Understanding Prostate Changes: A Health Guide for Men
pelvis – The lower part of the abdomen, located between the hip bones.

penis (PEE-nis) – An external male reproductive organ. It contains a tube called the urethra, which carries semen and urine to the outside of the body.

precancerous (pre-KAN-ser-us) – A term used to describe a condition that may (or is likely to) become cancer. Also called premalignant.

prostate (PROS-tayt) – A gland in the male reproductive system. The prostate surrounds the part of the urethra (the tube that empties the bladder) just below the bladder, and produces a fluid that forms part of the semen.

prostate-specific antigen test (PROS-tayt-speh-SIH-fik AN-tih-jen ...) – A blood test that measures the level of prostate-specific antigen (PSA), a substance produced by the prostate and some other tissues in the body. Increased levels of PSA may be a sign of prostate cancer.

prostatitis (prah-stuh-TY-tis) – Inflammation of the prostate gland.

rectum (REK-tum) – The last several inches of the large intestine closest to the anus.

reproductive system (REE-proh-DUK-tiv SIS-tem) – The organs involved in producing offspring. In women, this system includes the ovaries, the fallopian tubes, the uterus, the cervix, and the vagina. In men, it includes the prostate, the testes, and the penis.

scrotum (SKRO-tum) – In males, the external sac that contains the testicles.

semen – The fluid that is released through the penis during orgasm. Semen is made up of sperm from the testicles and fluid from the prostate and other sex glands.

sperm (spurm) – The male reproductive cell, formed in the testicle. A sperm unites with an egg to form an embryo.

tumor (TOO-mer) – An abnormal mass of tissue that results when cells divide more than they should or do not die when they should. Tumors may be benign (not cancer), or malignant (cancer). Also called neoplasm.

urethra (yoo-REE-thruh) – The tube through which urine leaves the body. It empties urine from the bladder.

urinary (YOOR-in-air-ee) – Having to do with urine or the organs of the body that produce and get rid of urine.

urine (YOOR-in) – Fluid containing water and waste products. Urine is made by the kidneys, stored in the bladder, and leaves the body through the urethra.

Introduction to the Prostate
You may be reading this booklet because you are having prostate problems. The booklet can help answer your questions about prostate changes that happen with age, such as:

• What are common prostate changes?
• How are these changes treated?
• What do I need to know about testing for prostate changes, including cancer?

This booklet can give you basic information about common prostate changes. If you are making decisions about prostate cancer treatment, there are other resources available. See the section For More Information – page 17.

What is the prostate?
The prostate is a small gland in men. It is part of the male reproductive system. The prostate is about the size and shape of a walnut. It sits low in the pelvis, below the bladder and just in front of the rectum. The prostate helps make semen, the milky fluid that carries sperm from the testicles through the penis when a man ejaculates.

The prostate surrounds part of the urethra, a tube that carries urine out of the bladder and through the penis.

How does the prostate change as you get older?
The prostate gland surrounds the tube (urethra) that passes urine. This can be a source of problems as a man ages, because:

• The prostate tends to grow bigger with age and may squeeze the urethra, or
• A tumor can make the prostate bigger.

These changes, or an infection, can cause problems in passing urine. Sometimes men in their 30s and 40s may begin to have these urinary symptoms and need medical attention. For others, symptoms aren’t noticed until much later in life. Be sure to tell your doctor if you have any urinary symptoms.
What prostate changes should you be aware of?
Growing older raises your risk of prostate problems. The three most common prostate problems are:

• Infection (prostatitis)
• Enlarged prostate (BPH, or benign prostatic hyperplasia)
• Prostate cancer

One change does not lead to another. For example, having prostatitis or an enlarged prostate does not raise your chance of prostate cancer. It is also possible for you to have more than one condition at the same time.

What are common tests for prostate changes?
Abnormal findings from any of these tests can help diagnose a problem and suggest the next steps to take:

• **DRE** (digital rectal exam) – a test to feel the prostate
• **PSA** (prostate-specific antigen) test – a blood test
• **Biopsy** – a test to check for cancer

See the section **Types of Tests** – page 13.

Tell your doctor if you:
• Are passing urine more during the day
• Have an urgent need to pass urine
• Have less urine flow
• Feel burning when you pass urine
• Need to get up many times during the night to pass urine

**Glossary Terms**

**Acute** (uh-KYOOT) – Symptoms or signs that begin and worsen quickly; not chronic.

**Benign prostatic hyperplasia** (beh-NINE prah-STA-tik HY-per-PLAY-zuh) – A benign (not cancer) condition in which an overgrowth of prostate tissue pushes against the urethra and the bladder, blocking the flow of urine. Also called benign prostatic hypertrophy, or BPH.

**Bladder** (BLA-der) – The organ that stores urine.

**Catheter** (KA-theh-ter) – A flexible tube used to deliver fluids into or withdraw fluids from the body.

**Ejaculation** (i-JAk-yoo-LAY-shun) – The release of semen through the penis during orgasm.

**Enzyme** (EN-zime) – A protein that speeds up chemical reactions in the body.

**Erection** (ih-REK-shun) – In medicine, the swelling of the penis with blood, causing it to become firm.

**False-positive test result** (fawls-PAH-zih-tiv reh-ZU LT) – A test result that indicates that a person has a specific disease or condition when the person actually does not have the disease or condition.

**Finasteride** (fi-NAS-ta-ride) – A drug used to reduce the amount of male hormone (testosterone) produced by the body.

**Genitourinary system** (je-nuh-toh-YU R-uh-ner-ee SIS-tem) – The parts of the body that play a role in reproduction, getting rid of waste products in the form of urine, or both.

**Gleason score** (GLEE-sun...) – A system of grading prostate cancer tissue based on how it looks under a microscope. Gleason scores range from 2 to 10 and indicate how likely it is that a tumor will spread. A low Gleason score means the cancer tissue is similar to normal prostate tissue and the tumor is less likely to spread; a high Gleason score means the cancer tissue is very different from normal and the tumor is more likely to spread.

**Infertility** (IN-fer-TIH-lih-tee) – The inability to produce children.

**Lymph node** (limf node) – A rounded mass of lymphatic tissue that is surrounded by a capsule of connective tissue. Lymph nodes filter lymph (lymphatic fluid), and they store lymphocytes (white blood cells). They are located along lymphatic vessels. Also called lymph gland.

**Metastasize** (meh-TAS-tuh-size) – To spread from one part of the body to another. When cancer cells metastasize and form secondary tumors, the cells in the metastatic tumor are like those in the original (primary) tumor.
Prostate Changes That Are Not Cancer

What is prostatitis and how is it treated?
Prostatitis is an inflammation or infection of the prostate gland. It affects at least half of all men at some time in their lives. Having this condition does not increase your risk of any other prostate disease.

Symptoms of Prostatitis
- Trouble passing urine, or pain when passing urine
- A burning or stinging feeling when passing urine
- Strong, frequent urge to pass urine, even when there is only a small amount of urine
- Chills and high fever
- Low back pain or body aches
- Pain low in the belly, groin, or behind the scrotum
- Rectal pressure or pain
- Urethral discharge with bowel movements
- Genital and rectal throbbing
- Sexual problems and loss of sex drive
- Blocked urine
- Painful ejaculation (sexual climax)

Prostatitis is not contagious. It is not spread through sexual contact. Your partner cannot catch this infection from you.

Several tests, such as DRE and a urine test, can be done to see if you have prostatitis. Getting the right diagnosis of your exact type of prostatitis is the key to getting the best treatment. Even if you have no symptoms, you should follow your doctor’s suggestion to complete treatment.
There are four types of prostatitis:

1) Acute bacterial prostatitis
   This infection comes on suddenly (acute) and is caused by bacteria. Symptoms include severe chills and fever. There is often blood in the urine. You must go to the doctor’s office or emergency room for treatment. It’s the least common of the four types, yet it’s the easiest to diagnose and treat.

   TREATMENT: Most cases can be cured with a high dose of antibiotics, taken for 7 to 14 days, followed by lower doses for several weeks. You may also need drugs to help with pain or discomfort.

2) Chronic bacterial prostatitis
   Also caused by bacteria, this condition doesn’t come on suddenly, but it can be bothersome. The only symptom you may have is bladder infections that keep coming back. The cause may be a defect in the prostate that lets bacteria collect in the urinary tract.

   TREATMENT: Antibiotic treatment over a longer period of time is best for this type. Treatment lasts from 4 to 12 weeks. This type of treatment clears up about 60 percent of cases. Long-term, low-dose antibiotics may help relieve symptoms in cases that won’t clear up.

3) Chronic prostatitis or chronic pelvic pain syndrome
   This disorder is the most common, but least understood, form of the disease. Found in men of any age, from older teens to the elderly, its symptoms go away and then return without warning. There can be pain or discomfort in the groin or bladder area.

   TREATMENT: There are several different treatments for this problem, based on your symptoms. These include antibiotics and other medicines, such as alpha-blockers. Alpha-blockers relax muscle tissue in the prostate to make it easier to pass urine.

4) Asymptomatic inflammatory prostatitis
   You usually don’t have symptoms with this condition. It is often found when your doctor is looking for other conditions, such as infertility or prostate cancer. If you have this problem, often your PSA test (see the section The PSA Test – page 14) will show a higher number than normal. It does not necessarily mean that you have cancer.

   TREATMENT: Men with this condition are usually given antibiotics for 4 to 6 weeks, followed by another PSA test.

   ✔ Would any side effects of surgery affect my quality of life?
   ✔ Are side effects temporary or permanent?
   ✔ How long is recovery time after surgery?
   ✔ Will I be able to fully return to normal?
   ✔ How will this affect my sex life?
   ✔ How often should I visit the doctor to monitor my condition?

For More Information
Roswell Park Cancer Institute
www.roswellpark.org
Toll-free: 1-877-ASK-RPCI (1-877-275-7724)
Email: askrpci@roswellpark.org

These sources provide information about Roswell Park, our healthcare team, general cancer information, and support services, and a clinical trial search tool.

Prostate Pros
www.prostatepros.com

Find the latest news about prostate health, prostate cancer symptoms, diagnosis, treatment choices, survivorship, patients’ personal experiences, and clinical trials, and meet the team of healthcare professionals for prostate cancer patients at Roswell Park.

National Cancer Institute
Learn more from these free NCI services:
Cancer Information Service (CIS)
Toll-free: 1-800-4-CANCER (1-800-422-6237)
TTY: 1-800-332-8615
NCI Online: www.cancer.gov
Chat Online: www.cancer.gov and click on "Need Help?"

Free booklets include:
• What You Need To Know About Prostate Cancer
• Know Your Options: Understanding Treatment Choices for Prostate Cancer
If a biopsy is positive

A positive biopsy means prostate cancer is present. A pathologist will check your biopsy sample for cancer cells and will assign a Gleason score. The Gleason score ranges from 2 to 10 and describes how likely it is that a tumor will spread. The lower the number, the less likely the tumor is aggressive and will spread.

Treatment options depend on the stage (or extent) of the cancer (stages range from 1 to 4), Gleason score, PSA level, and your age and general health. This information will be available from your doctor and will be listed on your pathology report.

Reaching a decision about treatment for your prostate cancer is a complex process. Many men find it helpful to talk with their doctors, family, friends, and other men who have faced similar decisions. Many organizations can provide more information and support to you, your partner, and family.

It is a good idea to get a copy of your pathology report from your doctor and carry it with you as you talk with your health care providers.

Checklist of Questions for Your Doctor

✓ What type of prostate problem do I have?
✓ Is more testing needed, and if so, what will it tell me?
✓ If I decide on “watchful waiting”, what changes in my symptoms should I look for and how often should I be tested?
✓ What type of treatment do you recommend for my prostate problem?
✓ Has this treatment worked for men like me?
✓ How soon would I need to start treatment, and how long would it last?
✓ Do I need medicine, and if so, how long would I need to take it before seeing improvement in my symptoms?
✓ What are the side effects of the medicine?
✓ Could other medicines interfere with this medication?
✓ If I need surgery, what are the benefits and risks?

What is enlarged prostate, or BPH?

BPH stands for benign prostatic hyperplasia. Benign means "not cancer," and hyperplasia "means too much growth." The result is that the prostate becomes enlarged. BPH is not linked to cancer and does not raise your chances of getting prostate cancer – yet the symptoms for BPH and prostate cancer can be similar.

BPH symptoms usually occur after the age of 50. They can include:

- Trouble starting a urine stream or making more than a dribble
- Passing urine often, especially at night
- Feeling that the bladder has not fully emptied
- A strong or sudden urge to pass urine
- Weak or slow urine stream
- Stopping and starting again several times while passing urine
- Pushing or straining to begin passing urine

At its worst, BPH can lead to:

- A weak bladder
- Backflow of urine, causing bladder or kidney infections
- Complete block in the flow of urine
- Kidney failure

BPH affects most men as they get older. It can lead to urinary problems such as those associated with prostatitis. By age 60, many men have signs of BPH. By age 70, almost all men have some prostate enlargement.

The prostate starts out about the size of a walnut. By the time a man is 40, it may have grown slightly larger, to the size of an apricot. By age 60, it may be the size of a lemon.
What do PSA results mean?

PSA levels are measured in terms of *units per volume of fluid tested*. Doctors often use a score of 4 nanograms (ng) or higher as the trigger for further tests, such as a prostate biopsy.

Your doctor may monitor your PSA velocity, which means looking at how much your PSA levels change over time. Rapid increases in PSA readings can suggest cancer. If you have a mildly elevated PSA, you and your doctor may choose to check PSA levels on a scheduled basis and watch for any change in the PSA velocity.

Prostate biopsy

If your symptoms or test results suggest cancer, your doctor will refer you to a specialist (a urologist) for a prostate biopsy. A biopsy is usually done in the doctor’s office.

For a biopsy, small tissue samples are taken directly from several areas of the prostate. This can help lower the chance of missing any areas of the gland that might have cancer cells. As with other cancers, doctors can diagnose prostate cancer only by looking at tissue under a microscope.

Most men who have biopsies after routine exams do not have cancer.

Deciding about repeat biopsy

A test that can help your doctor decide if you need a repeat biopsy is called *free PSA*. This test is used for men who have higher PSA values. The test looks at a form of PSA in the blood. Free PSA is linked to BPH, but not cancer.

Free PSA is figured as a percentage of the total PSA:

- If both total PSA and free PSA are higher than normal, this suggests BPH rather than cancer.
- If regular PSA is high but free PSA is not, cancer is more likely. More testing should be done.

Free PSA may help tell what kind of prostate problem you have. It can guide you and your doctor in choosing the right treatment. You and your doctor should talk about your personal risk and free PSA results. Then you can decide together whether you should have follow-up biopsies, and, if so, how often.
Digital rectal exam

DRE is the standard way to check the prostate. With a gloved and lubricated finger, your doctor feels the prostate from the rectum. The test lasts about 10-15 seconds.

This exam checks for:

- The size, firmness, and texture of the prostate
- Any hard areas, lumps, or growth spreading beyond the prostate
- Any pain caused by touching or pressing the prostate

The DRE allows the doctor to feel only one side of the prostate. A PSA test is another way to help your doctor check your prostate.

PSA (Prostate-Specific Antigen) test

PSA is a protein made by normal cells and prostate cancer cells. It is found in the blood and can be measured with a blood test. PSA tests are often used to monitor the disease in patients after prostate cancer treatment. PSA testing is still being studied to see if finding cancer early lowers the risk of dying from prostate cancer.

PSA levels can rise if a man has prostate cancer, but a high PSA is not proof of cancer. Other things can also make PSA levels go up. These may give a “false positive” test result. PSA levels can be affected when a man has BPH or prostatitis, or if the prostate gland is disturbed in any way (riding a bicycle or motorcycle, a DRE, orgasm within the past 24 hours, and prostate biopsy or surgery). Also, some prostate glands naturally produce more PSA than others. PSA levels go up with age. In general, African-American men tend to have higher PSA levels than men of other races.

Researchers are trying to determine:

- The PSA test’s ability to tell cancer from benign prostate problems.
- The best thing to do if a man has a high PSA level.

For now, men and their doctors use several PSA readings taken over a period of time as a guide to see if more follow-up is needed.

Watchful waiting

Men with mild symptoms of BPH who do not find them bothersome often choose this approach.

Watchful waiting means getting annual checkups. The checkups can include DREs and other tests (See the section Types of Tests – page 13). Treatment is started only if symptoms become too much of a problem.

If you choose to live with symptoms, these simple steps can help:

- Limit drinking in the evening, especially drinks with alcohol or caffeine.
- Empty the bladder all the way when you pass urine.
- Use the restroom often. Don’t wait for long periods without passing urine.

Some medications can make BPH symptoms worse, so talk with your doctor or pharmacist about any medicines you are taking, such as:

- Over-the-counter cold and cough medicines (especially antihistamines)
- Tranquilizers
- Antidepressants
- Blood pressure medicine

Drug therapy

Since the early 1990s, millions of American men with mild-to-moderate BPH symptoms have chosen prescription drugs over surgery.

Two main types of drugs are used. One type relaxes muscles near the prostate, while the other type shrinks the prostate gland.

Evidence shows that taking both drugs together may work best to keep BPH symptoms from getting worse.

Alpha-blockers

These drugs help relax muscles near the prostate to relieve pressure and let urine flow more freely, but they don’t shrink the size of the prostate. For many men, the drug can improve urine flow and reduce symptoms within days. Possible side effects include dizziness, headache, and fatigue.
Talking to Your Doctor
Different kinds of doctors and other healthcare professionals manage prostate health. They can help you find the best care, answer your questions, and address your concerns.

These health care professionals include:

- Family doctors and internists
- Physician assistants (PAs) and nurse practitioners (NPs)
- Urologists, who are experts in diseases of the male reproductive and urinary tract systems
- Urologic oncologists, who are experts in treating cancers of the male urinary and reproductive systems, such as prostate cancer
- Radiation oncologists, who use radiation therapy to kill cancer cells
- Medical oncologists, who treat cancers with medications such as hormone treatments and chemotherapy
- Pathologists, who are doctors who find diseases by studying cells and tissues under a microscope

View these professionals as your partners – expert advisors and helpers in your health care. Talking openly with your doctors can help you learn more about your prostate changes and the tests to expect.

Types of Tests
These types of tests are most often used to check the prostate:

Health history and current symptoms
This first step lets your doctor hear and understand the "story" of your prostate concerns. You'll be asked whether you have symptoms, how long you've had them, and how much they affect your lifestyle. Your health history also includes any risk factors, pain, fever, or trouble passing urine. You may be asked to give a urine sample for testing.
• **Family history.** Prostate cancer risk is 2 to 3 times higher for men whose fathers or brothers have had the disease. For example, risk is about 10 times higher for a man who has 3 immediate family members with prostate cancer. The younger a man is when he has prostate cancer, the greater the risk for his male family members. Prostate cancer risk also appears to be slightly higher for men whose mothers or sisters have had breast cancer.

• **Diet.** The risk of prostate cancer seems to be higher for men who eat high-fat diets with few fruits and vegetables.

Can prostate cancer be prevented?
National research studies are looking at how prostate cancer can be prevented. There is some proof that the drug finasteride lowers your risk of getting prostate cancer, but whether it decreases the risk of dying of prostate cancer is still unclear.

**Prostate Cancer Screening**

*Screening* means testing for cancer before you have any symptoms. A screening test can often help find cancer at an early stage. When found early, cancer is less likely to have spread and may be easier to treat. By the time symptoms appear, the cancer may have started to spread. Remember, even if your doctor suggests prostate cancer screening, this doesn't necessarily mean that you have cancer.

Screening tests are most useful when they have been proven to find cancer early and lower a person's chance of dying from cancer. For prostate cancer, doctors don't yet know these answers, and more research is being done.

- Large research studies, with thousands of men, are going on now to study prostate cancer screening. The National Cancer Institute is studying the combination of PSA testing and DRE as a way to get more accurate results.
- Some cancers never cause symptoms or become life-threatening. If they are found by a screening test, they may then be treated. For prostate cancer in its early stages, it isn't known whether treatment would help you live longer than if no treatment were given.

Talk with your doctor about your risk of prostate cancer and your need for screening tests.

**BPH surgery**
The number of prostate surgeries has gone down over the years. But operations for BPH are still one of the most common surgeries for American men. Surgery is used when symptoms are severe or drug therapy has not worked well.

Types of surgeries include:

1) **TURP (transurethral resection of the prostate)** is the most common surgery for BPH. It accounts for 90 percent of all BPH surgeries. It takes about 90 minutes. The doctor passes an instrument through the urethra and trims away excess prostate tissue. A spinal block is used to numb the area. Tissue is sent to the laboratory to check for prostate cancer. TURP generally avoids the two main dangers linked to other prostate surgeries:
   - Incontinence (not being able to hold in urine)
   - Impotence (not being able to have an erection)

The recovery period for TURP is much shorter as well.

2) **TUIP (transurethral incision of the prostate)** is similar to TURP. It is used on slightly enlarged prostate glands. The surgeon places one or two small cuts in the prostate. This relieves pressure without trimming away tissue. It has a low risk of side effects. Like TURP, this treatment helps with urine flow by widening the urethra.

3) **TUNA (transurethral needle ablation)** burns away excess prostate tissue using radio waves. It helps with urine flow, relieves symptoms, and may have fewer side effects than TURP. Most men need a catheter to drain urine for a period of time after the procedure.

4) **TUMT (transurethral microwave thermotheraphy)** uses microwaves sent through a catheter to destroy excess prostate tissue. This can be an option for men who should not have major surgery because they have other medical problems.

5) **TUVP (transurethral electroevaporation of the prostate)** uses electrical current to vaporize prostate tissue.
Symptoms
Prostate cancer can sit quietly for years. That means most men with the disease have no obvious symptoms. When symptoms finally appear, they may be very similar to the symptoms of BPH.

Prostate Cancer Symptoms
- Trouble passing urine
- Frequent urge to pass urine, especially at night
- Weak or interrupted urine stream
- Pain or burning when passing urine
- Blood in the urine or semen
- Painful ejaculation
- Nagging pain in the back, hips, or pelvis

Prostate cancer can spread to the lymph nodes of the pelvis. Or it may spread throughout the body. It tends to spread to the bones. So bone pain, especially in the back, can be another symptom.

Risk factors
There are some risk factors linked to prostate cancer. A risk factor is something that can raise your chances of having a problem or disease. Having one or more risk factors doesn’t mean that you will get prostate cancer. It just means that your risk of disease is greater.

- **Age.** Being 50 or older increases your risk of prostate cancer.
- **Race.** African-American men are at highest risk of prostate cancer; it tends to start at a younger age and grows faster than in men of other races. After African-American men, it is most common among white men, followed by Hispanic and Native American men. Asian-American men have the lowest rates of prostate cancer. Aside from race, all men can have other prostate cancer risk factors (aging, family history, and diet). See the section **For More Information** – page 17, to request the booklet about African-American men and prostate cancer screening.