

Preventing Prostate Cancer



Common sense strategies for prostate health

By Ronald S. Suh, M.D.

Browse store shelves lined with vitamins and nutritional supplements, and it's easy to notice labeling and marketing targeted towards men with an interest in prostate health. In fact, prostate issues, and prostate cancer prevention specifically, continues to be an area of increasing medical research and media interest.

As the most common cancer in American men, it is obvious that a focus on prevention can play an important role in the management of this disease. Many suspected compounds with anecdotal claims of preventative benefits have been touted by the supplement industry and even medical experts without the backing of good clinical research. Recently, however, a few large-scale well-designed clinical trials have been published and several more remain underway. Despite this progress, information and recommendations regarding the prevention of prostate cancer remains ever-changing, unreliable, and at times controversial. Below are several suggestions that can be used by physicians and their patients to work together to adopt a common sense, practical strategy towards prostate cancer prevention.

Dietary and Lifestyle Prevention Factors

The goal of any dietary and lifestyle modification plan should be directed at living a longer and healthier life overall, regardless of the risk for prostate cancer. Fortunately, research indicates that behaviors that are good for our overall health are generally also good for prostate health and vice versa. Epidemiologic data supports the belief that dietary fat intake can influence the development of prostate cancer. Cultures with a high dietary intake of saturated and trans fats display an increased risk for prostate cancer development than those with

low dietary fat consumption. Additionally, increased fruit and vegetable consumption has been linked to a decreased risk for cancer of the prostate. It is important and beneficial to note that this relationship is not directly attributed to specific nutrients. This may allow for improved compliance, because a variety of fruits and vegetables can be incorporated. Finally, cold-water fish consumption such as mackerel and salmon, likely related to omega-3 fatty acids, has been shown to reduce the development of prostate cancer. Other sources of omega-3 fatty acids that may prove beneficial include flaxseed oil, canola, and soybeans. Each of these dietary measures also allow for the maintenance of a healthy weight, which along with a program of mild to moderate and consistent exercise has been shown to reduce the risk for development of prostate cancer.

Worth noting separately in any discussion regarding diet and prostate cancer is the topic of phytoestrogens, plant-derived sterols which are believed to have estrogenic effects on the human body. Also known as plant estrogens, these compounds are present in a variety of legumes, most notably soybeans, and their by-products such as soy milk or tofu. Lower rates of prostate cancer in eastern Asian countries such as China provide epidemiologic support to the theory that these plant estrogens may prevent prostate cancer, because of the high rates of soy consumption in those cultures;

almost ten times more than a typical Western diet. Additionally, a small study demonstrated a decrease in PSA values in study participants who increased their soy consumption. However, at this point, researchers still are unable to establish a mechanism for a possible protective effect. It is well-established that prostate tissue is mediated and influenced by androgens, and the predominant theory is that the estrogenic potential of phytoestrogens disrupts or alters typical androgen influences on the prostate.

Finally, lycopene has long been touted in medical research and mainstream sources as a dietary compound providing a reduction in risk for the development of prostate cancer, as well as multiple other types of cancer including breast and lung. Lycopene is a carotenoid pigment present in several fruits and vegetables, most notably tomatoes. Multiple early studies of lycopene were able to demonstrate a broad range of benefits in both the prevention of prostate cancer and reduction of disease progression in patients already diagnosed with cancer. Unfortunately, more recent data has called into question these benefits, and at this time most researchers agree that there is very limited evidence to show that lycopene consumption significantly alters the risk for development of prostate or other cancers. It is very important to note, however, that lycopene specifically may not be beneficial, but consumption of large amounts of fruits and vegetables, including tomatoes and other lycopene rich sources, continues to be beneficial in promotion of overall health and the prevention of prostate cancer.

Pharmaceuticals

Finasteride, an FDA-approved drug for the treatment of urinary symptoms related to benign prostatic hypertrophy, inhibits the enzyme 5-alpha reductase and interferes with the normal

conversion of testosterone to dihydrotestosterone, an important androgen in prostate tissue at the cellular level. The Prostate Cancer Prevention Trial (PCPT), a large-scale well-designed study, was able to demonstrate a 25% reduction in the risk of developing prostate cancer among men taking 5 mg of finasteride daily. Troubling, however, was the additional finding that those patients on finasteride who did develop prostate cancer were more likely to have higher grade, more aggressive disease at diagnosis. The mechanism for this effect is still unknown despite research efforts, and some researchers supporting the study have suggested that it may be a statistical issue. Regardless the data has diminished the initial enthusiasm surrounding the use of finasteride as a chemoprevention agent. A similar drug, dutasteride, is currently undergoing a large-scale trial similar to PCPT that will not conclude for several more years. This study may help resolve some of the controversy surrounding the use of 5-alpha reductase inhibitors for prostate cancer prevention.

Although not a strictly urologic drug, there has been enthusiasm surrounding the use of daily non-steroidal anti-inflammatories (NSAIDs) for the prevention of prostate cancer. Basic science research has shown that COX-2 is present in prostate cancer cells, and some small studies have been able to demonstrate a decrease in prostate cancer development in groups of patients taking daily NSAIDs. However, there has also been a growing and very convincing body of research evidence demonstrating that COX-2 inhibitors, and now also all NSAIDs in general, are associated with an increased risk of myocardial infarction. Therefore, it is impossible to justify the daily use of NSAIDs for prostate cancer prevention in the face of uncertain but mounting evidence regarding its cardiovascular risks.

Vitamins and Supplements

At this time, an ambitious and large-scale clinical research trial is underway to examine the purported benefits of selenium and vitamin E on the prevention of prostate cancer. It will be a number of years before the Selenium and Vitamin E Cancer Prevention Trial (SELECT) provides any definitive data, but the initiation of the study was based on a number of smaller but convincing studies which were able to demonstrate significant reductions in prostate cancer development, presumably due to their antioxidant properties. Selenium is a trace mineral present in a variety of foods. It is highly dependent on the selenium content of the soil in which the food originates, and is most reliably found in Brazil nuts, breads, and produce grown in Nebraska and the Dakotas. The food distribution network of the United States provides for a relatively stable source of selenium in the diet regardless of geographic residence. For prostate cancer prevention, at a cost of approximately \$5 to \$10 per month, a supplement containing 100 to 200 mcg of selenium can be taken daily with a meal. Vitamin E is generally found in foods high in fat content, such as vegetable oils and nuts. Therefore, the ideal way to increase vitamin E consumption is through a nutritional supplement. It is always important to carefully study the labeling prior to using any supplement. In the case of vitamin E, a mixture of alpha, beta, gamma, and delta tocopherols should be obtained, as some research suggests that certain subtypes may be less beneficial. Additionally, some researchers claim that naturally-obtained vitamin E is better than synthetic, although the former is typically more expensive. Regardless, costs generally should be less than \$5 per month for 50 to 100 IU of an individual supplement, or vitamin E from a multivitamin is also adequate. Avoid high doses of vitamin E, on the order of 800 IU daily, as this has been demonstrated to increase the risk of cardiac disease.

Although not the subject of a large-scale trial at this time, there are several studies and supportive research which point to the possible role of vitamin D in prostate cancer prevention. Vitamin D is obtained through both the diet and conversion within the skin from sun exposure. Low blood levels

of vitamin D have been shown to be associated with a higher risk of developing prostate cancer, and men living in northern locations, and therefore exposed to less sunlight, have a higher rate of prostate cancer mortality. In addition to increasing consumption of vitamin D-rich foods such as milk, fish, and dark green leafy vegetables, those interested in prostate cancer prevention can supplement with 400 IU of vitamin D daily, and double that in winter months, for less than \$10 per month. Keep in mind also that almost all multivitamin formulations contain at least 400 IU of vitamin D, making the purchase of a separate source unnecessary most of the time.

In both the medical literature and popular media, a number of other nutritional supplements have been touted and/or studied over the years. Vitamins and minerals such as beta-carotene, vitamin A, zinc, B vitamins, coenzyme Q, and vitamin C have been shown to have no benefits. Additionally, compounds such as DHEA, melatonin, garlic, PC-SPES, shark cartilage, and green tea have come to the forefront, but ultimately have been convincingly dismissed. Many of these are very expensive, and their cost often obviates whatever unlikely minimal benefit may be achieved in any case. Realistically, all nutritional supplements should be taken with moderation. Too much of even a beneficial compound could render it dangerous, and small amounts of supplements that are not beneficial will probably not be harmful, except to the pocketbook.

Summary

In summary, a common sense approach to the prevention of prostate cancer includes a diet low in saturated fats and high in fruits and vegetables, including tomatoes but only if desired. Several servings of cold-water fish per week provides for omega-3 fatty acids and vitamin D. Soy products contain additional omega-3 fatty acids and provide a source of plant estrogens, with soy milk adding vitamin D as well. A consistent regimen of moderate aerobic exercise, along with these dietary recommendations, will allow for the maintenance of a healthy weight. Mixing in 15 to 30 minutes of exercise outdoors in sunshine per week will also increase vitamin D levels. Finally, nutritional supplementation with only inexpensive formulations of selenium, vitamin E, and vitamin D is all that is necessary, and can be obtained through a multivitamin as well. These measures may provide prostate cancer prevention, but more importantly they also establish habits for a longer, healthier and happier life overall.

Selected Sources:

Promoting Wellness for Prostate Cancer Patients. Mark A. Moyad, MD, MPH. Edwards Brothers, Inc., Ann Arbor, MI; 2006.

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