Risk Factors for Prostate Cancer

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About the cover: *David* (1623-1624), by Gian Lorenzo Bernini, Galleria Borghese, Rome
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Executive Summary

Prostate cancer is the most frequently diagnosed cancer and the second most frequent cause of cancer death among American men. The number of reported cases of prostate cancer has increased in the past twenty years, but this may be largely due to increases in detection of the disease. Whether the actual number of prostate cancer cases changed during this time period is uncertain.

Conflicting recommendations have been made about prostate cancer screening. Some authorities recommend annual tests for men over age 50 and for high-risk men in younger age groups. Others, however, oppose routine screening because it has not been shown to save lives and because it may lead to unnecessary treatment. Men should discuss prostate cancer screening with their physicians and make individual decisions about whether to undergo this type of testing.

The only fully established risk factors for prostate cancer are increasing age, African-American ethnicity, and family history of the disease. Research has almost conclusively established a role for male hormones (androgens) in the causation of prostate cancer, but the effects of these hormones are not fully understood. No lifestyle factors (including diet and exercise) have been conclusively established as prostate cancer risk or protective factors. Among the lifestyle factors, those with the most suggestive—but far from conclusive—supporting evidence are above-average intakes of energy (calories), total fat, meat, and red meat. All of these risk factors have “reasonable or promising” potential to be considered risk factors, but do not yet meet the classic criteria to be considered causal factors. Other theoretical risk factors with “speculated, conflicting, or limited” support include above-average body mass index, alcohol intake (either abstinence or heavy drinking), specific types of dietary fat, and dietary intakes of poultry, fish, eggs, and milk. Potential protective factors with “speculated, conflicting, or limited” support include vitamin A, carotenoids, lycopene, vitamin D, vitamin E, and alcohol. Purported risk or protective factors with very “weak” scientific support include physical activity, number of sexual partners, history of sexually transmitted diseases, human papilloma virus (HPV) infection, vasectomy, cheese or butter intake, intake of phytoestrogens, and tobacco smoking. Purported
risk factors that are not supported by the scientific evidence include vitamin E (as a risk factor), above-average body estrogen levels, and in utero exposure to diethylstilbestrol (DES).

Introduction

“A Slice of Pizza Cuts Prostate Cancer Risk”
HealthSCOUT, December 20, 2001

“Obesity Linked to Aggressive Prostate Cancer”
Reuters, December 15, 2001

“Multiple Sex Partners May Increase Risk of Prostate Cancer”
Jet magazine, August 6, 2001

“Flaxseed May Limit Prostate Tumors”
Los Angeles Times, July 16, 2001

“Oily Fish May Cut Prostate Cancer Risk”
MSNBC, May 31, 2001

“Milk May Raise Prostate Cancer Risk”
USA Today, April 4, 2000

If you read enough news headlines, you may get the impression that practically every aspect of a man’s diet and lifestyle influences his chances of getting prostate cancer. But headlines can mislead you. News stories about factors that affect cancer risk are usually prompted by an announcement of the results of a new scientific study. No single study, however, should be considered definitive. To truly understand the risk factors for prostate cancer, it is necessary to critically examine the findings of all of the hundreds of studies that have been conducted on this subject. The conclusions of this type of evaluation turn out to be very different from what a quick look at the headlines might lead you to expect.

This report by the American Council on Science and Health (ACSH) reviews the scientific evidence pertaining to a variety of factors that may influence prostate cancer risk. It rates each of
these factors on a scale ranging from “established” to “unsupported.” The report also includes brief summaries of prostate cancer screening, symptoms, and treatment.

Magnitude of the Problem

Prostate cancer is the most frequently diagnosed cancer among American men. During 2001, approximately 198,000 new cases were diagnosed, and approximately 31,500 men died of the disease. Prostate cancer is the second most frequent cause of cancer death among American men (lung cancer is number one). However, most cases of prostate cancer are not fatal.

It is unclear whether prostate cancer has become more or less common in recent years. The number of reported cases of prostate cancer has definitely increased since the 1980s, but this may reflect improved detection of the disease rather than a true increase in the number of men who develop it.

Many prostate cancers grow slowly. They start relatively late in a man’s life and may never progress to the point at which they would cause obvious symptoms. Until the 1980s, elderly men with slow-growing prostate cancers usually died of other diseases without ever knowing that they also had prostate cancer. Doctors use a surgical method to treat men with noncancerous prostate problems; during these operations, they sometimes discovered that the patient had a previously unsuspected prostate cancer. Then, in the early 1990s, a blood test to screen for prostate cancer (the prostate-specific antigen or PSA blood test) became available. The widespread use of this test led to further increases in the number of cancers that were diagnosed. As a result of the use of the PSA test, the number of reported cases of prostate cancer increased substantially. Subsequently, the rate leveled off. However, it is uncertain whether the actual number of cancers has changed.

Changes in prostate cancer death rates have been less dramatic than changes in the reported number of cases. The reported number of deaths inceased during the late 1980s and early 1990s and declined during the late 1990s.
Symptoms and Treatment

Early-stage prostate cancer sometimes has no symptoms at all. In other instances, a man may notice some urinary tract symptoms, such as having difficulty starting to urinate, needing to urinate frequently during the night, or feeling as though his bladder hasn’t emptied completely after urination. Having these kinds of symptoms does not necessarily mean that a man has prostate cancer, however. The same kinds of symptoms are most often produced by a noncancerous disorder called benign prostatic hypertrophy/hyperplasia (often referred to as BPH or prostate enlargement) that is very common among older men.

Treatment methods for prostate cancer vary, depending on the extent to which the cancer has spread at the time of diagnosis, the man’s age, and other factors. Most prostate cancers are limited to the prostate gland at the time of diagnosis. A variety of treatment options are available for these early-stage cancers, including surgical removal of the prostate gland, several types of radiation therapy, and “watchful waiting” (careful follow-up without immediate treatment). Watchful waiting is appropriate primarily for elderly men with slow-growing cancers, who may not live long enough to ever need active treatment for prostate cancer.

If cancer has spread beyond the prostate gland, hormonal treatment and/or chemotherapy may be used to slow the growth of the cancer. It is unlikely, however, that such advanced cancers can be cured.

Screening for Prostate Cancer

Sometimes the most unlikely things can turn out to be controversial.

In 1999, the U.S. Postal Service issued a postage stamp urging “Prostate Cancer Awareness.” You might think that everyone involved in prostate cancer research would have welcomed this stamp because it helped to focus public attention on the disease. But in actuality, some scientists and health professionals were critical. Their problem: the stamp featured the words “Annual Checkups and Tests,” even though there is no consensus that test-
ing healthy men for prostate cancer actually has the effect of prolonging life.

Some health organizations and experts, such as the American Cancer Society and the American Urological Association, encourage annual screening for prostate cancer, using the prostate-specific antigen (PSA) blood test and a rectal exam, for all men age 50 and over and for younger men in high-risk groups. These experts argue that screening can identify latent prostate cancer cases, leading to earlier diagnosis and treatment – and hopefully, fewer deaths.

Other equally knowledgeable authorities, however, including the U.S. Preventive Services Task Force and the National Cancer Institute, do not favor routine screening for prostate cancer. These experts argue that there is no proof that screening is directly linked to a reduction in death rates. They also point out that screening may lead to an increase in the number of men who suffer side effects from prostate cancer treatment. These effects may include incontinence and impotence from surgical treatment or bowel problems due to radiation therapy.

This conflict in views is not likely to be resolved until future research shows whether the overall impact of prostate cancer screening is beneficial or harmful. Until new information becomes available, it is prudent for all men to discuss prostate cancer screening with a trusted family physician and make individual decisions about whether to undergo this type of testing.

It’s important for men to realize that the controversy over the use of the PSA blood test applies only to the use of this test as a screening tool for seeking latent disease among apparently well men. The disagreement in expert recommendations does not apply to the use of the PSA test as an aid to diagnosis in men who have symptoms of prostate disease or to its use for follow-up of men already diagnosed with prostate cancer.

The Concept of Risk Factors

Unlike some other diseases, such as infections, most cancers do not have a single cause. Instead, they result from the interaction of multiple factors that range from genetic characteristics to personal lifestyle. Researchers who study the causes of cancer use the term
<table>
<thead>
<tr>
<th>Risk or Protective Factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age &gt; 50 years</td>
<td>3</td>
</tr>
<tr>
<td>African-American</td>
<td>3</td>
</tr>
<tr>
<td>Family history of prostate cancer</td>
<td>3</td>
</tr>
<tr>
<td>Above-average levels of male hormones (androgens)</td>
<td>2+</td>
</tr>
<tr>
<td>Genetic predisposition</td>
<td>2</td>
</tr>
<tr>
<td>Total dietary fat</td>
<td>2</td>
</tr>
<tr>
<td>Total dietary energy (calories)</td>
<td>2</td>
</tr>
<tr>
<td>Meat</td>
<td>2</td>
</tr>
<tr>
<td>Red meat</td>
<td>2</td>
</tr>
<tr>
<td>Above-average body mass index (BMI)</td>
<td>2-</td>
</tr>
<tr>
<td>Dietary animal fat</td>
<td>2-</td>
</tr>
<tr>
<td>Saturated fat</td>
<td>2-</td>
</tr>
<tr>
<td>Monounsaturated fat</td>
<td>2-</td>
</tr>
<tr>
<td>Polyunsaturated fat</td>
<td>2-</td>
</tr>
<tr>
<td>Poultry and fish</td>
<td>2-</td>
</tr>
<tr>
<td>Eggs</td>
<td>2-</td>
</tr>
<tr>
<td>Milk</td>
<td>2-</td>
</tr>
<tr>
<td>Vitamin A (protective)</td>
<td>2-</td>
</tr>
<tr>
<td>Carotenoids (protective)</td>
<td>2-</td>
</tr>
<tr>
<td>Lycopene (protective)</td>
<td>2-</td>
</tr>
<tr>
<td>Vitamin D (protective)</td>
<td>2-</td>
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<tr>
<td>Vitamin E (protective)</td>
<td>2-</td>
</tr>
<tr>
<td>Alcohol (protective)</td>
<td>2-</td>
</tr>
<tr>
<td>Alcohol (risk)</td>
<td>2-</td>
</tr>
<tr>
<td>Above-average physical activity (protective)</td>
<td>1+</td>
</tr>
<tr>
<td>Above-average physical activity (risk)</td>
<td>1+</td>
</tr>
<tr>
<td>Above-average lean body mass</td>
<td>1+</td>
</tr>
<tr>
<td>Above-average height</td>
<td>1+</td>
</tr>
<tr>
<td>Above-average number of sexual partners</td>
<td>1+</td>
</tr>
<tr>
<td>History of sexually transmitted disease (gonorrhea or syphilis)</td>
<td>1+</td>
</tr>
<tr>
<td>Human Papilloma Virus (HPV) infection</td>
<td>1+</td>
</tr>
</tbody>
</table>
risk factor to refer to anything that is associated with an increased chance of developing a particular type of cancer. Factors that are associated with a decreased chance of developing a particular cancer are called protective factors.

Risk factors are a matter of probability. They influence an individual’s odds of developing a disease. That’s not the same thing as actually causing the disease to occur. On the other hand, some risk factors, such as cigarette smoking and lung cancer, are so strongly linked that “causation” is an appropriate synonym for “risk factor.” Some people with one or more risk factors for a particular type of cancer never develop it, while other people who have no known risk factors do develop the disease.

Different cancers have different risk factors. For example, smoking is the most important risk factor (indeed, cause) for lung cancer, but it is not a risk factor for skin cancer. Conversely, exposure to ultraviolet light from the sun is a risk factor for skin cancer but not for lung cancer.

Some risk factors, such as smoking or dietary habits, are modifiable. Individuals may be able to reduce their risk of becoming ill by changing these aspects of their lifestyle. For example, having a first child after the age of 35 is a risk factor for breast cancer, but is

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vasectomy</td>
<td>1+</td>
</tr>
<tr>
<td>Cheese/butter</td>
<td>1+</td>
</tr>
<tr>
<td>Phytoestrogens (protective)</td>
<td>1+</td>
</tr>
<tr>
<td>Tobacco smoking</td>
<td>1+</td>
</tr>
<tr>
<td>Vitamin E (risk)</td>
<td>1</td>
</tr>
<tr>
<td>Above-average endogenous (natural) estrogen level (protective)</td>
<td>1</td>
</tr>
<tr>
<td>In utero exposure to diethylstilbestrol (DES)</td>
<td>1</td>
</tr>
</tbody>
</table>

* All characteristics listed are risk factors unless they are explicitly identified as protective factors.

Key:
- 3 — Established (supported by the scientific evidence)
- 2+ — Nearly established, but not fully accepted or fully understood
- 2 — Reasonable scientific hypothesis, but lacking solid scientific support
- 2- — Speculated, conflicting, or limited scientific support
- 1+ — Weak scientific support
- 1 — Not supported by the scientific evidence

* For more information on the health effects of cigarette smoking, see the ACSH book, “Cigarettes: What the warning label doesn’t tell you.”
a “lifestyle factor” that is not always under control of the individual. Other risk factors, such as age, gender, ethnic background, or family history of a disease, obviously cannot be modified.

Risk Factors for Prostate Cancer

Scientists have investigated a wide variety of factors in an effort to determine whether they might increase or decrease the risk of prostate cancer. The evidence pertaining to most of these factors is not conclusive. Table 1 lists some of the factors currently under investigation, with rankings of the strength of the scientific evidence for each. Factors with a ranking of “3” have been solidly established as risk factors for prostate cancer. The one factor ranked “2+” has nearly achieved the status of fully established, but it is not completely understood. Factors ranked “2,” “2-,” or “1+” have some degree of scientific support, but the evidence in their favor is tentative or conflicting. Factors ranked “1” are not supported by the current scientific evidence.

Established Risk Factors

Only a few factors have been conclusively established as risk factors for prostate cancer, and none of them are readily modifiable aspects of a man’s lifestyle.

The most obvious risk established risk factor for prostate cancer is male gender. Since women do not have any prostate tissue in their bodies, they cannot develop prostate cancer.

Increasing age is one of the most solidly established risk factors for prostate cancer. The risk of prostate cancer begins to increase when a man reaches his late forties, and it continues to increase as he grows older. More than 70% of all prostate cancers are diagnosed in men over the age of 65.

Being an African-American man is also a clearly established risk factor for prostate cancer. For reasons that are not completely understood, prostate cancer rates vary greatly in different parts of the world and among men of different ethnic backgrounds. African-American men have one of the highest prostate cancer rates in the world. They are 69% more likely than white American men to be
diagnosed with prostate cancer, and they are more than twice as likely to die from it.

Having a family history of prostate cancer in close male relatives is also an established risk factor. This risk factor may reflect a combination of inherited characteristics and common lifestyles shared by family members. It is believed that approximately 9% of all prostate cancer cases result from genetic mutations and that as many as half of all prostate cancer cases in younger men may result from inherited conditions. The evidence specifically linking genetic predisposition to prostate cancer risk is not as strong as the evidence for family history, however.

**Male Hormones (Androgens): An Almost-Established Risk Factor**

The prostate gland is part of the male reproductive system, and its normal growth and function are regulated by male sex hormones (androgens). Thus, it’s logical to suspect that androgens (testosterone and related substances) might have some effect on the risk of prostate cancer.

Scientists have been investigating the possible role of androgens in prostate cancer since the 1970s, and the results of their studies have been reasonably consistent. It now seems certain that androgens do play some role in the causation of prostate cancer, and that having higher than average levels of androgens in the body probably increases risk. However, many questions remain about the roles of specific androgens, the mechanisms by which the hormones might exert an effect, and the timing of the relationship. (Is it androgen levels early in life that matter? Or in later life? Or both?)

Differences in androgen levels may explain at least part of the variation in prostate cancer rates among ethnic groups. For example, several studies have shown that androgen levels in African-American men tend to be higher than those in men of other ethnic groups. This may partially explain the high susceptibility of African-American men to prostate cancer. Effects on androgens might also be a mechanism by which some lifestyle factors could influence prostate cancer risk. For example, changes in dietary habits may lead to changes in androgen levels and thus perhaps to changes in prostate cancer risk.
Although there’s nothing a man can do (at least right now) about his androgen levels, the almost certain link between androgens and prostate cancer is of great interest to scientists because it may enable them to develop chemoprevention methods. The term chemoprevention refers to the use of drugs to reduce the risk of a disease. Drugs with anti-androgenic effects may be of value in prostate cancer chemoprevention. One such drug, finasteride, is currently being evaluated. However, since the testing has not been completed, no one knows whether this drug will actually help to reduce prostate cancer risk.

*Lifestyle Factors: Equivocal Evidence at Best*

Many lifestyle factors have been investigated in relation to prostate cancer, but none of these factors has been conclusively established as a risk or protective factor. The current state of the evidence on some of the most frequently discussed risk factors is summarized in the next few sections.

**Physical Activity.** It has been proposed that physical activity may influence androgen levels in men, indirectly affecting their risk of prostate cancer. In several studies, scientists have looked for associations between high physical activity levels and prostate cancer risk in an effort to see whether activity might increase or decrease risk. One study associated high activity levels with increased risk and another with decreased risk, while still other studies found no evidence of any effect. Thus, there is currently little support for the concept that physical activity either increases or decreases prostate cancer risk.

**Factors Related to Body Size.** It has been speculated that larger men—those who are heavier, taller, or both—may be at increased risk of prostate cancer. Most studies of body size have focused on body mass index (BMI), a measure that incorporates both weight and height. High BMI is indicative of obesity. It is often associated with high calorie intake and low physical activity, both of which are also being investigated as possible prostate cancer risk factors. Some studies have found higher prostate cancer rates among men with high BMI, but a larger number have found no such relationship. Other studies have investigated the relationship of lean body
mass (LBM) and/or height to prostate cancer risk; most failed to
detect any relationship, but a few indicated that taller or larger men
might be at higher risk. Overall, the evidence for a relationship
between factors related to body size and prostate cancer risk is
weak.

**Sexual History.** Several studies have attempted to relate various
aspects of a man’s sexual history, such as above-average number of
sex partners or history of sexually transmitted diseases, to prostate
cancer risk. Some of these studies have found that these factors pre-
dict an increased risk of prostate cancer, but the findings are ques-
tionable because of problems with study design. In many of the
studies, the data were collected by asking elderly men with and
without prostate cancer about sexual events that occurred decades
in the past. Men who have been diagnosed with a disease that can
affect their sexual functioning, such as prostate cancer, may recall
past sexual events differently than healthy men do. These differ-
ences in recall could distort the results of a study. In addition, some
studies found differences in the relationship between sexually trans-
mitted diseases and prostate cancer risk among men in different
ethnic groups; such differences are hard to explain.

If having multiple sexual partners does turn out to be asso-
ciated with increased risk of prostate cancer, the human papilloma
virus (HPV) might be responsible for the relationship. HPV, which
is a known cause of cervical cancer in women, is transmitted sexu-
ally, and people with multiple sexual partners are more likely than
those with fewer partners to be infected with this virus. However,
the evidence for a role of HPV in the causation of prostate cancer is
equivocal.

**Vasectomy.** A scientific study completed in the late 1980s indi-
cated that men who had undergone vasectomies had an increased
risk of prostate cancer. Later studies, however, did not confirm this
finding. They showed only weak associations, if any, between
vasectomy and prostate cancer risk.

Men who have vasectomies may be more likely to be diag-
nosed with prostate cancer simply because they have to go to a
doctor in order to have the surgery. Both during the initial visit and
during the follow-up period after the operation, the physician is
likely to conduct careful urologic examinations, which might lead
to the detection of prostate cancer. Thus, any small increase in the number of diagnosed prostate cancers among men who have had vasectomies, as opposed to those who have not, may reflect an increase in diagnosis rather than an increase in the true number of cancers. The idea that there is an association between vasectomy and any true increase in prostate cancer risk has only weak scientific support (1+).

**Dietary Factors.** Many scientific studies have evaluated the relationship between dietary fat and/or energy (calorie) intake and prostate cancer risk. Although the results of this body of research are not entirely consistent, there is suggestive evidence (a score of 2) that both high fat intake and high calorie intake may be associated with increased risk.

Studies that have attempted to relate specific components or types of fat (such as saturated vs. unsaturated fatty acids) to prostate cancer risk have had less consistent results. There is only limited scientific evidence supporting any specific type of fat as a prostate cancer risk factor.

There is consistent suggestive evidence (rated 2) that above-average intake of total meat or red meat may be associated with increased risk of prostate cancer. The findings for other foods of animal origin—such as poultry, fish, eggs, and various dairy products, are less consistent, with none ranking higher than 2-.

Despite interest-group campaigns and news reports to the contrary, the drinking of milk is *not* an established—or even reasonably suggestive—risk factor for prostate cancer. In fact, the evidence for a role of milk is merely speculative. The results of various studies have been about evenly divided, with about half suggesting that milk might be associated with increased risk, and the others showing no evidence of an effect.

It has been suggested that several vitamins and related substances, including vitamins A, D, and E, the carotenoids as a group, and the specific carotenoid lycopene (which is found in tomatoes and their products) may protect against prostate cancer. However, the evidence for a protective role for any of these substances is limited. Although some studies have associated above-average intakes of these substances with reduced risk of prostate cancer, other studies have not found any evidence of an association.

The possible role of lycopene has attracted particular attention.
in the mass media, perhaps because people are intrigued by the idea that a well-liked food such as tomato sauce could help prevent cancer. There is good reason to speculate that lycopene might be protective: this carotenoid is found in higher levels in the prostate than in most other body organs, and it has several biological actions which might be cancer-protective. However, only some of the studies that attempted to relate men’s lycopene intakes to their risk of prostate cancer found a relationship. Thus, the role of lycopene as a prostate cancer protective factor is still considered merely speculative.

**Estrogens.** Although people tend to think of androgens as exclusively male hormones and estrogens as exclusively female hormones, people of both sexes actually have both types of hormones in their bodies. It has been suggested that men who have relatively high levels of natural estrogens in their bodies might be at lower risk of prostate cancer, but scientific studies have not supported this idea. Some studies have found higher blood estrogen levels among men with prostate cancer as compared to healthy men, while other studies showed the opposite relationship or no relationship.

The scientific evidence also does not support the idea that exposure before birth to the estrogen diethylstilbestrol (DES) has any influence on prostate cancer risk. (Several decades ago, DES was used as a drug for the prevention of miscarriage. Girls who were exposed to this drug because their mothers used it during pregnancy were later found to have an increased risk of certain cancers of the female reproductive tract. The effects of DES on boys are less clear.)

Another way in which men may be exposed to estrogens is through consuming substances in food which have weak estrogenic activity. These substances, called *phytoestrogens*, are found in soybeans and certain other plant-derived foods. Investigation of the relationship of phytoestrogens to prostate cancer has been prompted largely by the observation that Japanese men, who frequently eat foods rich in phytoestrogens, have much lower prostate cancer rates than American men, most of whom eat these foods infrequently. Only a small number of human studies have assessed the relationship between phytoestrogens and prostate cancer, and the results of these studies have not been impressive. The idea that phytoestro-
gens might protect against prostate cancer has only weak scientific support (1+).

**Alcohol and Tobacco.** In the 1960s, it was suggested that heavy consumption of alcohol might reduce the risk of prostate cancer, perhaps by lowering male hormone (androgen) levels in the body. More recently, it has been suggested that heavy intake of alcohol might increase prostate cancer risk by interfering with nutrition or by reducing the ability of the liver to detoxify cancer-causing agents. However, there is little evidence to support either of these ideas. Investigations of the relationship of alcohol intake to prostate cancer risk are continuing.

Because tobacco smoking is an established risk factor for a wide variety of cancers, researchers have considered the possibility that it may be linked with prostate cancer as well. However, the evidence for such an association is weak at best. Most studies have found no important difference in prostate cancer rates between smokers and nonsmokers or have shown only a small excess of prostate cancers among smokers. Any small excess could easily be attributable to increased diagnosis of latent prostate cancers among smokers. Because smokers tend to have more health problems than nonsmokers do, they go to the doctor more often and therefore may be more likely to be tested for prostate cancer.

**Risk Factors for Prostate Cancer: Putting the Evidence into Perspective**

In summary, the only fully established risk factors for prostate cancer are increasing age, African-American ethnicity, and family history of prostate cancer. Male hormones are almost fully established as a risk factor but their role is incompletely understood. There is suggestive, but far from conclusive, support for the idea that above-average intakes of dietary energy (calories), total fat, meat, and red meat are associated with increased risk of prostate cancer. The evidence for all other purported risk or protective factors is even more conflicting or limited.

Because prostate cancer is such a common disease, both scientists and the general public are eager to find ways for men to
reduce their risk. It is important, however, not to exaggerate the strength of the scientific evidence. The risk factors for prostate cancer are not as well understood as those for some other types of cancer, such as lung cancer and skin cancer. Much more research will have to be done before health authorities can issue definitive recommendations about how a man should modify his lifestyle to minimize his prostate cancer risk. For now, men must accept the frustrating situation that there are very few things that they can do specifically for the purpose of preventing prostate cancer.

The current evidence justifies the following recommendations:

• Men who are at increased risk because of their age, ethnic background, or family history should talk to their physicians and see if any screening tests for prostate cancer are warranted.

• All men should eat a sensible diet that includes only moderate amounts of fat and meat and should keep an eye on their calorie intake. Weight control and a prudent diet play important roles in the prevention of heart disease, diabetes, and other serious health problems, and they may help to reduce the risk of prostate cancer as well, although this is not absolutely certain. Other things that a man does to stay healthy—such as exercising regularly, abstaining from the use of tobacco, and eating plenty of vitamin-rich fruits and vegetables—are of benefit in other forms of cancer prevention, but have not yet been confirmed as beneficial for prostate cancer.

• Men should be extremely wary of making unusual changes in their lifestyles in the hope of reducing their prostate cancer risk. For example, it would not make sense for a man to take high doses of vitamin supplements in an effort to reduce his risk of prostate cancer. High doses of some vitamins can have serious adverse effects, and the evidence that any vitamin protects against prostate cancer is merely speculative. Similarly, it doesn’t make sense for a man to stop drinking milk in an effort to prevent prostate cancer. Milk contributes important nutrients to the diet, and the evidence that drinking milk has any effect on prostate cancer risk is conflicting. Similarly, there is no reason for men to exclude moderate amounts of meat and other animal products from their diets for the purpose of reducing
prostate cancer risk.

Extensive research on prostate cancer is currently underway at universities and medical centers in the U.S. and throughout the world. The results of studies that are now in progress may allow more definitive recommendations for prostate cancer prevention to be made in the future. At the present time, however, there is no conclusive evidence that modification of any aspect of a man’s lifestyle can reduce his risk of prostate cancer.

For More Information

Good sources of information about prostate cancer include:

**The American Cancer Society**

1-800-ACS-2345

www.cancer.org

**The National Cancer Institute**

1-800-4CANCER

www.nci.nih.gov
The arguments for and against prostate cancer screening are presented in the following documents:

