

# Prostate SAP

Science-based support for prostate health

The average male will experience a concern with their prostate at some point during their lifetime. The condition known as benign prostatic hypertrophy (BPH) becomes increasingly prevalent in men as they age, with 50% of men experiencing BPH by the age of 60, and 90% of men by the age of 85.<sup>[1]</sup> This condition can cause a multitude of symptoms, including difficulty starting the flow of urine, discomfort with urination, and increased risk of urinary tract infections due to urine stagnation in the bladder, which may potentially lead to kidney damage.<sup>[2]</sup> BPH can interfere with activities of daily living and have a serious impact in a male's life. Several herbs and nutrients have been studied that demonstrate the ability to prevent and treat BPH, and in many cases eliminate symptoms entirely.<sup>[3,4]</sup> Prostate cancer will affect 1 in 7 men in their lifetime, and is the most common form of cancer detected in males.<sup>[5]</sup>

## ACTIVE INGREDIENTS

### Two softgels contain:

Free plant sterols (from <i>Glycine max</i> ) . . . . .	370 mg
Providing 148 mg $\beta$ -sitosterol, 74 mg campesterol, and 74 mg stigmasterol	
Wild-crafted saw palmetto ( <i>Serenoa repens</i> ) fruit liposterolic extract, 95% fatty acids (CO <sub>2</sub> -extracted) . . . . .	320 mg
Rye ( <i>Secale cereale</i> ) flower pollen extract . . . . .	210 mg
Organic borage ( <i>Borago officinalis</i> ) seed oil . . . . .	200 mg
L-Alanine . . . . .	100 mg
Cranberry ( <i>Vaccinium macrocarpon</i> ) fruit concentrate . . . . .	100 mg
L-Glutamic acid hydrochloride . . . . .	100 mg
Glycine . . . . .	100 mg
Natural vitamin E (mixed tocopherol concentrate, from non-GMO soy) . . . . .	76 mg
Stinging nettle ( <i>Urtica dioica</i> ) root and herb top extract, 5% silicic acid . . . . .	50 mg
Zinc (from zinc citrate) . . . . .	32 mg
Pau d'arco ( <i>Tabebuia heptaphylla</i> ) inner bark . . . . .	30 mg
Vitamin B <sub>6</sub> (pyridoxine hydrochloride) . . . . .	20 mg
Lycopene from tomato ( <i>Solanum lycopersicum</i> ) flesh . . . . .	1.2 mg
Selenium (from yeast-free L-selenomethionine) . . . . .	100 mcg
Vitamin D3 (cholecalciferol) . . . . .	25 mcg

**Other ingredients:** Extra virgin organic olive oil (350 mg); organic pumpkin (*Cucurbita pepo*) seed oil, cold-pressed (200 mg); lecithin (from non-GMO sunflower); medium-chain triglycerides (MCT) oil; silicon dioxide; and beeswax in a softgel composed of annatto (in sunflower oil), bovine gelatin, glycerin, and purified water.

**This product is non-GMO.**

**Contains no:** Gluten, wheat, corn protein, eggs, dairy, yeast, citrus, preservatives, artificial flavour or colour, starch, or sugar.

Store in a tightly closed, light-resistant container in a cool, dry place.

## DIRECTIONS FOR USE

**Adult men:** Take 2 softgels daily with food or as directed by your healthcare practitioner. If you are taking other medications, take this product a few hours before or after them.

## INDICATIONS

### Prostate SAP:

- Is targeted as treatment and preventative therapy for any male over the age of 40 to help maintain a healthy prostate and urinary tract system.
- Can be used to help reduce benign prostatic hypertrophy.
- May also be protective against the development of prostate cancer.<sup>[6]</sup>

## PURITY AND STABILITY

All ingredients listed for all **Prostate SAP** lot numbers have been tested by a third-party laboratory for identity, potency, and purity.



Scientific Advisory Panel (SAP):  
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Lower urinary tract symptoms, benign prostate hypertrophy (BPH), bladder outlet obstruction, and prostate cancer have become increasingly common in the aging male population.<sup>[7]</sup> BPH affects more than 90% of men by the time they reach 90 years of age.<sup>[1]</sup> The precise cause of BPH has not yet been determined, but inflammation does play a pivotal role and is the target of many pharmaceuticals designed to treat BPH.<sup>[3]</sup> Growth of the prostate gland is controlled by the endocrine system, but the precise way each hormone affects the prostate gland is not well understood. During puberty, testosterone is thought to act to enlarge the prostate, but as men age their testosterone levels decline, and this is when the prostate growth often becomes problematic. There is some thought that the ratio between free testosterone and estrogen contributes to prostate enlargement, but this has not to date been demonstrated in the literature. There are several natural compounds that have demonstrated the ability to reduce symptoms caused by BPH.

#### SAW PALMETTO (*Serenoa repens*)

Saw palmetto is one of the most common herbs used for the treatment of lower urinary tract symptoms in males due to BPH. Researchers have determined that saw palmetto has several different mechanisms of action including the inhibition of 5 $\alpha$ reductase, as well as antiandrogenic, antiproliferative and anti-inflammatory effects.<sup>[4]</sup> Two active components of saw palmetto are oleic and lauric acids: It has been demonstrated that they bind to  $\alpha$ 1 adrenergic, muscarinic and 1,4-DHP receptors, and have the ability to inhibit 5 $\alpha$ reductase.<sup>[4]</sup> These mechanisms may lead to the therapeutic effect seen in cases of BPH that result in fewer urinary-tract symptoms.<sup>[4]</sup>

A review article exploring the efficacy of saw palmetto compared to placebo for urinary tract symptoms in men found that there was a statistically significant improvement in urinary flow and urinary symptom scores in subjects using saw palmetto.<sup>[6]</sup> Researchers concluded that saw palmetto was a well-tolerated treatment that provided mild to moderate improvement in urinary symptoms and flow.<sup>[6]</sup> The efficacy of saw palmetto was also compared to finasteride, a commonly prescribed pharmaceutical for BPH, and was found to have similar improvements in urinary symptom scores, with fewer adverse effects.<sup>[6]</sup>

Research has also been conducted exploring the role of saw palmetto in prostate cancer. Saw palmetto has been found to have the ability to selectively induce apoptosis in prostate cancer cells through the intrinsic pathway, via activation of the mitochondrial permeability transition pore.<sup>[9]</sup>

#### PUMPKIN (*Cucurbita pepo*) SEED OIL

A double-blind, placebo-controlled study was performed over a 12-month period with patients who had BPH with an International Prostate Symptom Score (IPSS) over 88. The IPSS measures quality of life, serum prostate-specific antigen (PSA), prostate volume, and maximal urinary flow rate. The groups receiving 320 mg/d pumpkin seed oil (group B), 320 mg/d saw palmetto (group C), or both (group D) all demonstrated an improvement in their score by 3 months.<sup>[10]</sup> Group D was the only group that had a reduction in serum PSA levels after 3 months.<sup>[10]</sup> The results of this trial indicated that pumpkin seed oil and saw palmetto oil are clinically safe and may be an effective treatment for BPH, particularly in combination.<sup>[10]</sup>

#### STINGING NETTLE (*Urtica dioica*)

A double-blind, placebo-controlled study exploring the use of stinging nettle for BPH was conducted using 620 patients.<sup>[11]</sup> Following the 6-month trial, 81% of patients in the stinging nettle group reported an improvement in lower urinary tract symptoms compared to 16% of controls.<sup>[11]</sup> The treatment group had an average improvement in their IPSS from 19.8 to 11.8 compared to a change of 19.2 to 17.7 in the placebo group.<sup>[11]</sup> Peak flow rates improved on average by 8.2 ml/s in the treatment group compared to 3.4 ml/s in the placebo group.<sup>[11]</sup> No change was observed in serum PSA or testosterone in either group. There were also no side effects identified in either group.<sup>[11]</sup> This study's authors concluded that symptomatic BPH could have beneficial effects from treatment with stinging nettle.<sup>[11]</sup>

#### FREE PLANT STEROLS

Plant sterols, or phytosterols, may be beneficial for the treatment of abacterial prostatitis.<sup>[12]</sup> A study found that the proliferation of chronic prostatitis was decreased in the group receiving phytosterols. Researchers found that phytosterols were able to reduce serum levels of IL1 $\beta$  and TNF $\alpha$ , and also reduced the expression of prostate COX2 and 5LOX.<sup>[12]</sup> The results demonstrated that phytosterols have a positive therapeutic effect on abacterial prostatitis.<sup>[12]</sup>

#### LYCOPENE

There are several pathways that have been identified as playing a role in the development of prostate cancer.<sup>[6]</sup> Free radicals produced from inflammatory processes can potentially lead to oxidative DNA damage, which if unrepaired can become mutagenic.<sup>[6]</sup> The cytokines IL6 and IL4, as well as growth factor

signaling pathways, have all been identified as contributors to prostate growth.<sup>[6]</sup> Lycopene modulates several of these pathways: it can reduce inflammatory signals, prevent oxidative damage and modulate the activity of androgen signaling and the growth factor axis. These are likely the mechanisms that result in cell growth inhibition and apoptosis that are seen with the use of lycopene.<sup>[6]</sup>

#### ZINC CITRATE

The prostate gland usually contains a high concentration of zinc; however, levels are dramatically reduced in cases of prostate cancer.<sup>[13]</sup> Researchers explored the antiproliferative effects of zinc in BPH cells as well as in prostate cancer cells.<sup>[13]</sup> Both prostate cancer cells and BPH cells were treated with zinc and cell growth, viability and apoptosis were examined.<sup>[13]</sup> The BPH cells were found to be more sensitive to the antiproliferative effects of zinc when compared to the prostate cancer cells.<sup>[13]</sup> The variation in response to zinc in the prostate cancer and BPH cells does suggest that zinc may play an important role in the regulation of both cell growth and apoptosis in hyperplastic and prostate cancer cells.<sup>[13]</sup>

#### SELENIUM AND VITAMIN E

Selenium can play an important role in prostate health, as it helps to maximize the activity of glutathione peroxidase and is a powerful antioxidant in the body.<sup>[14]</sup> A trial using healthy middle-aged men taking 200  $\mu$ g of selenium for 6 weeks found that supplementation raised the activity of both erythrocyte and plasma glutathione peroxidase, and lowered values of plasma prostate-specific antigen.<sup>[14]</sup> This effect was not seen in the placebo treatment group. The study indicates that the average male in the US does not consume an adequate amount of selenium in their diet.<sup>[14]</sup> In a separate study, researchers looked at a deficiency of trace elements and the link to PSA values.<sup>[15]</sup> Results showed that serum selenium, zinc and vitamin E were significantly lower in the prostate cancer patients.<sup>[15]</sup> Researchers concluded that a deficiency of vitamin E, zinc and selenium may be risk factors for the development of prostate cancer.<sup>[15]</sup>

#### VITAMIN B<sub>6</sub> (PYRIDOXAL-5'-PHOSPHATE)

Researchers have found that vitamin B<sub>6</sub> deficiency results in a significant increase in the uptake of testosterone by the prostate gland.<sup>[16]</sup> This suggests that B<sub>6</sub> has a function in the action of testosterone and potentially other steroid hormones, whereby it either reduces the rate of synthesis of testosterone or increases the metabolic clearance.<sup>[16]</sup> This may play an important role in the health of the male prostate gland.

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