Prostatic Health:

Part 1: The Optimal Diet

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EDITOR'S NOTE: This is Part 1 of two-part series on prostatic health. Part 2 will review the role of dietary supplements in prostatic health.

Introduction

Prostatic disease will affect almost every man who lives long enough. There are approximatelv 125,000 new cases of prostate cancer per year in the United States, and disease incidence increases in individuals with each decade after age 50. Benign, fibromyoepithelial hyperplasia of the prostate (BPH) is very common after middle life. The causes of benign or malignant prostatic enlargement remain uncertain, but both appear to involve hormonal imbalances that occur with aging. [1]

Prostate cancer and BPH may lead to symptoms of urinary obstruction that can he assessed in the form of a symptom index developed by the American Urological Association (Table 1). In addition, symptoms of bladder or penile irritation may occur, including dysuria, urgency, balanitis, and urinary incontinence.[1] The object of this Part I of a two-part paper is to propose an optimal diet for the prevention and adjunctive treatment of prostatic disorders. In Part 2, the role of certain dietary supplements for the promotion of prostatic health will be reviewed.

General Dietary Recommendations

Dr. Michael B. Schachter[1] points to several general nutritional principles that are to be considered for the promotion of prostatic health. Dr Schachter's guidelines for modifying lifestyle for health are summarized in Table 2. The optimal general dietary recommendations for prostatic health involve a high-fiber, high-complex carbohydrate, relatively low-fat diet with moderate protein intake.[1] Recent interest has focused on the role of dietary fat and its composition in the development of prostate cancer. Diets high in saturated fat and low in polyunsaturated fatty acids have been associated with an increased risk of the development of prostate cancer, and hypercholesterolemia has been linked to prostatic enlargement.[1]

A Role for Soy

Vegetable protein is preferred to animal protein to maintain a healthy urinary tract.[2] In particular. soy protein has advantages because of its nutrient value, efficient handling by the kidneys, and isoflavone content.[2] Soy isoflavones, such as genistein, may have very specific beneficial effects in the promotion of a healthy prostate. These isoflavones are phyto-estrogens.

Feinblatt has reported the value of glycine, alanine, and glutamic acid in combination for the palliative treatment of BPH.[3] In a study of 45 men with BPH who were taking a combination of these

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In this study in terms of protective potential for prostate cancer, it was concluded that tofu in the diet was the most significant protective dietary factor.

three amino acids, improvements in the symptoms of nocturia, urgency, and frequency were observed in 95 percent, 81 percent, and 73 percent of cases, respectively. These amino acids are available individually as expensive, dietary supplements, but they are abundant in many vegetable proteins.

Recommended diets for any disease state usually include a lengthy list of items to be avoided. In the case of prostatic disease, epidemiologic studies guide us toward certain dietary' inclusions. A large series of case-control studies of diet in the prevention of cancer examine the role of Asian diets.[4,5] Overall, it appears that the incidence of prostate cancer is much lower in several Asian countries,[4] and the American Cancer Society reported recently that deaths from prostate cancer in Japan are only one fourth of those reported in the United States. [4,5]

Asian diets typically include less animal protein, less fat, and more fiber than Western diets, and there is evidence that each of these components may exert protective effects against cancer.[4] Soy-based foods in the diet may also play a role in decreasing the prevalence of prostate cancer in Asian communities.[4,5]

Severson et al. undertook a prospective study of the demographics, dietary habits, and prevalence of prostate cancer in 8000 males of Japanese ancestry over a 2-year period in Hawaii.[5,6] This pivotal study Showed that those who ate only small amounts (once or less per week) of tofu (a soy product) were much more likely to develop prostate cancer (three-fold difference) than those who consumed tofu on a daily basis.[6] Many dietary factors were measured in this study in terms of their protective potential for prostate cancer, and it was concluded that tofu in the diet was the most significant protective dietary factor.[6]

What are the ingredients in tofu or other soy-based foods that exert this putative cancer protective effect? There is no single answer to this question, but the scientific evidence to support the notion is promising. Makela et al. reported on studies of the role of plant estrogens in the alteration of the growth of the prostate gland in the mouse.[7] The effects of isoflavones on prostatic function and cellular growth are probably related to their weak estrogenic effects.[4,6,7] Prostate cancer is often hormone dependent, and its etiology is linked to hormonal imbalance.[1] Isoflavones of soy origin, especially genistein, may play a complex role in modulating the effects of estrogen and testosterone on the initiation and growth of prostate cancer. [2,4,5]

Minerals, Vitamins, and Amino Acids

Several specific vitamins, minerals, and trace elements have a demonstrated value in the prevention and treatment of prostatic disease (prostatitis and BPH) (Table **3).** [1] Zinc is an essential metal, and the normal prostate contains a higher concentration of zinc per gram than do most other human tissues.[1] Zinc deficiency may be more common than hitherto recognized because of poor dietary intake or excessive body loss and may be associated with enlargement of the prostate. Zinc may function to maintain prostatic health by reducing the blood level of circulating prolactin, [1] which promotes the uptake of testosterone by the prostate. This in turn leads to activation of the enzyme 5-alphareductase, which catalyzes the formation of dihydrotestosterone (DHT).[1] Other factors that may raise prolactin levels include alcohol, stress of any kind, certain prescription or nonprescription drugs (e.g., metoclopramide and cimetidine), and the amino acid tryptophan)

Tryptophan is an essential amino add that cannot he synthesized by mammals. Excessive tryptophan in the diet should be avoided in individuals with benign prostatic enlargement because of its effects on prolactin release from the pituitary.[1] It is notable that soy protein contains sufficient tryptophan to meet body needs but relatively less tryptophan than many other protein Sources.

Zinc is very helpful in BPH because of its reciprocal activity on 5-alpina-reductase, which produces DHT,[1] which is believed to be a promoter of BPH. Reducing the activity of 5-alpha-reductase is the mainstay of many conventional and alternative therapies to treat it. Zinc facilitates the activity of 5-alpha-reductase but in high concentrations, it inhibits this enzyme. [1] Inhibition of the enzyme by zinc will tend to reduce DHT formation and, by inference, reduce BPH. [1]

Table 1. American Urological Association Symptom Index

For questions 1–6, have your patients score 0 for not at all, 1 for less than 1 time in 5, 2 for less than half the time, 3 for about half the time, 4 for more than half the time, and 5 for almost always.

1. Over the past month or so, how often have you had a sensation of not emptying your bladder completely after you finished urinating?
2. Over the past month or so, how often have you had to urinate again less than 2 hours after you finished urinating?
3. Over the past month or so, how often have you found you stopped and started again several times when you urinated?
4. Over the past month or so, how often have you found it difficult to postpone urination?
5. Over the past month or so, how often have you had a weak urinary stream?
6. Over the past month or so, how often have you had to push or strain to begin urination?
7. Over the last month, how many times did you most typically get up to urinate from the time you went to bed at night until the time you got up in the morning? (0, 1, 2, 3, 4, or 5)

Scoring

The sum of the answer scores gives us the severity of the BPH as follows:

0–7 = mild prostatism
8–18 = moderate prostatism
19–35 = severe prostatism

The American Urological Symptom Index that is used as a standard to assess symptoms of BPH. Note that other genitourinary diseases cause similar symptoms.

Table 2. Lifestyle Recommendations from Michael B. Schachter, M.D.

Avoid the following	
Sugar	Teflon dishes and pans
Alcohol	Substances of abuse
Caffeine	Prescription drugs (use only if necessary)
Tobacco	Amalgam fillings
White flour	Electric blankets
Hydrogenated fats	Hair dyes
Chemical food additives	High-voltage power lines
Fluoride and chlorine	Waterbeds
Aluminum cookware	Metal-rimmed eyeglasses

Source: Modified from *The Natural Way to a Healthy Prostate*, a Keats Good Health Guide. New Canaan, CT: Keats Publishing Inc., 1995.

Zinc picolinate and zinc oxide have been preferred as dietary sources of zinc because they are well absorbed and less likely to cause gastrointestinal upset than other forms of zinc.[1] Copper is an important cofactor of zinc for prostatic health and enzyme function. Because zinc competes with copper for absorption, copper supplementation is recommended when zinc is taken as a dietary supplement. [1] Although competition exists for metal absorption in the small intestines among zinc, copper, and iron, supplementing these metals in the diet usually overcomes problems of competitive inhibition of absorption. I believe that these metals can be given together, in contrast to other opinions. [1] Magnesium has been proposed to promote prostatic health because of its effects on muscle function and the urinary svstem.[1] Magnesium is bioavailable in its oxide form.

For general health, I recommend that all individuals consume at least the 100 per-cent RDA of vitamins. However, vitamin B_6 may be especially important for prostatic health because it may reduce excessive prolactin secretion and it promotes zinc absorption). [1] Vitamin A and carotenes have been proposed as important for the maintenance of prostatic health. There is a correlation between carotene intake and a decreased incidence of prostate cancer, and vitamin A intake is inversely related to the incidence of prostate cancer.[2] However, direct evidence for the use of vitamin A and carotenes in prostatic health is lacking. Vitamins A and C, beta carotene, zinc, and selenium may all benefit prostatic health because of their actions as antioxidants and potential immune modulators. [1] Selenium is bioavailable in health-giving formats, such as selenium-containing yeast.

Table 3. Minerals, Vitamins, and Trace Elements with a Specific Role in Promotion of Prostatic Health

Mineral, Vitamin	Range of Daily Amount for Effect
Zinc picolinate or oxide	15–60 mg
Magnesium (Mg) oxide	200–600 mg of Mg
Selenium (Se) in natural form	200–400 mg of Se
Copper (Cu)	4 mg of Cu
Vitamin B_6	50–300 mg
Vitamin E	800 IU daily
Multivitamin/mineral supplements	100% RDA

Vitamin E is a classic antioxidant with protective effects against superoxide and free radicals. Seven forms of vitamin E exist, and there is much discussion about the potential benefit of natural versus synthetic vitamin E. However, the proponents of the use of natural vitamin E provide little evidence that natural vitamin E has greater biopharmaceutical effects. The issue with vitamin E is more a function of the amount required for health. For prostatic health, it is suggested that 800 IU of vitamin E are required, [1] and synthetic vitamin E will serve this biologic need.

Conclusion

An examination of the optimal diet for prostatic health results in a recommendation for several Do's and several Don'ts (Table 2). Overall, a switch to vegetable protein sources in the diet, with the incorporation of soy, appears important for prostatic health.[1,2,4] Fat reduction, with incorporation of unsaturated fat in the diet and supplementation of the diet to obtain those minerals, vitamins, and trace elements that promote prostatic health, is also recommended.[1] I do not advise nutrition as a substitute for conventional medical approaches but believe strongly that physicians who treat prostatic disease should pay much more attention to the healing potential of nutrients. □

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