

# Cancer Association of South Africa (CANSA)



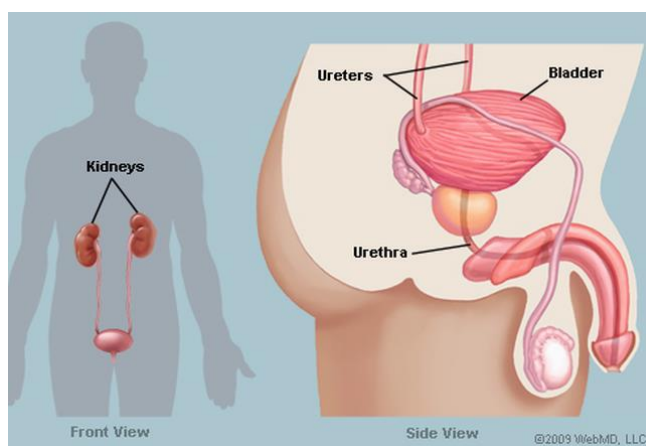
## Fact Sheet on Causes of Bathroom Frequency in Men

### Introduction

The urinary bladder is an expandable muscular sac situated in the pelvis, just above and behind the pubic bone. When empty, the bladder is about the size and shape of a pear.

[Picture Credit: Male Urinary System]

Urine is made in the kidneys. From there it travels down via two tubes called ureters to the urinary bladder, usually referred to just as the bladder. The bladder's main function is to store urine, and also allowing urination to be infrequent and voluntary. The bladder is lined by layers of muscle tissue that can stretch to accommodate increases in volume of urine. The normal capacity of the bladder varies between 400 to 700 millilitre (mL).



When empty, the bladder's muscle wall becomes thicker and the entire bladder becomes firm. As the ureters - two tubes that allow urine to flow from the kidneys to the bladder - fill the bladder, the muscle wall of the bladder thins and the bladder moves upward from the pelvic cavity, toward the lower part of the abdominal cavity.

This stretching can increase the size of the bladder from about 5cm to more than 15cm long, depending on the amount of urine that is inside the bladder. The typical male bladder reaches its capacity between 400 to 700 mL of urine, but the urge to urinate comes when the bladder is about one-quarter to one-half full.

An internal sphincter where the urethra leaves the bladder - a type of muscular valve - helps prevent urine from leaking out. The triangle-shaped base of the bladder, known as the trigone, helps prevent stretching of the urethra or backflow of urine into the ureters.

---

Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

September 2020

Page 1

When it receives an appropriate nerve signal, the bladder releases urine through the urethra, the tube that carries urine out of the body. In men, this tube ends at the tip of the penis.

A healthy bladder holds urine until the man finds time to relieve himself, although problems can arise for varying reasons.

During urination, the bladder muscles contract, and two sphincters (valves) relax and open to allow urine to flow out of the bladder. Urine exits the bladder into the urethra, which carries urine out of the body. Because it passes through the penis, the urethra is longer in men ( $\pm 20$  centimetres) than in women ( $\pm 3$  to 4 centimetres).

**Epstein, M.R., Monaghan, T.F., Khusid, J.A., Suss, N.R., Agudelo, C.W., Michelson, K.P., Wu, Z.D., Gong, F. & Weiss, J.P.** 2019.

**INTRODUCTION:** Much of what is known about the etiology of nocturia (i.e., nocturnal polyuria [NP], small bladder capacity [SBC], etc.) at the population level stems from the Krimpen study, which enrolled aging males from a homogenous municipality in the Netherlands. Given the higher prevalence of benign prostatic hyperplasia and overactive bladder in black versus white males in population research, we aim to test the hypothesis that black males seeking treatment for lower urinary tract symptoms (LUTS) are more likely to have nocturia owing to SBC.

**MATERIALS AND METHODS:** We retrospectively analyzed 24 hour frequency-volume charts (FVCs) completed by males seeking treatment for LUTS at a Veterans Affairs urology clinic from 2008-2016. Patients were included if they were  $\geq 18$  years, identified as either Caucasian or African American, and had a complete baseline FVC showing  $\geq 1$  nocturnal void. Patients were stratified by race and classified as having nocturia owing to SBC (defined by a maximum voided volume  $< 200$  mL or a nocturnal bladder capacity index  $> 1.3$ ); NP (defined by a nocturnal polyuria index  $> 0.33$ ); 'mixed' (SBC + NP); or 'other' (neither SBC nor NP).

**RESULTS:** Between white and black patients, 28 (24%) versus 28 (26%) had NP, 32 (27%) versus 33 (30%) had SBC, and 35 (30%) versus 30 (28%) had mixed nocturia. Overall, there was no difference in distribution of underlying etiology by race ( $p = 0.51$ ).

**CONCLUSIONS:** Our results demonstrate no difference in the etiology of nocturia between black and white males. Accordingly, race should not play a role in the evaluation of patients seeking treatment for nocturia.

### Urinary Problems in Men

Urinary problems in men include the following:

Urinary incontinence - including stress incontinence (involuntary loss of urine during actions such as coughing, sneezing, and lifting), urge incontinence (involuntary loss of urine following an overwhelming urge to urinate that cannot be halted), and overflow incontinence (constant dribbling of urine usually associated with urinating frequently and in small amounts) - some men may have one, two, or all three types of incontinence.

Weak or damaged bladder muscles - men who have had diabetes for many years may develop nerve damage that may affect bladder control. Stroke, Parkinson's disease, and multiple sclerosis all affect the brain and nervous system, so they can also cause bladder emptying problems.

An overactive bladder - is a condition in which the bladder squeezes at the wrong time. The condition may be caused by nerve problems, or it may occur without any clear cause. A person with an overactive bladder may have any two or all three of the following symptoms:

- *urinary frequency* - urination eight or more times a day or two or more times at night
- *urinary urgency* - a sudden, strong need to urinate immediately
- *urge incontinence* - urine leakage that follows a sudden, strong urge to urinate

**Pannek, J.** 2017. "The term OAB (overactive bladder) describes a symptom complex. Therefore, initial treatment should be based on clinical symptoms and the results of basic diagnostics. Patient preference is essential for the choice of the initial treatment. Behavioural therapy, electrostimulation and medical treatment are available treatment options. If these are not effective, extended diagnostic examinations should be performed prior to minimally invasive treatments, like onabotulinumtoxin injections in the detrusor or sacral neuromodulation. Surgical interventions like augmentation cystoplasty are rarely required today."

Prostate cancer – cancer of the prostate is often the cause of urinary problems in men. Prostate cancer is uncommon in men under the age of 40.

Other prostate conditions – benign prostatic hypertrophy (BPH) – the prostate gland commonly becomes enlarged as a man ages. As the prostate enlarges, it may squeeze the urethra and affect the flow of the urinary stream. Lower urinary tract symptoms (LUTS), associated with the development of BPH, rarely occur before age 40, but more than half of men in their sixties and up to 90 percent of men in their seventies and eighties have some LUTS. The symptoms vary, but the most common ones involve changes or problems with urination, such as a hesitant, interrupted, weak stream, urgency and leaking or dribbling, more frequent urination, especially at night, and urge incontinence. Problems with urination do not necessarily signal blockage caused by an enlarged prostate.

**Petrillo, M., Pesapane, F., Fumarola, E.M., Emili, I., Acquasanta, M., Patella, F., Angileri, S.A., Rossi, U.G., Piacentini, I., Granata, A.M., Ierardi, A.M. & Carrafeillo, G.** 2018. "Prostatectomy via open surgery or transurethral resection of the prostate (TURP) is the standard treatment for benign prostatic hyperplasia (BPH). Several patients present contraindication for standard approach, individuals older than 60 years with urinary tract infection, strictures, post-operative pain, incontinence or urinary retention, sexual dysfunction, and blood loss are not good candidates for surgery. Prostatic artery embolization (PAE) is emerging as a viable method for patients unsuitable for surgery. In this article, we report results about technical and clinical success and safety of the procedure to define the current status."

Radical prostatectomy - the surgical removal of the entire prostate gland - called radical prostatectomy - is one treatment for prostate cancer. In some cases, the surgery may lead to erection problems and urinary problems.

**Pan, L.H., Lin, M.H., Pang, S.T., Wang, J. & Shih, W.M.** 2019.

"Prostate cancer ranks second among male cancers in the United States in terms of death rate. Robot-assisted surgery (RAS) is now offered as the standard surgical procedure performed for radical

---

Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

September 2020

prostatectomy. Urinary incontinence and erectile dysfunction were common complications after RAS prostatectomy. Patients felt ill-prepared after surgery, resulting in negative impacts on their quality of life. Pelvic floor muscle exercise is prioritized for patients with mild-to-moderate incontinence. The purpose of this study was to examine the effects of using resistance band pelvic floor muscle exercise for patients after RAS prostatectomy. A preexperimental single-group study was conducted for this study. A total of 43 patients completed the program. Urinary incontinence scale, Incontinence Impact Questionnaire, and Hospital Anxiety and Depression Scale were assessed at 0.5 months, 1 month, 2 months, and 3 months after urinary catheter removal. The results revealed that urinary incontinence, life impact, and depression and anxiety improved significantly as time went on. This study suggests that using simple and easy-to-learn resistance band pelvic floor muscle exercise program at home can benefit patients financially and reduce travel time.”

External beam radiation - this procedure is another treatment method for prostate cancer. The treatment may result in either temporary or permanent bladder problems.

Nerve damage – spinal cord injury may affect bladder emptying by interrupting the nerve signals required for bladder control.

Getting older - men often notice a slight change in their urinary habits around the age of 50. This can be quite normal and may simply be a sign of getting a little older. On average one should pass urine about four to eight times in 24 hours depending on how much one drinks. It is important, though, that one should be aware when one’s bladder is full, and still have enough time to reach a toilet. Every time one passes urine one’s bladder should empty completely and one should not experience leaking. At night, most men will be able to sleep for six to eight hours without having to pass urine. As one gets older one’s body produces more urine overnight and middle aged and older men often find they have to get up once (or maybe twice) in the night.

Decreased circadian production of antidiuretic hormone - as men age, their bodies make less antidiuretic hormone at night (a hormone that helps one’s body hold on to fluids) and, therefore, the bladder cannot always hold the increased production of urine at night. Drinking too close to bedtime can be part of the problem, too. One should, therefore, try to cut back on drinks about 2 hours before going to sleep, and also watch alcohol and caffeine consumption (Bodo, *et al.*, 1998; Moon, *et al.*, 2004).

Consumption of certain foods and drinks - foods containing a lot of acid, like tomatoes, strawberries, and citrus fruits, can inflame one’s bladder, causing one to urinate more often or experience pain or pressure. Alcohol, caffeine, chocolate, spices, carbonated drinks, pickled foods, and artificial sweeteners also can make things worse.

### **Symptoms to Look Out For**

Changes in one’s urinary habits may be a sign that one has a problem. This might be a prostate or other health condition such as diabetes. If one notices a change, one should consult a doctor, preferably an urologist.

---

Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

September 2020

Symptoms to look out for include:

- Urinating more frequently - especially at night
- Difficulty starting to urinate
- Difficulty in stopping the flow of urine
- Straining or taking a long time to urinate
- Weak flow of urine
- Feeling that one's bladder has not completely emptied
- Urgency – occasionally leaking urine before reaching the toilet
- Dribbling urine
- Pain when passing urine
- Pain when ejaculating
- Problems getting or keeping an erection
- Blood in urine or semen

Be aware that having one or more of the above symptoms does not necessarily indicate one has prostate cancer. However, for confirmation, a visit to an urologist is essential.

### How to Do Kegel Exercises

Kegel exercises are exercises that help one zero in on, and strengthen, muscles below the bladder that help control urination. In men, urinary incontinence can be caused by a weak urinary sphincter that may result from surgery for prostate cancer, an overactive bladder, or a bladder that does not contract.

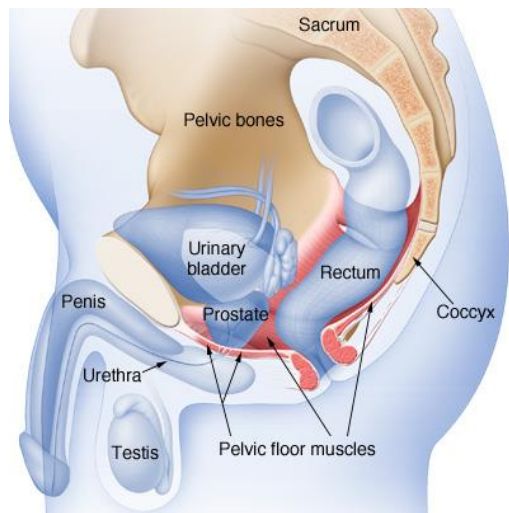
[Picture Credit: Pelvic Floor Muscles]

Kegel exercises will not help one look better, but they do something just as important - strengthen the muscles that support the bladder. Strong pelvic floor muscles can go a long way toward warding off incontinence.

These exercises were developed in the late 1940s by Dr Arnold H Kegel, an American gynaecologist, as a nonsurgical way to prevent women from leaking urine. They also work for men plagued by incontinence.

Although the exercises themselves are simple, finding the right muscles to exercise is not always that easy. One-third or more of men who do Kegels are actually working their abdominal, buttock, or inner thigh muscles. They do not reap the benefits of the exercises.

The first step is to find the right muscles. Imagine trying to stop passing gas. Squeeze the muscles that would be used to do that. If experiencing a sense a "pulling" feeling, those are the right muscles for pelvic exercises.



Do not squeeze other muscles at the same time. Neither should one hold one's breath. Also, be careful not to tighten the stomach, leg, or buttock muscles. Squeezing the wrong muscles can put more pressure on the bladder control muscles. Squeeze just the pelvic muscles.

Pull in the pelvic muscles and hold for a count of 3. Then relax for a count of 3. Repeat, but do not overdo it. Work up to 3 sets of 10 repeats.

Then start doing pelvic muscle exercises lying down. This position is the easiest for doing Kegel exercises because the muscles then do not need to work against gravity. When the muscles get stronger, one should do the exercises sitting or standing. Working against gravity is like adding more weight.

Be patient. Do not give up. It takes just 5 minutes, three times a day. Bladder control may not improve for 3 to 6 weeks, although most people notice an improvement after a few weeks.

### **The Bladder Diary**

Bladder Diaries are important to help one understand the functioning of one's bladder. It describes one's day-to-day bladder habits and patterns related to urination. It typically documents the time and amount of fluid intake (great way to look for bladder irritants), the time of each void, each accidental leaking and a notation of the volume of urine loss, in subjective terms of large (greater than ¼ cup), medium (less than ¼ cup) or small (dribbles). It is an accurate measure of the urinary frequency, volume, and circumstance surrounding urinary accidents.

#### **One should take this chart with when talking to a health care provider about one's bladder problems**

It may be quite time consuming and difficult to find the time to complete, particularly if one is very active during the day. But one should keep record for 3 and 5 days in order to get the most accurate picture of one's voiding patterns. It is best to record on at least three consecutive days, with one being a weekend.

The bladder diary is also a method for one to focus on one's behaviour related to overactive bladder and incontinence. Sometimes the mere fact of keeping the diary is therapeutic in and of itself and the incontinence improves once a causal relationship with what one eats and drinks and do has been discovered.

### **Possible Medical Treatment**

A doctor may choose from the following types of drugs to treat for incontinence:

- Alpha-blockers: Terazosin (Hytrin), doxazosin (Cardura), tamsulosin (Flomax), and alfzosin (Uroxatral) are used to treat problems caused by prostate enlargement and bladder outlet obstruction. They act by relaxing the smooth muscle of the prostate and bladder neck, allowing normal urine flow and preventing abnormal bladder contractions that can lead to urge incontinence.

---

Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

September 2020

- 5-alpha reductase inhibitors: Finasteride (Proscar) and dutasteride (Avodart) work by inhibiting the production of the male hormone DHT, which is thought to be responsible for prostate enlargement. These 5-alpha reductase inhibitors may help to relieve voiding problems by shrinking an enlarged prostate.
- Imipramine: Marketed as Tofranil, this drug belongs to a class of drugs called tricyclic antidepressants. It relaxes muscles and blocks nerve signals that might cause bladder spasms.
- Antispasmodics: Propantheline (Pro-Banthine), tolterodine (Detrol LA), oxybutynin (Ditropan XL), darifenacin (Enablex), trospium chloride (Sanctura), and solifenacin succinate (VESicare) belong to a class of drugs that work by relaxing the bladder muscle and relieving spasms. Their most common side effect is dry mouth, although large doses may cause blurred vision, constipation, a fast heartbeat, headache, and flushing.

- **Prostatic Artery Embolisation**

Prostatic artery embolisation (PAE) is a minimally invasive treatment that helps improve lower urinary tract symptoms caused by a benign prostatic hyperplasia (BPH). BPH is a noncancerous enlargement of the prostate gland and is the most common benign tumour found in men.

The PAE procedure is performed by an interventional radiologist (IR), a doctor who uses X-rays and other advanced imaging to see inside the body and treat conditions without surgery.

#### **4 Tips for Coping with an Enlarged Prostate**

When a man reaches about age 25, his prostate begins to grow. This natural growth is called benign prostatic hyperplasia (BPH) and it is the most common cause of prostate enlargement. BPH is a benign condition that does not lead to prostate cancer, though the two problems can coexist.

Although 50% to 60% of men with BPH may never develop any symptoms, others find that BPH can make life miserable. The symptoms of BPH include:

- a hesitant, interrupted, weak urine stream
- urgency, leaking, or dribbling
- a sense of incomplete emptying
- more frequent urination, especially at night.

## Your Daily Bladder Diary

This diary will help you and your health care team figure out the causes of your bladder control trouble. The “sample” line shows you how to use the diary.

Your name: \_\_\_\_\_

Date: \_\_\_\_\_

Time	Drinks		Trips to the Bathroom			Accidental Leaks			Did you feel a strong urge to go?	What were you doing at the time?	
	What kind?	How much?	How many times?	How much urine? (circle one)		How much? (circle one)			Circle one	Sneezing, exercising, having sex, lifting, etc.	
<b>Sample</b>	<b>Coffee</b>	<b>2 cups</b>	<input checked="" type="checkbox"/>	<input checked="" type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	<input type="radio"/> sm	<input checked="" type="radio"/> med	<input type="radio"/> lg	Yes <input checked="" type="radio"/> No	<b>Running</b>
6-7 a.m.				<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	Yes No	
7-8 a.m.				<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	Yes No	
8-9 a.m.				<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	Yes No	
9-10 a.m.				<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	Yes No	
10-11 a.m.				<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	Yes No	
11-12 noon				<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	Yes No	
12-1 p.m.				<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	Yes No	
1-2 p.m.				<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	Yes No	
2-3 p.m.				<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	Yes No	
3-4 p.m.				<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	Yes No	
4-5 p.m.				<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	Yes No	
5-6 p.m.				<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	Yes No	
6-7 p.m.				<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	<input type="radio"/> sm	<input type="radio"/> med	<input type="radio"/> lg	Yes No	

Use this sheet as a master for making copies that you can use as a bladder diary for as many days as you need.

Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

September 2020



As a result, many men seek treatment. The good news is that treatments are constantly being improved. Patients and their physicians now have more medications to choose from, so if one doesn't do the trick, another can be prescribed. And thanks to some refinements, surgical treatments are more effective and have fewer side effects than ever before.

But there are some things men dealing with BPH can do on their own. When symptoms are not particularly bothersome, watchful waiting may be the best way to proceed. This involves regular monitoring to make sure complications aren't developing, but no treatment. For more troubling symptoms, most doctors begin by recommending a combination of lifestyle changes and medication. Often this will be enough to relieve the worst symptoms and prevent the need for surgery.

Four simple steps can help relieve some of the symptoms of BPH:

1. Some men who are nervous and tense urinate more frequently. Reduce stress by exercising regularly and practicing relaxation techniques such as meditation.
2. When you go to the bathroom, take the time to empty your bladder completely. This will reduce the need for subsequent trips to the toilet.
3. Talk with your doctor about all prescription and over-the-counter medications you're taking; some may contribute to the problem. Your doctor may be able to adjust dosages or change your schedule for taking these drugs, or he or she may prescribe different medications that cause fewer urinary problems.
4. Avoid drinking fluids in the evening, particularly caffeinated and alcoholic beverages. Both can affect the muscle tone of the bladder, and both stimulate the kidneys to produce urine, leading to night time urination.

### **Enlarged Prostate Gland and Saw Palmetto**

Talk to a professional healthcare provider before taking any over-the-counter medicines.

[Picture Credit: Saw Palmetto Palm]

The saw palmetto is a short, scrubby palm. Its fan-shaped leaves have sharp, saw-toothed edges that give the plant its name. Dense clumps of saw palmetto can form an impenetrable thicket. The abundant 2-cm-long berries are harvested and are dried for medicinal use.



It is used primarily for its activity in enlarged prostate gland (benign prostatic hyperplasia [BPH]). Saw palmetto is used to treat symptoms of BPH, including reducing urinary frequency, increasing urinary flow, and decreasing nighttime urination. Saw palmetto may delay the need for prostate surgery. The mechanism of action of saw palmetto is unknown.

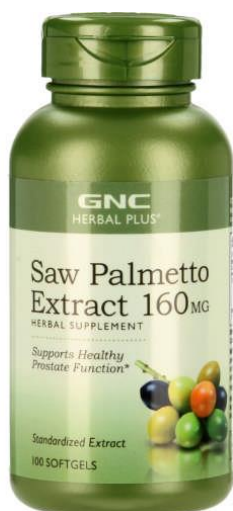
---

Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

September 2020



Typical dosages of standardised extracts range from 100 to 400 mg given twice daily for benign prostatic hypertrophy (BPH). No contraindications have been identified.

[Picture Credit: Saw Palmetto]

Increased blood thinning by warfarin was reported while using saw palmetto. However, this may have been caused by something other than saw palmetto. Until more data are available, patients taking warfarin should consult their health care provider before taking saw palmetto.

Saw palmetto is generally well tolerated, with occasional reports of adverse gastrointestinal effects.

Research revealed little or no information regarding toxicology with the use of saw palmetto.

Saw Palmetto is available from most pharmacies.

**Sudeep, H.V., Thomas, J.V. & Shyamprasad, K. 2020.**

**Background:** The present clinical trial was conducted to evaluate the efficacy and tolerability of a standardized saw palmetto oil containing 3%  $\beta$ -sitosterol in the treatment of benign prostate hyperplasia (BPH) and androgen deficiency.

**Methods:** Subjects aged 40-65 years with symptomatic BPH were randomized to 12-week double-blind treatment with 500 mg doses of  $\beta$ -sitosterol enriched saw palmetto oil, conventional saw palmetto oil and placebo orally in the form of capsules (n = 33 in each group). BPH severity was determined using the International Prostate Symptom Score (IPSS), uroflowmetry, serum measurement of prostate specific antigen (PSA), testosterone and 5 $\alpha$ -reductase. During the trial, the androgen deficiency was evaluated using Aging Male Symptoms (AMS) scale, the Androgen Deficiency in the Aging Male (ADAM) questionnaire, serum levels of free testosterone.

**Results:** Subjects treated with  $\beta$ -sitosterol enriched saw palmetto oil showed significant decrease in IPSS, AMS and ADAM scores along with reduced postvoiding residual volume ( $p < 0.001$ ), PSA ( $p < 0.01$ ) and 5 $\alpha$ -reductase from baseline to end of 12-week treatment as compared to placebo. There was also a significant increment in the maximum and average urine flow rate ( $p < 0.001$ ), and serum free testosterone level of subjects treated with enriched saw palmetto oil as compared to placebo.

**Conclusion:** This study demonstrates the efficacy of  $\beta$ -sitosterol enriched saw palmetto oil superior to conventional oil thus extending the scope of effective BPH and androgen deficiency treatment with improved quality of life through the intake of functional ingredients.

**Trial registration:** CTRI/2018/12/016724 dated 19/12/2018 prospectively registered. URL: <http://ctri.nic.in/Clinicaltrials/advsearch.php>.

**Ishii, I., Wada, T. & Takara, T. 2020.**

The aim of the present study was to investigate the effects of 12-week consumption of saw palmetto fruit extract (320 mg per day) on urination issues. A total of 44 Japanese men aged 40-69 years who experienced urination issues and awaken  $\geq 2$  times at night to urinate participated in a randomized,

---

Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

September 2020

Page 10

double-blind, placebo-controlled study between June and December 2017. All subjects were randomly allocated into a saw palmetto fruit extract group (SP group,  $n = 22$ ) or a placebo group (P group,  $n = 22$ ) using a computerized random number generator. Each group took their assigned one capsule every day for 12 weeks. Subjective symptoms and impact on daily life were assessed using the international prostate symptom score (IPSS) as a primary outcome, King's health questionnaire (KHQ), and overactive bladder symptom score. A safety evaluation was also performed. A total of 20 subjects in each group were analyzed. There was a significant group-time interaction for total IPSS. The SP group also showed a significant decrease in IPSS at 8 weeks compared with the P group, suggesting reduced subjective symptoms related to urination issues. We observed no adverse effects. The consumption of saw palmetto fruit extract capsule for 12 weeks relieved subjective symptoms related to urination, which suggests improvement of the issue in healthy Japanese men.

### Medical Disclaimer

This Fact Sheet is intended to provide general information only and, as such, should not be considered as a substitute for advice, medically or otherwise, covering any specific situation. Users should seek appropriate advice before taking or refraining from taking any action in reliance on any information contained in this Fact Sheet. So far as permissible by law, the Cancer Association of South Africa (CANSA) does not accept any liability to any person (or his/her dependants/estate/heirs) relating to the use of any information contained in this Fact Sheet.

Whilst CANSA has taken every precaution in compiling this Fact Sheet, neither it, nor any contributor(s) to this Fact Sheet can be held responsible for any action (or the lack thereof) taken by any person or organisation wherever they shall be based, as a result, direct or otherwise, of information contained in, or accessed through, this Fact Sheet.



### Sources and References Consulted or Utilised

#### Bladder Diary

<http://bladdergym.homestead.com/diary.html>

**Bodo, G., Gontero, P., Casetta, G., Alpa, M., Brossa, G., Russo, R. & Tizzani, A.** 1998. Circadian antidiuretic hormone variation in elderly men complaining of persistent nocturia after urinary flow obstruction removal. *Scand J Urol Nephrol*. 1998. Sep; 32(5):320-4.

#### Drugs.com

<https://www.drugs.com/npc/saw-palmetto.html>

**Epstein, M.R., Monaghan, T.F., Khusid, J.A., Suss, N.R., Agudelo, C.W., Michelson, K.P., Wu, Z.D., Gong, F. & Weiss, J.P.** 2019. Comparison of nocturia etiology in black and white male patients. *Can J Urol*. 2019 Jun;26(3):9769-9773.

#### Harvard Medical School

<http://www.health.harvard.edu/bladder-and-bowel/step-by-step-guide-to-performing-kegel-exercises>

<http://www.health.harvard.edu>

#### Healthline

<http://www.healthline.com/human-body-maps/bladder>

---

Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

September 2020

**Ishii, I., Wada, T. & Takara, T.** 2020. Effects of saw palmetto fruit extract intake on improving urination issues in Japanese men: a randomized, double-blind, parallel-group, placebo-controlled study. *Food Sci Nutr.* 2020 Jun 17;8(8):4017-4026. doi: 10.1002/fsn3.1654. eCollection 2020 Aug.

**Ju, X.B., Gu, X.J., Zhang, Z.Y., Wei, Z.Q., Miao, H.D., Zhou, W.M., Xu, R.F., Cheng, B., Ma, J.G., Niu, T.L. Qu, P., Xue, B.S. & Shang, W.** 2015. Efficacy and safety of saw palmetto extract capsules in the treatment of benign prostatic hyperplasia. *Zonghua Nan Ke Xue.* 2015. Dec; 21(2):1098-101.

**Latil, A., Pétrissans, M.T., Rouquet, J., Robert, G. & de la Taille, A.** 2015. Effects of hexanic extract of serenoa repens on inflammation biomarkers in the treatment of lower urinary tract symptoms related to benign prostatic hyperplasia. *Prostate.* 2015 Dec;75(16):1857-67. doi: 10.1002/pros.23059. Epub 2015 Aug 26.

#### **Male Urinary System**

<http://www.webmd.com/urinary-incontinence-oab/picture-of-the-bladder#1>

#### **MedicineNet**

[http://www.medicinenet.com/urinary\\_incontinence/article.htm](http://www.medicinenet.com/urinary_incontinence/article.htm)

**Moon, D.G., Jin, M.H., Lee, J.G., Kim, J.J., Kim, M.G. & Cha, D.R.** 2004. Antidiuretic hormone in elderly male patients with severe nocturia: a circadian study. *BJU Int.* 2004 Sep; 94(4):571-5.

**Morgia, G., Cimino, S., Favilla, V., Russo, G.I., Squadrito, F., Mucciardi, G., Masieri, L., Minutoli, L., Grosso, G. & Castelli, T.** 2013. Effects of serenoa repens, selenium and lycopene on chronic inflammation associated with benign prostatic hyperplasia: results of "FLOG", a multicentre Italian study. *Int Braz J Urol.* 2013 Mar-Apr;39(2):214-21. doi: 10.1590/S1677-5538.IBJU.2013.02.10.

**Pan, L.H., Lin, M.H., Pang, S.T., Wang, J. & Shih, W.M.** 2019. Improvement of urinary incontinence, life impact, and depression and anxiety with modified pelvic floor muscle training after radical prostatectomy. *Am J Mens Health.* 2019 May-Jun;13(3):1557988319851618. doi: 10.1177/1557988319851618.

**Pannek, J.** 2017. Overactive bladder – which treatment when? *Urologe A.* 2017 Dec;56(12):1532-1538. doi: 10.1007/s00120-017-0522-1.

#### **Pelvic Floor Muscles**

<http://www.mayoclinic.org/healthy-lifestyle/mens-health/multimedia/male-pelvic-floor-muscles/img-20008602>

**Petrillo, M., Pesapane, F., Fumarola, E.M., Emili, I., Acquasanta, M., Patella, F., Angileri, S.A., Rossi, U.G., Piacentini, I., Granata, A.M., Ierardi, A.M. & Carrafeillo, G.** 2018. State of the art of prostatic arterial embolization for benign prostatic hyperplasia. *Gland Surg.* 2018 Apr; 7(2): 188–199.

#### **Prostate Cancer Research Foundation, Rotterdam**

<http://www.prostatecancer-riskcalculator.com/what-is-normal>

#### **Prostatic Artery Embolisation**

<https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/prostatic-artery-embolization>

#### **Saw Palmetto**

[https://clicks.co.za/gnc\\_herbal-plus-saw-palmetto-extract-160mg-100-capsules/p/221800?gclid=CMXJ66WE29QCFc677QodihcPKQ](https://clicks.co.za/gnc_herbal-plus-saw-palmetto-extract-160mg-100-capsules/p/221800?gclid=CMXJ66WE29QCFc677QodihcPKQ)

#### **Saw Palmetto Palm**

<http://www.newhealthadvisor.com/saw-palmetto-hair-loss.html>

**Sudeep, H.V., Thomas, J.V. & Shyamprasad, K.** 2020. A double blind, placebo-controlled randomized comparative study on the efficacy of phytosterol-enriched and conventional saw palmetto oil in mitigating benign prostate hyperplasia and androgen deficiency. *BMC Urol.* 2020 Jul 3;20(1):86. doi: 10.1186/s12894-020-00648-9.

#### **WebMD**

<http://www.webmd.com/urinary-incontinence-oab/picture-of-the-bladder#1>

---

Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

September 2020

---

Researched and Authored by Prof Michael C Herbst

[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Dip Audiometry and Noise Measurement; Diagnostic Radiographer; Medical Ethicist]

Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

September 2020