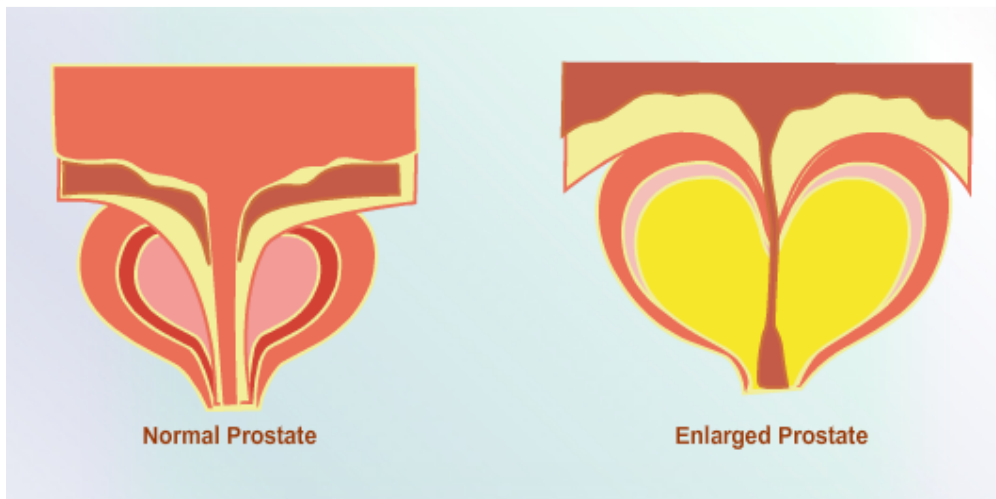


## Benign Prostatic Hyperplasia

### Definition & Prevalence.

What is Benign Prostatic Hyperplasia?

Benign prostatic hyperplasia (abbreviated as BPH) is a non-cancerous, non-malignant, enlargement of the prostate gland. BPH is also referred to as benign prostatic hypertrophy.



How common is Benign Prostatic Hyperplasia?

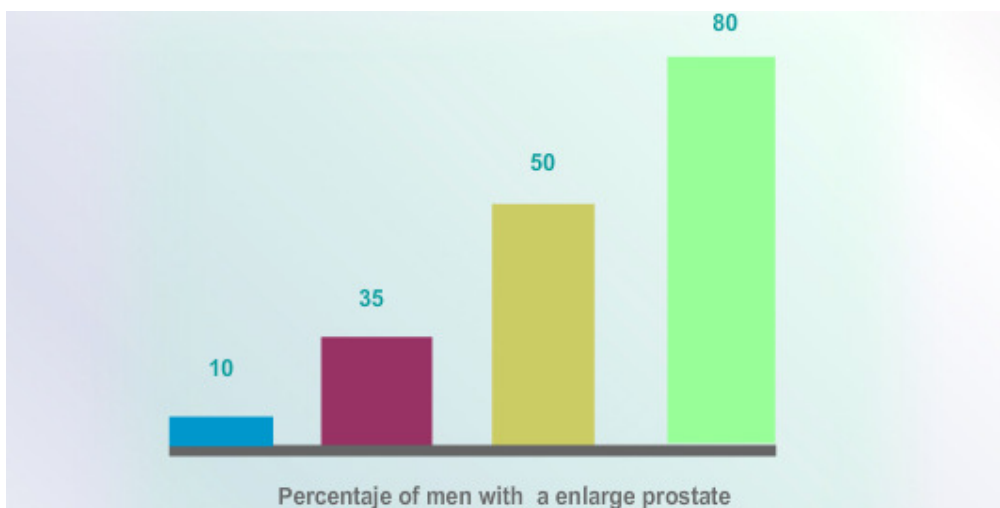
BPH is a prevalent condition associated with the aging process in men. As a man matures, the prostate goes through two main periods of growth. The first occurs early in puberty, when the prostate doubles in size. The second one, at around age 25, the gland begins to grow again and this often will result, years later, in BPH.

Since the development of new strategies in medicine and the occurrence of healthier lifestyles, life expectancy of men is rising. Both the incidence of BPH and the number of men seeking a treatment for it are increasing accordingly.

More than half of all 60-year-old American men have BPH, but only 10% of them need medical or surgical intervention. This rate levels up with age. Though the prostate continues to grow during most of a man's life, the enlargement usually starts provoking problems late in life. BPH rarely causes symptoms

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before age 40, but more than half of men in their sixties and as many as 90 percent in their seventies and eighties have some symptoms of BPH<sup>1</sup>.

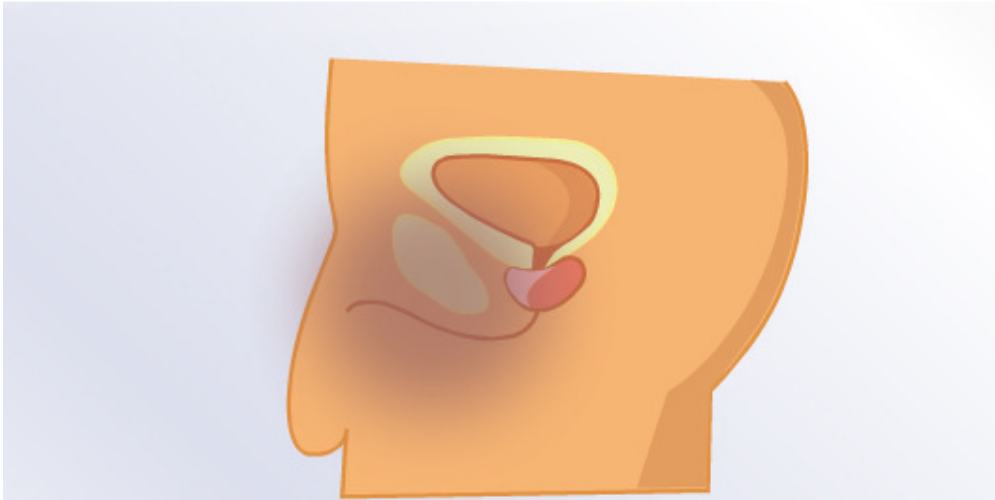


Benign Prostatic Hyperplasia

### **The prostate gland: anatomy and function.**

What is the prostate gland?

The prostate gland is a small organ about the size of a walnut, and it forms part of the male reproductive system. It is located in front of the rectum, and lies below the urinary bladder - where urine is stored - in the lowest part of the abdomen. The prostate also surrounds the urethra, the tube through which urine is transported out of the body. The urethra also carries semen from the sex glands out through the penis.

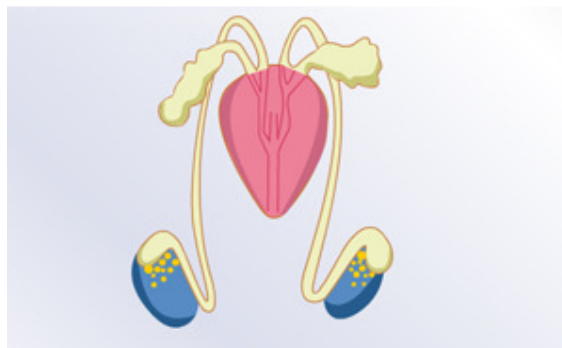


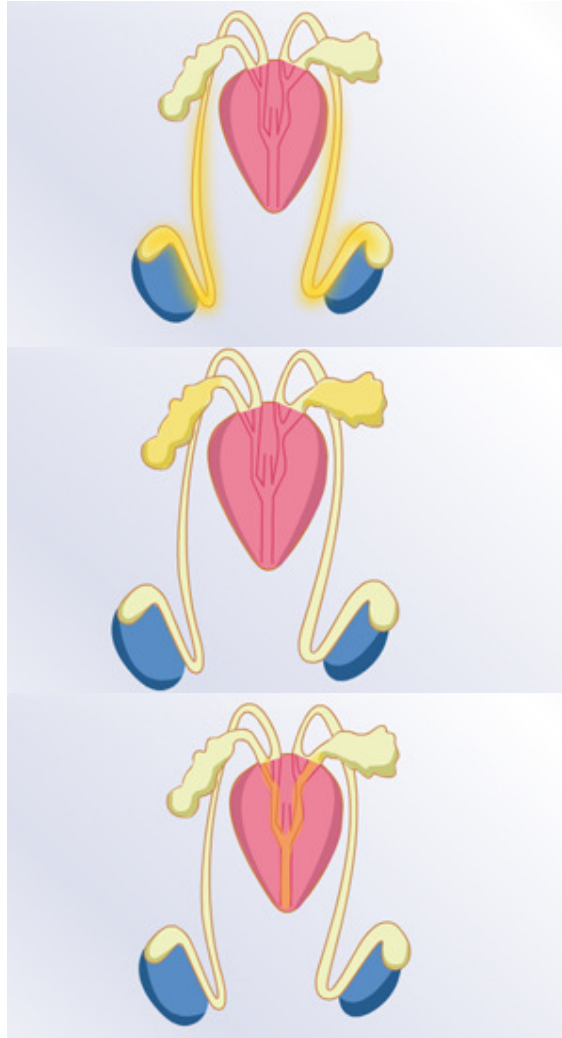
### How does the prostate function?

The prostate gland is one of the sex glands of the male reproductive system, also composed by testes, scrotum, penis and other accessory ducts and organs.

Scientists do not know yet all the prostate's functions. As part of the male reproductive system, one of its main roles is to squeeze a milky fluid into the urethra as sperm move through during sexual climax.

The prostate fluid, which helps to make up semen, energizes the sperm, forms the main bulk of the ejaculate volume and makes the vaginal canal less acidic.





### **Benign Prostatic Hyperplasia Symptoms.**

What are the signs and symptoms of BPH?

Many symptoms of BPH stem from obstruction of the urethra and gradual loss of bladder function, which results in incomplete emptying of the bladder. The symptoms of BPH vary, but the most common ones involve changes or problems with urination.

In benign Urethra hyperplasia, the prostate gland can impede the urine flowing through the urethra from the bladder. The bladder wall becomes thicker and

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irritable, and begins to contract even though it contains a small amount of urine, causing more often urination.

As the prostate gland grows in size, may compress the urethra which courses through the middle of the prostate. This compression results in the partial blockage of the urethra and can impede the flow of urine from the bladder to the outside, at time of emptying.

Urine can be backed up into the bladder again –what is called Retention-, leading to the need of urinate frequently during the day and night.

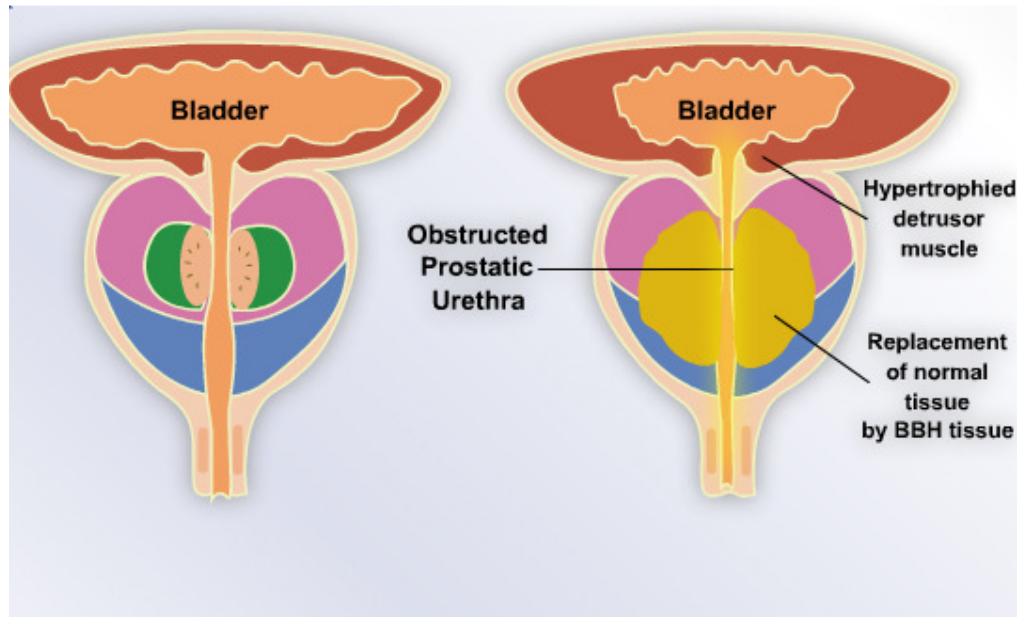
At first, symptoms may be mild because the bladder muscle is able to compensate for the pressure from the enlarged prostate on the urethra. This pressure is the responsible of an interrupted or weak stream of urine<sup>2</sup>.

As time passes, other common symptoms include:

- Difficulty starting to urinate
- A hesitant, interrupted, weak stream
- Urgency and leaking or dribbling
- A more frequent urination at night (nocturia)
- Urinary incontinence

The size of the prostate is not always correlated with the course of symptoms in BPH. Some men with greatly enlarged glands have little obstruction and few symptoms while others, whose glands are less enlarged, have more blockage and greater problems.

It is only men with symptomatic BPH that require a treatment, whereas those who remain without external signs of the disease, do not need to be treated regardless the prostate enlargement.



## Benign Prostatic Hyperplasia

### Etiology.

What are the causes of BPH?

The root cause of BPH is not well understood. For centuries, it has been shown that BPH occurs in older men, but it is not present in men whose testes have been removed before puberty. Factors related to aging and the testes may spur the prostate enlargement, and its mechanisms have been explained following diverse theories.

In the adult, prostate gland size is maintained through a homeostatic balance, which is regulated by several male hormones – mainly androgens-. Testosterone is the major circulating form of these and is produced in testes (5-10 mg testosterone per day). It is responsible for maturation of the genital organs and the development of the male secondary sexual characteristics.

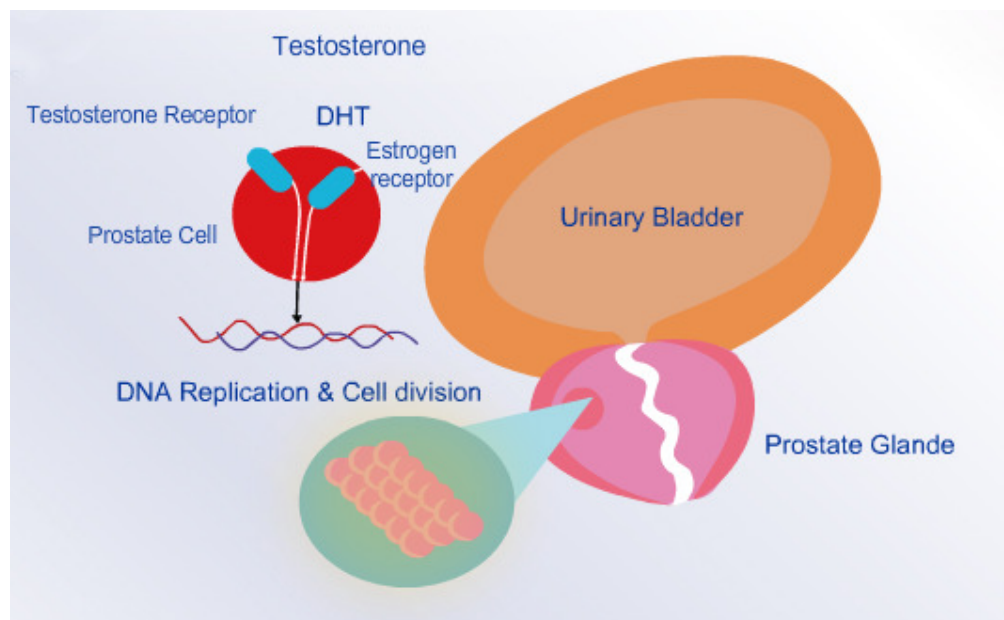
The principal cause of BPH is the stimulation of the enzyme 5-alpha reductase, which catalyzes the conversion of testosterone to dihydrotestosterone (abbreviated as DHT). DHT may help prostate to control its growth. Men, as well as most animals, lose their ability to synthesize DHT with aging<sup>3</sup>.

Doctors support the idea that throughout their lives, men produce both testosterone and a small amount of estrogens (female hormones). This balance

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seems to be changed as men age, so the amount of active testosterone in the blood decreases, leaving a higher proportion of estrogen. BPH may occur because the higher amount of estrogen within the gland increases the activity of substances that promote cell growth.

Ilustración 1. Pantalla 4.



## Benign Prostatic Hyperplasia Diagnosis

How is BPH diagnosed?

Firstly, you on yourself will notice any of the urinary symptoms related with BPH. If so, be sure to contact your doctor for a close check-up.

To determine if you suffer from benign prostatic hyperplasia, your doctor will:

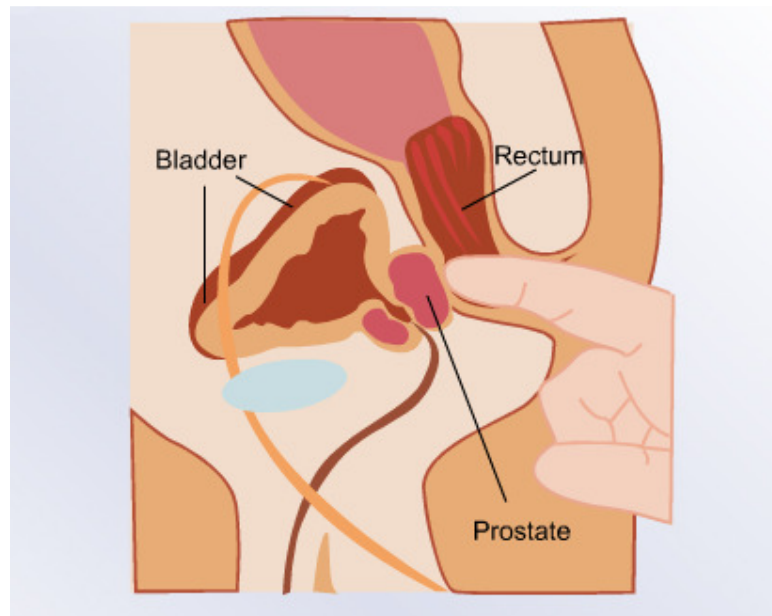
- Ask questions to rate the severity of your urinary symptoms and take your clinical history data (past infections, surgeries, damage to nerve supply of the prostate gland, etc.).
- Examine your abdomen to check if your bladder is enlarged and do a digital rectal exam (abbreviated as DRE). The doctor inserts a gloved finger

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into the rectum and feels a part of the prostate to determine its size, shape and consistency.

- Order a urine analysis to look for blood or signs of infection and/or to see if kidneys were affected.
- Order a prostate-specific-antigen (PSA) test. To rule out cancer as the origin of the urinary symptoms observed, your doctor may recommend a PSA blood test. This antigen is a protein produced by prostate cells and secreted in small quantities into the bloodstream under normal conditions. Larger amounts of PSA are released in men when the prostate gland is enlarged, infected or diseased.
- Ask for occasional tests such as ultrasound, to measure the amount of urine in your bladder; a cystoscopy, to see the inside of the urethra and the bladder, to evaluate the size of the prostate and to identify the location and degree of the obstruction. Particular tests can also be done to evaluate the muscles and nerves in the bladder, especially if you are having trouble with urine leakage.





## Benign Prostatic Hyperplasia Treatment & Prevention

How is BPH treated?

Treatment of BPH depends on the severity of your symptoms and how these affect to your quality of life rather than the medical need (unless a renal failure). The interruption of sleep –the need of urinate at night- as well as the inability to control urination on a regular basis – to feel extreme urgency to urinate- are the most common complaints leading to treatment<sup>4</sup>.

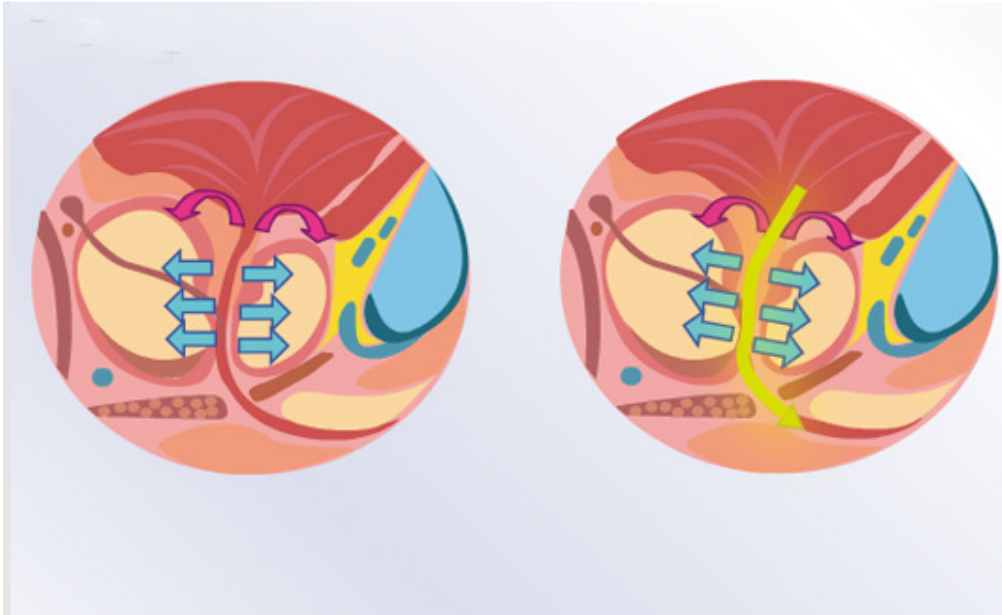
There are several approaches mainly classified as the disease shows a higher degree of severity

➤ Drug therapy

To relieve moderate symptoms that interfere with daily life, there are two types of hormonal drug therapies: 5-alpha reductase inhibitors (e.g., finasteride) and alpha-adrenergic blockers (e.g., tamsulosin).

- **5-alpha reductase inhibitors.** They block the conversion of testosterone (male hormone), increasing urinary flow and reducing prostate size in men with a significant gland enlargement. However, whenever taking these drugs the improvement of urinary symptoms most usually takes so long (6 to 12 months) to occur. Side effects of the 5-alpha reductase inhibitors may include declining interest in sex, and problems with erection and ejaculation.
- **Alpha-adrenergic blockers.** These drugs relax the smooth muscles of the prostate and the bladder neck, contributing to relieve urinary retention due to BPH. In addition, they increase urinary flow and reduce urgency and frequency of urination at night. Unlike 5-alpha reductase inhibitors, tamsulosin works quickly and the patient may lead to an improvement in symptoms within several weeks<sup>5</sup>. Uneventfully, alpha blockers may reduce blood pressure and fatigue, though in general, are well tolerated.

**Any of these medications are usually continued for the rest of your life, but in any case this must be advised by your urologist.**



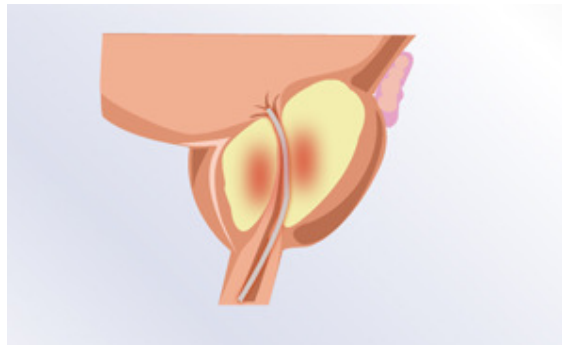
### Continuación de Treatment & Prevention

When required, there are several surgical techniques, but most doctors suggest TURP (the abbreviation for *Transurethral Resection of the Prostate*)<sup>6</sup>, if possible. No external incision is needed, since the surgeon introduces an instrument called resectoscope through the penis. TURP is used in 90% of all prostate surgeries.

Transurethral procedures are less traumatic than open forms of surgery, and required a shorter recovery period. Open surgery is only done in a few cases: either when the prostate gland is greatly enlarged, or the bladder is really damaged.

#### ➤ Minimally Invasive Therapy

Because drug treatment is not effective in all cases, researchers in recent years have developed a number of procedures that relieve BPH symptoms but are less invasive than conventional surgery. Among them, the use of microwaves – to heat the prostate and destroy the overgrown tissue- and the laser beam assisted prostatectomy, are the most used. These procedures offer fewer complications and no overnight hospital stay is needed.



### Can BPH be prevented?

Although you cannot prevent the prostate from enlarging, you can take measures to reduce your symptoms<sup>7</sup>:

- Limit the intake of liquids in the evening, especially alcohol or caffeine-based drinks. Cutting back helps to minimize the frequency of urination during the night. Too much alcohol affects both prostate and bladder, irritating their respective walls.

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- Ask the doctor to change or modify the intake regimen of your daily medication, if any. Some drugs can weaken the bladder muscle or narrow the opening of the prostate. These include some antidepressants, antihistamines, diuretics, tranquilizers.
- Take any opportunity to use the bathroom and allow yourself enough time to empty your bladder completely.
- Phytotherapy. Some herbal remedies made from the berries of the saw palmetto tree may help to control the symptoms, but further research is needed to assess its safety and effectiveness.

## Benign Prostatic Hyperplasia

### Conclusions

#### Conclusions

In case of symptoms of BPH seek medical help. BPH is today a treatable disease. Although for most men many of the symptoms do not get worse for years, and may even get better with time, there is a rare complication of BPH that involves a sudden and complete bladder obstruction. This needs to be treated as soon as possible.

If ignored, left untreated benign prostatic hyperplasia can cause serious problems over time:

- Urinary tract infections
- Bladder or kidney damage
- Bladder stones
- Urinary incontinence

***If the bladder is permanently damaged, treatment for BPH may be ineffective. When BPH is found in its earlier stages, there is a lower risk of developing such complications.***

#### Disclaimer

<http://www.prous.com/legalinformation>

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