

Complementary therapies for prostate enlargement and bladder outlet obstruction

Plants or plant extracts have been used since ancient times to treat urinary problems. Popularly known as *phytotherapy* ('phyto' means plant), herbal therapies cost less, have fewer side effect than prescription medication, and they are often effective.

Concern about the safety of phytotherapy is the main reason that American urologists discourage the use of phytotherapeutic products. As opposed to pharmaceutical drugs - where the mechanism of action and side effects are usually known - the mechanism of action of many phytotherapeutic products is unproven. Therefore, it may be difficult to accurately predict adverse herb-drug interactions. Furthermore, the quality of over-the-counter herbal products is often difficult to ascertain. That's why I recommend purchasing herbal and nutritional supplements from companies that adhere to quality manufacturing. I also educate my patients how to read an herbal and nutritional supplement label. I have appended a primer at the end of this article.

Lifestyle and Dietary Modifications

Although it's not possible to change certain prostate enlargement (abbreviated PE) risk factors - one's age or genetic make-up, for instance - it *is* possible to alter a variety of other factors that promote PE. For example, scientific research has shown that unhealthy dietary, lifestyle, and environmental choices increase the incidence of symptomatic PE while healthy ones have the opposite effect. You can lower your risk of developing symptomatic PE by adopting each of the following measures:

1. *Eating A Healthy Diet:* A healthy diet - one that's low in fat, meat, and dairy items; but high in fruits, vegetables, and fiber – can prevent symptomatic prostate enlargement. Protect your prostate by making healthy choices such as reducing fat, saying no to empty calories from junk food and refined sugar, limiting red

meat and dairy fat, and eating more fruits and vegetables. Dietary fiber (plant material that isn't digested) decreases the risk of prostate enlargement by binding with and eliminating excess fat and hormones from the body. Diets that high in saturated fat double the risk of developing prostate cancer. In addition, saturated fat provokes inflammatory changes within the prostate by causing oxidative DNA damage and excess production of inflammatory arachidonic acid by-products. Arachidonic acid is an essential fatty acid, but the amount of arachidonic acid in the standard American diet, especially from corn syrup, is twenty five times higher than it should be.

2. *Lowering Serum Cholesterol.* High levels of cholesterol in the prostate make it easier for testosterone and dihydrotestosterone to bind to prostate cell receptors, thereby turning on prostate growth factors. In addition to eating a diet that is low in fat and cholesterol, other measures that can lower serum cholesterol include the following: Eating soy protein and garlic; drinking decaffeinated green tea; eliminating alcohol, tobacco products, and caffeine; and exercising regularly.

3. *Changing Your Lifestyle*

In addition to eating a healthy diet, healthy lifestyle choices can also reduce the odds of developing symptomatic prostate enlargement. Give your prostate a break by exercising regularly. Based on results from the Health Professionals Follow-up Study, regular exercise significantly lowers the risk of PE, regardless of age. Researchers discovered that men who watched the most television and video tapes per week (forty-one hours or more) had twice the risk of developing severe obstructive prostate symptoms when compared to men that watched less than five hours per week. So turn off the television set, stash your video card, and start exercising.

4. *Eliminating Destructive Habits.* According to a Finish study, men that smoke have a one and a half times greater risk of developing urinary symptoms than men who had never smoked. Furthermore, smoke also contains cadmium - a toxic trace metal that increases the risk of prostate cancer and PE by interfering with zinc metabolism within the prostate gland.

5. *Losing Weight.* Obese men have larger prostates. Obesity also increases the risk of prostate cancer. The body uses extra fat to make excess sex hormones.
6. *Avoiding Environmental Toxins* Pesticides and herbicides (weed killers) heighten the risk of PE by causing DNA damage and altering hormone metabolism. Endocrine disruptors – substances that mimic natural hormones – also increase the incidence of PE. Common examples of endocrine disruptors include polychlorinated biphenols or PCBs (used to make plastic, ink, electrical equipment, and electronic equipment) and plasticizers (substances used to make plastic food-wrap more pliable).

When preventative measures fail to avert the onset of PE-related voiding symptoms, herbal therapies can be helpful. Over thirty phytotherapeutic compounds are currently used to treat BPH. In general, these products are derived from eight plant species. The active ingredient in at least fifteen of these compounds is derived from an extract made from dried berries of the American dwarf palm *Serenoa repens* (popularly known as saw palmetto). Other popular preparations that have been subjected to peer-reviewed scientific research include the following: Extracts of the African plum (*Prunus Africana*); Beta-sitosterol (compounds that are related to cholesterol); rye pollen extract (Cernilton®); South African star grass (*Hypoxis rooperi*); and stinging nettle (*Urtica dioica*). While other substances are used to treat symptomatic PE, their use is not supported by reliable scientific research.

Saw Palmetto (*Serenoa repens*)

Dubbed “the old man’s friend”, saw palmetto is the unquestionably the world’s most popular treatment for symptomatic PE. Saw palmetto’s medicinal properties are attributed to its berries. Clusters of green fleshy berries develop in late spring and ripen to a bluish-black by late summer. Once the berries are ripe, they’re harvested and dried. The dried berries are then processed to make a variety of herbal products. Researchers have determined that the lipid-soluble components of saw palmetto berries account for their medicinal properties. Saw palmetto extracts contain

fatty acids (a special type of fat) and sterols (plant steroids). Standardized saw palmetto extracts contain eighty-five to ninety-five percent fatty acids and sterols (for instance, beta-sitosterol, campesterol, and stigmasterol). Saw palmetto extracts also contain free fatty acids and long-chain alcohols.

Although the exact mechanism of action is still unclear, researchers theorize that at least five properties account for saw palmetto's beneficial effect upon symptomatic PE. These properties include:

1. **Inhibition of type one and type two 5 α -reductase enzyme.** This enzyme converts testosterone into a more potent hormone-like substance called dihydrotestosterone. Dihydrotestosterone stimulates prostate cell growth.
2. **Anti-edema effects.** Saw palmetto inhibits molecules that cause swelling within the prostate. These molecules are called prostaglandin E2 and leucotrienes.
3. **Anti-inflammatory effects.** Saw palmetto inhibits enzymes that convert arachidonic acid into other inflammatory molecules.
4. **Anti-estrogenic and anti-androgenic effects.** Estrogen (female hormone) and androgen (male hormone) stimulate prostate cell growth. Saw palmetto blocks the action of both of these hormones within the prostate gland.
5. **Growth factor inhibition.** Growth factors send messages to the cell nuclei (command center) that are relayed to RNA (genetic material that makes new proteins needed for cell growth). Saw palmetto blocks these growth factors.

According to scientific research, saw palmetto causes very few side effects. Although saw palmetto can occasionally cause stomach upset, the incidence is comparable to a placebo medication. In addition, there aren't any known drug interactions or contraindications to taking saw palmetto.

I recommend choosing a solid extract that is standardized to contain at least eighty-five to ninety-five per cent fatty acids and sterols. Take two capsules daily, either at the time or in divided doses. Saw Palmetto is most effective for men with mild voiding symptoms.

Prunus Africana

Prunus Africana (commonly known as pygeum) is an evergreen tree that is native to the higher elevations of central and southern Africa. Reaching heights of one hundred and fifty feet, the deeply fissured bark of the tree is harvested, and then ground into a powder that can be used to treat symptomatic PE. Chemical analysis and pharmacological studies indicate that *Pygeum africanum* contains three categories of active ingredients. These ingredients include phytosterols (particularly beta-sitosterol), pentacyclic triterpenes (volatile oils) and ferulic acid esters (especially *n*-docosanol).

Most of the data regarding *Pygeum africanum*'s activity are derived from animal studies. Although the exact mechanism of action is unknown, the proposed mechanisms of action include the following:

- 1. Cholesterol-lowering action within the prostate.** Fat-soluble ferulic acid esters lower the cholesterol level within the prostate.
- 2. Decreasing inflammation within the prostate.** Beta-sitosterol and pentacyclic triterpenes decrease inflammation within the prostate by decreasing intraprostatic prostaglandin levels.
- 3. Interfering with testosterone's effect on the prostate.** The ferulic acid ester *n*-docosanol reduces prolactin levels. Excess prolactin may induce PE since prolactin increases the uptake of testosterone by prostate cells thereby increasing the synthesis of dihydrotestosterone.
- 4. Inhibiting prostatic growth factors.** In animal studies, *Prunus africana* is a potent inhibitor of a variety of BPH-inducing growth factors.
- 5. Inhibiting 5 α -reductase enzyme activity.** According to one study, *Prunus africana* may inhibit PE by inhibiting 5 α -reductase enzyme activity.
- 6. Inhibiting aromatase activity.** As men age, they make excess estrogen by a process called aromatization. Researchers have found that this excess estrogen can cause PE. An enzyme that is concentrated in fatty tissue, called aromatase, converts an adrenal steroid hormone (androstenedione) into estrogen. According to animal studies, *Prunus africana* blocks this conversion.

Based on the results of twelve double-blind, placebo-controlled studies, pygeum was significantly more effective than placebo. *Prunus africana* is extremely safe. Other than a rare incidence of gastrointestinal upset, there haven't been any reported drug interactions or serious side effects. Most authors recommend taking between one hundred to two hundred milligrams of a standardized extract of *Prunus africana* (containing fourteen percent triterpenes and zero point five percent *n*-docosanol) in divided daily doses. **Since indiscriminate harvesting of *Pygeum africanum* has threatened its survival, I recommend using other effective natural remedies before trying pygeum.**

Beta-sitosterol

Beta-sitosterol is a plant-derived steroid that accounts for many of the beneficial effects of saw palmetto, pygeum, stinging nettle, and pumpkin seeds - herbs that are commonly used to treat PE. Beta-sitosterol is a member of a larger family of plant steroids called phytosterols. Phytosterols are related to cholesterol. Although unproven, researchers theorize that beta-sitosterol has the same mechanism of action as saw palmetto and *Prunus Africana*.

There are no known contraindications, drug interactions, or serious side effects due to beta-sitosterol when it is taken as directed. A variety of beta-sitosterol-containing products are available in most health food stores. Follow the instructions on the package. Typical dosages range between twenty to one hundred thirty milligrams taken two or three times daily. A typical diet contains roughly two hundred milligrams of beta-sitosterol.

Rye Pollen Extract

Pollen from plants that grow in Southern Sweden is used to make a popular PE remedy called Prostanex®. Prostanex® is combination of saw palmetto and rye-grass pollen extracts. The rye pollen portion is extracted from rye-grass pollen by using a patented two-step process. The first step extracts a water-soluble fraction known as

T60. The second step extracts a fat-soluble fraction known as GBX. Each of these fractions has different properties. The extract is then standardized using its alpha-amino acid and phytosterol content. Finally, the fractions are reconstituted into capsules or tablets.

Mechanism Of Action. Based on scientific research, Prostanex® appears to work by:

1. **Reducing urethral pressure.**
2. **Blocking alpha-adrenergic receptors.**
3. **Relaxing the external sphincter musculature.**
4. **Decreasing swelling.**
5. **Inhibiting testosterone.**
6. **Inhibiting 5 α -reductase activity.**
7. **Decreasing prostatic inflammation.**

When Prostanex® is taken as directed, there are no contraindications, drug interactions, or serious side effects. Prostanex® is commercially available as a tablet or capsule (www.graminex.com) . Follow directs on the package.

Nettle Root (Urtica dioica)

Fifteen different pharmaceutical drugs are made exclusively from the roots of the herb stinging nettles. Nettle root extracts are used as a first-line PE therapy in Germany. Nettle root is also combined with other herbal preparations such as saw palmetto and Prunus Africana.

So far, over fifty active ingredients have been isolated from stinging nettle root. Of these, polysaccharides and lectins (N-acetyl-glucosamine-specific lectin) appear to account for nettle's effect on PE.

Mechanism of Action. According researchers, stinging nettle appears to work by:

1. **Inhibiting the attachment of sex hormone binding globulin.** As a result, nettle root blocks the effect of estrogen and free androgen.
2. **Inhibiting aromatase activity.** Consequently, plasma estrogen levels fall.

3. Reducing inflammation. Nettle root contains special compounds called polysaccharides that block the formation of inflammatory prostaglandin and leucotrienes molecules.

When nettle root extract is taken as directed, there are no serious side effects, drug interactions, or contraindications. The normal daily dose is three to six grams, taken as a tablet or capsule containing six hundred to twelve hundred milligrams of a five to one dry extract, or one hundred twenty milligrams twice daily of a ten to one extract (standardized for amino acid content).

Primer on How to Read a Herbal and Nutritional Supplement:

How To Read An Herbal Supplement Label.

The following information is typically listed on an herbal supplement label. Items in bold type are discussed in further detail.

Supplement Facts

Serving Size: two 160mg. softgels

Amount per serving (two soft gels) %Dv*

Saw palmetto (*Serenoa repens*) Extract (10:1) 320 mg.

Extracted from **saw palmetto berries**

Standardized to yield **85-95% fatty acids and sterols**

Other ingredients: gelatin, glycerin, and water

* **Daily Value** Not Established

Saw palmetto **helps maintain proper urine flow**†

Usage: Take two softgels daily, or as directed by your qualified health consultant.

†*This statement has not been authorized by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.*

Serving size specifies the number of capsules that must be taken to yield the recommended daily amount.

Saw palmetto (*Serenoa repens*): Herbs are identified by a common name, which comes first (Saw palmetto), followed by a botanical name that is enclosed in parentheses and italicized (*Serenoa repens*). The part of the herb that was used to make the formulation (**saw palmetto berries**) is also identified.

Extract. A solvent, usually water or alcohol, is used to 'extract' (withdraw) a herb's active ingredients. Water extracts water-soluble ingredients, whereas alcohol extracts fat-soluble items such as fatty acids, sterols, and other substances that are water-insoluble. Extracts are categorized by the concentration of herb relative to the amount of solvent.

Herbal infusions (a fancy name for tea) and *tinctures* contain more solvent than herb, while the reverse is true for *liquid* and *solid* extracts. Most popular herbal liquid tinctures contain one part herb to five or ten parts solvent (written as 1:5 or 1:10 herbal tincture). On the other hand, an herbal liquid extract contains at least the same amount or more herbal product than solvent. For instance, a 2:1 liquid extract contains two parts herb for every part solvent. Finally, an herbal

solid extract usually contains at least four parts herb for every part solvent (expressed 4:1 solid extract); or in this case, ten parts herb to one part solvent (**10:1**).

Standardization. Whenever the active ingredient is known, it's possible to *standardize* a product that contains a specified percentage of *active ingredient(s)*, for instance, **85-95% fatty acids and sterols**. An *active ingredient* is the chemical that presumably accounts for an herb's healing properties. Products can also be standardized to contain a certain concentration of herbal ingredients, for example a standardized **10:1** herbal extract.

Other Ingredients: Anything that is contained in the product other than the pure herb should be listed in this section. Unless stated otherwise, **gelatin** vitamin capsules are derived from processed animal collagen (for instance, animal hoofs). "Vegicaps" on the other hand are made from vegetable protein and **glycerine** (a fat derivative).

Daily Value. Unlike vitamins and minerals, herbs don't have a recommended daily value (amount).

Structure/Function Statement: The Food and Drug Administration permits manufacturers to describe how an herb affects the body's structure or function - for example, they can state that saw palmetto "**helps maintain proper urine flow**" - as long as they also include the disclaimer listed above†.

Usage: The recommended dosage may vary depending on a person's weight, medical condition, other medications, and the nature of the condition being treated. For instance, if a man weighs over two hundred pounds, I recommend taking three instead of two 160mg saw palmetto softgels daily.

Note: Liquid herbal preparations are measured in "cc" (cubic centimeter) or "ml" (milliliter) amounts (the two measurements are equivalent). Common liquid measurements include: One teaspoon equals 5ccs, one tablespoon equals fifteen ccs, one ounce equals thirty ccs. Liquid herbal tinctures or extracts are also dispensed by the drop (one dropper full equals approximately forty drops).

Dried herbs, on the other hand, are dispensed by weight. One heaping teaspoon of dried herb averages between one to four and half grams (flowers average one gram, bark averages four and a half grams, and the remaining herbal parts weigh somewhere in between).

How To Read A Vitamin Label

As a final measure, let me teach you how to read a vitamin label. Items in bold type are discussed in further detail.

Dietary Supplement

Serving Size: six capsules

<u>Six capsules contain:</u>		<u>%DV</u>
Vitamin C	1200mg	1333%
Vitamin E	400IU	1818%
Selenium	200mcg	363%
Vanadium	50mcg	*
Bromelain	25mg	*
L-Cysteine	200mg	*

***Daily Value not established**

Other ingredients: cellulose, and magnesium stearate. **Best if used by:** January 2010.

- **Serving size** is the unit of measure (number of capsules, in this case) that must be taken to yield the daily amount specified on the label.
- **DV** stands for 'Daily Value' or the recommended daily amount.
- **1333%** indicates that the 1200mg of vitamin C contained in a serving (six tablets) is 13.33 times the recommended daily amount of vitamin C (ninety milligrams for non-smoking men). Although high potency multivitamins contain vitamins concentrations that are hundreds or even thousands of times greater than the DV, don't be alarmed, they're safe to take. The DV was established to prevent nutritional disease, not promote optimal health.
- The abbreviation '**mg**' stands for *milligram*.
- The abbreviation '**mcg**' stands for *microgram*.
- The statement '**Daily Value not established**' is self-explanatory. Many vitamin supplements contain ingredients that don't have an established daily requirement. These items include certain trace elements (such as **Vanadium**), digestive enzymes, and amino acids. Digestive enzymes (chemicals that promote digestion) are identified by their word endings: Words that end in '*ain*' (such as **bromelain**- a digestive enzyme made from pineapple), or '*ase*' (such as lipase – a digestive pancreatic enzyme) are digestive enzymes. (The bottle should state whether the enzymes are derived from plant or animal sources.) Amino acids (the building blocks of proteins) are identified by a '*L*' or '*DL*' before their name, for example **L-cysteine**.
- **Other ingredients:** Read this section carefully. Supplements often contain other ingredients that are best avoided such as artificial coloring, preservatives, flavorings, corn, soy protein, wheat gluten, sugar, yeast, and dairy products. These 'fillers' can cause an allergic reaction in susceptible individuals.

Best if used by: Signifies the expiration date.

Attribution: Much of the above information was taken from my book, *Smart Medicine for A Healthy Prostate*, Avery Publishing, 2001.