

Benign Prostatic Hyperplasia (BPH) and Lower Urinary Tract Symptoms (LUTS) in Men

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Most men complain of urinary problems (these problems are also called lower urinary tract symptoms or LUTS). Generally, LUTS are caused by a big prostate (or benign prostatic hyperplasia, BPH).

The prostate is normally about the size of a walnut, but when enlarged it can grow to at least the size of a golf ball. This growth happens because there is an abnormal increase in the number of cells in your prostate gland.

BPH is common and affects many men. About 40% of men in their 50s and up to 90% of men in their 80s will have BPH. About half of these men will develop urinary symptoms as a result. When you have an enlarged prostate (or BPH), the flow of your urine from the bladder is blocked. You may have BPH along with prostate cancer or with infections of the prostate (or prostatitis). But remember, having an enlarged prostate does not increase your risk of prostate cancer.

What are the urinary symptoms that should concern me?

BPH can cause many different symptoms. No two men have exactly the same symptoms.

It may seem obvious that a slow urinary stream (because of a blockage of the urethra) is a symptom. However, urinating too often or even leaking urine may be symptoms of urine blockage by BPH.

Common symptoms of BPH

- Feeling of incomplete bladder emptying
- Frequency (urinating too often)
- Intermittency (stopping and starting while urinating)
- Urgency (uncontrollable need to urinate)
- Weak stream
- Straining (having to push to empty)
- Nocturia (getting up at night to urinate)

BPH may cause other symptoms, but these symptoms are often also part of other diseases, and you may need other tests to be sure that BPH is the only cause of your symptoms. Other symptoms include:

- Incontinence (leaking urine)
- Hematuria (blood in the urine)
- Dysuria (painful urination)
- Urinary retention (inability to empty the bladder)

Definitions

Term

Definition

Prostate gland

- The gland responsible for fertility and involved in the production of semen, normally about the size of a walnut
- Only men have a prostate gland

Urethra

- The urinary channel or tube that carries urine from the bladder to the end of the penis during urination

Benign prostatic hyperplasia (BPH)

- A benign (non-cancerous) abnormal **increase in the number of cells** in the prostate
- Increase in the number of cells may be due to normal cells not dying off when they should

Benign prostatic enlargement (BPE)

- An abnormal **increase in the size** of the prostate that results from BPH
- Average prostate size is between 25–30 grams, some prostates can grow to 100 grams or larger

Lower urinary tract symptoms (LUTS)

- **Symptoms related to urination** that can be due to BPH, or can be due to other causes
- Often directly related to the blockage of urine as it passes through the prostate
- May also be due to changes to the bladder or to the nerves that control the bladder after years of trying to push urine through a partially blocked urethra
- BPH is the most common cause of LUTS in men

For a condition that affects so many Canadian men, it may surprise you that many men don't even know they have a prostate until they have problems with it! Maybe it's because men don't often talk about these sorts of things. If you're one of the millions of Canadian men who have noticed some problems with going to the bathroom after you've reached 50 years old, rest assured you are not alone!

Even though we know a lot about BPH, we don't have a very good understanding about its exact cause and we don't know why some men develop symptoms and others don't. We do know that hormones are involved and that BPH is more common as you get older. There is a normal change in the hormonal balance as men age with an increase in estrogen and a decrease in testosterone that may contribute to BPH. Family history, diet, inflammation and infection may be related, but we are unclear.

For most men who develop LUTS related to BPH, their symptoms may be nothing more than a mild nuisance and no active treatment is ever needed.

On the other hand, some men have very bothersome symptoms or complications. These men need urgent treatment and even surgery. Every man is different and treatment needs to reflect this. You should discuss the risks and benefits of the available treatment options with your doctor. Before we tackle BPH, take a look at the definitions table to get a better understanding of what's involved.

Let's talk anatomy!

The *prostate* is an organ located below the *bladder* and in front of the last portion of the gut (*rectum*).

The *seminal vesicles* (which also make semen – like the prostate) and the *vas deferens* (the tubes that carries sperm) are both connected to the prostate by the *ejaculatory ducts*. The *urethra* passes through the prostate.

There are four basic zones of the prostate gland.

Most cancers come from the *peripheral zone*, while BPH comes from the *transition zone* (the zone around the urethra). There is a thin tissue layer that surrounds the prostate, called the *capsule*. The capsule limits the growth of the prostate outwards, so any growth in your prostate (or BPH) grows towards the inside and squeezes the urinary channel (see Figure 1).

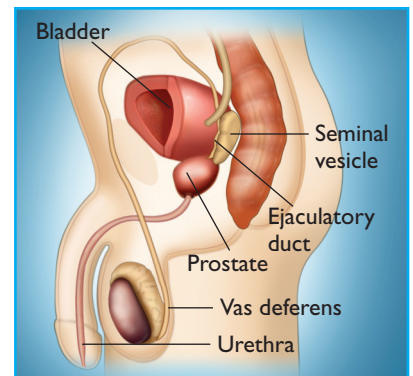


Figure 1. Sample photograph of the male prostate and urethra.

What are the complications?

For most men, BPH is simply bothersome, not dangerous and does not cause life-threatening complications.

In some cases, BPH can progress to the point that it causes serious health problems. These problems include:

- Acute urinary retention

If urine flow is blocked completely, a catheter must urgently be placed in the bladder.

- Hematuria
 - Blood in the urine, sometimes with clots
- Bladder stones
 - Stones in the bladder need to be treated surgically, usually by breaking them up with a laser and removing the small pieces through the urethra
- Recurrent urinary tract infections
- Kidney failure

What investigations or tests should I undergo?

If you have LUTS which may be because of BPH, you should have:

- A thorough medical history
- A physical exam that includes a digital rectal examination
- A urinalysis
 - The urine is tested to look for signs of infection or blood, which could indicate the presence of stones or tumours for example.
- A prostate-specific antigen (or PSA) blood test: this test measures the blood level of PSA which is a protein that is produced by the prostate gland
 - BPH is more likely to get worse if you have an elevated PSA and you most likely will have a large prostate.
 - You may have read that the PSA test may be used to check for early stage prostate cancer among men without urinary symptoms. This is controversial. If your urinary symptoms are new, most experts think that having a PSA test would be useful. You should talk about this with your doctor and see whether a PSA blood test is right for you.

Some tests are *optional* and might be recommended in certain conditions:

- Creatinine blood test
 - To check kidney function
- Urine cytology
 - This test looks for cancer cells in the urine
- A measurement of residual urine
 - Ultrasound measurement of what's left in the bladder after urination
- Uroflow
 - A quick test of the speed of urination
- Sexual function questionnaire

Based on your results in these tests, if there is reason to suspect another condition that may be causing your urinary symptoms or if you have already had some complications related to BPH, you may need more tests.

In these cases, you will be asked to see a urologist for the following tests:

- Ultrasound or CT scan
 - Usually to look for stones or tumours in the kidneys
- Cystoscopy
 - A small flexible camera is inserted into the bladder through the urethra, usually to look for stones or tumours.
- Urodynamics
 - This test involves small pressure-recording catheters in the bladder and rectum. This is the best test of bladder function.

What are the management options?

The decision to treat BPH can be a difficult one. In most cases, there will be many different options for you. It's important to talk to your doctor about the different risks and benefits. The three basic ways of managing BPH are:

1. Watchful waiting
2. Medical treatment
3. Surgery

1. Watchful waiting

Since there can be side effects and complications with any medication or surgery, watchful waiting is often a good choice if you have mild symptoms or symptoms that are not too bothersome. Although BPH may get worse with time or lead to complications, the majority of men will never need treatment.

Watchful waiting simply means that you will have to check with your doctor regularly about your symptoms. You may be able to alleviate your symptoms by making small changes to your lifestyle. These “lifestyle changes” can also help men who require medical treatment or surgery. These changes include:

- Making sure you are properly taking care of any other medical conditions
- Restricting your fluid intake several hours before going to bed
- Avoiding caffeinated drinks, smoking and spicy foods
- Timing your voiding (for example urinating on a schedule, even without the urge)
- Doing pelvic floor exercises or “Kegel” exercises
- Treating any constipation
- For men with diabetes, ensuring optimum blood sugar control
- For men with sleep apnea, receiving active treatment for this condition

2. Medical treatment

Medications for treating BPH are relatively new. Fewer men are having surgery for BPH because of these newer medications. Generally, the medications are effective, have few and predictable side effects, yet they are meant to be taken for life. Check out Table 1 for a list of medications.

Table 1.

| Medication | Alpha-blockers | 5-alpha-reductase inhibitors | PDE-5 inhibitors (or phosphodiesterase type 5 inhibitors) |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Example drugs | Alfuzosin (Xatral); Tamsulosin (Flomax); Doxazosin (Cardura), Terazosin (Hytrin) and Silodosin (Rapaflo) | Finasteride (Proscar) and Dutasteride (Avodart) | Tadalafil (Cialis) – originally used in erectile dysfunction and pulmonary hypertension |
| How do they work? | By relaxing the muscle fibres in the prostate so that urine can flow more smoothly through the prostate | By shrinking the prostate | By relaxing the muscle fibres in the prostate so that urine can flow more smoothly through the prostate |
| How fast do they work? | Within 48 to 72 hours | May take three to six months | This is unclear |
| What benefit can I expect? | Make urination faster and improve symptoms Does not decrease the risk of worsening BPH | Improved symptoms Decreased risk of complications such as bleeding and retention. | May make urination faster and improve symptoms |
| What are the common side effects? | Lightheadedness Low blood-pressure Runny nose Abnormal ejaculation | Decreased libido Erectile dysfunction Breast tenderness | Headache Indigestion Back pain Muscle aches Flushing Stuffy or runny nose |
| Does it affect my PSA level? | No | PSA should decrease by half | No |
| What are the reasons I shouldn't take it? | Low-blood pressure, frequent falls | A small prostate | If you are taking nitrates |
| How long do I need to take it? | Designed to be taken for life. | Designed to be taken for life | As long as it helps your symptoms |
| | For some men, combining an alpha-blocker and a 5-alpha-reductase inhibitor may improve symptoms more than either medication alone while decreasing the risk of worsening BPH. | | |

There are three main classes of medications:

- Alpha-blockers
- 5-alpha-reductase inhibitors
- PDE5Is

In special cases, you may need other medications to treat your BPH, such as anticholinergics.

These medications, such as oxybutynin and tolterodine, relax the bladder and may improve symptoms if you have BPH and an overactive bladder. Take these medications with caution as they can increase the amount of urine leftover after urination. They can also cause dry mouth and constipation.

Non-pharmacologic treatment:

Although herbal remedies and treatments, such as saw palmetto, have been used for decades to treat BPH, scientific testing has failed to show any proven benefit.

3. Surgery

Since the medications to treat BPH work well, fewer men are having surgery for it. If you still have symptoms despite being on medications, you may often need surgery. Also, if you have serious side effects from the medications or if you don't want to take pills every day for the rest of your life, you may find that surgery is right for you. Other than treating bothersome symptoms, surgery is often needed if you have complications from your BPH. These complications include urinary retention, bleeding and bladder stones. Most men have improved symptoms after surgery.

In general, surgery for BPH is done “transurethral” – this means that it is done through the urethra, with no need for an incision. The surgery is usually done in the operating room. Patients are usually put to sleep or are frozen from the waist down.

The goal of the surgery is to remove any obstructing tissue from the inside, similar to coring out an apple. The hospital stay is usually about one day. A catheter is left in the bladder for a short time afterwards.

Possible risks of surgery for BPH:

- Bleeding
- Infection
- Incontinence (leaking urine)
- Failure of surgery to improve symptoms
- TUR (or transurethral resection) syndrome (a rare complication from fluid absorption during surgery)

Transurethral resection of the prostate (TURP)

The traditional surgery for BPH is TURP. Urologists have been performing TURP for over 50 years and despite newer procedures, it remains the “gold standard.” During a TURP, the inside of the prostate is “cored out” using an electrical current and an instrument which carves out pieces of the prostate to create a wider passageway for urine flow. No other surgery for BPH has been shown to be better, although many are probably just as good, and may have fewer complications.

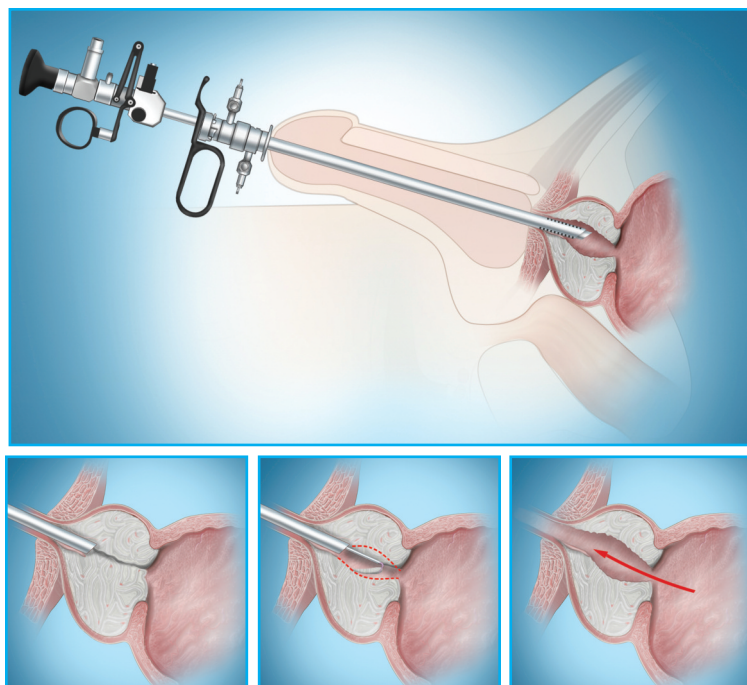


Figure 2. Sample photograph of a TURP procedure

Laser prostatectomy

Different types of lasers have been used to treat BPH. Laser prostatectomies usually have less bleeding, and may have fewer complications than a TURP. If you are taking blood thinners, you can have a laser prostatectomy.

Transurethral incision of the prostate (TUIP)

Better for smaller prostates, this procedure cuts the “capsule” which releases the pressure of BPH on the urethra, without removing any tissue.

Open prostatectomy

In this procedure, the inside of the prostate is removed through an incision in the abdomen. This surgery has a higher risk of complications, but may be good if you have a very large prostate.

Other minimally invasive surgical therapies (MIST) may be able to improve symptoms, but are usually not recommended in Canada, mostly because they don't work as well as other treatments or the effects are not as durable.

What are the sexual side effects of having BPH?

As you age, you are more likely to suffer from BPH. You are also more likely to suffer from sexual problems, such as erectile dysfunction (ED) or decreased libido. Unfortunately, many men suffer from BPH and ED at the same time. The relationship between BPH and ED is unclear, but there is an association. Unfortunately, some of the treatments for BPH can also have a negative effect on your sexual function. The risk of causing sexual problems by treating BPH is low, but it does exist.

The 5-alpha-reductase inhibitors (drugs that shrink the prostate) can cause decreased libido and occasionally erectile dysfunction by slightly altering your hormone levels. The alpha-blockers (drugs that relax the muscle in the prostate) sometimes cause problems with ejaculation, but do not affect erections or orgasm. The side effects from medications usually stop once the medication is stopped.

Surgery can also cause sexual side effects. Erections and sensation aren't usually affected, but almost all men who have surgery will have decreased ejaculation.

If your BPH symptoms affect your quality of life, then it is likely that your sex life is also affected. Symptoms from BPH, such as urinary frequency or incontinence, can negatively affect your confidence in satisfying your partner. With these symptoms, sometimes there can be sexual benefits when BPH is treated. For example, treatment of BPH with alpha-blockers or PDE-5 inhibitors (usually used for ED) may improve LUTS and ED at the same time. If you have BPH and ED or decreased libido, treatments can help. For these reasons, it's important to discuss your sexual health with the doctor that is treating your BPH.

Putting in all together

While LUTS due to BPH is common as you age, simple tests are available and so are treatments. If you experience urinary difficulties, talk to your doctor.