



Nutrition and Prostate Health

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The prostate is an organ that sits snugged up under the bladder. In spite of decades of research, we still have no idea what it is doing there. We do know that prostate secretions end up in semen. But sperm are perfectly capable of fertilizing an egg without the prostate's contributions. When the prostate is removed, men live without it quite happily. The only health problems are caused by the surgery itself.¹

One might wonder if the main purpose of the prostate is to aggravate older men. As time goes on, many men have an enlargement of their prostates, causing annoying and sometimes painful urinary problems. The prostate is also the number one cancer spot in a man's body.

These problems are not inevitable. They depend in part on what men eat. Like so many other parts of our biology, the mixture of nutrients we choose every day can encourage prostate cells to grow into an aggravating mass or can help them stay put.

The bladder empties into a tube called the urethra, which passes through the prostate gland, where it is joined by another tube carrying sperm from the testes. Starting at about age 30, the prostate cells alongside the urethra start to multiply. If this continues, they can pinch off the urethra, causing a poor urinary stream, dribbling, pressure, and, ultimately, infection and kidney damage. Irritation of the urethra causes the urge to urinate and repeated nighttime trips to the bathroom. It does not take much prostate growth before the urinary symptoms begin. The technical term for an enlarged prostate is "benign prostatic hyperplasia." It is not cancer, because these cells will not invade neighboring tissues or spread to other organs.

By age 80, some cell multiplication has occurred in most men. Only about half of them actually have significant enlargement of the gland, and only a quarter have any urinary symptoms. In many men, the prostate actually shrinks as they get older.²

Mild prostate symptoms sometimes improve with no treatment at all. In one research study, men with mild prostate enlargement were followed for five years, by which time a quarter of them had improved without treatment. About half stayed the same, and another quarter had become worse.³ However, men with difficulty urinating should not defer medical treatment because they can end up with serious kidney problems, not to mention continued discomfort.

Doctors sometimes prescribe drugs to relax the pressure in the prostate or to block the hormones that lead to enlargement. Finasteride (Proscar) is in the latter category. It shrinks the prostate and is well tolerated. In more severe cases, urologists remove a bit of prostate tissue, which, with

modern techniques, can be done through the penis. The operation is called a TURP, or transurethral resection of the prostate, and is very common.⁴ In some cases, a simpler procedure that makes only small incisions in the prostate (transurethral incision of the prostate, or TUIP) is effective. A researcher named Burhenne developed a balloon device for dilating the prostate (transurethral balloon dilation of the prostate, TUDP) and actually tried it on himself. Similarly, other researchers are trying out a transurethral laser-induced prostatectomy (TULIP). Balloon and laser procedures are still experimental.⁵

Although male readers have undoubtedly crossed their legs by this point in the discussion, a TURP is actually a fairly easy procedure, particularly compared to treatments used in times past. The main downside of the TURP is that, by eight years after the operation, up to 16 percent have to be repeated.⁶

Your Prostate Would Rather Be a Vegetarian

Changing your eating habits can help prevent prostate problems. The reason is not hard to imagine. The prostate is under hormonal control. In the prostate cells, testosterone is turned into a powerful hormone called DHT (dihydrotestosterone), and DHT is what drives prostate enlargement. This is the conversion that finasteride blocks.

Foods can strongly influence sex hormones, including testosterone. Could it be that cutting out meats and dairy products and adding more vegetables to our plates could turn down the hormonal stimulation of the prostate and prevent prostate problems? That is, in fact, exactly what researchers have found. Daily meat consumption triples the risk of prostate enlargement. Regular milk consumption doubles the risk and failing to consume vegetables regularly nearly quadruples the risk.⁷ Prostate hyperplasia is reportedly increasing in Asian countries, paralleling the westernization of the diet that has occurred in recent decades.⁸

The meat-based diet that has become routine in Western countries and is now spreading to other parts of the world encourages many hormone-related conditions, and prostate enlargement is no exception. Even if you grew up as a meat-eater, your prostate would rather be a vegetarian.

By the way, the enzyme (5-alpha reductase) that turns testosterone into DHT is also found in the scalp,⁹ where it works mischief of a different sort. DHT plays a critical role in baldness. Without it, men will not lose their hair, no matter what their genetics may dictate. DHT activity in the scalp may be subject to dietary manipulation.

Nutritional treatments for prostate enlargement are being explored by an increasing number of practitioners. The first step is a low-fat, vegetarian diet. Physician and medical author David Perlmutter, M.D., has reported success in

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reducing prostate symptoms using the following regimen (all listed supplements can be found at health food stores) in addition to a vigorous program of dietary changes. Note, these are for prostate enlargement, not cancer:

1. Saw palmetto (*Serenoa repens*), a natural plant extract, taken in a dose of 160 milligrams twice a day.
2. Cold-pressed flaxseed oil, two tablespoons per day. If this causes loosening of the stool, the problem usually abates after a week or so.
3. Vitamin E, 400 IU per day with food. Reduce to 100 IU per day if you have high blood pressure.
4. Vitamin B6, 100 milligrams per day.
5. Avoid caffeine and keep alcohol consumption to a minimum.

Saw palmetto is extracted from a type of palm tree and has been shown to prevent the conversion of testosterone to DHT and to reduce prostate symptoms in clinical tests.¹⁰ The flax oil provides essential fatty acids and vitamin E is used to protect the flax oil against oxidation.

Prostate Cancer

Prostate cancer differs from prostate enlargement in that cancer cells can invade neighboring tissues and spread to other parts of the body. If cancer cells would simply stay put, the disease would be little more than an inconvenience.

Researchers have examined the prostates of men who have died from accidents or other causes and have found something you might not have expected. Among 30- to 40-year-old American men, 30 percent have cancer cells in their prostates.¹¹ By age 50, this figure rises to about 40 percent.¹² This is a shockingly high percentage. But in most cases, these are latent cancer cells. While they are clearly abnormal, they are not yet at the stage where they rapidly multiply and spread. In many cases, they never will be. Again, foods can make the difference.

A comparison of different countries is revealing. In Asia and Latin America, latent cancers are much rarer than they are in the United States or Western Europe. Moreover, the risk of these cells growing into invasive or spreading

tumors varies in precisely the same way. A man in Hong Kong has a 16 percent likelihood of having latent cancer cells in his prostate after age 45, while a Swede's risk is double that figure, at 32 percent. And compared to a man in Hong Kong, the Swede is eight times more likely to die of the disease.¹³

Cancers are like weeds whose seeds blow from place to place. On moist, fertile soil, they take root and grow uncontrollably. But if the soil is not watered or fertilized, they lie dormant or even wither away. The Swedish diet makes the male body fertile soil for cancer. Asian diets do not provide such welcoming ground for cancer growth. No country has a perfect diet, but the trend is clear. Countries with fatty, meaty diets have much higher cancer rates than countries that use rice, other grains, beans, or vegetables as their staples.

Testosterone and related hormones stimulate prostate cancer cells like fertilizer on weeds. The high-fat, meat-based diet boosts testosterone's effects and has been linked in many studies to high rates of prostate cancer.¹⁴⁻²³

Prevention

A diet built from plant foods is a man's best defense against developing prostate cancer. This type of diet is naturally low in fat and high in fiber—both of which act to keep testosterone at a healthy level—and is rich in antioxidants which help a man's immune system combat free radical production and fight off cancer. Two important dietary guidelines that deserve special mention in prostate cancer prevention are the inclusion of the antioxidant lycopene and the avoidance of dairy products.

Lycopene

You may not have heard much about lycopene, but you have certainly seen plenty of it. Just as beta-carotene is nature's yellow-orange pigment, lycopene is a bright red pigment, providing the color for tomatoes, watermelon, and pink grapefruit.

Lycopene is in the carotenoid family, meaning that it is beta-carotene's chemical cousin, and it is actually a much more powerful antioxidant. A study at Harvard University

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showed that men who had just two servings of tomato sauce per week had 23 percent less prostate cancer risk, compared to those who rarely had tomato products.²⁴ Men consuming ten or more servings of tomato products each week had a 35 percent reduction in risk, and that was true even if their tomatoes came in the form of pizza sauce, spaghetti sauce, or ketchup. In fact, the cooking process releases lycopene from the plant's cells, increasing your ability to absorb it.

Dairy Products

An additional cancer risk relates to a protein in the bloodstream called insulin-like growth factor-I (IGF-I). Although a certain amount of IGF-I in the blood is normal, high levels are linked to increased cancer risk.²⁵⁻²⁸ IGF-I plays a role in cell growth, among other functions, and test-tube experiments show that IGF-I encourages cancer cell growth.^{29,30}

Diet has a strong influence on IGF-I. In general, excess intake of calories or proteins increases the amount of IGF-I in the blood, and the inclusion of dairy products in the diet merits particular attention. According to a 1997 review published by the World Cancer Research Fund and the American Institute for Cancer Research, at least 11 human population studies have linked dairy product consumption and prostate cancer.³¹ Since then, two major Harvard studies have shown that milk-drinking men have 30 to 60 percent greater cancer risk than men who generally avoid dairy products.^{32,33} Since then, several other studies have found much the same thing. People increasing the amount of dairy products in their diets are typically found to have higher levels of IGF-I in their blood. Following a study of 12-year-old girls in Sheffield, England, which found that increasing daily milk consumption increased serum IGF-I concentration, a study of adult men and women showed that adding three daily eight-ounce servings of nonfat or 1 percent milk for 12 weeks was associated with a 10 percent increase in serum IGF-I concentration.^{34,35} Other mechanisms that may contribute to the association between dairy products and prostate cancer include the deleterious effect of high-calcium foods on vitamin D balance, and the effect of dairy products on testosterone concentration or activity.

The most important message is that while consumption of meat and dairy products appears to increase cancer risk, diets rich in vegetables and fruits cut risk, giving men more control over their health than they might otherwise have had.

Foods for Cancer Survival

What about after prostate cancer has been diagnosed? Will a change in eating habits help a man beat the disease? More research is needed, but evidence already available suggests that, whatever other treatments a man may un-

dergo, changes in his diet might well save his life.

Vegetarians and populations whose culinary traditions are based on rice, soy products, or vegetables not only have lower cancer rates; they also have a far lower risk of progression should cancer cells gain a foothold.³⁶ The possibility that survival for cancer patients may be improved to the extent that they adopt a plant-based diet is bolstered further by the findings that vegetables and fruits strengthen the immune cells that seek out and destroy cancer cells and inhibit their spread.

Putting Diet to the Test

The first prospective studies of diet's potential benefits were purely observational. In 1999, researchers in Québec City reported their findings after following 384 men with prostate cancer over a five-year period. It turned out that those who consumed the most saturated fat—the kind particularly prevalent in meats and dairy products—had three times the risk of dying from the disease, compared to those with the lowest saturated fat intake. Increased risk was also found with higher intakes of total and monounsaturated fat, but these increases were not significant.³⁷

The following year, researchers in Toronto and Vancouver reported the results of a study of 263 men with prostate cancer. After adjustment for clinical stage, tumor grade, and other factors, men who consumed the most monounsaturated fat (the type that is abundant in olive and canola oils) lived longest. Their risk of dying was 70 percent lower, compared to those with the lowest intake of monounsaturates. The study also found increased risk from animal fat and saturated fat intake, although these latter findings were not strong enough to reach statistical significance.³⁸

Using a Vegan Diet

Dean Ornish, M.D., who had already demonstrated the benefits of a low-fat, vegetarian diet for heart patients (finding that it reversed heart disease in 82 percent of research participants), decided to put a similar program to the test for prostate cancer.³⁹ The 84 volunteers were men with cancer who were able to defer treatment, at least for the moment, because they were keeping a careful watch on their prostate-specific antigen (PSA, an index of cancer spread) levels, a strategy known as “watchful waiting.” Typically, PSA levels slowly rise, and eventually treatment (e.g., surgery) may be required. Dr. Ornish randomly assigned half the men to their usual care (the control group) and the remaining half to a low-fat, vegan diet, accompanied by regular exercise and stress management. In the 42 men in the control group, PSA levels rose over the three-month study period, and 7 required additional treatment. But in the 42 men assigned to the vegan diet and lifestyle intervention, the average PSA level dropped from 6.3 to 5.8,



and none required further treatment. These results were presented at the Scientific Conference on Complementary, Alternative, and Integrative Therapies at Harvard University on April 13, 2002.

Using Diet Against Advanced or Recurrent Cancer

Dr. Ornish's approach is extremely promising for men with early disease. But what about advanced cancer? Evidence suggests that diet changes can still play a vital role. Two studies have used special diets in men who had previously been operated on for prostate cancer but had had recurrences of their disease. Using a macrobiotic diet that emphasized whole grains, vegetables, and legumes, while avoiding dairy products and most meats, nine men with prostate cancer had an average survival of 228 months, compared to 72 months for a matched group of men receiving no special diet.⁴⁰

A study at the University of Massachusetts tested the benefits of a diet change in ten men with prostate cancer that had recurred after surgery. The diet was based on whole grains, legumes, green and yellow vegetables, seeds, soy products, and fruit, and the men were also instructed

in stress-reduction techniques. To measure the program's effect, researchers tracked how long it took for the patients' PSA levels to double—the longer the PSA doubling time, the slower the cancer is spreading. Before the study began, the average PSA doubling time was 6.5 months. But after four months in the program, it had slowed to 17.7 months, an encouraging finding. In three of the men, PSA levels actually fell.⁴¹

An additional survival study is underway at Memorial Sloan-Kettering Cancer Center in New York.⁴² And at the University of California at Los Angeles, two studies are in progress:⁴³ In the first, men with prostate cancer who have elected for “watchful waiting” are randomly assigned to a “western diet” or a low-fat, high-fiber diet, and serum growth factors and biomarkers are followed. In the second study, men scheduled for radical prostatectomy are given green tea, black tea, or green tea extract prior to surgery and their prostate tissue is examined for the effects of these treatments. In 2003, an additional pre-prostatectomy study will begin that studies the effect of a low-fat diet.

Cancer-Fighting Power You Can See

In 2002, researchers at the University of California at Los Angeles reported a series of unusual experiments that demonstrated the power of diet and exercise. They drew blood samples from a group of eight men who had been following a low-fat diet and exercising regularly for several years. They also drew blood samples from overweight men who were not following the diet and exercise program. They added portions of each man's blood serum to test tubes containing standardized prostate cancer cells. Serum from men on the low-fat diet and exercise program slowed cancer cell growth by 49 percent, compared to serum from the other men. How could this be? Differences in testosterone, estrogen, and insulin account for part of the effect, but other changes in the blood exert additional effects the researchers have not yet teased out.⁴⁴ The research team also found that a man's serum shows demonstrable cancer-inhibiting power within as little as 11 days after beginning a low-fat diet and exercise regimen.⁴⁵

The Bottom Line

While more research will be of great value, evidence is already suggests that men with prostate cancer—and their families—should be encouraged to adopt a low-fat, vegan diet. By boosting vegetables, fruits, beans, and whole grains, and avoiding dairy products, meats, eggs, and fried foods, men are able to take advantage of protective nutrients and avoid cancer-promoting factors.

For the patient contemplating surgery, doctors are often less aggressive in recommending surgery for prostate cancer compared to other cancers. This is partly because

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prostate surgery can cause a lot of problems, at least in the short term. Incontinence can last for weeks and is permanent in a small percentage of cases.⁴⁶ Damage to nerves and arteries during surgery often causes impotence, although in some cases the nerves and arteries can be spared.⁴⁷ Doctors realize that prostate cancer often advances very slowly. Most patients live many years whether they have surgery or not, and some researchers believe that surgery does not always change the long-term odds very much.⁴⁸

It is essential to tailor your treatment to your specific condition, taking advantage of a second opinion if necessary. Doctors may recommend observation alone, particularly for older men whose tumors are small and less aggressive, as determined by biopsy results.⁴⁹ If surgery is deferred, the physician can periodically monitor levels of PSA (prostate-specific antigen), which indicates changes in the tumor.

Prostate-Specific Antigen (PSA)

PSA, a protein made within the prostate and secreted into semen, shows what the prostate is doing. If the gland is disrupted for any reason—surgery, biopsy, trauma, or cancer—PSA leaks into the bloodstream and easily shows up on a simple blood test. A low level of PSA is present in the blood of any man with a functioning prostate; higher levels alert physicians that a change of some type has occurred in the prostate.

PSA levels vary greatly from one person to the next. For cancer patients, doctors are less interested in the exact PSA level than in changes over time. If the prostate is surgically removed and there has been no spread of the tumor elsewhere in the body, the PSA will become undetectable within three weeks after the operation. Radiation treatments cause a slower drop.⁵⁰ A PSA increase may be a sign that further treatment is needed.

Increased PSA levels do not necessarily mean cancer. They can also be caused by benign prostate enlargement, infection, or surgical manipulation.

If your diet is right, you may never know you even have a prostate except when your doctor asks to check it. The very same low-fat, vegetarian diet that is so good for you in many other ways is by far the best diet for preventing prostate problems.

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