

**Every Bite Counts!**

## Nutritional Tips for Prostate Cancer Patients



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by a generous grant from  
The New York Community Trust.**

Disclaimer: This booklet has been carefully prepared by Registered Dietitians. It may not, however, represent the very best advice for every individual person living with prostate cancer. Each person should share this booklet with his or her medical provider or Registered Dietitian in order to seek a professional opinion on specific nutritional needs. The inclusion of any products in this booklet does not represent an endorsement.

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## Nutrition and Prostate Cancer

**Prostate cancer is the second most common cancer** among American men, after skin cancer, according to The National Cancer Institute. In the United States, the disease will strike some 230,110 men each year. African-American men have the highest rates of diagnosis in the world.

If you have been diagnosed with prostate cancer, your treatment options include surgery, radiation, hormone therapy, or chemotherapy.

Age, race, family history, and regions of residence are four big risk factors for prostate cancer.

Although scientists and medical experts do not know exactly what causes prostate cancer, a growing body of research suggests that various nutrition and lifestyle factors may be involved. These factors may also affect the progress and recurrence of the disease. If you are undergoing treatment, your program should take into consideration these factors. Use this booklet to guide your food choices during and after your treatment.

**Eating a healthy, nutritious diet is extremely important** during prostate cancer treatment, as well as for recovery after treatment. All forms of treatment can affect your digestion, absorption, and use of food, as well as place huge demands on your body. Therefore, eating a variety of foods can help you:

- Keep your weight in check.
- Better manage treatment and its side effects.
- Assist in your body's repair and recovery.



## Nutrition During Treatment

**During treatment**, the way that your body uses nutrients may change, causing your energy and protein needs to increase. All of these issues create a challenge to eating adequately and well. Here are some tips to help you:

- **Think balance.** Try to eat a variety of different foods every day - be sure to include servings from the food groups below. This will assist you in obtaining a diet that is high in vital nutrients.
- **Eating smaller meals more often may be helpful**, especially if your appetite is poor.
- When having a meal, **try to eat protein foods first.**
- **See the Side Effect Management section** for help dealing with specific issues.
- **Talk to a Registered Dietitian (RD)** to help you deal with your individual nutrition concerns.

### PROTEINS

**Protein helps your body repair and fight infection**, as well as prevent unintentional loss of muscle mass. That's why it's important to include a protein source with each meal or snack. Good sources of protein include lean poultry, meat, fish, eggs, low-fat dairy products, nuts and nut butters, seeds, legumes, and tofu.

### FATS

**Fats have many important functions in the body.** They furnish energy,

help produce hormones, and act as carriers for the fat-soluble vitamins A, D, E, and K. Good fat sources include olive oil, canola oil, peanut oil, nuts, nut butters, and avocado. Also, omega-3 fatty acids, found in coldwater fish (please see the Selecting Healthy Fats section for more information), walnuts and flax seeds have additional health benefits. One omega-3 fat in particular, eicosapentaenoic acid (EPA), has been found to be helpful in preventing weight loss that accompanies some cancers.

## FRUITS AND VEGETABLES

**Fruits and vegetables are excellent sources** of fiber, vitamins, minerals, and phytochemicals (plant chemicals). Phytochemicals, found naturally in plant foods, have many promising health benefits, including defense against certain diseases. To ensure adequate intake of these nutrients, eat plenty of fruit and vegetables, and in any form. Cooked fruits and vegetables may be better tolerated if you are experiencing diarrhea.

## CARBOHYDRATES

**Carbohydrates are energy foods.** They also provide your body with vitamins, minerals, phytochemicals, and fiber. Good sources include bread, grains, cereals, pasta, and rice. During treatment, if you can tolerate high-fiber foods, choose whole-wheat bread, whole-wheat pasta, brown rice, oatmeal, and quinoa. These contain the entire grain kernel and are plentiful in vitamins, minerals and fiber. If you cannot handle the fiber during your treatment, enjoy refined grains such as white rice, ready-to-eat cereals, and enriched (white) bread.

## NUTRITIONAL SUPPLEMENTS

**Maintaining weight may be a struggle for some people**, especially those with solid tumors, due to metabolic changes caused by the disease. That's why nutrient-dense beverages or snacks may be helpful, especially if you're having trouble meeting your calorie and nutrient needs through your diet alone.

Some nutritional supplements provide EPA, and therefore are a good choice. Nutritional supplements also contain protein to help promote weight gain as well as preserve muscle mass. Various types of commercial nutritional supplements and powders are available. Ask your Registered Dietitian for a recommendation that will work best for you.

## VITAMIN/MINERAL SUPPLEMENTATION

Taking large doses of vitamins and minerals during cancer treatment is not recommended and may even have a negative effect on your treatment outcome. Specifically, the use of antioxidant supplements during chemotherapy is not currently recommended. While antioxidant intake may reduce immediate treatment side effects, it is unclear whether their use in supplement form will alter long-term response to chemotherapy. **It is best to consume antioxidants naturally in foods and to avoid supplements.** A one-a-day type of multivitamin containing around 100% of the Daily Value may be recommended. Consult with your healthcare provider or Registered Dietitian before taking any supplements.





## Side Effect Management

**You may experience side effects related to your treatment.** Below are important nutrition tips that can help you minimize the symptoms. If they persist or worsen, consult your medical provider for possible medications that will help you.

### Nausea/Vomiting

- Prior to each treatment, eat a small, light meal to reduce nausea during treatment.
- Avoid high fat, heavily spiced and very sweet foods.
- Eat bland foods such as dry crackers and toast. These can help settle your stomach.
- Sip clear liquids throughout the day to avoid dehydration.

### Diarrhea

- Avoid high-fiber foods such as raw fruits and vegetables.
- Avoid coffee, tea, milk, milk products, alcohol and sweets.
- Increase your fluid intake and consume foods high in sodium and potassium, such as broth and bananas, to replace the loss of important minerals.

### Poor Appetite

- Eat meals high in protein and calories, such as peanut butter, cheese, boiled egg, and crackers.
- Do not wait until you are hungry to eat. Consume small frequent meals

throughout the day.

- Drink nutritional supplements to increase your calories and protein. Talk to a Registered Dietitian for a recommendation to suit your needs.

## Constipation

- Drink 8-10 cups of fluid daily, including warm, non-caffeinated beverages.
- Increase your intake of foods high in fiber such as whole grain breads, raw fruits and vegetables.

## Gas/Bloating

- Avoid foods such as cabbage, cauliflower, broccoli, dried beans, and peas.
- Avoid carbonated beverages and chewing gum.

## Altered Sense of Taste

- Use tart flavors when cooking, such as lemon, vinegars, pickled foods (if tolerated).
- Season your foods with onion and garlic powders and marinate meats in wines or dressings for added flavor.
- Rinse your mouth with salt water or baking soda and water to help disguise any lingering, unpleasant tastes.

## Food Safety

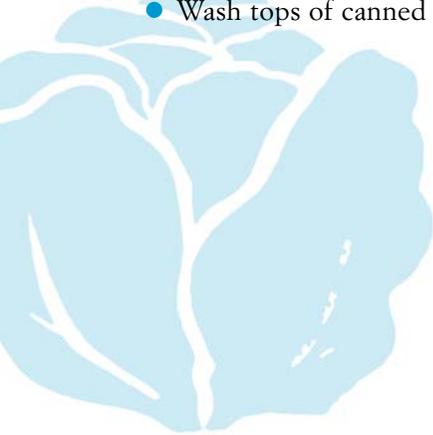
Cancer and its treatments can destroy your body's ability to make infection-fighting white blood cells. This side effect can weaken your immune system, putting you at risk for infection. That's why **it is so important to practice food safety** when handling your food to prevent food-borne infections. Here are some tips to help you:

## AVOID

- Raw/undercooked animal products, including meat, eggs, and shellfish.
- Unpasteurized milk, milk products, fruits, and vegetable juices.
- Aged and soft cheeses such as Brie.
- Molded and outdated products.
- Unrefrigerated cream, as well as custard-containing desserts and pastries.
- Salad bars, buffets and foods from street vendors.
- Leftovers past 3 days.
- Damaged, rusted, dented or swollen canned foods.
- Defrosted then refrozen foods.

## DO

- Wash all fruits and vegetables thoroughly.
- Wash your hands before and after preparing and eating foods.
- Refrigerate perishable foods immediately.
- Store cold foods below 40°F.
- Store leftovers in small shallow containers.
- Cook all meats until well-done: 165°F for meats and 180°F for poultry.
- Thaw meats in the refrigerator on the bottom shelf.
- Wash tops of canned items before opening.





# Nutritional Management of Prostate Cancer

## Selecting Healthy Fats

Although fat has many important functions in the body, some fats are healthier than others. Here are several types of fat in food to guide you in your selection:

- **Saturated Fat** - An unhealthy fat that contributes to the increase of LDL (bad cholesterol) level.
- **Unsaturated Fat** - A healthy fat that is divided into two groups:
  - **Monounsaturated** - found in almonds, canola and olive oils.
  - **Polyunsaturated** - includes omega-3 fat. (See the chart below for sources.)
- **“Trans” Fat** - An unhealthy fat that acts like saturated fat. It is created by adding hydrogen to liquid oil, making it solid, and is usually found in commercially baked goods such as cookies, crackers, and cakes.

Research has shown that the type of fat you eat daily is just as important as the total amount of fat. Eating an excess of saturated fats found in dairy products, meat, palm and coconut oil has been shown to accelerate the growth of prostate cancer. By contrast, omega-3 fat, a healthy source of fat, **has been shown to decrease the rate of tumor growth.** Omega-3 fat can be found in coldwater fish (please see the chart below for examples of coldwater fish that are high in omega-3 fat), flaxseed (please see the following section on More About Flaxseed), and canola oil. The American Heart Association recommends consuming 1.5 to 3 grams of ALA (omega-3 fats from plants) and 0.5 to 1.8 grams of EPA and DHA (omega-3 fats from seafood) daily.

**Omega-3 fat  
has been shown  
to decrease  
the rate of  
tumor growth.**

## Food Sources of Omega-3 Fatty Acids EPA and DHA

### Plant Sources

	Serving	ALA
Walnuts	1 oz. (14 halves)	2.5 grams
Flaxseed, ground	1 tablespoon	1.8 grams
Canola oil	1 tablespoon	1.3 grams
Soybean oil	1 tablespoon	0.9 grams

### Seafood Sources

	Serving	Amount providing 1g of EPA+DHA
Herring, Pacific	3 ounces*	1.5 ounces
Salmon, Chinook	3 ounces	2.0 ounces
Salmon, Atlantic	3 ounces	2.5 ounces
Salmon, Sockeye	3 ounces	3.0 ounces
Trout, Rainbow	3 ounces	3.5 ounces
Tuna, canned, white	3 ounces	4.0 ounces
Crab, Dungeness, cooked	3 ounces	9.0 ounces
Shrimp, cooked	3 ounces	11.0 ounces
Cod, Pacific, cooked	3 ounces	12.5 ounces

\*A 3-ounce serving of fish is about the size of a deck of cards.

## Recommendations

- Reduce overall intake of fat in your diet.
- Limit your intake of saturated fat to 10% of your total calories.
- Limit your overall fat intake by eating fewer foods such as cookies, potato chips and fried food - all of which may contain trans fats.
- Build healthier omega-3 fatty acids into your diet, aiming for 2 to 3 servings weekly.

## Consider...

### EAT LESS OF:

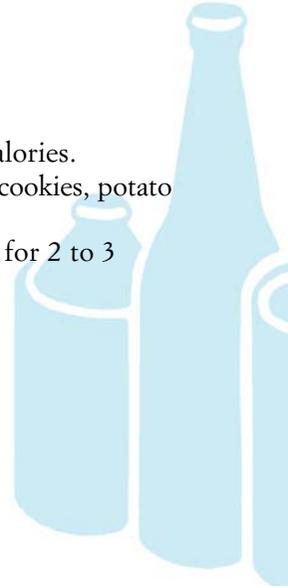
- High-fat beef and other fatty cuts of meat
- High-fat dairy, such as ice cream, whole milk, and butter
- Oils, such as coconut, palm and palm kernel oil
- Lard
- Processed foods with hydrogenated or partially hydrogenated oils

### EAT MORE OF:

- Fish, such as salmon (wild), mackerel, tuna, sardines, and rainbow trout
- Ground flaxseed
- Walnuts
- Canola oil
- Soybeans

## More About Flaxseed

Flaxseed is a tiny brown seed that contains omega-3 fatty acids and a fiber compound called lignans. Both substances have important protective effects. In fact, research shows that flaxseed may slow the progression of prostate cancer when included as part of a low-fat diet. (See the Selecting Healthy Fats section.)



## Recommendations

- Buy whole, fresh flaxseed and grind it using a coffee grinder, or purchase the seeds already ground as flax meal. Refrigerate the flaxseeds or meal to keep it fresh. Use the flaxseed within three months of grinding.
- Add your flaxseed to yogurt, low-fat ice cream or puddings.
- Do not add to any hot products or use during food preparation, such as cooking, frying, and especially barbecuing. Heat destroys the valuable compounds found in flaxseed.

## Vitamin E Benefits

Vitamin E is a fat-soluble vitamin that works as a strong antioxidant. Many studies have shown that alpha-tocopherol, a form of vitamin E, may help reduce the incidence of prostate cancer and slow its advancement.

## Recommendations

The amount of vitamin E in foods and supplements can be expressed either in milligrams or in International Units (IU). For adult males, the recommended daily allowance is 15 milligrams (22.5 IU).

## Consider...

A multivitamin that provides 50-100 IU (33.5-67 mg) of vitamin E and focus on consuming foods rich in vitamin E.

## CAUTIONS

While the tolerable upper intake level (UL) of vitamin E is, 1000 milligrams (1492 IU), current research shows that supplementation of more than 400 IU/day may be harmful. Additionally, vitamin E supplementation, when combined with blood-thinning medication, can increase your risk of bleeding. Caution is recommended when taking supplements.

## Food Sources of Vitamin E

Food Source	Serving Size	International Units
Wheat germ oil	1 tablespoon	26.2
Almonds, dry roasted	1 ounce	7.5
Sunflowers seed kernels, dry roasted	1 ounce	8.9
Safflower oil	1 tablespoon	4.7
Hazelnuts, dry roasted	1 ounce	6.4
Turnip, greens, frozen and boiled	1/2 cup	2.4
Apricots, dried	10 halves	2.26
Peanuts, dry roasted	1 ounce	2.1
Avocado, California	1 ounce	0.83

## Soy

The soybean is a legume first grown in China. People in Asia have been eating soy foods for thousands of years.

### Benefits

Slowing the rate of the growth of prostate cancer - perhaps even preventing it - may be accomplished with eating soy foods, according to research into this food. Isoflavones, also known as phytoestrogens, are nutrients found in soy products. These compounds have estrogen-like effects, and for this reason, they may inhibit the growth of prostate cancer tumors. Among many other health benefits, **soy is a good source of protein**, containing up to 12 grams in an average serving.

Below are some good sources of soy protein, each containing approximately 10 grams.

## Good Sources of Soy Protein

Food	Serving Size*
Tofu	3 ounces
Soy cheese	2 ounces
Soy milk	1 cup
Soybeans (edamame)	3 ounces
Textured soy protein, dry	2/3 cup
Veggie burger	3 ounces
Soy flour	1/2 cup
Soy nuts	1 ounce

\* Each serving provides 30-60 mg of soy isoflavones.

## Recommendations

It is best to consume isoflavones from soy foods, rather than from supplements. Try to incorporate at least one serving of soy foods each day. Some scientists recommend eating 25 grams of soy protein per day (2-3 servings) to benefit from its estrogen-like effects. Speak with a Registered Dietitian before starting any regimen or supplementation.

## Selenium

### Benefits

Selenium, a trace mineral found in food, is also a strong antioxidant. In the body, it can work with vitamin E to protect from free radical damage to cells. Selenium may also interfere with tumor growth. Many studies have found **a higher risk of prostate cancer in men who have lower blood levels of selenium**. For these reasons, it is important to include good food sources of selenium in your diet.

Plant-based foods provide the majority of selenium in our diets. The selenium content of a food depends on the selenium content of the soil in which it is grown. Eating a variety of selenium-rich foods can help ensure that you are getting enough selenium. Selenium is also found in some meats and seafood.

### Recommendations

For adult males, the recommended daily allowance for selenium is 55 micrograms. Prostate cancer patients should include good food sources of selenium in their daily diet. Aim for 200 micrograms a day - the amount found in just two Brazil nuts.

### CAUTIONS

Excessive amounts of selenium can be toxic to your body. Therefore, supplementation in amounts above 400 micrograms is not recommended.

### Food Sources of Selenium

Food Source	Serving Size	Micrograms
Brazil nuts, dried and unblanched	2 nuts	200
Tuna, light, canned in oil and drained	3.5 ounces	78
Cod, cooked	3 ounces	40
Turkey, roasted light meat	3.5 ounces	31
Sunflower seed kernels, dry roasted	1 ounce	22.5
Noodles, enriched and boiled	1 cup	35
Chicken breast, roasted	3.5 ounces	20
Egg, whole	1 medium	14

## Lycopene

### Benefits

Lycopene is a phytochemical that acts as an antioxidant to protect your cells from free radical damage. Found in tomato products, watermelon, and pink grapefruit, this natural defender is best absorbed when eaten with fruits and vegetables rich in beta-carotene, such as carrots and sweet potatoes. Lycopene is not well absorbed unless it has been heated. Therefore, the richest sources of lycopene are cooked tomatoes, and processed and prepared tomato products.

### Recommendations

- Include generous amounts of lycopene-rich tomato products in your diet. Eat cooked tomato products at least 2 times per week.
- When buying tomatoes, select the very red ones because they contain the most lycopene.
- Eat fruits high in lycopene (see the list below).

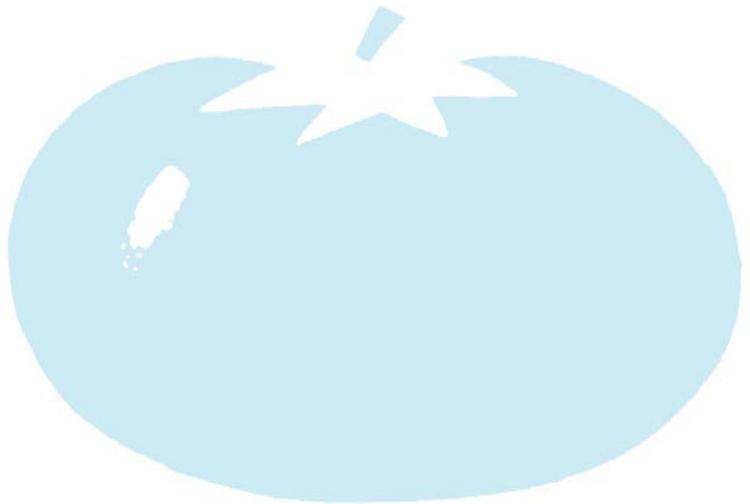
### Food Sources of Lycopene

Food Source	Serving Size	Milligrams
Watermelon	1/2 cup	3.3
Guava	1 cup	4.9
Pink grapefruit	1 cup	8.0
Tomato, raw	1/2 cup	8.3
Vegetable juice cocktail	1/2 cup	11.7
Tomato juice	1/2 cup	13.2
Tomato paste	2 tablespoons	18.2
Spaghetti/Marinara sauce	1/2 cup	20.0
Tomato puree	1/2 cup	20.8

## Exercise

**Exercise is key during and after treatment** because it can help you regain your strength, relieve stress, and maintain a healthy weight. Moderate physical activity can also help build your appetite, improve your digestion, and regulate your bowel movements. The following tips may help you keep fit:

- Consult your doctor before starting any physical activity.
- Start slowly and increase gradually.
- Take the stairs instead of the elevator.
- Park further away from stores or do errands by bicycle instead of driving.
- Walking is one of the easiest ways to stay active.
- Water activities may be a good choice if you find it difficult to walk or do any other activities.





## The Plant-based Diet

Many scientists recommend that **eating a plant-based diet can have a positive impact on your health.** Fruits, vegetables, whole grains, beans, nuts and seeds contain the fiber and nutrients (also known as phytochemicals or antioxidants) your body needs to fight disease, influencing the reoccurrence of prostate cancer.

### Consider...

Take these steps towards a plant-based diet:

- Prepare your plate with 1/3 meat and dairy. The rest should be filled with fruits, vegetables, and whole grains.
- Experiment with and try new foods. Choose one new fruit or vegetable each week.
- Eat one meatless meal each week.
- Buy a new cookbook with meatless recipes.

**REMEMBER, A COLORFUL PLATE IS A HEALTHY PLATE!**

### Fiber Facts

Fiber is the part of plant foods that your body cannot digest. It helps to move waste from the body more quickly and thus contributes to good digestive health. Evidence suggests that diets high in fiber are associated with a reduced risk for cancer. The daily recommendation is 20-35 grams/day.

Here are some good sources of fiber:

## Food Sources of Fiber

Food Source	Serving Size	International Units
Bulgur, cooked	1 cup	11
Figs, dried	5	10
Split pea soup	1/2 cup	8.1
Lentils, cooked	1/2 cup	7.8
Spinach	1/2 cup	6.0
Bran flake cereal	1/2 cup	5.5
Almonds	1/2 cup	5.0
Pear, with skin	1 medium	4.5
Kidney beans, cooked	1/2 cup	4.5
Apricots, dried	10 halves	3.1
Oatmeal, cooked	1/2 cup	3
Whole wheat bread	1 slice	2.5
Flaxseed, ground	1 tablespoon	2.2

### Tips for gradually increasing your fiber intake:

- Speak with your Registered Dietitian.
- Be sure to increase your consumption slowly.
- As you increase your fiber intake, increase your fluid intake.



## Glossary

### **Antioxidants**

Substances found in foods that can protect the body's cells from harmful free radicals. Vitamins, minerals and phytochemicals can all act as antioxidants.

### **Free radicals**

Unstable molecules with an uneven number of electrons that can damage the body's cells, leading to disease.

### **Phytochemicals**

A class of chemical substances found in plants that have health-protecting actions.

### **Beta-carotene**

A substance from plants that the body converts into vitamin A. It also acts as an antioxidant and an immune system booster.

### **Phytoestrogens**

Plant compounds that act as weak estrogens (female hormones) that may slow tumor growth.

### **Isoflavones**

Compounds naturally found in soybeans that act as phytoestrogens.

### **Lignans**

Plant-based compounds, also considered a type of insoluble dietary fiber, that have been found to inhibit tumor progression in some types of cancers.

### **Omega-3 Fatty Acids**

Omega-3s (the number "3" refers to the fat's molecular makeup) are polyunsaturated fatty acids- a healthy kind of fat to include in a balanced diet.

### **Trace minerals**

Nutrients needed by your body in small amounts for optimal health, growth, and development.

## RESOURCES

### Cancer Nutrition Info, LLC

[www.cancernutritioninfo.com](http://www.cancernutritioninfo.com)

### CancerCare

[www.cancercare.org](http://www.cancercare.org)

### National Cancer Institute

[www.cancer.gov](http://www.cancer.gov)

### American Institute for Cancer Research

[www.aicr.org](http://www.aicr.org)

### Cancer Research and Prevention Foundation

[www.preventcancer.org](http://www.preventcancer.org)

### American Cancer Society

[www.cancer.org](http://www.cancer.org)

### The National Coalition for Cancer Survivorship

[www.canceradvocacy.org](http://www.canceradvocacy.org)

### Prostate Cancer Foundation

[www.prostatecancerfoundation.org](http://www.prostatecancerfoundation.org)

### UsTOO: Prostate Cancer Education and Support

[www.ustoo.com](http://www.ustoo.com)

### God's Love We Deliver

[www.glwd.org](http://www.glwd.org)

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