not aggressive, and the five-year survival will be nearly 100 percent even without any treatment.

- The available screening tests are not perfect, but they are easy to perform and are fairly accurate.

Arguments against screening — Other arguments have also been made against screening:

- Even though the European study found a benefit of prostate cancer screening, only one man in every 1400 benefited from PSA testing after nine years [1]. Furthermore, 75 percent of men with an abnormal PSA who had a prostate biopsy did not have prostate cancer.

- A large American study did not find that prostate cancer screening reduced the chance of dying from
Many prostate cancers detected with screening are unlikely to cause death or disability. Thus, a number of men will be diagnosed with cancer and potentially suffer the side effects of cancer treatment for cancers that never would have been found without prostate cancer screening. In other words, even if screening finds a cancer early, it is not clear in all cases that the cancer must be treated.

**IS PROSTATE CANCER SCREENING RIGHT FOR ME?**

**Professional organizations** — Major medical associations and societies have conflicting recommendations regarding prostate cancer screening, making it difficult to decide if screening is right.

- The United States Preventive Services Task Force [3,4] and many European cancer societies have **not** endorsed routine PSA screening to detect prostate cancer.

Most expert groups recommend that you have an open discussion with your clinician about the risks and benefits of treatment.

- Consider your own prostate cancer risk factors
- Know the potential benefits and harms of screening, diagnosis, and treatment
- Talk to your clinician about concerns or questions

**For men who choose screening** — If you choose to have prostate cancer screening, you should begin at age 50, although some guidelines suggest beginning at age 40. Men with risk factors for prostate cancer (such as black men or a man with a father or brother who had prostate cancer) may want to begin screening at age 40 to 45.

Once screening begins, it should occur every two to four years and should include a PSA blood test. Some guidelines recommend yearly testing that also includes a rectal examination. (See 'Prostate cancer screening tests' above.)

**Screening not recommended** — Screening is not recommended for men who are 75 years and older or for men who have serious health problems. In these situations, the benefits of screening are not worth the potential harms.

**PROSTATE CANCER PREVENTION** — All men who are African American, older than age 50, or have a positive family history of prostate cancer are at an increased risk of developing prostate cancer. These men may consider a strategy to reduce the chances of developing prostate cancer, although it is important to balance the potential risks and benefits of these preventive treatments.

**Supplements** — Two dietary supplements, vitamin E and **selenium**, were previously thought to reduce the risk of prostate cancer. However, studies have not proven any benefit of these supplements and they are not recommended.

**Medications** — In men at risk for prostate cancer, **finasteride** (Proscar®) has been shown to reduce the risk of developing prostate cancer by about 25 percent [7]. Similar reductions in prostate cancer also have been seen with **dutasteride** (Avodart®) [8]. Whether or not to use these medications, which block the effects of testosterone on the prostate, to prevent prostate cancer is a complex issue that must consider the following:

- The benefits of **finasteride** and **dutasteride** (decreased incidence of prostate cancer, decreased symptoms and complications of benign prostatic hypertrophy)
- The known and potential side effects of such treatment (reduced sexual function, apparent increase in aggressive cancers [9]) (See "Patient information: Benign prostatic hyperplasia (BPH) (Beyond the Basics)".)
Men who take finasteride or dutasteride often have a prostate-specific antigen (PSA) level that is decreased by about 50 percent. This is important to consider when interpreting the results of a prostate specific antigen (PSA).

WHERE TO GET MORE INFORMATION — Your healthcare provider is the best source of information for questions and concerns related to your medical problem.

This article will be updated as needed on our web site (www.uptodate.com/patients). Related topics for patients, as well as selected articles written for healthcare professionals, are also available. Some of the most relevant are listed below.

Patient level information — UpToDate offers two types of patient education materials.

   The Basics — The Basics patient education pieces answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials.

Patient information: Prostate cancer screening (PSA tests) (The Basics)
Patient information: Prostate cancer (The Basics)
Patient information: Cancer screening (The Basics)
Patient information: Choosing treatment for low-risk localized prostate cancer (The Basics)

   Beyond the Basics — Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are best for patients who want in-depth information and are comfortable with some medical jargon.

Patient information: Treatment for advanced prostate cancer (Beyond the Basics)
Patient information: Prostate cancer treatment; stage I to III cancer (Beyond the Basics)
Patient information: Benign prostatic hyperplasia (BPH) (Beyond the Basics)

Professional level information — Professional level articles are designed to keep doctors and other health professionals up-to-date on the latest medical findings. These articles are thorough, long, and complex, and they contain multiple references to the research on which they are based. Professional level articles are best for people who are comfortable with a lot of medical terminology and who want to read the same materials their doctors are reading.

Measurement of prostate specific antigen
Screening for prostate cancer

The following organizations also provide reliable health information.

- National Cancer Institute
  1-800-4-CANCER
  (www.cancer.gov/cancertopics/screening/prostate)

- People Living With Cancer: The official patient information website of the American Society of Clinical Oncology
  (www.cancer.net/portal/site/patient)

- National Comprehensive Cancer Network
  (www.nccn.com)

- American Cancer Society
REFERENCES


This drawing shows the male anatomy and a close-up of the prostate gland.