

Prostatic Health

Part 2, Dietary Supplements

Stephen Holt, M.D.

The Hormonal Factor

Although the exact causes of benign or malignant prostatic disease remain unknown, virtually all accounts of the subject stress the importance of hormonal factors in pathogenesis. The common theory of the development of benign prostatic hyperplasia (BPH) includes a role for prostatic buildup of dihydrotestosterone (DHT), a hormone that promotes prostatic growth. Many therapies for prostatic disease focus on the reduction of DHT levels, primarily by interfering with 5-alpha-reductase.^{1,2} The hormonal mechanisms that affect 5-alpha-reductase activity are quite complex, and the principal influences on this enzyme are summarized in Figure 1.

Some studies suggest that a buildup of DHT occurs in the prostate of individuals with BPH, although the blood levels of testosterone and DHT usually decrease with age.¹ In fact, some researchers have suggested that testosterone deficiency, rather than excess, is important in the causation of BPH and other prostatic diseases (Dr. Debled, cited by Schachter¹). This hypothesis is linked to the concept of the male andropause, a condition akin to the female menopause, except that the hallmark of this postulated male climacteric includes reduced blood testosterone levels and increased levels of estrogens, follicle stimulating hormone, luteinizing hormone, and sex hormone-binding globulins.¹ The concept of the male andropause is interesting but not widely accepted.

Remedial Herbs

Saw Palmetto (Serenoa repens)

Extracts of saw palmetto berry (*Serenoa repens*, *Sabal serrulata*) are being used extensively throughout the world for the treatment of BPH and chronic nonbacterial prostatitis.^{1,3} It is believed that the active constituent of the saw palmetto berry is a lipophilic (fat-soluble) component that reduces prostatic enlargement by acting as a natural inhibitor of 5-alpha-reductase.³ In addition, this agent may interfere with the action of several inflammatory substances that may contribute to BPH.¹ The active constituent of saw palmetto may bind the androgen protein receptor that combines with DHT before its trophic actions via the nucleus of the prostatic glandular cell.^{1,3}

Murray⁴ draws attention to 11 clinical trials that demonstrate variable benefit of *S. repens* in the treatment of BPH. Of these 11 studies, 6 were double-blind, placebo controlled studies, whereas 5 were open-label studies. Improvements were noted variably in several symptoms of BPH, including the volume of urine voided, maximum urine flow, mean urine flow, dysuria, nocturia, the number of voidings of urine per day, and residual urine. Overall, these studies showed a consistent benefit of extracts of saw palmetto, and no significant side effects have been noted. Schachter¹ notes the complete lack of side effects of saw palmetto, although Brown⁵ mentions the remote possibility of mild gastrointestinal disturbances from saw palmetto.

Brown⁵ traces the history of the use of saw palmetto berry tea, which was used frequently at the beginning of the twentieth century for the treatment of BPH. It was used commonly to treat chronic urinary tract infections, including gonorrhea, especially in the preantibiotic era.⁵ Saw palmetto tea was included in the national formulary of the United States until the mid-1950s, when it was deleted for being outdated.

In the early 1960s, European researchers isolated a lipophilic fraction of the saw palmetto berry that contained high concentrations of free fatty acids, ethyl ester derivatives, and sterols.¹ These components have beneficial action in the treatment of BPH and are approved in France and Germany for the treatment of BPH.⁵

EDITOR'S NOTE-Part 1 of this two-part series, which appeared in the September/October, 1996 (2[5]: 302-305) issue of the Journal, provided an analysis of the optimal diet for the promotion of prostatic health. The objective of Part 2 is to define the potential role of dietary supplements to promote prostatic health. Additional data are required before any firm comments can be made about their therapeutic or preventive potential. However, many of these dietary supplements deserve scrutiny because they are being used increasingly for putative clinical benefits in the management of prostatic disease.

Stephen Holt, M.D., of 75 Plymouth Street, Fairfield, NJ 07004 is a consultant to the nutraceutical industry.

An international, multicenter, double-blind, controlled trial of *P. africanum* extract in 263 patients with BPH over a 60-day period showed that 100 mg/day of *P. africanum* improved urinary symptoms in 66 percent of patients compared with only 31 percent of placebo recipients.

Multinational pharmaceutical companies have spent hundreds of millions of dollars on the development of synthetic drugs to block 5-alpha-reductase.⁶ The drug finasteride (Proscar, Merck, Inc., Rahway, New Jersey) is an example of these products, which are available by prescription worldwide.⁶⁻⁷ Finasteride has been shown to be a stronger in vitro inhibitor of 3-alpha-reductase than saw palmetto extracts.⁷ Comparative clinical trials of finasteride with saw palmetto extract show that they may be equally effective in the treatment of BPH but that saw palmetto may have fewer side effects.^{1,7} Schachter has commented on Whitaker's report⁷ of a Merck, Inc.-sponsored study that compared finasteride and saw palmetto in the treatment of BPH. He reported that saw palmetto appeared to be superior to finasteride, at least with regard to clinical effects when comparing the change of urine flow rate in patients with BPH. In this study,⁷ the finasteride treated group had a 16 percent improvement in certain symptoms versus a 38 percent improvement in the saw palmetto treated group.¹ These findings are intriguing, and Brown⁵ points to the advantage of gentle therapy using saw palmetto in contrast to an "aggressive model" using synthetic drugs, with their potent interference with human metabolic pathways. Saw palmetto possesses the added benefits of reducing the effects of estrogen and progesterone on the prostate and inhibition of inflammatory mediators.¹

Pygeum africanum

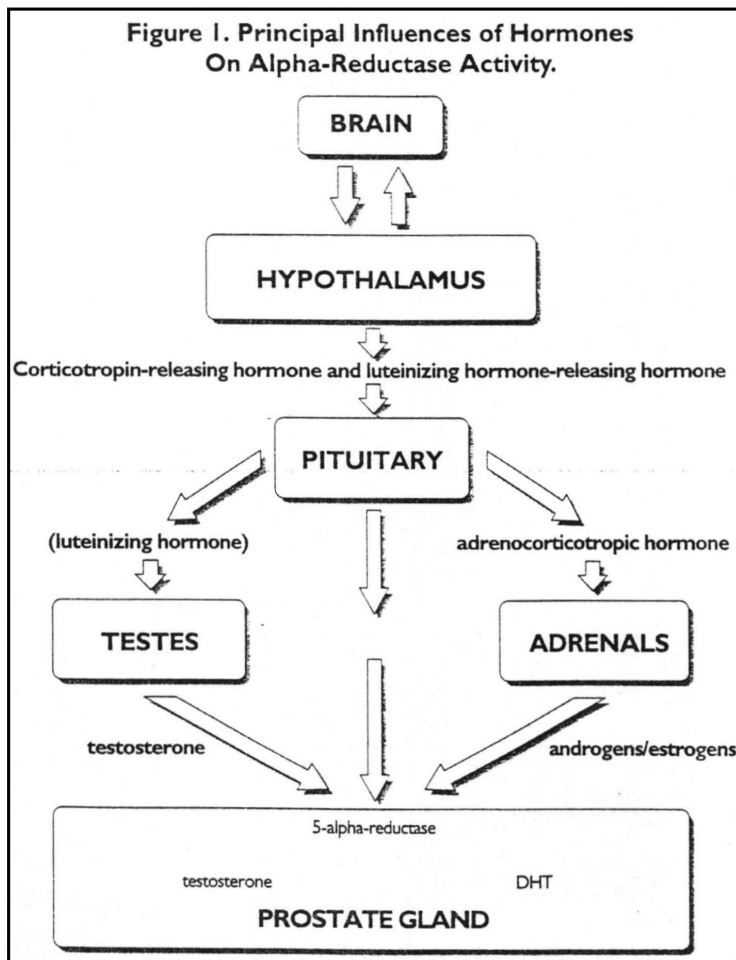
As the name suggests, this evergreen tree (*Pygeum africanum*) is found in central Africa, where it has been used for many years to treat maladies of the genitourinary tract.¹ An international, multicenter, double-blind, controlled trial of *P. africanum* extract in 263 patients with BPH over a 60-day period showed that 100 mg/day of *P. africanum* improved urinary symptoms in 66 percent of patients compared with only 31 percent of placebo recipients.⁸ Overall, *P. africanum* appeared safe, except for gastrointestinal upset in 5 patients. Discontinuation of therapy was necessary in 3 of the 5 patients.^{1,8}

Schachter¹ notes that more than 50 percent of all prescriptions in France involve the use of *P. africanum*. Balch provides translations of several European studies that examine the benefit of *P. africanum* in BPH.⁸ One placebo controlled French trial of 120 patients showed that the *P. africanum*-treated group experienced statistically significant reductions in the number of urinations and more complete bladder emptying than did the placebo group.^{1,8} Further studies in Italy confirmed these benefits, where 100 mg/day of standardized *P. africanum* extract caused a significant improvement in urinary frequency, urgency, dysuria, and urine flow when compared with placebo.^{1,8}

The mechanism of action of *P. africanum* extract is not completely understood, but the bark of the tree is known to contain anti-inflammatory and antibacterial compounds.¹

***Urtica dioica* (Stinging Nettles)**

The use of *Urtica dioica* has its origins in Indian folklore medicine, where it is believed that anything that stings or pricks may be useful in healing and alleviating the stinging.³ *U. dioica* appears over many years in American and European medical and herbal literature, where it is known for its astringent properties.^{5,9}



The mechanism of action of *P. africanum* extract is not completely understood, but the bark of the tree is known to contain anti-inflammatory and antibacterial compounds.

Extracts of stinging nettles have been shown to enhance the beneficial actions of *P. africanum* in the treatment of BPH.¹ In a comparative, randomized, double-blind, placebo-controlled study of 63 patients receiving *P. africanum* alone or *P. africanum* with *U. dioica*, the combination appeared superior to *P. africanum* alone in improving urinary volumes.¹⁰ The biopharmaceutical properties of *U. dioica* remain unknown. Schachter refers to unpublished data suggesting that *U. dioica* could work by inhibition of 5-alpha-reductase,¹ and it is known that *U. dioica* inhibits aromatase enzymes involved in the conversion of testosterone to estrogenic compounds.¹⁰ It would appear that *U. dioica* may modulate the hormonal imbalance that is believed to account for the pathogenesis of BPH.¹

Table I. Dietary Supplements Proposed for Maintenance of Prostatic Health

Supplement	Dosage per day ^a	Subjective comments on available data to support use ^b
Saw palmetto.....	Up to 320 mg	Good evidence
<i>Pygeum africanum</i> (200:1).....	25–50 mg	Good evidence
Stinging nettle leaves (5:1).....	150–300 mg	Fair evidence
Pollen.....	Unknown	Less than fair evidence
Essential fatty acids	Unknown	Fair evidence

^aDosages of dietary supplements vary by recommendation of the manufacturers, and concentrations of active principals vary by manufacturing source, and so on. Do not self-medicate. Not all of the listed supplements are known to be beneficial for prostatic problems; ^bSubjective comments on the scientific data to support the use of a certain dietary supplement^c for prostatic health is the author's opinion only and may not be accepted by all. Caution is required with the use of any bioactive compound.

Bee and Flower Pollen

Both bee pollen and flower pollen contain a wide array of nutrients, including vitamin B series, vitamin E, amino acids, fatty acids, carotenoids, and a mixture of minerals.¹ However, pollen is allergenic and should be used with caution. Bee and flower pollen may relax the sphincters of the bladder and alleviate urinary obstruction in part, but the evidence for this effect is incomplete.¹ Pollen may block free radicals and stimulate immunity, and it has alleged anti-inflammatory activity.¹

At least three studies, including two double-blinded crossover studies, suggest a beneficial effect of flower pollen in BPH or prostatitis.^{1,2,11-13} However, the author believes that the evidence to support the use of pollen in prostatic disease is much less convincing than the evidence supporting the use of *P. africanum* or *U. dioica*.^{1,6,11-13}

Essential Fatty Acids

Of all health-giving nutrients, essential fatty acids (EFAs) seem to be the most forgotten in contemporary literature. EFAs are the precursors of prostaglandins, which modulate inflammatory reactions in the body and exert important effects in cancer. The chemistry, of EFAs is complex, but the major two classes, the omega 3 series and the omega 6 series, are required for prostatic health.¹ Good sources of EFA are too numerous to list, but many health caregivers have focused their attention on flax seed oil, a source of alpha-linolenic acid (omega 3), and evening primrose oil, a good source of gamma-linolenic acid (omega 6). Other sources of EFA of different structure include hemp oil, black currant oil, pumpkin seed oil, and fish oils.¹ Fish oils remain under explored as sources of health-giving nutrients, and much of the current interest in fish oil stems from observations in Eskimos, who despite their high-fat, high-cholesterol diet have a lower incidence of many of the chronic degenerative diseases seen in Western communities.

Conclusion

Several natural remedies appear to have emerged with great potential for the therapy of prostatic disease (Table 1). These dietary supplements await further research in many circumstances before they can be recommended with confidence. It is disconcerting that natural agents with clear benefits for BPH, such as saw palmetto, *P. africanum* and perhaps *U. dioica*, have not been accepted or used in America as they have been in Europe. If an alternative remedy in a dietary supplement format is desired in BPH or prostatitis, the preparation of choice, in the author's opinion, should contain *P. africanum*, *U. dioica*, and saw palmetto in combination. However, patients should not self-medicate; practitioners who are consulted should emphasize this strongly.

The author acknowledges that the statements he has made have not been evaluated by any regulatory agency and that he is not suggesting the use of dietary supplements as curative, diagnostic, or preventative for any disease. □

References

1. Schachter, M.B. *The Natural Way to a Healthy Prostate*. New Canaan, CT: Keats Publishing Inc., 1995.
2. Oesterling, J.E. Benign prostatic hyperplasia: Medical and minimally invasive treatment options. *N Engl J Med* 332:99-108, 1995.
3. Sultan, C., Terazza, A., Devillier, C., Carilla, E., Briley, M., Loire, C., Descomps, B. Inhibition of androgen metabolism and binding by a liposterolic extract of *Serenoa repens* B in human foreskin fibroblasts. *J Steroid Biochem.* 20:515-519, 1984.
4. Murray, M. *The Saw Palmetto Story: The Health Series*. Tarzana, CA: Vital Communications, 1991.
5. Brown, D.J. *Herbal Prescriptions for Better Health*. Rocklin, CA: Prima Publishing, 1996. pp.167-172.
6. Baggish, J. *Making the Prostate Therapy Decision*. Chicago: Contemporary Books, 1995.
7. Whitaker, J. *The Prostate Report: Prevention and Healing*. Potomac, MD: Phillips Publishing, 1994.
8. Balch, J. *Prostate health*. In: *Alternative Medicine Updates*. Marina del Rey, CA, 1994.
9. Soles-Cohen, S., Githens, T.S. *Pharmacotherapeutics, Materia Medica, and Drugs Action*. New York: Appleton, 1928.
10. Krezeski, T., Kazon, M., Borkowski, A., Witeska, A., Kuczera, I. Combined extracts of *Urtica dioica* and *Pygeum africanum* in the treatment of benign prostatic hyperplasia: Double-blind comparison of two doses. *Clin Therapeut* 15:1012, 1993.
11. Leander, G. A preliminary investigation on the therapeutic effects of cernilton in chronic prostatovesiculitis. *Svensta Lak Tidn* 59:3296, 1962.
12. Ask-Upmark, E. Prostatitis and its treatment. *Acfa Med Scand* 181:355-357, 1967.
13. Inada, T., Kiragawa, T., Miyalsawa, M. Use of cernilton in patients with prostatic hypertrophy. *Acta Urol (Kyoto)* 13:466, 1967.
14. Hoft, S. Nutraceuticals and angiogenesis New therapeutic horizons. *ALTERNATIVE & COMPLEMENTARY THERAPIES* 1:243-247. 1995.

To order reprints of this article, write to or call:
Karen Ballen, ALTERNATIVE & COMPLEMENTARY THERAPIES, Mary Ann Liebert Inc., 2 Madison Avenue, Larchmont, NY 10538
1962. (914) 834-3100.