

## BENIGN PROSTATE ENLARGEMENT

### Introduction

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Benign prostate hyperplasia (BPH) is a common non-cancerous condition where the prostate enlarges due hormonal changes as men get older. In a young man, the prostate is usually about 15-20cc in size (small walnut). Half of men aged 51-60 years have BPH, with prostates 40cc or larger; and by 80 years of age, about 90% have BPH.

### Symptoms

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The symptoms of BPH include:

- Trouble starting, weak or interrupted urine stream
- Dribbling at the end of urination
- Nocturia - waking up more than once at night to urinate
- Frequency - urinating every 1-2 hours
- Urgency - difficulty holding on
- Incontinence - leakage when unable to access a toilet quickly
- Discomfort when urinating or after ejaculation

As the prostate gland grows, it squeezes the urethra, slowly blocking off the bladder outlet. Mild symptoms are common and usually regarded as “normal for my age”. The bladder adapts so it can push urine out against resistance, however, over time, it has to work harder and may not cope. Symptoms are usually worse in the early mornings, after hanging on for long periods of time, when constipated, consuming alcohol or taking cold, flu, mood-altering or pain medications.

Men seek treatment when these symptoms become bothersome, affect their daily activities or cause embarrassment. Many are worried about prostate cancer, but this is unlikely if the PSA blood test and prostate examination are normal.

### Diagnosis

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BPH is diagnosed based your symptoms and how the prostate feels on examination.

Initial tests performed include:

- Urine microscopy and culture
- Uroflowmetry - measure flow rate ml/s
- Ultrasound - kidneys, bladder, prostate and residual
- PSA (prostate specific antigen) blood test

Further tests performed include:

- Cystoscopy - look in the bladder with a small telescope
- Prostate biopsy - if cancer is suspected
- Urodynamic studies - evaluate bladder function

## Complications

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- Blood in the urine - cystoscopy mandatory to exclude bladder cancer
- Bladder stones or infection - burning, pain, fevers, discoloured urine
- Bladder or kidney damage - severe blockage
- Urinary retention - complete blockage

## Treatment: Lifestyle changes

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- Open bowels regularly and avoid constipation
- Avoid decongestants, antihistamines, antidepressants, diuretics, or opiates
- Drink 1.5 to 2 litres of water a day at regular intervals - small sips throughout the day rather than large amounts at one go
- Restrict fluid intake 4 hours before sleeping and stay warm
- Restrict caffeine intake to 1-2 serves a day - coffee, black tea, green tea, fizzy beverages and energy drinks

## Treatment: Medications

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### Improve stream and emptying

**Alpha blockers** relax the prostate and bladder outlet muscles to relieve blockage. They are very effective though 10% of men stop using them due to side-effects such as dizziness, headaches, palpitations and ejaculatory problems

- Prazosin (Minipress \$8/month 0.5-2mg twice daily)
- Tamsulosin (Flomax \$35/month 0.4mg once daily)
- Silodosin (Urorec \$39/month 4-8mg once daily)

**5-alpha reductase inhibitors (5ARI)** shrink the prostate size by blocking testosterone. They are useful for large prostates >40cc and used in combination with alpha blockers

- Tamsulosin and Dutasteride (Duodart or Doubluts \$26/month once daily)

**Phosphodiesterase-5 inhibitors (PDE-5 inhibitors)** are used primarily for erectile dysfunction but also improve BPH symptoms by through muscle relaxation

- Tadalafil SR (\$30/month 4-6mg once daily)

### Reduce frequency and urgency

**Sympathomimetic drugs** improve bladder storage by suppressing inappropriate nerve signals from the bladder. This can be used alone or with alpha blockers

- Mirabegron (Betmiga \$60/month 25-50mg once daily)

**Anticholinergic drugs** improve bladder storage by suppressing bladder contractions. They are not commonly used as they cause memory impairment and urinary retention

- Oxybutynin (Ditropan \$8/month 2.5-5mg up to three times daily)
- Solifenacin (Vesicare \$30/month 5-10mg once daily)

## **Natural therapy**

*Herbal therapies* are useful for those who prefer natural therapies and can be as effective as alpha blockers. They can be purchased over-the-counter and contain ingredients such as saw palmetto, epilobium parviflorum and pygeum africanum

## **Treatment: Surgery**

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Many techniques have emerged in the past decade to treat BPH. Most procedures are performed through the urethra and use steam, electrical or laser energy to remove obstructing prostate tissue, turning a narrow tunnel into a wide funnel. Surgery offers long-lasting, effective treatment so men do not have to take medications lifelong.

### ➤ **Day Surgery**

**Rezum®** is a simple day procedure to inject steam into the prostate to cause tissue shrinkage. It is performed under general anaesthesia and takes 10 minutes. A catheter is placed post-operatively for 1-3 days to manage swelling. Rezum works best in men with mild-moderate symptoms who wish to preserve sexual function.

**UroLift®** is a simple day procedure where the prostate lobes are compressed between titanium clips held together with a suture.

**iTind®** is an expanding urethral stent placed temporarily in the prostate to compress the occlusive prostate tissues and widen the channel. Once removed, short term studies show that the flow improves for period of months.

**Metallic stents** can be permanently deployed in the urethra or prostate to hold a urethral stricture or prostate lobes apart. These are rarely used due to concerns with stent migration and stone formation.

**Prostate artery embolisation** is the injection of microspheres into the prostate artery to reduce blood flow to the gland. It is performed by a radiologist and takes 3 hours. It is mainly recommended for frail patients with large prostates who have lots of medical issues, cannot stop blood thinning drugs or are not fit for general anaesthesia.

➤ **“Rebore” Surgery**

**Transurethral resection of prostate (TURP)** is often referred to as a “rebore” in layman’s terms and is the most common procedure performed for BPH. The obstructing prostate lobes are shaved away using an electric wire loop, and the chips are sent for tissue analysis. TURP is a very effective in treating BPH but carries some potential complications including retrograde ejaculation (dry orgasm), transfusion 2%, impotence 2% and incontinence 1%.

**Holmium laser enulcation prostatectomy (HOLEP)** involves the use of laser energy to cleave the obstructing prostate lobes. The tissue is then broken into smaller pieces which can be removed through the urethra.

**Green light laser prostatectomy** uses laser energy to vaporise prostate tissue. The procedure is well tolerated and offers quicker recovery and less bleeding compared to TURP. However, there may be more frequency, urgency and burning especially in the first 4 weeks.

➤ **Major Surgery**

**Millen’s prostatectomy** is a major operation where the prostate capsule is opened, the prostate lobes are removed, and bleeding vessels sutured. It is rarely performed due to high complication rates and may be considered for prostates 200-300cc in size.

**Video resources**

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BPH <https://www.youtube.com/watch?v=ExLrO84Ojtw>

Rezum <https://www.youtube.com/watch?v=ukQpfBE0oMg>

UroLift <https://www.youtube.com/watch?v=e20Ak49YD6E>

TURP <https://www.youtube.com/watch?v=aBelQBJNDNM>

Green light laser <https://www.youtube.com/watch?v=OIC6zCkt4yU>

Prostate artery embolization <https://www.youtube.com/watch?v=PbrLTAN-Fq8>