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CHALLENGING Prostate Cancer
NUTRITION, EXERCISE AND YOU
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If you were one of the over 22,000 Canadian men diagnosed with prostate cancer this year, then you’ve already faced some difficult treatment decisions. You may also be wondering if there’s anything else you can do — any other choices you can make to decrease your risk of recurrence, no matter what therapy you’re undergoing. The good news is that all signs point toward yes.

As with other cancers, a few important “risk factors” are linked to prostate cancer: age, hormones, race, and genes all play a role. For example, the disease seems to progress more rapidly in some groups, such as people of African descent, than in others. Likewise, your risk of developing prostate cancer is two to five times higher if your brother or father is affected. Unfortunately, these are the types of things we’re born with; after all, you can’t very well change your family history! But there are risk factors you can do something about, for example, diet and physical fitness.
Eating Right for Life

Prostate cancer and the diet factor

Cause and effect
Current research in prostate cancer suggests that changes in so-called modifiable risk factors, such as diet, may bring significant benefits. Like all cancers, prostate cancer is caused by genetic mutation. Genetic mutations are either inherited or acquired through exposure to harmful substances in our environment. (For example, we know that cigarette smoke can lead to lung cancer.) Although inherited factors are important in some prostate cancers, the overwhelming majority are related to the environment — and diet seems to be key. This belief is supported when researchers look at the variation in incidence from country to country.

Prostate cancer is the most commonly diagnosed cancer among men living in the westernized world, including Canada, the United States, northern and western Europe, Australia, and New Zealand. In other nations, however, it is rarely diagnosed. These include countries in the Pacific Rim (Japan, China, Taiwan, and Thailand), several Middle Eastern countries, and northern Africa. A Chinese man, for example, is approximately 80 times less likely to be diagnosed with prostate cancer and 16 times less likely to die from it than a typical North American. By looking at worldwide differences in cancer rates, we see that prostate cancer is related either to environmental factors, such as diet, or to the unique genetic make-up of a country’s citizens.
Nature or nurture?

But which is it — genes or environment? Migration studies may provide the answers. Researchers have found that the risk of prostate cancer rises among people who move from low-risk countries like China and Japan to high-risk ones like Canada. As well, the children of these immigrants have almost the same chance of developing prostate cancer as the locals. These studies suggest that the environment or lifestyle elements (such as diet) rather than inherited traits are largely responsible for the disease. If genetics were a more important factor, Chinese- and Japanese-Canadians would be at low risk for prostate cancer — but this is not the case.

Although we do not yet know the full relationship between the food we eat and prostate cancer, the news is encouraging. The next few chapters will guide you through the process of changing your eating habits for the better, in hopes of preventing or helping fight cancer and improving your general health. Who knows? You might even like it!

Fats, Protein, and Carbohydrates

A balanced diet is made up of a combination of fats, proteins, and carbohydrates. While the key to any successful diet is moderation, it’s important to learn which types of food you should choose from each category.

The fat factor

Fats provide energy, keep your body warm, provide building materials for cells and hormone regulators, and help the absorption of important vitamins. Your body needs fat to function, but keep in mind that moderation is key and too much fat can be damaging to your health. Eating a high-fat diet increases your risk of obesity and related health problems, such as heart disease, hypertension, and diabetes. As well, there’s a link between fat intake and the risk of developing prostate cancer. There’s even evidence to suggest that men with prostate cancer who eat more fat experience more rapid cancer growth. To reduce your risk of prostate cancer and other diseases, it’s essential to balance your fat intake.
A closer look at fatty acids

Triglycerides, the most common type of fat, are named after their chemical structure, which is composed of one glycerol molecule and three fatty acids. The fatty acids are classified into two groups: unsaturated and saturated.

Unsaturated fats are considered the “healthy” fats. They are categorized as either monounsaturated, found in olive and canola oils, avocados and most nuts, or polyunsaturated, found in vegetable oils, meat products, and fish. There are some types of polyunsaturated fats that your body cannot produce. These “essential” fatty acids must be obtained from your diet. Linoleic Acid (Omega-6), and Linolenic Acid (Omega-3) are two polyunsaturated fatty acids that are considered essential. They should be consumed regularly, and in moderation, of course. (To learn more about the Omega fatty acids, refer to page 12.)

Saturated fats, on the other hand, are considered the “less healthy” fats. Although it is unrealistic to eliminate saturated fats from your diet, they should be limited as much as possible: These types of fats are associated with an increased risk of prostate cancer. Most of the saturated fats in our diet come from animal products, such as meat and dairy.

When good fats go bad

Trans-fats are a type of unsaturated fatty acid whose molecular structure is altered during hydrogenation, a process that turns oils into semi-solid products (i.e., margarine). Hydrogenation makes food products last longer but also makes trans-fats especially harmful. Trans-fats can occur naturally in some meat and milk products, but are more commonly found in processed foods such as potato chips, chocolate bars, and other foods made from or fried in hydrogenated fat. When shopping, be sure to read food labels to determine the amount of trans-fats in the products you buy, and aim to pick foods with no (or limited) trans-fats in them.
What the research shows:
A low-fat diet is the first step on the road to prostate health. In China and Japan, where prostate cancer incidence is low, the traditional diet consists of 15-20% of calories from fat. In North America, where prostate cancer incidence is high, the typical diet includes 35-40% of calories from fat. This possible link between diet and prostate cancer has led researchers to put the theory to the test — with convincing results.

Studies show that fat or fatty foods are associated with the development and progression of prostate cancer. Men without prostate cancer can reduce their prostate specific antigen (PSA) values by eating a low-fat diet. As well, when researchers put human prostate cancer cells into mice, cancer grows faster in those on a high-fat diet than in those on a low-fat diet. The same might hold true in humans, and in fact, a recent study found that prostate cancer is more likely to progress in men whose diet has a high fat content. The next step is to test whether men treated for prostate cancer who eat a low-fat diet can reduce their risk of recurrence. In any case, a low-fat diet can lower the risk of heart disease and help maintain a healthy body weight.

HORMONES AND FAT
Dietary fats and cholesterol are part of the building blocks of androgens — male hormones associated with prostate cancer development. It’s possible that chronically high levels of testosterone, the major male androgen, can lead to prostate cancer. There’s increasing evidence that high-fat diets can raise androgen levels. For example, vegetarians (who often consume less dietary fat) often have lower levels of testosterone than meat-eaters.

Steps to a low-fat diet
Eating a low-fat diet isn’t hard to do. Start by avoiding fried foods and eating smaller (palm-sized) portions of meat — especially red meat. When preparing meat, remove the skin and trim off excess fat. If you choose to fry your meat, remember to drain the fat from the pan before adding sauces.
Other fat-reducing tips include cutting down on butter, margarine, oils, and cream. Aim to eat more fruits and vegetables, beans and pasta, whole-grain breads, leaner cuts of meat, and low-fat dairy products. Be aware of what you’re eating — and start reading food labels and choosing lower-fat foods when you shop for groceries. Pretty soon, making healthier choices will become a habit.

**Protein: animal vs. plant**

Our bodies need protein to build tissue for growth and repair. The protein in our diets comes from two sources: Animals or plants. Meat is protein-rich, but most cuts are also high in fat. Fish is a “heart-healthier” and leaner source of protein because most types are naturally low in fat. Be careful, though — canned tuna packed in oil has a 64% fat content, and frying any type of fish undermines the best of intentions. Steaming or broiling are better options. Milk and dairy products, the final animal protein source, can also be very high in fat, particularly saturated fat. When eating dairy, it is recommended that you opt for lower-fat choices of milk products, such as skim or 1% milks, low-fat cheeses and yogurts.

**Plant power**

The solution to finding the right fat-protein balance is plant protein. If we could design a perfect food, this would be it — full of vitamins and minerals, low in fat and sodium, and high in protein, carbohydrates, and fibre. Best of all, plant proteins taste good and they’re inexpensive. And unlike meat, they deliver carbohydrates instead of fat along with the protein. The richest sources of these amazing vegetable proteins are legumes — dried split peas and beans.
There’s one thing to keep in mind when choosing plant proteins: Unlike animal sources, plants, nuts, and seeds on their own do not provide all the amino acids (building blocks of protein) that you need. To make sure you get all nine essential amino acids from plants, eat a combination of legumes, grains, nuts, and seeds. The following table gives you an idea of some plant protein sources:

<table>
<thead>
<tr>
<th>Legumes</th>
<th>Grains</th>
<th>Nuts &amp; Seeds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybeans/soy products</td>
<td>Barley</td>
<td>Almonds</td>
</tr>
<tr>
<td>Peanuts</td>
<td>Bulgar</td>
<td>Walnuts</td>
</tr>
<tr>
<td>Chickpeas</td>
<td>Corn</td>
<td>Cashews</td>
</tr>
<tr>
<td>Lentils</td>
<td>Oats</td>
<td>Chestnuts</td>
</tr>
<tr>
<td>Split peas</td>
<td>Rice</td>
<td>Pecans</td>
</tr>
<tr>
<td>Kidney beans</td>
<td>Rye</td>
<td>Pumpkin seeds</td>
</tr>
<tr>
<td>Pinto beans</td>
<td>Wheat</td>
<td>Sesame seeds</td>
</tr>
<tr>
<td>Fava beans</td>
<td>Triticale</td>
<td>Any other nut or seed</td>
</tr>
</tbody>
</table>

The only exception to this rule is soybean, commonly consumed in the form of tofu. It’s considered to provide sufficient amounts of all nine essential amino acids.

**Combining plant sources**

Here are some suggestions on how to get “complete protein,” or all nine essential amino acids, from your diet. Keep in mind that you don’t have to eat these foods in the same meal. Spreading them throughout the day will give you the same result. To avoid gastro-intestinal problems, try introducing plant proteins gradually into your diet, and drink water with your meals.

**Try a combination of:**
- beans and rice
- whole-wheat bread and peanut butter
- tofu stir-fry with rice or pasta
- whole-wheat bun with sesame seeds
- hummus (chickpeas with sesame paste)
- trail mix with peanuts and seeds
Carbohydrates

Carbohydrates provide fuel to our brain, central nervous system, and red blood cells. Although they often get a bad rap for being “fattening,” in reality, carbohydrates contribute less energy per gram than fats (4 calories compared with 9). Carbohydrates are classified as simple or complex. Simple carbohydrates are sugars and can be monosaccharides (glucose, fructose, galactose) or disaccharides (maltose, sucrose, lactose). Foods like honey, molasses, and corn syrup are also considered sugars.

Complex carbohydrates, or polysaccharides, include glycogen, starches and fibre. Although the human body stores most of its energy in the form of glycogen, it is not a common carbohydrate in our diets. Instead, we eat mainly starches and fibres. Starches are readily available in grains, legumes, and tubers (potatoes and yams). Fibre is found only in plant foods, such as fruits and vegetables, grains, and legumes, and is considered a non-starch polysaccharide. Plant carbohydrate sources supply our bodies with glucose that can be burned as energy or stored as glycogen.

Although carbohydrate intake doesn’t appear to be directly linked to prostate cancer, these sugars, starches, and fibres form an important part of a healthy diet. Be sure to choose your sources carefully; whole-grain products, fruits, and vegetables are much better than the simple carbohydrate foods. Products with added sugar taste sweet, but the extra carbohydrates will give you extra calories without any nutritional benefit.

INSULIN AND PROSTATE CANCER
Insulin is a hormone that responds to the increase in blood glucose that occurs after a meal. Its job is to help move the glucose from the blood stream into cells. It has been speculated that high levels of insulin in the blood stream (hyperinsulinemia) — caused by eating lots of refined sugars — may increase risk of prostate cancer.
How much do I need?

Health Canada has provided nutrition recommendations to help you determine how much fat, protein, and carbohydrate you should eat each day. These ranges represent the percentage of daily calorie intake:

- Fat: 20-35% (no more than 10% from saturated sources)
- Protein: 10-35%
- Carbohydrate: 45-65%

If you decide to change your diet to meet these recommendations, remember: The goal is to maintain your present energy intake (assuming you are at a healthy weight). Don’t try to add certain types of food (e.g., complex carbohydrates) without decreasing other foods (e.g., saturated fats). If you want to eat a “prostate-friendly” diet, try sticking to a fat intake of approximately 20% of your daily calories. If you normally consume about 2000 calories per day, you should try to limit your daily total fat intake to about 44 grams.

Estimating amounts of fat, protein, and carbohydrate

Protein and carbohydrates equal approximately 4 calories per gram, fat about 9 calories per gram. Alcohol also contributes calories (about 7 per gram), so don’t forget to count it in! To estimate your daily requirements, pick a realistic goal for the percentage of fat, protein, and carbohydrates you’d like to eat. You can calculate the grams using the following equation:

\[
\text{[(calories x percentage of intake)/calories per gram of carbohydrate]}\]

For example, if you eat about 2000 calories per day, and you would like to eat about 55% carbohydrates, the amount in grams would be calculated as follows:

\[
[(2000 \times 0.55)/4] = 275 \text{ g of carbohydrate}\]

There’s no golden rule to follow when determining your daily calorie intake. It depends on several factors, including your weight, age, sex, and activity level. A typical value for a middle-aged man is about 2000-2500 calories per day. Try estimating your calorie consumption for a week to determine an average intake. (For more precise calculations, consult a dietitian to evaluate your energy requirements.) If you find that you put on weight easily, you might need to lower your calorie intake.
Eating Right for Life

1. Oils and Fats
   - Include a small amount (30 to 45 mL or 2 to 3 Tbsp) of unsaturated fat each day. This includes oil used for cooking, salad dressings, margarine and mayonnaise.
   - Choose vegetable and fish oils prepared with little or no added fat, sugar or salt.
   - Choose soft margarines that are low in saturated and trans fats.
   - Limit butter, hard margarine, lard and shortening.

2. Enjoy a variety of foods from the four food groups.

3. Drink water regularly. It’s a calorie-free way to quench your thirst. Drink more water in hot weather or when you are very active.

Recommended Number of Food Guide Servings per Day

<table>
<thead>
<tr>
<th>Food Group</th>
<th>Children</th>
<th>Teens</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruits and Vegetables</td>
<td>4-5</td>
<td>6-8</td>
<td>7-8</td>
</tr>
<tr>
<td>Grains</td>
<td>2-4</td>
<td>3-4</td>
<td>3-6</td>
</tr>
<tr>
<td>Milk and Alternatives</td>
<td>2-3</td>
<td>3-4</td>
<td>3-4</td>
</tr>
<tr>
<td>Meat and Alternatives</td>
<td>1-1</td>
<td>1-2</td>
<td>2-3</td>
</tr>
</tbody>
</table>

Omega-3 fatty acids

Three types of polyunsaturated Omega-3 fatty acids have been linked to prostate health: Alpha-linolenic acid (ALA), Eicosapentaenoic acid (EPA), and Docosahexaenoic acid (DHA). ALA can’t be formed in the body, so you need to eat rich sources of this fatty acid, such as flaxseed, meats, and cereals. ALA can create EPA and DHA in our bodies but since this process is inefficient, we must also include sources of these fatty acids in our diet. EPA and DHA are found in fatty, cold-water fish such as salmon, herring, mackerel, sardines, bass, and white albacore tuna.

Although ALA has been shown to reduce heart disease in men, diets rich in ALA do not appear to reduce the risk of prostate cancer. In some cases, supplementing the diet with flaxseed has even been shown to increase it. Other studies suggest that flaxseed can provide some benefit following diagnosis. At this time, however, the role of ALA in prevention and treatment of prostate cancer seems inconclusive. The good news is that prostate health has been shown to benefit from regular consumption of EPA and DHA. In fact, men who eat fish 2-3 times per week have shown reductions in the risk of developing prostate cancer. Research has also shown that men diagnosed with prostate cancer who eat fish rich in EPA and DHA are less likely to have their cancer spread to other areas of the body. Eating fish a few times a week may be enough to reap positive benefits.

**Omega-3 fatty acid supplements:**
Natural sources like fish are the best way to get omega-3 fatty acids. There is limited evidence to suggest that fish oil supplements will prevent the onset of prostate cancer, and none to support the use of supplements in men diagnosed with it. If you do want to take a supplement, don’t exceed 3 mg a day.

CAUTION: Men with a family history of stroke or diabetes or on blood-thinning medications (including aspirin) could, in rare instances, experience side effects from supplementing with these oils, and should consult their doctors first.
Estimates of omega-3 content in fish

<table>
<thead>
<tr>
<th>Fish</th>
<th>Portion Size</th>
<th>DHA (mg)</th>
<th>EPA (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific sardines¹</td>
<td>1 can (370 g)</td>
<td>3.20</td>
<td>1.97</td>
</tr>
<tr>
<td>Caviar (black, red)</td>
<td>1 oz</td>
<td>1.08</td>
<td>0.78</td>
</tr>
<tr>
<td>Mackerel (Atlantic, Spanish, king)*</td>
<td>3 oz</td>
<td>1.07-0.14</td>
<td>0.69-0.10</td>
</tr>
<tr>
<td>White tuna²</td>
<td>1 can (172 g)</td>
<td>1.08</td>
<td>0.40</td>
</tr>
<tr>
<td>Salmon (Chinook, Atlantic, sockeye, pink)*</td>
<td>3 oz</td>
<td>0.85-0.45</td>
<td>0.77-0.25</td>
</tr>
<tr>
<td>Salmon³ (sockeye, chum)</td>
<td>3 oz</td>
<td>0.75-0.60</td>
<td>0.48-0.40</td>
</tr>
<tr>
<td>Herring (Pacific, Atlantic)*</td>
<td>3 oz</td>
<td>0.66-0.53</td>
<td>0.74-0.54</td>
</tr>
<tr>
<td>Striped bass</td>
<td>3 oz</td>
<td>0.45</td>
<td>0.13</td>
</tr>
</tbody>
</table>

¹canned in tomato sauce, drained; ²canned in water, drained; ³canned, drained; *in order of highest to lowest total omega-3 content

THE JURY’S STILL OUT: Research has indicated that supplementing with fish oils containing EPA and DHA can increase the ratio of omega-3 to omega-6 fatty acids in your body. While this may improve your body’s blood and lipid profiles, we can’t be sure if it will reduce your risk of prostate cancer development or disease progression. Natural sources such as fatty fish are your best approach to increasing prostate-friendly omega-3s.

Omega-6 fatty acids

Linoleic acid (LA), an essential omega-6 fatty acid found in animal fats, nuts, and vegetable oils, is the most commonly consumed polyunsaturated fatty acid in the Western diet. Because it is so common in popular foods, we often eat too much. While we’re not certain that a high consumption will cause health problems, research suggests that eating a lot of LA can increase your risk of prostate cancer. There is also some evidence that arachidonic acid (AA), a fatty acid formed in the body from LA, may also stimulate the growth of prostate cancer cells. It is recommended that you try to balance your omega-3 and omega-6 intake by substituting fish for meat once a week and choosing oils with less omega-6. Try to use olive or canola oil instead of safflower, sunflower or soybean oil, and remember: A little goes a long way!
Dietary recommendations for Omega-3 and Omega-6

<table>
<thead>
<tr>
<th>Fatty Acid</th>
<th>Age</th>
<th>General Recommended Daily Intake (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omega-3</td>
<td>51+ years</td>
<td>1.6*</td>
</tr>
<tr>
<td>Omega-6</td>
<td>31-50 years</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>51+ years</td>
<td>14</td>
</tr>
</tbody>
</table>

*Up to 10% of daily intake can be consumed as EPA and/or DHA

Soy

There are at least two good reasons to add soy to your diet: It’s a great source of protein that is low in saturated fat, and it contains special ingredients called isoflavones, including genistein and daidzein — compounds likely to play an important role in holding off the growth of prostate tumours.

Studies exploring the low incidence of prostate cancer in Asian men show that Asians following a traditional diet consume low-fat foods and lots of tofu, tempeh, and soy milk — all excellent sources of soy protein. Blood and urine samples taken from Asian men contain anywhere from 7-100 times more isoflavones than those of men eating a Western diet. Plus, laboratory tests on genistein, a type of isoflavone found abundantly in soy foods, show that it’s a potent inhibitor of cancer cells, including prostate cancer. While isoflavones can be easily added to your diet by incorporating more soy products, supplements are also available on the market. Adding soy may also benefit men who have been treated for prostate cancer: Research suggests that isoflavone supplements can slow the rate of PSA progression after radical prostatectomy or radiation therapy.

Adding soy to your diet

After lowering your fat intake, the second most important step in a prostate-friendly diet is adding soy. Nutritionists recommend 40 grams of soy protein daily. This figure was established through animal research: Tumours grew more slowly when the diet included 40 grams of soy protein. Despite these findings, the typical Canadian diet contains virtually no soy products. Luckily, soy-based foods are becoming more popular and are easy to find in grocery stores.
At this point it is unclear whether some soy products are more beneficial than others. It has been suggested that the fermentation process (producing tempeh, miso, and natto) increases the bioavailability of the cancer-fighting isoflavones. Since variety is always important, it is recommended that isoflavones be added to the diet through a number of sources. To learn more about the different types, see the box below.

**Before you buy soy products, consider the following:**

- Adding soy to your diet may cause you to gain a few pounds if you don’t adjust your eating habits. Lowering your overall fat intake (e.g., by substituting soy for meat) may help counteract any weight gain.

- Levels of isoflavones, number of protein grams, fat, and calcium content vary widely across brands. Be sure to read the labels carefully to select the soy products best for you.

- Men on protein-restricted diets for medical reasons (diabetes, liver or kidney disease) should consult their doctors before adding soy to their diet.

**A Glossary of Soy Products**

*Tofu* is a semi-soft food made from adding mineral salt to soy milk. It is a handy and nutritious substitute for meat. Like all soy products, it’s an excellent source of protein and low in saturated fat. Surely the most versatile form of soy, tofu has varying degrees of firmness. The softer form is best for sauces and dips, the denser type for grilling, baking, and stir-frying. Tofu lends itself well to a variety of recipes because it absorbs any flavours mixed in with it.

*Soy beverage* is made from ground and cooked soybeans. The soy “milk” is filtered out during this process. It can be used as a dairy substitute: Drink it straight from the carton, put it on your breakfast cereal, or use it to replace milk in cooking or baking. It also comes in flavours like vanilla, strawberry, and chocolate. Soy beverage is used to make *soy cheese* and *soy yogurt*, which can be used as substitutes for sour cream or cream cheese.

**NOTE:** Avoid non-fat soy beverages, since soybeans lose some of their beneficial properties when completely defatted. Choose regular or low-fat varieties. If you are drinking soy as a substitute for milk, select soy beverages fortified with calcium.
Tempeh, a textured vegetable protein (TVP) made from cooked and fermented soybeans, can also be used as a meat substitute. It’s high in calcium, iron, zinc, and fibre and like all plant foods, is cholesterol-free. Another TVP, miso, made from fermented soybean paste, is commonly used in soups. Miso contains a lot of salt, so it should not be eaten in large quantities.

Natto, another fermented soy product, is typically made from the natto soybean. It has a sticky texture and a distinct smell, and is often served on top of rice.

Soy powder is available as flour (whole-ground soy flour is best), granules or isolate. Among the soy products, defatted soy flour and soy isolates contain the most protein. Soy powder is easy to use in cooking (just add water) and also comes in different flavours. Mix it with fruit juices, soy beverage or skim milk as a refreshing drink.

Soy sauce and Tamari: Most types of so-called “soy sauce” aren’t made from soybeans at all — they’re just coloured and flavoured water. To get the real benefit of soy, use tamari, which is a fermented brew made from soybeans.

Although the recommended soy intake from foods (or supplements) is 40 grams of soy protein per day, keep in mind that these recommendations are based on laboratory studies and on research involving people who commonly eat soy products. People who do not normally eat soy products, but wish to start, will find it much easier to increase soy consumption gradually.

Antioxidants: Foods that fight for you

Plant-based foods have many advantages over meat. They’re packed with vitamins, minerals and phytonutrients (“phyto” means plant), health-promoting compounds that interact to help your body stay healthy and fight disease.
Most vital of these foods are those that act as antioxidants. These neutralize the free-radical oxygen molecules that damage DNA and can lead to cancer. Vitamin E, selenium (a mineral), and a host of phytonutrients are all powerful antioxidants. Keep in mind, though, that it takes more than just eating one or two of these health-promoting nutrients occasionally. Every day you need to eat a varied diet that includes as many of them as possible. In some cases, adapting your diet to include the right foods is all you need to do; in others, supplementation may be the best way to get these vitamins and minerals. If taking supplements is an option for you, we recommend the amounts you should take in the following pages.

**Vital vitamins**

We require vitamins for proper metabolic functioning. Although the amounts we need are very small, our bodies can’t manufacture most of them — they must come from the foods we eat.

**Vitamin E**

Vitamin E is an antioxidant that prevents oxidation of polyunsaturated fatty acids. When this vitamin is taken with the mineral selenium, its antioxidant properties become more effective. Studies have shown that men with high levels of Vitamin E in their blood have a lower risk of prostate cancer. Despite these findings, the effectiveness of Vitamin E in preventing prostate cancer is still a matter for debate. Some researchers argue that it contributes nothing to preventing prostate cancer; others suggest that it may reduce the risk of advanced cancer in men who smoke.

Research in animals has shown that Vitamin E may slow the progression of prostate cancer: A study of mice injected with human prostate cancer cells showed that Vitamin E counteracted the effects of a high-fat diet. At this point, however, it remains unclear whether Vitamin E can reduce the risk of prostate cancer progression in men.

Vitamin E occurs naturally in plant-based fatty foods like nuts and sunflower seeds; hazelnut, safflower, canola, corn and olive oils; leafy green vegetables and asparagus; mangoes; wheat germ and whole grains. Unfortunately, some of the best sources of Vitamin E, like nuts and oils,
are very high in fat, making it difficult or unhealthy to get the full daily dose from foods. As well, the type of Vitamin E common in foods (gamma-tocopherol) is not absorbed by our bodies as well as alpha-tocopherol, the form commonly used in vitamin supplements. If you wish to increase your dietary intake of Vitamin E, you may want to consider taking a supplement.

**Vitamin E supplement recommendation: 100-200 IU a day**

**CAUTION:** It is important to supplement within the recommended levels of Vitamin E and to advise your physician that you are taking this supplement. Men with heart conditions (such as cardiovascular disease), Alzheimer’s, Parkinson’s, or diabetes mellitus may be at increased risk of heart failure or death if they supplement with too much Vitamin E. Men taking drugs to prevent blood clotting (including aspirin) should consult their doctors first, since Vitamin E has a blood-thinning effect. For the same reason, men should not take Vitamin E supplements one week before or immediately after surgery.

**Vitamin D**

This vitamin has become popular in the fight against cancer. While it is well known for its ability to increase the body’s natural production of calcium, Vitamin D also plays a role in controlling cell growth and death. In fact, scientists have been able to kill or slow the growth of prostate cancer cells in mice by giving them Vitamin D.

Not surprisingly, Vitamin D deficiency has been linked to an increased risk of prostate cancer. Sunlight triggers our bodies to produce Vitamin D but doesn’t do this well enough in certain populations, such as African-Americans and elderly men. This limitation may explain their increased prostate cancer risk. Similarly, men who live in northern countries — and are exposed to less sunlight — have higher rates of prostate cancer than their southern counterparts. Research has also shown that seasons can affect the rate of PSA increase in men diagnosed with prostate cancer who live in temperate zones (e.g., most of Canada). In their cases, UV radiation in Spring and Summer causes them to produce higher levels of Vitamin D, which appears to slow the rate of PSA increase.

The primary dietary source of Vitamin D is fatty fish, and it’s speculated that Asians may be protected from prostate cancer because they get lots of this vitamin in their fish-rich diets. Most Canadians do not eat significant
amounts of fish and therefore get their Vitamin D from fortified foods. In Canada, Vitamin D is added to commonly consumed foods such as milk (providing 100 IU per cup) and margarine (25 IU per tsp). Other foods fortified with Vitamin D include soy and rice beverages, goat’s milk, orange juice, and cereals. Vitamin D appears to play an important role in the prevention of prostate cancer and should be considered a complement to its treatment.

**Vitamin D supplement recommendation: 400 IU a day**

Health Canada recommends a daily Vitamin D supplement containing 400 IU for men and women over 50 years of age, in addition to following *Canada’s Food Guide*. Also consider taking this supplement if you don’t eat fish or if you’re not getting enough sunlight — particularly during Fall and Winter. In Spring and Summer, 15 minutes a day of sun exposure without sunscreen — in early morning or late afternoon — is all it takes. Don’t worry: This amount of exposure isn’t damaging unless you’ve had skin cancer, in which case a supplement is a better idea.

**Vitamin D content in fish**

<table>
<thead>
<tr>
<th>Fish</th>
<th>Vitamin D IU/100g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic herring</td>
<td>1465*</td>
</tr>
<tr>
<td>Sockeye salmon (canned, drained)</td>
<td>763</td>
</tr>
<tr>
<td>Greenland halibut</td>
<td>540*</td>
</tr>
<tr>
<td>Pacific sardines (canned in tomato sauce, drained)</td>
<td>480</td>
</tr>
<tr>
<td>Catfish (wild)</td>
<td>450*</td>
</tr>
<tr>
<td>Atlantic mackerel</td>
<td>324*</td>
</tr>
<tr>
<td>Tuna (canned in oil, drained)</td>
<td>236</td>
</tr>
<tr>
<td>Atlantic cod</td>
<td>40*</td>
</tr>
</tbody>
</table>

*IU calculated for cooked fish based on raw weights

**In case you were wondering…**

**Vitamin A as beta-carotene**

Beta-carotene is a carotenoid found in plants and is converted to Vitamin A in the body. When naturally occurring beta-carotenes are eaten regularly, they do not appear to influence prostate cancer risk. However, more than one study has found an association between higher risk of various types of cancer and high-dose beta-carotene supplements, which should be avoided. This doesn’t mean you should avoid naturally occurring beta-carotene from food sources — yellow, orange, red, and dark-green fruits and vegetables...
like cantaloupe, carrots, spinach, sweet potatoes, and broccoli. These foods are good for you, and the beta-carotene they contain is safe and beneficial. In fact, a low blood level of beta-carotene has been shown to elevate your risk of prostate cancer, so it’s important to keep these fruits and veggies in your diet. And since one medium carrot a day contains all the beta-carotene you need, there’s really no need for a supplement.

**Vitamin C**

Vitamin C has demonstrated antioxidant properties in some cancers, but a relationship between it and prostate cancer has not been confirmed. Laboratory studies have suggested that Vitamin C can slow tumour growth and promote cancer cell death, but studies in humans are less certain. Vitamin C is very easy to get in your diet; your best sources are oranges, mango, kiwi, strawberries, broccoli, and red peppers. You’ll also find that many fruit juices are fortified with this vitamin.

**Minerals that matter**

It’s now clear that minerals, like vitamins, are essential to a host of vital body processes — including the fight against cancer. Of the more than 60 minerals in the body, 22 are essential, which means that our bodies can’t manufacture them. We need to get them from foods or supplements.

**Selenium**

This one’s a crucial antioxidant. Scientists were tipped off about its potential “cancer-fighting” benefits when they noticed that countries whose soils have low levels of selenium (like Canada) have higher rates of cancer, including prostate cancer. A study done in the southern United States strongly supports the selenium-prostate cancer link. In a random group of men with skin cancer, half were given selenium and half a placebo. Although scientists found that the mineral didn’t decrease skin cancer recurrence, they discovered a 50-63% reduction in prostate cancer in the men taking selenium! Studies have also shown that the protective nature of selenium may be enhanced when it is consumed with foods (or supplements) containing Vitamin E. A large study, called the SELECT trial, is
currently under way to test whether selenium (200 µg) and Vitamin E (50 mg) can prevent prostate cancer. At this point, it appears that selenium holds promise for reducing the risk of prostate cancer; however, its role in preventing the progression of prostate cancer remains unknown.

**Recommended selenium supplement: 200 µg a day**

Although a healthy diet provides most people with almost all the necessary minerals, “antioxidant doses” of selenium are difficult to obtain from diet alone. When taken as a supplement, selenium accumulates in the prostate gland, suggesting that the supplement may play a role in protection from prostate cancer.

**CAUTION:** Doses higher than 200 µg of selenium a day may be toxic and cause extra health problems, so don’t exceed this limit. A standard multiple vitamin and mineral supplement contains 200 µg of selenium. In addition, brazil nuts are an exceptionally rich source of selenium, providing 200 µg in as few as 2-4 nuts.

**Zinc**

This mineral has many helpful qualities. It helps our bodies repair wounds and synthesize protein, causes cells to reproduce, and protects against free radicals. Although we don’t know zinc’s exact function within the prostate gland, we do know that it is found in greater concentrations there than in other soft tissues. This has sparked debate about whether zinc plays a role in prostate cancer. The evidence so far is inconclusive. Some studies suggest that zinc suppresses prostate cancer cell growth; others argue that zinc supplementation can increase the risk of advanced prostate cancer. One study of more than 46,000 men in the health-care profession concluded that supplementing with more than 100 mg of zinc daily could double the risk of advanced prostate cancer. As well, men taking supplements for more than 10 years were more likely to be diagnosed with prostate cancer than those who did not take supplements.

Keep in mind that while zinc is an important mineral, our daily requirements are very low, and easily obtained by eating a well-balanced diet. This mineral is found mostly in meat, poultry, eggs, liver, and seafood (particularly oysters and crab meat), as well as in black-eyed peas, tofu, and wheat germ.
Zinc supplements
Men using zinc supplements have been reported to take up to 2-10 times their recommended daily allowance. Natural sources — meat, poultry, seafood, tofu, and wheat germ — can easily provide enough zinc and have not been associated with an increased risk of prostate cancer. Therefore, a zinc supplement is not recommended. If you do want to take one, do not exceed 11 mg a day.

Calcium
Calcium is an important mineral, which helps to build and maintain strong bones. Despite these benefits, recent studies have found a possible association between excessive calcium intake and an increase in risk of prostate cancer. Research has shown that men who consume 2000 mg or more of calcium per day (from a combination of diet and supplements) experience an elevated risk of advanced and metastatic disease. This does not mean that men should stop eating dairy or other calcium-rich foods: Calcium intake within the recommended daily allowance (RDA) (1000-1200 mg) has not been linked to prostate cancer. Men with prostate cancer should try to achieve the RDA through diet. This is particularly important for men on long-term hormone therapy, who are at higher risk of bone loss (osteoporosis). You can easily consume the right amounts of daily calcium by drinking a variety of dairy sources, or choosing fortified beverages (e.g., soy or orange juice) if you are vegan or have lactose allergies.

Calcium in your diet
“Eating Well with Canada’s Food Guide,” recommends that adults eat 2-3 servings of milk products each day. To find out what counts as a serving, refer to page 11. If you follow these guidelines, you will likely meet your daily calcium requirements. In fact, one cup of milk contains 300 mg of calcium! Calcium is also found in fortified beverages, vegetables, and legumes. On the following page you will find a list of foods containing approximately the same amount of calcium as 1/2-1 cup of milk.
Dietary Calcium

<table>
<thead>
<tr>
<th>Source of Calcium</th>
<th>Serving size</th>
<th>Approximate amount of calcium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk</td>
<td>1 cup</td>
<td>300 mg</td>
</tr>
<tr>
<td>Yogurt</td>
<td>3/4 cup</td>
<td></td>
</tr>
<tr>
<td>Fortified soy beverage</td>
<td>1 cup</td>
<td></td>
</tr>
<tr>
<td>Canned sardines (drained, including bones)</td>
<td>50 g</td>
<td></td>
</tr>
<tr>
<td>Canned salmon (drained, including bones)</td>
<td>50 g</td>
<td></td>
</tr>
<tr>
<td>Evaporated milk</td>
<td>1/4 cup</td>
<td>150 mg</td>
</tr>
<tr>
<td>Hard cheese (e.g., cheddar)</td>
<td>15 g</td>
<td></td>
</tr>
<tr>
<td>Soft cheese (e.g., brie)</td>
<td>60 g</td>
<td></td>
</tr>
<tr>
<td>Ricotta cheese</td>
<td>1/4 cup</td>
<td></td>
</tr>
<tr>
<td>Cottage Cheese</td>
<td>1 cup</td>
<td></td>
</tr>
<tr>
<td>Orange juice with added calcium</td>
<td>1/2 cup</td>
<td></td>
</tr>
<tr>
<td>Cooked broccoli</td>
<td>1 1/2 cups</td>
<td></td>
</tr>
<tr>
<td>Cooked green beans</td>
<td>3 cups</td>
<td></td>
</tr>
<tr>
<td>Sweet potato (cooked and mashed)</td>
<td>2 cups</td>
<td></td>
</tr>
<tr>
<td>Carrots (cooked and chopped)</td>
<td>3 cups</td>
<td></td>
</tr>
<tr>
<td>Baked beans</td>
<td>1 cup</td>
<td></td>
</tr>
<tr>
<td>Canned kidney beans (drained)</td>
<td>2 cups</td>
<td></td>
</tr>
<tr>
<td>Tofu (regular, firm, extra firm, but not silken tofu)</td>
<td>3/4 cup (about 135 g)</td>
<td></td>
</tr>
<tr>
<td>Ice cream (regular or light)</td>
<td>1 cup</td>
<td></td>
</tr>
</tbody>
</table>

AN INTERESTING NOTE: If you get too much calcium from your diet, your body will stop producing Vitamin D, which is believed to protect against prostate cancer.

Do you need a supplement?

The following table provides recommendations for daily intake of vitamins and minerals discussed in this chapter. It’s important to remember that we can get a significant amount of many of them by eating a wide variety of foods. Some, such as Vitamins D and E, and selenium, are exceptions; they occur in only a few foods and may require a supplement. Calcium and zinc are generally so widespread that most people can get...
enough in their food. Before adding supplements to your diet, consult your family physician or seek advice from a registered dietitian. **Remember to stay within levels of recommended intake, since high doses of supplements can increase the risk of health problems, including prostate cancer.**

<table>
<thead>
<tr>
<th>Vitamin/Mineral</th>
<th>Age (Years)</th>
<th>General Daily Recommended Intake</th>
<th>Daily Recommendation for Prostate Health</th>
<th>Maximum Daily Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin A</td>
<td>31+</td>
<td>900 µg or 3000 IU</td>
<td>900 µg or 3000 IU</td>
<td>3000 µg or 10,000 IU</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>31+</td>
<td>90 mg</td>
<td>90 mg</td>
<td>2000 mg</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>31-50</td>
<td>5 µg or 200 IU</td>
<td>10 µg or 400 IU</td>
<td>50 µg or 2000 IU</td>
</tr>
<tr>
<td></td>
<td>51-70</td>
<td>10 µg or 400 IU</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>71+</td>
<td>15 µg or 600 IU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin E⁵</td>
<td>31+</td>
<td>15 mg or 15 IU</td>
<td>100-200 mg or 100-200 IU</td>
<td>1000 mg or 1000 IU*</td>
</tr>
<tr>
<td>Calcium</td>
<td>31-50</td>
<td>1000 mg</td>
<td>1000-1200 mg**</td>
<td>1000 mg</td>
</tr>
<tr>
<td></td>
<td>51+</td>
<td>1200 mg</td>
<td></td>
<td>1200 mg</td>
</tr>
<tr>
<td>Selenium</td>
<td>31+</td>
<td>55 µg</td>
<td>200 µg</td>
<td>400 µg</td>
</tr>
<tr>
<td>Zinc</td>
<td>31+</td>
<td>11 mg</td>
<td>Supplement not recommended – do not exceed 11 mg/day</td>
<td>40 mg</td>
</tr>
</tbody>
</table>

⁵ Vitamin E conversions based on standard measure (dl-alpha tocopherol acetate)
* Maximum daily intake for Vitamin E applies to supplemental forms only.
** Recommendation for prostate health should represent calcium intake from diet in combination with supplements. Refer to the table on page 23 for further information on the calcium content of popular dietary items.

**Phytonutrients**

Phytonutrients aren’t vitamins or minerals but offer important health benefits. We’ve identified more than 4000 kinds of phytonutrients, derived only from plant sources, and are discovering more all the time. Many of them possess properties that make them very attractive in preventing or limiting diseases like prostate cancer. Although vitamin and mineral supplementation often makes sense, phytonutrient supplements generally don’t exist. Therefore it’s important to eat plenty of foods from the following categories of phytonutrients.
Lycopene

Lycopene is a type of antioxidant found chiefly in tomatoes (it’s what makes them red), as well as in papaya and watermelon. Researchers have found that men with prostate cancer have low levels of lycopene in their blood and prostate tissue. The evidence supporting a lycopene-rich diet is very convincing: Studies suggest that men who eat more than 5 servings a week of cooked tomatoes reduce their incidence of prostate cancer by one third. As well, when lycopene was given to men treated for prostate cancer, it stabilized PSA levels in those with an aggressive form of the disease. Although research into the links between lycopene and prostate cancer is promising, not all studies have found a relationship between them. We do know that lycopene from natural sources is widely available and safe to eat; so eating tomato-based products every day should be part of a healthy diet.

Fresh fruits and veggies aren’t necessarily the best way to get lycopene. Processed tomatoes (in sauces and juices) are better than fresh ones because lycopene is fat-soluble: Your body will absorb more when it’s processed with a little oil. Cooking tomatoes is also preferred, since heat releases lycopene from inside the cells.

**Recommended lycopene intake: 30 mg a day**

Lycopene can easily be consumed by eating common foods. The following table will help you determine which foods to eat to meet the lycopene recommendations. Remember to choose low-sodium versions of tomato juice, sauce, and paste when possible.

### Lycopene in some common foods

<table>
<thead>
<tr>
<th>Food</th>
<th>Measure</th>
<th>Lycopene content (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable juice cocktail</td>
<td>1 cup</td>
<td>23.4</td>
</tr>
<tr>
<td>Tomato juice</td>
<td>1 cup</td>
<td>22.0</td>
</tr>
<tr>
<td>Pasta sauce</td>
<td>1/2 cup</td>
<td>21.5</td>
</tr>
<tr>
<td>Watermelon</td>
<td>1 wedge (about 286 g)</td>
<td>13.0</td>
</tr>
<tr>
<td>Tomato soup (Canned, made with milk)</td>
<td>1 cup</td>
<td>12.6</td>
</tr>
<tr>
<td>Stewed tomatoes</td>
<td>1 cup</td>
<td>10.3</td>
</tr>
<tr>
<td>Raw tomato</td>
<td>1 tomato (about 123 g)</td>
<td>3.2</td>
</tr>
<tr>
<td>Ketchup</td>
<td>1 tbsp</td>
<td>2.5</td>
</tr>
<tr>
<td>Grapefruit</td>
<td>1/2 grapefruit (about 123 g)</td>
<td>1.7</td>
</tr>
</tbody>
</table>
Sulphoraphanes: Veggies
Cruciferous vegetables — like cabbage, broccoli, broccoli sprouts, cauliflower, and brussels sprouts — are rich in sulphoraphanes. These are antioxidant compounds that help detoxify cancer-causing compounds and regulate prostate cell cycles. In men diagnosed with prostate cancer, recent research suggests that eating two or more servings of broccoli or cauliflower a week can substantially reduce the risk of cancer spreading outside the prostate. Research has also shown that men with prostate cancer, who eat broccoli regularly, have less aggressive disease than men who skip these valuable veggies.

Alliums: Garlic and more
Garlic has attracted attention in the press with respect to its “anti-cancer” properties. Although the research on garlic and prostate cancer is limited, one study points toward increasing your garlic intake. It showed that men who eat garlic-containing foods twice a week or more have about half the risk of developing prostate cancer. Garlic belongs to a family of vegetables known as alliums, which also includes leeks, shallots, and chives. These vegetables can help fight prostate cancer in a variety of ways. Aside from their antioxidant properties, they can enhance the disposal of cancer-causing chemicals and protect DNA from harmful substances. Allium vegetables are also a good source of selenium.

Choose foods made with fresh garlic instead of taking supplements. After crushing fresh garlic, let it stand for 15 minutes before cooking with it: Researchers have found that this activates a “cancer-fighting” enzyme within. On the other hand, roasting garlic in the peel may taste great, but heating it in this way destroys the enzyme.

Polyphenols: Pomegranate, Green Tea and Chocolate
Remember isoflavones, those “anti-cancer” compounds found in soy? Well, they’re also a type of polyphenol with powerful antioxidant
properties. Soy is not the only source of polyphenols though; pomegranate, green tea, and chocolate also contain a variety of important plant nutrients.

**Pomegranate**
Pomegranate is an important source of valuable polyphenols including *punicalagin*, which is believed to contribute more than half the antioxidants found in this fruit. Punicalagins are found in pomegranate skin, making commercially prepared pomegranate juice a better source of these antioxidants than the fruit. Interest in pomegranate’s antioxidant effects, along with promising laboratory research, has encouraged the study of pure pomegranate juice in men treated for prostate cancer. In one study, 46 men who had previously received radiation, surgery, or cryotherapy for prostate cancer and whose PSA continued to rise following treatment, were asked to drink one cup of pomegranate juice daily. On average, PSA doubling time (a marker of advanced disease) increased from 15 months to 54 months, significantly delaying the need for additional cancer treatment.

Although the research is promising, it is too soon to draw conclusions about the benefit of pomegranate juice; however, it is unlikely to cause harm. Because of its increased popularity, pomegranate juice can now be found in the produce section of most grocery stores.

**Green tea**
The powerful antioxidants found in green tea may prevent tumour growth. In mice, green tea polyphenols have been shown to slow the progression and spread of prostate cancer. Although the evidence in humans is less compelling, correlations between these polyphenols and lower rates of prostate cancer have been found in many Asian countries. Research in China has shown that men unaffected by prostate cancer drink significantly more green tea than men with it. Other studies suggest that drinking 3 to 10 cups of green tea a day coincides with lower levels of certain cancers. Polyphenols may also help prevent the cellular damage that can lead to prostate cancer. It’s no wonder: The polyphenols found in green tea can be up to several hundred times more powerful than those found in Vitamin E.
**Chocolate**
Finally, some good news for chocoholics: Studies have found significant levels of polyphenols in chocolate and cocoa products. Although research in prostate cancer is very limited, one laboratory study showed that prostate cancer cells stop growing when they’re treated with polyphenol extracts from cocoa. Be sure to read the labels when buying chocolate: It’s important to choose products with a high content of real cocoa butter or powder — and don’t overdo it, since chocolate products contain mostly fat.

**Alcohol**
The relationship between alcohol and prostate cancer is unclear, however, research has suggested that drinking red wine regularly can lower your risk of disease. The polyphenols found in red wine (flavonoids and resveratrol) are antioxidants, which may protect against prostate cancer. This doesn’t mean that you should start drinking red wine if you don’t already do so! The risk of prostate cancer is likely even lower in non-drinkers. Research studies have also reported that excessive drinking of beer, or increasing alcohol intake from middle to late adulthood, may increase your risk of prostate cancer. At this point we are unsure of the role alcohol plays in influencing prostate cancer risk. What’s important to keep in mind is that beer, wine, and liquor should be consumed in moderation.
Dietary Supplements

Now that you are familiar with the most crucial vitamins, minerals and phytonutrients, the question becomes: How do you get the right amount of each?

In an ideal world, simply eating a well-balanced diet would be enough. But sometimes that’s just not possible. Supplements — manufactured, easy-to-take versions of these nutrients — may be the answer. Although there is no firm data that dietary supplements can cure or prevent prostate cancer, evidence suggests that in low doses, some may help slow tumor growth. Supplement use is common in men with family histories of this disease, as well as among men diagnosed with prostate cancer. Unfortunately, studies show that only half of men taking supplements tell their doctors what they are using. It is important to keep your doctor informed of vitamin, mineral, and herbal supplement use. This is particularly true for men receiving treatment for prostate cancer because supplements can affect the way your body responds to treatment. As well, be sure to supplement within recommended daily intakes (found in Chapter 1). While low doses of supplements may help prevent prostate cancer or its progression, research has shown that mega-dosing with supplements or taking them more than 7 times per week can increase your risk of advanced prostate cancer.
Choosing supplements

When you’re in the drug or health-food store, ask which supplement brands come highly recommended and read the labels carefully yourself. Dosage is given in International Units (IU), milligrams (mg) or micrograms (µg or mcg), with the number clearly listed on each bottle. Make sure to check the expiration date on the bottle. Also, check with your doctor about whether the government’s Recommended Daily Allowance, or RDA, of any supplement is right for you.

TAKE NOTE: Too much of certain vitamins can be harmful. Vitamins A, D, and E are stored in the body and can be toxic if taken in large quantities. There are also countless less familiar supplements out there, including herbal preparations, that make a variety of claims — some true, others not. Before you take any new supplement — vitamin, mineral, herbal or otherwise — consult your doctor.

Adding it up: Mixing multivitamins and supplements

If you already take a multivitamin, remember to deduct the amount of any given nutrient from the RDA when buying additional single-nutrient supplements. For example, if your multivitamin contains 50 µg of selenium and you want to take 200 µg in total, take your multivitamin with a 100 µg or a 150 µg selenium supplement rather than a 200 µg version. In estimating your intake of key nutrients, remember that some foods are rich sources (e.g., milk contains both calcium and vitamin D). The upper limit set for each nutrient includes all sources from both diet and supplements.
Herbal products and other supplements

Manufacturers of herbal products make lots of big claims, and those geared toward men with prostate cancer are no exception. Dozens of “alternative” (and often untested) remedies for prostate cancer are selling like hotcakes on the Internet. If you choose to take an herbal or alternative supplement, don’t rely on testimonials. The supplement industry is not regulated, and many of these products may not measure up to their claims or may do more harm than good. On the following pages you can read about some of the most popular — and hyped — alternative products.

**Melatonin**
This hormone regulates the body’s sleep-wake cycle, but recent evidence suggests that it also has anti-cancer properties, including some potentially beneficial in fighting prostate cancer. In a study comparing melatonin levels in men with and without prostate cancer, those with the disease showed evidence of a melatonin deficiency. In another study, men with prostate cancer unresponsive to hormone therapy were able to control their disease with high-dose melatonin. Does taking a supplement offer any benefits? We don’t know for sure.

Melatonin does have the potential to do harm and should not be used without consulting a physician. It is not recommended for those experiencing depression and should not be used during the day. Toxicity can be a problem if too much of it is taken. With so much uncertainty, should you take melatonin supplements? Until study results are more conclusive, the answer is probably no.

**Prostate cancer-SPES (PC-SPES)**
This combination of eight herbs — chrysanthemum, licorice, isatis, Ganoderma lucidum, Panax pseudo-ginseng, Rabdosia rubescens, saw palmetto, and scutellaria (skullcap) — was once a popular supplement among prostate cancer patients. PC-SPES was believed to have hormone-like properties and possibly even some anti-prostate cancer properties. Unfortunately, this supplement is no magic bullet. In 2002, it was withdrawn from the North American market because it contained
undeclared prescription drugs, including a powerful blood thinner, which can cause serious damage when used without medical supervision. Recently, PC-SPES has re-emerged in Internet markets, but the supplement is potentially dangerous and its usefulness remains unknown. Consult your physician if you are considering hormone therapy, and choose traditional pharmacological forms of androgen deprivation instead.

**Shark cartilage**
Reports from the early 1990s suggested shark cartilage could reduce the development of blood vessels, like those that feed tumours. No evidence has been found, however, that supplements of shark cartilage have any beneficial effect on prostate cancer. They should be avoided.

**Saw palmetto**
Saw palmetto is the partially dried, ripe fruit of a scrubby palm that grows in the southeastern United States. More false information has been published on this plant than on just about any other prostate cancer remedy. Although there is evidence that saw palmetto can reduce symptoms of prostatitis, most laboratory studies on saw palmetto and prostate cancer cells yield inconsistent results. A recent study examining supplement use over a 10-year period in more than 35,000 men found no relationship between prostate cancer risk and saw palmetto use. The long-term effects are also unknown.

Saw palmetto product quality varies widely from one manufacturer to another: Our investigation of available saw palmetto supplements revealed a tenfold difference in active ingredients (known as liposterolic...
extracts, or fatty acids and sterols) across brands. Since it doesn’t appear to affect men who have prostate cancer, this supplement can also be skipped.

**Red clover**
The flowering tops of clover contain isoflavones, including biochanin A and formononetin, which are metabolized into genistein and diadzein when eaten. Since genistein and diadzein have shown benefit in preventing prostate cancer cell growth in the laboratory, it is natural to assume that they may have the same effect in humans. However, no studies have confirmed the usefulness of red clover in preventing or treating prostate cancer. As well, it contains coumarin, which increases the risk of bleeding if red clover is taken in large doses.

**Grape seed extract**
Grape seeds have recently been introduced into laboratory research examining new ways to slow prostate tumour growth. Although preliminary evidence suggests that grape seed extract may prevent cancer cells from growing, and in some cases kill the cells, this theory remains untested in humans. Until the evidence suggests otherwise, the best way to get those beneficial polyphenols is through eating grapes!
Coenzyme Q10
Although it’s been reported to be a powerful antioxidant, Coenzyme Q10 has not shown any benefit in fighting prostate cancer. Current research does not support its use in men at risk for prostate cancer or in men who have been diagnosed with this disease. If you are taking Coenzyme Q10 but wish to stop, speak to your doctor first, because sudden discontinuation of this supplement can trigger congestive heart failure in men with heart problems.

DHEA or dihydroepiandrosteredione
Men with prostate cancer should definitely avoid this one. DHEA, which has received lots of press in relation to weight lifting, is a steroidal androgen produced by the adrenal gland. As an androgen, it helps stimulate muscle generation, but may also stimulate the growth of prostate cancer cells.
Nutrition and Your Treatment Program

If you’ve been diagnosed with prostate cancer, depending on the type of treatment you’re receiving, you may need to consider special nutritional factors. Keep in mind that any drugs you may be taking along with your treatment program can have side effects of their own — like altering your mood or taste — which may reduce your interest in eating properly. The best way to stay on top of all these things is to consult your doctor about how nutrition relates to you.

Active surveillance and watchful waiting
Active surveillance and watchful waiting are approaches used to monitor prostate cancer and do not involve active treatment. During the monitoring period, symptoms are managed as they arise. Diet can be an important aspect of disease management. While on an active surveillance or watchful waiting protocol, you should try to incorporate the nutritional recommendations provided in this book. Following a low-fat diet or incorporating more cooked tomatoes or soy foods in your meals may help prevent disease progression, as well as contribute to a healthy diet.

Active Surveillance and Watchful Waiting
While these terms are sometimes used interchangeably, there are subtle differences in their meanings. Active surveillance refers to monitoring the progress of cancer with the intention to start treatment if risk increases. Watchful waiting refers to monitoring low risk prostate cancer and does not involve a plan for active treatment.
Surgery
Surgery is a common approach to treating prostate cancer. A radical prostatectomy involves removal of the prostate and seminal vesicles, and may be done laparoscopically or by means of an open technique.

Before surgery, you should try to follow a low-fat, high-fibre diet. Since surgery is sometimes more challenging in overweight men, even the smallest changes in diet before treatment can be beneficial. It’s also important to inform your doctor about supplements you are taking, because they can affect your response to surgery. Make sure to stop taking any Vitamin E and Omega-3 supplements within 7-10 days of surgery, since they act as blood thinners and can increase bleeding during the procedure.

After surgery, a diet rich in protein and some fatty acids is recommended to promote tissue healing. You should try to eat food combinations that provide a whole source of protein (refer to the table on pg 8). To determine how much protein you should eat daily, aim for 1-1.5 grams of protein per kilogram of body weight.

Radiation therapy
Lots of men receive radiation therapy as part of their prostate cancer treatment. It can be given via external x-ray beams (external beam radiotherapy) or through internally placed radiation sources such as radioactive iodine or palladium (brachytherapy).

Radiation treatment is based on the concept of using “oxidative kill” to destroy prostate cancer cells. The radiation, once in contact with the cells, generates toxic oxygen — free radicals that permanently damage
the cells’ DNA. If this process sounds familiar, it’s because prostate cancer itself may be caused by a similar mechanism. But how can the very thing that’s part of what causes cancer be used to treat it? The answer may depend simply on the “dose” of oxygen damage. Small amounts will damage DNA and injure the cells — possibly resulting in cancer formation — whereas large doses kill the cells outright.

With radiation therapy use, the implications for nutrition can be profound. Since most nutritional supplements beneficial to men with prostate cancer are antioxidants, they may — in theory — block the action of radiation, thus limiting the chance of a cure. This is a very important consideration, since research studies have shown that cancer cells preferentially accumulate antioxidants like Vitamin C and lycopene.

Although no human studies have confirmed this theory, it’s probably best to limit your consumption of antioxidants (Vitamins E and C, lycopene and selenium) during radiation treatment. This means you should stop taking supplements but keep eating a variety of fruits and vegetables. For external beam radiation, supplementation should be stopped for roughly 6-7 weeks and not resumed until at least one week after your final treatment. For brachytherapy, 9 months of antioxidant abstinence are required, because it takes this long for palladium and iodine to lose their radioactivity within your body.
Radiation therapy and chemotherapy may cause some patients to experience diarrhea, cramping, gas or bladder irritation. Below are some recommendations on foods to eat and foods to avoid to help manage the side effects of treatment.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Foods to Avoid</th>
<th>Foods to Include</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhea</td>
<td>Beets, broccoli, cauliflower, corn, peas, spinach, sweet potato; kiwi, pear, pomegranate, dried fruits; whole wheat breads and bran cereals; raspberry or strawberry yogurt, chocolate milk</td>
<td>Green/red peppers, celery, carrots, lettuce, mushrooms; apple, banana, mango, melon; white breads; skim, 1% or 2% milk</td>
</tr>
<tr>
<td>Cramping/Gas</td>
<td>Beans, broccoli, cabbage, onions, garlic; apples, prunes; deep-fried foods, carbonated beverages</td>
<td>This varies on an individual basis – include foods that you tolerate well</td>
</tr>
<tr>
<td>Bladder Irritation</td>
<td>Highly acidic fruits and vegetables, including: peaches, pineapple, tomatoes, strawberries; spicy foods; alcoholic beverages</td>
<td>Low-acid fruits including: pears, apricot, papaya, watermelon</td>
</tr>
</tbody>
</table>

**Hormone therapy**

Many prostate cancer patients ultimately require a form of treatment known as androgen deprivation therapy (ADT). This involves blocking the production or action of testosterone and dihydrotestosterone — the two male hormones critical to prostate cell growth. These hormones are like “fuel” to prostate cancer cells. When they’re reduced, or removed from circulation, most prostate cancer cells will die, leading to a reduction in PSA values and some relief from the symptoms of prostate cancer (such as bone pain and urinary problems).
Historically, only men with advanced bone cancer were treated with hormonal therapy. The 1990s, however, saw an increased use of this therapy for prostate cancer. Mounting evidence suggests that earlier treatment with ADT prolongs survival: Treating men with hormones when there’s relatively less cancer has greater benefit than treating them later on when there’s more disease. Studies have also shown that, in some patients, radiation therapy can be more effective if given along with hormone treatment.

**Side-effect fighting foods**
Although using hormones earlier in treatment can benefit men with prostate cancer, there are side effects associated with these drugs that relate to androgen deficiency — faster bone loss, fatigue, hot flashes, weight gain, loss of muscle mass, and impotence. Nutritional and lifestyle changes may help limit some of these side effects. Here are a few suggestions:

- Increase your daily intake of calcium by 500 mg and Vitamin D by 400 IU. When taken in combination, calcium and Vitamin D can prevent bone loss.

- Increase your protein intake. As outlined in Chapter 1, a complete source of low-fat protein, such as soy protein, would be best.
• Increase the amount you exercise. Exercise, in combination with protein, will help minimize weight gain and the lean-muscle loss associated with ADT. It will also preserve bone mass, give you more energy, improve mood and help to treat mild depression.

• Eat well. A normal, balanced diet will go a long way toward helping your body cope with the physical and emotional stresses of being treated for prostate cancer.

Chemotherapy
Chemotherapy is generally used to treat prostate cancer when the cancer cells become androgen-independent or hormone-refractory. This means they no longer respond to hormone therapy. Chemotherapy involves treating the cancer with a drug, or a combination of drugs, administered either in pill form or by injection. Since this therapy targets the entire body, patients may experience changes in appetite or other side effects, including nausea and diarrhea. If you are receiving chemotherapy or about to start treatment, be sure to tell your doctor about any supplements you are taking in order to avoid drug interactions.
Recipe Repertoire
Looking for the right balance

Now that you know which foods to eat and why, all you need are a few good recipes to get you started. So we’ve come up with 22 easy and tasty recipes full of healthy nutrients. In fact, many of the recipes on the following pages contain clever ways to incorporate soy products into your diet without compromising taste — and, in many cases, even improving it. You’ll also find several recipes rich in tomatoes, the main source of all-important lycopene.

You can adapt the recipes to suit your individual tastes and preferences. For those who like to eat a light meal in the evening, many of the lunches and dinners are easily interchangeable. Or, if you don’t like to cook every night, consider doubling the amounts in the recipes (especially the stews) and freezing meals for later. And don’t be afraid to get creative and come up with variations on your own. Before you know it, you’ll be cooking up a storm — and having a great time, too.

*Bon appétit!*
Breakfast and Snacks

Apple Honey Raisin Muffins

1 1/2 cups whole-wheat flour
1 1/2 cups wheat bran
1/2 cup all-purpose flour
1 tsp baking soda
1 tsp ground cinnamon
2 cups buttermilk or fat-free plain soy beverage
1 egg
1/4 cup honey
1 tsp vanilla
2 medium carrots, grated
1 cup peeled, cored and chopped apple
1/2 cup raisins

1. Preheat oven to 400°F. Spray 16 muffin cups with cooking spray.
2. In large bowl, combine whole-wheat flour, wheat bran, all-purpose flour, baking soda and cinnamon; stir well.
3. In another bowl combine buttermilk, egg, honey and vanilla; stir in grated carrots.
4. Add to flour mixture and combine until just moistened.
5. Add apples and raisins; stir to combine.
6. Bake for 15 minutes or until a toothpick inserted in centre comes out clean.

Makes 16 muffins

If you don't have buttermilk on hand, you can substitute 2 cups of skim milk with 2 tablespoons of lemon juice. Let it sit for a few minutes until it starts to curdle.

Soy beverage is often referred to as "soy milk." Don't be afraid to choose one that is fortified. Fortified soy beverages and cow's milk generally contain the same amount of calcium.

Oatmeal with a Twist

1/4 cup raw bulgur
1 1/2 tbsp rolled oats
1 1/2 tbsp wheat germ
1 tsp ground cinnamon
1/8 tsp ground nutmeg
2 cups water
2 tbsp molasses
2 tbsp raisins
2 dates, chopped
1 tsp vanilla

1. In medium saucepan, combine bulgur, oats, wheat germ, cinnamon and nutmeg; mix well.
2. Add water and bring to a boil. Reduce heat to medium-low and add molasses, raisins, dates and vanilla.
3. Cook partially covered for 15 minutes until water is absorbed, stirring occasionally.

Makes 2 servings

This oatmeal also tastes great made with figs instead of dates.
Pear and Ginger Bran Muffins

1 1/2 cups ready-to-eat bran cereal
1/2 cup apple juice
1 pear, shredded
2 tsp ginger, finely grated
2 egg whites
1/2 cup fat-free plain yogurt
1/4 cup apple butter
1/4 cup maple syrup
1 tbsp canola oil
1 1/4 cups all-purpose flour
2 tsp baking soda
1 tsp ground cinnamon

1. Preheat oven to 400°F. Spray 16 muffin cups with cooking spray.
2. In medium bowl, combine bran cereal, apple juice, pear and ginger; let soak for 10 minutes.
3. Stir in egg whites, yogurt, apple butter, maple syrup and oil.
4. In large bowl, combine flour, baking soda and cinnamon. Add cereal mixture and stir until just moistened.
5. Spoon batter into muffin cups; bake for 18 to 20 minutes or until a toothpick inserted in centre comes out clean.

Makes 16 muffins

Apple butter is made from pureed apples. You can buy it in a health food store.

The Easiest Tortilla Blintz

500 g light ricotta cheese (about 2 cups)
1 egg
1/4 cup sugar
2 tsp grated lemon rind
1 cup fresh or frozen mixed berries (e.g., blueberries, raspberries)
6 8-inch whole-wheat tortillas

1. Preheat oven to 425°F. Spray baking sheet with cooking spray.
2. In large bowl, combine cheese, egg, sugar and lemon rind; mix well. Add fruit and stir in gently.
3. Place approximately 1/2 cup of mixture in centre of each tortilla. Roll up to enclose filling.
4. Place tortillas seam down on baking dish; spray lightly with cooking spray.
5. Bake for 10 to 12 minutes until slightly brown.

Makes 6 blintzes

When peaches are in season, these blintzes are delicious when made with a combination of peaches and raspberries.

Blueberries are a great source of antioxidants.
Chapter 4

Warm Fruit Breakfast

3 large apples, Spy or Matsu, peeled and cut into small chunks
2 large oranges, peeled and sectioned
1 cup canned unsweetened crushed pineapple, drained slightly
1 cup water
2 tbsp cornstarch
3 tbsp brown sugar
2 tsp ground cinnamon
1/2 tsp ground nutmeg

1. Preheat oven to 350°F. Spray an 8-inch square baking pan with cooking spray.
2. In large bowl, combine apples, oranges and pineapple; toss gently until well mixed.
3. In small bowl stir cornstarch into water, mixing until completely dissolved. Add sugar, cinnamon and nutmeg; mix well.
4. Stir into fruit mixture until thoroughly combined.
5. Spoon into baking dish. Cover and bake 30 to 35 minutes, stirring after 15 minutes.

Makes 6 servings

This breakfast is delicious served with plain yogurt on top. It can also be served cold as chutney.
Salads

**Baby Lima Bean Salad**

1 1/2 cups dry lima beans, soaked in 5 cups water for at least 4 hours
4 bay leaves
1 small red onion, chopped
1 large stalk celery, chopped
1 package cherry tomatoes, (1/2 pint/341 g), quartered
1/2 cup parsley, chopped
2 tbsp olive oil
1 tbsp red wine vinegar or balsamic vinegar
1 clove garlic, minced
1/4 tsp salt
1/8 tsp pepper

1. In large saucepan, place lima beans and bay leaves; cover with water. Bring to a boil and stir; continue to boil and cook on medium heat until tender but not mushy, about 45 to 55 minutes.
2. Drain and remove bay leaves; cool slightly.
3. In large bowl, combine onion, celery, tomatoes, parsley, oil, vinegar, garlic, salt and pepper; add beans and toss well.

Makes 6 servings

**Mexican Tofu and Tortilla Chip Salad**

1 lb firm tofu, crumbled
1 tbsp chili powder
1 tbsp ground coriander
1 tsp ground cumin
6 cups romaine lettuce, shredded
40 baked tortilla chips, crumbled
1 cup salsa
1/2 cup fat-free sour cream

1. Spray large non-stick skillet with cooking spray.
2. In medium bowl, combine tofu, chili powder, coriander and cumin. Add to skillet and sauté over medium heat for 5 minutes.
3. Remove from heat and cover skillet with lid to keep warm.
4. Arrange lettuce on four plates; top with warmed tofu mixture.
5. Top with tortilla chips, and garnish with 1/4 cup salsa and 2 tablespoons of sour cream on each plate.

Makes 4 servings

*Putting the warm tofu on lettuce acts as a sort of “dressing” and prevents the need for any other dressing. The tofu in this recipe provides isoflavones; approximately 15 mg of daidzein and 18 mg of genistein.*
Chapter 4

Sweet Potato Salad

3 sweet potatoes (approximately 1 lb)
1 stalk celery, chopped
2 green onions, sliced
1/3 cup light mayonnaise
1 tbsp curry powder
1/3 cup fat-free plain yogurt
1 tbsp lemon juice
1/4 cup slivered almonds, toasted

1. Microwave sweet potatoes for 15 minutes, turning them after 8 minutes. Remove skin and cut into cubes; let cool.
2. In medium bowl, combine celery, onions, mayonnaise, curry and yogurt.
3. Gently fold in sweet potatoes and almonds.

Makes 6 servings

Toasting Almonds. 1. Preheat oven to 350°F. 2. Spread almonds in one layer on ungreased shallow baking pan. 3. Bake, stirring occasionally, until golden, approximately 15 minutes. Watch carefully!

Barbie’s Special Salad

1 tbsp rice vinegar
1 tsp soy sauce
1 tsp honey
1/2 tsp ground ginger
2 cups English cucumber, thinly sliced
1 head Boston lettuce, torn into pieces
1 cup snow peas, sliced
5 radishes, thinly sliced
1 tbsp sesame oil
2 tsp lemon juice

1. In jar, combine vinegar, soy sauce, honey and ginger; shake well.
2. In medium bowl, place cucumber and add vinegar dressing; toss well.
3. In large bowl, combine lettuce, snow peas and radishes.
4. In cup, combine oil and lemon juice; mix well and pour over lettuce mixture.
5. Add cucumber mixture and toss.

Makes 2-4 servings
Warm Curried Chicken Salad

1. Arrange lettuce on four large plates.
2. Spray a large non-stick skillet with cooking spray. Heat over medium-high heat. Add chicken, onion, nuts, curry powder, salt and pepper. Sauté for 4 to 5 minutes until chicken is cooked. Place mixture in large bowl; cover to keep warm.
3. Add peaches, vinegar and oil to skillet. Cook for 2 minutes until peaches are heated through.
4. Add peaches to chicken mixture and toss; spoon over greens. Serve immediately.

Makes 4 servings

When you put a warm mixture on top of mesclun, it will wilt the greens, thus enhancing their flavour.

Mesclun is a mixture of young salad greens such as arugula, oak leaf and curly endive.

Brazil nuts are a great source of selenium. This recipe provides about 153 μg per serving!
Chickpea and Feta Stew

1. Spray a large saucepan with cooking spray. Heat over medium-low heat; add onions and sauté for 10 minutes.
2. Stir in tomatoes, oregano and basil. Cook over medium heat, stir occasionally and use spoon to break up tomatoes.
3. Add wine and cook another 3 minutes.
4. Add chickpeas, feta and pepper; continue cooking for 10 minutes, stirring frequently.

Makes 4 servings

The combination of chickpeas, feta and tomato is delicious. It makes a hearty lunch or light supper and it’s great with a piece of pumpernickel bread.

The canned tomatoes in this recipe will provide about 5 mg of lycopene per serving.

Tuna and Bean Dip

1. In medium bowl, using a fork, combine tuna and beans and mash thoroughly.
2. Add celery, onion, lemon juice, mustard, oil and pepper; mix well.

Makes 8 servings

This dip makes a great sandwich filling. Add lettuce and tomato and serve on a whole-wheat pita.
Soy Bacon, Apple and Onion Frittata

1. Spray large non-stick skillet (with heat-proof handle) with cooking spray; add bacon and sauté over medium heat until lightly browned. Remove from skillet.

2. Re-spray skillet and add apples and onion; sauté for 5 minutes. Stir in bacon.

3. Meanwhile, in large bowl, whisk eggs, soy beverage and salt. Pour over apple mixture and cook 2 to 3 minutes until lightly brown on bottom.

4. Transfer skillet to oven and broil 2 to 3 minutes until golden.

Makes 4 servings

Soy bacon is available in supermarkets in the produce section alongside soy hotdogs and soy sliced meats. Although different brands of soy bacon will have varying amounts of isoflavones, this recipe will provide about 1.6 mg of daidzein and 3.9 mg of genistein per serving. A fat-free plain soy beverage will add approximately 1 mg of daidzein and 2 mg of genistein per serving.

Tofu Omelet

1. In large bowl, beat eggs; add onions, pepper and garlic and mix well.

2. Add tofu and soy sauce; mix well to combine.

3. Spray a large non-stick skillet with cooking spray; heat over medium-high heat. Add egg mixture and cook until mixture has the consistency of scrambled eggs.

Makes 4-6 servings

Try this omelet with some salsa on the side.

The tofu in this omelet will provide you with approximately 10 mg of daidzein and 12 mg of genistein – about half of your suggested daily intake!
Amazing Tofu Curry

1. In large non-stick skillet or wok, heat oil; add onion, ginger, curry powder, cumin and sweet potato. Cook 2 to 3 minutes, stirring often.

2. Add broth and reduce heat to medium-low. Cook covered for 20 minutes, stirring occasionally.

3. Add red pepper, tofu, cauliflower, broccoli, lemon juice, salt and pepper; cook covered for 7 to 10 minutes or until vegetables are just tender.

Makes 4 servings

Chicken Stew

1. Spray large non-stick skillet with cooking spray. Heat over medium heat and add onion; cook, stirring frequently, for 4 minutes. Add garlic and sauté for 1 minute.

2. Stir in red pepper and cook for 2 minutes. Add squash, chili powder, cumin and oregano and cook for 1 minute.

3. Stir in tomatoes with their juices and add beans. Bring to a boil, reduce heat, cover and simmer for 10 minutes.

4. Stir in chicken; cover and cook for 10 to 15 minutes until chicken is cooked through and squash is tender.

Makes 4 servings

This recipe provides about 15 mg of diadzein and 18 mg of genistein per serving.

You can substitute chickpeas, great northern beans or cannelini beans for kidney beans in this dish.
**Chicken Tandoori**

1 cup fat-free plain yogurt  
5 tbsp lemon juice  
4 cloves garlic, minced  
1 tbsp minced ginger  
1 tbsp grainy-type Dijon mustard  
1 tsp ground coriander  
1 tsp ground cumin  
dash cayenne pepper  
4 skinless, boneless chicken breasts (about 4 oz/125 g each)

1. In large bowl, combine yogurt, lemon juice, garlic, ginger, mustard, coriander, cumin and cayenne. Add chicken and turn to coat. Cover and refrigerate for up to 24 hours (but no less than one hour), turning the chicken once or twice.
2. Preheat oven to 375°F.
3. Transfer chicken and yogurt mixture to a baking dish and bake uncovered for 25 minutes or until chicken is tender.

Makes 4 servings

*Yogurt serves to keep skinless chicken breasts moist.*

---

**Penne with “Meat Sauce”**

1 package (340 g) fat-free vegetarian “ground round”
375 g whole-wheat penne (about 4 cups)
1 jar low-fat pasta sauce (675 ml)
3/4 cup salsa
4 oz shredded part-skim mozzarella or soy cheese (about 1 cup)

1. Preheat oven to 375°F.
2. In large bowl, crumble ground round.
3. In large pot of boiling water, cook pasta until just tender (about 8 to 10 minutes); drain.
4. Add pasta, pasta sauce and salsa to ground round; mix well.
5. Spray a 13 x 9-inch baking dish with cooking spray; place mixture in dish and sprinkle cheese on top. Bake for 20 minutes until cheese is melted.

Makes 4 servings

*Vegetarian “ground round” is precooked and can be used in recipes that call for ground beef. You’ll be amazed at how similar it tastes! If you prefer a “meatier” sauce, try adding a second package of ground round.*

*This recipe is a great source of lycopene. The combination of pasta sauce and salsa provide a whopping 17 mg per serving!*
Roasted Salmon

2 lb salmon fillet
2 tbsp honey
1 tbsp grainy-type Dijon mustard

1. Preheat oven to 400°F. Spray an 8 x 11-inch baking dish with cooking spray.
2. Place salmon in dish, skin side down.
3. In small bowl, combine honey and mustard. Brush on salmon and spray lightly with cooking spray.
4. Bake for 15 minutes.
Makes 6-8 servings

Salmon contains the omega-3 fatty acids EPA and DHA. Atlantic farmed salmon is most commonly found in grocery stores, and provides 0.7 g of EPA and 1.5 g of DHA. Atlantic wild salmon is a little less common, and has slightly less total fat. Its omega-3 contribution is about 0.4 g of EPA and 1.5 g of DHA.

Shrimp Provençal

1 large clove garlic, minced
1 large onion, sliced
3 large tomatoes, diced
10 Kalamata olives, pitted and sliced
2 tsp dried basil
2 tsp dried oregano
1/8 tsp salt
1/8 tsp pepper
1 1/2 lbs shrimp, peeled and de-veined

1. Spray a large non-stick skillet or wok with cooking spray.
2. Sauté garlic and onion over medium heat for 1 minute.
3. Add tomatoes, olives, basil, oregano, salt and pepper; sauté for 5 minutes.
4. Remove tomato mixture from skillet and set aside.
5. Spray pan again and add shrimp; sauté for 4 to 5 minutes until cooked.
6. Add tomato mixture and toss with shrimp. Cook another 30 seconds to heat through.
Makes 4 servings

Shrimp cooks very quickly and will be rubbery if overdone. Be sure to cook them when you’re just about ready to sit down to dinner.
RECIPE REPERTOIRE: MAINS

Chapter 4

Tofu Chili

1 lb firm tofu
1 green pepper, diced
2 medium onions, diced
1 stalk celery, sliced
1 carrot, sliced
1 clove garlic, minced
1 can plum tomatoes (28 fl oz/796 ml), chopped, undrained
1 can kidney beans (19 fl oz/540 ml), undrained
1 can tomato paste (5.5 fl oz/156 ml)
1/2 tsp cayenne pepper (or to taste)
1/2 tsp dried oregano
1/2 tsp dried basil

1. In large bowl, crumble tofu.
2. In second large bowl, place green pepper, onion, celery, carrot and garlic with 3 tablespoons of water. Cover and cook in microwave on high for 3 to 4 minutes; drain.
3. In large saucepan combine tomatoes, beans, tomato paste, cayenne, oregano, basil and pepper with vegetable mixture.
4. Stir in tofu, bring to a boil, cover and simmer for 1 hour, stirring occasionally.

Makes 6 servings

Each serving of Tofu Chili provides about 15 mg of lycopene, 10 mg of diadzein and 12 mg of genistein.

Tofu Loaf

1 large onion, chopped
1 1/2 lbs firm tofu, mashed
1/2 cup rolled oats
1/3 cup reduced-sodium soy sauce
1/3 cup ketchup
2 tbsp grainy-type Dijon mustard
1/8 tsp pepper

1. Preheat oven to 350°F.
2. Spray medium non-stick skillet with cooking spray and sauté onion for 5 minutes; remove from heat.
3. In large bowl, combine tofu, rolled oats, soy sauce, ketchup, mustard, pepper and onion.
4. Spray a 13 x 9-inch baking dish with cooking spray; spread tofu mixture in dish and bake 30 minutes.
5. Cover with foil and bake an additional 30 minutes.
6. Let sit 5 minutes before cutting.

Makes 4 large or 6 smaller pieces

This tofu loaf freezes well.

The tofu in this recipe will provide you with isoflavones; about 15 mg of diadzein and 18 mg of genistein.
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Exercise

Research has shown that frequent exercise reduces the risk of many chronic diseases including cardiovascular disease, diabetes, and some types of cancer. Regular exercise promotes muscle development, prevents excess weight gain, improves cardiovascular and immune system function, and reduces fatigue. It can also boost your self-esteem, improve your body image, and enhance your quality of life. In prostate cancer research, exercise has been identified as a modifiable lifestyle factor that may help to reduce risk and provide benefit during treatment. To achieve these benefits, you should strive for a minimum of 30 minutes of moderate exercise during most days of the week.

Exercise During Treatment

Fatigue is a common side effect of cancer and its treatment, affecting up to 96% of patients. Some prostate cancer treatments (like androgen deprivation therapy) can make it hard to carry out routine activities such as climbing stairs or carrying groceries. It is important to remain active at all times, including during treatment, because inactivity can cause muscle wasting which can prolong fatigue. Participation in structured exercise programs can help improve your ability to carry out normal daily activities. It may also improve sexual function in men following radiation therapy. Specific types of exercises, such as Kegel (pelvic floor) exercises can improve urinary incontinence, another major side effect of many prostate cancer treatments.
Before you begin any exercise program it is important to talk to your doctor about the type and intensity of the exercises you will be doing. If you have received treatment for prostate cancer, your doctor can help you decide when exercise is appropriate. Generally, men receiving external beam radiation therapy, brachytherapy and/or hormone therapy can continue to exercise throughout treatment. How vigorously you exercise depends, of course, on your energy level. Men who have had a radical prostatectomy should wait six to eight weeks before returning to exercise and avoid heavy lifting (more than ten pounds) for at least 4-6 weeks after surgery. These guidelines can also be applied to housework and sports. Most importantly, remember to listen to your body, and begin or continue exercising when it feels comfortable to do so.

KEGEL EXERCISES
Kegel exercises strengthen the muscles of the pelvic floor and help regain urinary control and prevent leakage following prostate cancer treatment.

How to perform a Kegel exercise:
1. Identify the pelvic floor muscles
   While urinating, try to stop and start the flow of urine. The muscles that you are contracting and relaxing to control the flow are the muscles you should target during the Kegel exercise.

2. Perform the exercise
   Kegel exercises involve contracting the pelvic floor muscles. They can be performed at any time (i.e., not just while urinating). Try short and quick contractions as well as holding the contraction for several seconds.
3. **Develop a routine**

Practice Kegel exercises daily. Aim for 80-100 contractions throughout the day. Increase the number of contractions as they become easier. If possible, start practicing Kegel exercises before treatment.

**Exercise Principles and Guidelines**

Exercise guidelines follow the FITT principle, which stands for **Frequency, Intensity, Time, and Type**. **Frequency** describes the number of times you exercise each week. **Intensity** refers to how hard you exercise. It can be measured by an increase in heart rate, through a rating of perceived exertion, or by a simple talk test (these methods are explained later in this chapter). In resistance training, intensity refers to the amount of weight lifted or number of repetitions. **Time** reflects the amount of time you spend doing exercises. **Type** refers to the kind of exercise, such as walking, cycling, swimming, or resistance training.

The key to choosing the right program is to identify your particular goals, such as reducing fatigue or improving strength and/or endurance. If you have been treated for prostate cancer, or are currently receiving treatment, consider the following when planning your exercise approach:

1. Type of cancer
2. Stage of cancer
3. Type and extent of treatment
4. Time since completion of treatment

These factors can influence your ability to exercise. Start slowly and closely monitor how your body adapts to the new activities. Then progress gradually as you become accustomed to the routine. As with any exercise program, some fatigue and muscle discomfort is normal in the early stages. If you experience shortness of breath, dizziness, or pain while exercising, stop the activity immediately.
Chapter 5

Training Guidelines for Men with Prostate Cancer

Men who have not been diagnosed with prostate cancer can also follow these guidelines.

Frequency: 3-5 times per week is recommended, although frequency may depend on treatment status (e.g., lower frequency during periods of radiation therapy). Daily exercise should be a goal. For men who are inactive and have a low fitness level, short and frequent bouts of exercise each day is acceptable. These sessions should include lighter-intensity exercises (e.g., 5 minutes of exercise 6 times per day).

Exercise has an accumulative effect: Performing shorter but more frequent bouts of exercise can benefit you as much as one longer, continuous session.

Intensity: A moderate intensity (aerobic or resistance exercise) is recommended for most men with prostate cancer. This level of effort increases your breathing rate and heart rate, as well as causes some light sweating. The Heart Rate Reserve (HRR) method and the Rating of Perceived Exertion (RPE) scale are accurate ways to define training intensity zones.

Target Heart Rate using Heart Rate Reserve (HRR) is calculated by the following formula:

Target Heart Rate = [(maximum heart rate - resting heart rate) x intensity] + resting heart rate.

In this equation:
- maximum heart rate equals 220 minus your age
- intensity is the percentage of your HRR at which you intend to exercise
- resting heart rate is taken before exercise while sitting or lying down (preferably first thing in the morning)

Refer to the case study on page 60 for a sample calculation.
The second method of measuring intensity is with the RPE scale. This scale, which goes from 6 (exerting no effort) to 20 (exerting maximal effort), is convenient to use and does not require any calculations. For men who are inactive, in poor health, or who have a low fitness level, the recommended starting intensity level is 30-49% of HRR or 10-11 on the RPE scale. For those who are more active, moderately healthy, and reasonably fit, 50-75% of HRR and an RPE of 11-14 can be used as starting intensities.

The moderate intensity zone is indicated in blue.

### RPE scale

<table>
<thead>
<tr>
<th>RPE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>No exertion at all</td>
</tr>
<tr>
<td>7</td>
<td>Extremely light</td>
</tr>
<tr>
<td>8</td>
<td>Very light</td>
</tr>
<tr>
<td>10</td>
<td>Light</td>
</tr>
<tr>
<td>11</td>
<td>Somewhat hard</td>
</tr>
<tr>
<td>12</td>
<td>Hard (Heavy)</td>
</tr>
<tr>
<td>13</td>
<td>Very hard</td>
</tr>
<tr>
<td>14</td>
<td>Extremely hard</td>
</tr>
<tr>
<td>15</td>
<td>Maximal exertion</td>
</tr>
</tbody>
</table>

Ravi is a 60-year-old gentleman with prostate cancer who is receiving external beam radiation therapy. He has calculated his target heart rate range by following a few simple steps:

1. He estimates his maximum heart rate by subtracting his age from 220 (220-60 = 160).

2. He then calculates his resting heart rate in beats per minute (bpm) by counting the number of beats (using the pulse at the side of his neck or on the inside of his wrist) over 15 seconds and multiplying the result by 4 (18 beats x 4 = 72 bpm). This determines his resting heart rate.

3. Ravi decides to exercise at a moderate intensity — about 50-60% of his heart rate reserve (HRR). He uses the following calculations to determine his Target Heart Rate range of 116-125 bpm.

   Target Heart Rate (50%) = [(160-72) x 0.50] + 72 = 116 bpm
   Target Heart Rate (60%) = [(160-72) x 0.60] + 72 = 125 bpm

4. During the exercise, Ravi measures his heart rate using a 10 second count and multiplies the result by 6 (20 beats x 6 = 120 bpm). He then compares this value to his Target Heart Rate range, and determines that he is working at a moderate intensity. He uses a 10 second count during exercise rather than a 15 second count because the heart rate slows rapidly when an activity is stopped.

Time: The duration of an exercise session depends on your health and treatment status, exercise intensity, and program goals. The recommended time is 15-40 minutes of continuous exercise per session. However, men who have a low fitness level or are experiencing severe treatment-related side effects should strive for several short bouts of exercise (3-5 minutes) and rest often. Once you have reached your goals, increase the duration of exercise before the intensity.
Type: There are two general categories of exercise: aerobic and resistance. Aerobic exercises (e.g., walking and cycling) improve your cardio-pulmonary fitness (the strength of your heart and lungs) whereas resistance training (e.g., lifting weights) will improve your muscle strength and endurance. (For resistance training guidelines, see the “Resistance Training” section on page 63.)

Most aerobic exercises involving large-muscle groups (e.g., legs or back) are suitable. Walking and mild jogging are recommended, since they are often comfortable and enjoyable for most men. When choosing an exercise, it is important to take into account any acute and/or chronic physical limitations that may rule out certain types. For example, cycling may not be appropriate for men with prostate cancer after certain types of treatment. You should also accommodate for poor weather conditions if you normally perform activities outdoors.

Other Considerations
In addition to the FITT principle, the following factors should be considered when designing your exercise program.

Progression: Exercise progression should be slow and gradual, especially for men who have a low fitness level. You can generally start progressing when you can exercise continuously for thirty minutes. Frequency, intensity, or time can be gradually increased, one aspect at a time. Even small amounts of exercise can improve physical performance, reduce fatigue and functional limitations, and enhance quality of life.

Warm-up, Cool-down, and Stretching: Warm-ups and cool-downs are essential parts of any exercise session. The warm-up, which comes before the workout, should include 5-10 minutes of light stretching and calisthenics (e.g., walking/jogging on the spot, arm circles) that incorporate the parts of your body targeted by the exercise session. The warm-up increases blood flow to the working heart and skeletal muscles, raises
body temperature, reduces the risk of injury to your muscles and joints, and helps prevent abnormal cardiac rhythms.

The cool-down follows immediately after a workout and reduces the risk of cardiovascular complications caused by stopping exercise suddenly. Cool-downs involve exercising at a low intensity for 5-10 minutes to allow the heart rate and blood pressure to return to pre-workout levels. Stretching can be incorporated into your warm-up, workout, and cool-down phases to maintain and improve flexibility and prevent muscle cramps and soreness.

**Hydration:** Keeping hydrated is also very important: Cancer treatment can promote dehydration, making this an added concern during exercise. Be sure to drink lots of water, even if you are not thirsty. It is recommended that you consume approximately 500 ml (2 cups) of water 30-60 minutes before exercising, and 250 ml (1 cup) every 30-45 minutes throughout the activity. Electrolyte drinks (e.g., Gatorade) are an excellent alternative to water, particularly for longer and relatively intense exercise sessions.
Resistance Training

Resistance training may be an attractive option if you have lost strength in specific areas or want to increase general muscular strength and lean body mass. Free weights, weight machines, and resistance bands are often recommended but should be used with caution. Always seek advice from qualified instructors and use correct techniques.

Guidelines for resistance training are: 8-15 repetitions for 1-3 sets at 50%-70% of 1 repetition maximum (1RM). Resistance exercise can be performed 2-3 days per week for 20-60 minutes. Resistance training programs should be started at a low intensity (e.g., 50% of 1RM for 12-15 repetitions) and progressed by 5 lbs when you are able to lift the weight comfortably for 12 or more repetitions.

Determining your 1RM

*Men with a history of regular exercise may feel comfortable estimating their 1RM. However, be cautioned that prolonged inactivity will reduce a 1RM significantly. It is recommended that you choose a light weight (i.e., a weight that you can comfortably lift 15+ times) when starting resistance training programs and increase resistance in small amounts (2.5 lb – 5 lb) until you find a weight that you can lift for 8-15 repetitions, depending on your program. Generally, 70% of your 1RM is approximately equal to the weight you can lift for a maximum of 12 repetitions in one set.*

DEFINITIONS

Repetition (“Reps”): One complete movement of a particular exercise

Set: A number of repetitions performed consecutively

1RM (“1 Rep Max”): The maximum amount of weight that you can lift in one maximal effort repetition
Some treatments for prostate cancer can reduce bone mineral density and increase the risk of fractures. For this reason, exercises should be performed in a controlled and balanced manner to reduce the risk of falling and dropping weights. Resistance training machines and resistance bands are great ways to strengthen muscles and reduce the risk of injury.

There are a variety of resistance training exercises and equipment options to choose from. Designing your resistance training program will depend on a number of factors including:

- Your current fitness level
- Your exercise goals
- Your resistance training experience
- Any cancer- or treatment-related effects on your ability to perform certain movements
- The location of exercise (i.e., home vs. gym)
- The availability of equipment

**Where do I begin?**

We know that building strong muscles is important to our health, but it can be difficult to know where to start. To help you begin a resistance exercise program, we have provided exercise and safety tips, as well as instructions for some suggested exercises. The selected exercises have been used safely in research involving men with prostate cancer. Several of the exercises can be performed with a variety of equipment types and can be modified for home or gym-based workouts.

**CAUTION:** The suggested exercises have been selected because they are safe for most men with prostate cancer (and members of the general population). If you have other medical conditions that may interfere with these exercises, we advise you to consult with your physician before starting a resistance training program.
Some Helpful Tips for Safe Resistance Exercise

The following exercise tips will ensure that you minimize the risk of injury and maximize the effectiveness of your workouts.

Exercise Tip #1: Breathing
To prevent any unnecessary and potentially dangerous increases in blood pressure, it is very important that you breathe during your resistance training exercises. Breathing out, or exhaling, should occur during the work phase of the exercise (i.e., the lifting phase). Breathing in, or inhaling, should occur during the relaxing phase of the exercise (i.e., the lowering phase or when you are returning to the starting position). Proper breathing follows a simple 4-count pattern: lift “1-2” (exhale), lower “3-4” (inhale).

Exercise Tip #2: Protecting your lower back
Proper posture and body positioning during exercise is important to avoid injuries, especially injuries to the lower back. Your spine has natural curves that should be maintained during each exercise you perform. It is important to avoid any exaggerated curvatures (excessive bending or straightening) that may cause an injury. You can learn what the neutral spine feels like by laying on your back with your knees bent at 90-degrees and putting both hands under the curve of your back just above your buttocks. Your lower back should not be in contact with the floor. This curve in your lower back is considered neutral. While performing any exercises, maintain this neutral spine position and contract your abdominal muscles to stabilize your core (think of tucking your belly button into your back or zipping up tight pants).
For exercises that are performed on your back (e.g., bench press), make sure you can fit your hands underneath the curve in your lower back (i.e., neutral spine) while contracting your abdominal muscles. For exercises that are performed standing, maintain a slight bend in your knees with most of your weight over your heels (your hips should be slightly behind your knees), stand straight while maintaining a neutral spine position.

**Exercise Tip #3: Protecting your shoulders**
During resistance exercise it is also important to protect your shoulders from injury. A scapular retraction is the best way to achieve a stable base for upper body exercises. This involves squeezing your shoulder blades together and slightly down. Scapular retraction should be done during any upper body exercise performed while you are sitting, standing, or lying on your back.

**Safety Tips**
Safety is the most important factor to consider when starting any exercise program. Injuries can be painful and frustrating, and are easily prevented by taking simple precautions during your workout.

**Safety Tip #1: Learn Proper Techniques**
Make sure that you know the proper technique for each exercise that you perform. Hiring a fitness consultant to demonstrate and teach all of the exercises in your program may be a worthwhile investment if you are not familiar with resistance exercises.
Safety Tip #2: Dress Comfortably
Exercise in comfortable clothing. Running shoes, shorts or track pants, and a t-shirt will keep you cool and dry during indoor workouts.

Safety Tip #3: Inspect the Equipment
Inspect all of the equipment before using it. Take a look to make sure that it is in good working order and is stable. For exercise machines, check that the cables are not frayed and the handles are not wet or slippery. If you are using resistance bands, make sure that they are not ripped. If you are securing them to a fixed object, check that the object is stationary and will not move, and that you knot/anchor the band firmly.

Safety Tip #4: Be Courteous, Be Safe
Put your weights away after you use them. Poorly placed weight plates, dumbbells, and barbells can cause someone to trip, or the equipment to fall, which may cause a serious injury.

Safety Tip #5: Exercise With a Friend
Exercising with a friend or spouse is good for motivation and safety. An exercise companion can encourage you through your workout and “spot” you through difficult reps. Spotting is an important aspect of exercising and involves adding just enough assistance with the weight to help the exerciser finish his set.

Safety Tip #6: STOP exercising IMMEDIATELY if you experience any of the following symptoms:
- Chest pain
- Shortness of breath or difficulty breathing
- Bone or joint pain
- Dizzy or lightheaded
- Unusual/excessive fatigue
Sample Resistance Exercises

Before starting any exercise program, consult with your physician to make sure that it is safe to do so.

**Lat Pull-down**

**Primary Muscles Worked:** Mid/outer back (latissimus dorsi)

**Equipment:** Lat pull-down machine

**Instructions:** Sit facing the machine, legs positioned under the pads, with both feet comfortably on the floor (not dangling). Grasp the bar with both hands facing forward, wider than shoulder width apart. Maintaining a seated position and leaning slightly back, pull the bar down in front of your face until your upper arm is parallel with the floor, or the bar reaches just above your clavicle (collar bone). Hold, and return to the starting position in a controlled manner.

**NOTES:** When you bring the bar down, the cable should remain nearly vertical and your elbows and hands should come straight down (not backwards). Perform this exercise in a controlled manner. Do not use momentum or any jerking motion to bring the bar down.

**Seated Row**

**Primary Muscles Worked:** Upper/inner back (rhomboids; trapezius)

**Equipment:** Resistance bands

**Instructions:** Seated with your knees slightly bent and with your legs in front of you, anchor the middle of the resistance band around the middle of your feet or to a fixed object in front of you. Lean backward until you are sitting upright. Grasp either end of the resistance band (to increase resistance, grasp the band at a point closer to the anchor). Slowly pull both ends of the band straight back until your hands reach your stomach. Hold, and smoothly return to the starting position.

**NOTES:** When using the resistance bands, slowly release the tension by returning to the start position before letting go. Your upper body should not move once you have achieved the starting position. Only your arms should be moving until the exercise is complete.
One-Arm Dumbbell Row

**Primary Muscles Worked:** Mid-upper/inner back (rhomboids)

**Equipment:** Dumbbell, exercise bench

**Instructions:** On the left side of an exercise bench, place your right hand (with a straight arm) at the front of the bench, and your right knee on the bench just beside your extended left leg. In this position, move your left leg away from the bench so that it is slightly behind your right. Your back should be flat and parallel to the floor, head up and looking forward. Grasp a weight in your left hand and let it hang freely and directly under the shoulder (perpendicular to the floor; starting position). Keeping your arm close to your body, lift the weight up as if to put it in your pocket. Hold, and return the weight to the starting position. After your set, repeat the exercise with your other arm on the other side of the bench.

**NOTES:** Your back should remain flat with your shoulders squared to the floor. Do not twist or rotate at the hips to lift the weight. Your elbow should stay tight to your body.

Chest Press (Barbell)

**Primary Muscles Worked:** Chest (pectoralis major)

**Equipment:** Barbell, exercise bench with weight rack

**Instructions:** Position yourself on your back on an exercise bench with your eyes directly under the barbell. Grasp the barbell using a grip slightly wider than shoulder width with your wrists in a neutral position (not extended or flexed). Lift the barbell off of the rack until it is directly over the midline of your chest (starting position). Bending your elbows, lower it slowly until it almost touches your chest. Hold, and return to the starting position. At the end of your set, place the barbell back on the rack.

**NOTES:** You should NOT have an exaggerated arch in your lower back while performing this exercise. Contract your abdominals to ensure that your back remains flat on the bench. Assistance (i.e., spotter) should be used when performing this exercise.
**Dumbbell Chest Press**

**Primary Muscles Worked:** Chest (pectoralis major)

**Equipment:** Dumbbells, exercise bench

**Instructions:** Lie face up on an exercise bench, feet flat on the ground. Start by holding dumbbells over your chest with an overhand grip (palms facing down) maintaining a slight bend in the elbows. From this position, bend your elbows and slowly lower the dumbbells until they are next to your armpits. Hold, and return to the starting position.

**NOTES:** Elbows should be pointed outward (away from body) during the entire exercise. Do not bang the weights when extending arms.

---

**Dumbbell Shoulder Press**

**Primary Muscles Worked:** Shoulders (deltoids)

**Equipment:** Dumbbells, upright exercise bench (may use chair or perform the exercise standing)

**Instructions:** Sit at the end of an upright exercise bench (or chair) with your back against the backrest and feet shoulder width apart, firmly planted on the floor. Start with the weights up to the side of your shoulders with your palms facing forward and elbows forming a 90-degree angle (starting position). Slowly extend your arms straight above your head until your arms are almost fully extended (always maintain a slight bend in your elbows). Hold, and return to the starting position.

**NOTES:** You should not have a rounded back during this exercise. Your elbows should always be pointed directly to the sides. Do not bang the dumbbells together when you extend your arms.

---

**Bicep Curl**

**Primary Muscles Worked:** Front of upper arm (biceps)

**Equipment:** Rubber tubing with handles (may use dumbbells or barbell)

**Instructions:** Stand on top of the middle portion of the rubber tubing with feet shoulder width apart. Grasp the handles with palms facing forward, keeping your elbows tight to your body, arms almost straight.
and directly under your shoulders (starting position). Bend at the elbow, bring the handles upward as much as possible without moving your shoulders. Hold, and return to the starting position.

**NOTES:** Your wrists should remain neutral (not flexed or extended). Do not jerk or yank the weights, tubing, or resistance bands. Maintain a straight posture.

---

**Triceps Extension (Kickbacks)**

**Primary Muscles Worked:** Back of upper arm (triceps)

**Equipment:** Dumbbell and exercise bench

**Instructions:** On the left side of an exercise bench, place your right hand (with a straight arm) at the front of the bench, and your right knee on the bench just beside your extended left leg. In this position, move your left leg away from the bench so that it is slightly behind your right. Your back should be flat and parallel to the floor, head up, and looking forward. Grasp a weight in your left hand and bring your left elbow up to your hip. Your elbow should be bent making a 90-degree angle (starting position). From this position, keeping your elbow tight to your hip, straighten your arm slowly until it is near fully extended. Hold, and slowly return the weight back to the starting position. After your set, repeat the exercise with the other arm on the other side of the bench.

**NOTES:** Do not swing your arms back. Your back should be parallel with the floor and head up. Keep your elbow anchored at your side (just above your hip).

---

**Machine Leg Press**

**Primary Muscles Worked:** Thighs and buttocks (quadriceps and gluteal region)

**Equipment:** Leg press machine

**Instructions:** Sit in the leg press machine with your back comfortably supported and maintaining a neutral spine position (you may have to adjust the back support or seat). Place both feet on the footplate slightly wider than shoulder width, toes pointed straight ahead or slightly outward. Extend your legs until they have only a slight bend in the knees,
and unlock the safety support with your hands (typically just to the sides of the seat). From this position, grasp the handles located to the sides of the seat and lower the weight slowly by bending your knees to 90-degrees (or to a comfortable angle from which you can return to the starting position). Hold, and slowly return to the starting position. When you are finished your set and with your legs in the extended position, engage the safety support.

**NOTES:** It is important to contract your abdominals through the entire movement. Always maintain a slight bend at your knees.

**Squats with Swiss-Ball**

**Primary Muscles Worked:** Buttocks and front thigh (gluteal region and quadriceps)

**Equipment:** Stability ball (weights optional)

**Instructions:** Place a stability ball in between the wall and the lower part of your back, just above your waist. Leaning into the ball, stand with feet slightly ahead of you and shoulder width apart, while maintaining a slight bend in the knees. Start a downward motion by flexing at the hips and then the knees, and lower until your knees form an angle of approximately 90-degrees. Hold at the bottom, and slowly return to the starting position.

**NOTES:** You may use dumbbells to increase intensity. Your knees should not move ahead of your toes. Your back should remain straight with your head facing forward.

**Leg Extension**

**Primary Muscles Worked:** Front of upper leg (quadriceps)

**Equipment:** Leg extension machine

**Instructions:** Sit in the machine with your back firmly against the back support and knees comfortably over the edge of the seat. Place your feet behind the lower set of pads so the pad is resting just above your ankles. Grasp the handles at the sides of the seat and slowly straighten your legs until they are just short of being fully extended. Hold, and slowly return to the starting position.
NOTES: Adjust the machine (the back support, seat/pad position) so that your legs bend comfortably over the edge of the seat. Do not let the weight stack touch until all repetitions are completed.

**Seated Leg Curl**

**Primary Muscles Worked:** Back of upper leg (hamstrings)

**Equipment:** Seated leg curl machine

**Instructions:** Sit in the machine with your back firmly against the back support and knees comfortably over the edge of the seat. The closest set of pads to your body should be firmly pressing down just above your knees, and the more distant pads just underneath your ankles with your legs straight. Grasp the handles at the sides of the seat and slowly bring your feet towards your buttocks until you can go no further. Hold, and slowly return to the starting position.

NOTES: Adjust the machine (the back support, seat/pad position) so that your legs are comfortably extended with pads just above your knees and below your ankles. Do not let the weight stack touch until all repetitions are completed.

**Abdominal Crunch**

**Primary Muscles Worked:** Abdominals/core (rectus abdominus)

**Equipment:** Exercise mat

**Instructions:** Lie face up on an exercise mat with your knees bent at a 90-degree angle, and your feet flat on the floor shoulder width apart. Keep your hands to your sides (palms down) or across your chest. From this position, raise your head and shoulders off the mat by contracting your abdominals. Think of bringing your ribs into your pelvis. Hold, and return to the starting position.

NOTES: Do not sit all the way up. To protect your neck from strain, keep your chin pointed towards the ceiling.
Abdominal Crunch with Swiss-Ball

**Primary Muscles Worked:** Abdominals/core (rectus abdominus)

**Equipment:** Stability ball

**Instructions:** Sit on the stability ball so that your lower back and tailbone are touching the ball. Your feet should be firmly planted on the ground and shoulder width apart, with your knees bent at a 90-degree angle. Arms should be folded across the chest, or raised such that your fingers are gently touching either side of your head. Contract your abdominals and fold at the waist until your abdominals are fully contracted. Hold, and return to starting position.

**NOTES:** The ball should not roll during the exercise. You should not be pulling on your head or neck with your hands. Rather, keep your neck fairly straight by focusing on one point on the ceiling.

Prone Hip Extension

**Primary Muscles Worked:** Low back and buttocks (erector spinae and gluteal region)

**Equipment:** Exercise mat

**Instructions:** Lie face down on a mat with your arms extended straight ahead or folded underneath your forehead. Your legs should be straight with feet together and toes touching the mat. Raise one leg straight up off the mat while keeping an extended leg and maintaining pelvic contact with the mat.

**NOTES:** This exercise has a relatively small range of motion. Do not roll on either side of the pelvis to achieve more height, but rather lift as high as is comfortable with your pelvis in contact with the mat. Stop this exercise immediately if you feel any pain in your lower back.
### Exercise Log

Using an exercise log is a good way to maintain continuity in your program and monitor progress toward your goal. Below is an example of Ravi’s exercise log.

**Exercise Log For: Ravi**

<table>
<thead>
<tr>
<th>Date:</th>
<th>June 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resting Heart Rate:</td>
<td>72 bpm</td>
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<tr>
<td>Warm-up:</td>
<td></td>
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<tr>
<td>Slow walking</td>
<td>Duration: 10 min</td>
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<tr>
<td>Stretching</td>
<td>5 min</td>
</tr>
<tr>
<td>(legs, back,</td>
<td>Target intensity: Light</td>
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<tr>
<td>shoulders, arms)</td>
<td>[HRR=35-40% (103-107 bpm) RPE= 8-10]</td>
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<tr>
<td></td>
<td>Intensity: Light</td>
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<td></td>
<td>HR: 103</td>
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<td>Aerobic Exercise:</td>
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<td>Walking</td>
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<td>[HRR=50-75% (116-138 bpm) RPE= 12-13]</td>
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<td></td>
<td>HR: 120</td>
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<td>RPE: 12</td>
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<td>Resistance Exercise:</td>
<td>Set 1</td>
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<tr>
<td>Lat pull-down</td>
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<td>Bench Press</td>
<td>Reps</td>
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<td></td>
<td>Wt (lb)</td>
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<tr>
<td>Bicep Curl</td>
<td>Reps</td>
</tr>
<tr>
<td></td>
<td>Wt (lb)</td>
</tr>
<tr>
<td>Kickbacks</td>
<td>Reps</td>
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<tr>
<td></td>
<td>Wt (lb)</td>
</tr>
<tr>
<td>Cool-down:</td>
<td>Duration: 5 min</td>
</tr>
<tr>
<td>Slow walking</td>
<td>Target intensity: Light</td>
</tr>
<tr>
<td>Stretching</td>
<td>[HRR=35-40% (103-107 bpm) RPE= 8-10]</td>
</tr>
<tr>
<td>(legs, back,</td>
<td>Intensity: Light</td>
</tr>
<tr>
<td>shoulders, arms)</td>
<td>HR: 106</td>
</tr>
<tr>
<td></td>
<td>RPE: 8</td>
</tr>
<tr>
<td>Problems, Concerns, &amp; Comments:</td>
<td>Great workout! My legs felt great during the walk today, but my arms felt quite weak during the lat pull-downs and seated row, so I dropped the weight for my last set. Otherwise, I feel good with no discomfort.</td>
</tr>
</tbody>
</table>
You can copy the Exercise Log below and keep a record of your own progress!

Exercise Log For: ________________________

| Date: | ________________ |
| Resting Heart Rate: | |
| Warm-up: | Duration: | Target intensity: Light [%HRR= ( bpm) RPE= ] |
| | | Intensity: |
| | | HR: RPE: |
| Aerobic Exercise: | Total Duration: | Target intensity: Moderate [%HRR= ( bpm) RPE= ] |
| | | |
| | | HR: RPE: |
| Resistance Exercise: | Set 1 | Set 2 | Set 3 |
| | Reps | Wt (lb) | Reps | Wt (lb) | Reps | Wt (lb) |
| | | | | | |
| | | | | | |
| | | | | | |
| Cool-down: | Duration: | Target intensity: Light [%HRR= ( bpm) RPE= ] |
| | | Intensity: |
| | | HR: RPE: |
| Problems, Concerns, & Comments: | | | | |

76
Deciding to Change and Changing Decisively

The principles outlined in the following chapter on dietary change can be applied equally to changing exercise behaviour.

You are reading this book because you believe that a healthier diet may help prevent the onset or recurrence of prostate cancer. Preventing cancer is certainly a powerful motivator for changing your diet. But the question remains: Is it compelling enough to lead to successful long-term change? The answer, unfortunately, is “not in many cases”. While a strong reason for change is necessary, it may not be sufficient. According to behavioural science, people pass through a series of “stages of change” on their way to healthy lifestyle changes. In the early stages, prevention of prostate cancer is enough to jump-start dietary change. But keeping it going presents a challenge — how can you use your initial momentum to reach the stage where eating healthier becomes a habit? This chapter describes the stages of change, helps you determine the one you’re now in, and tells you how to progress through the remaining stages until a healthy diet becomes part of your life.

Let’s start with the basic questions of making healthy changes:

- **Do you really need to change?**
- **Do you really want to change?**
Do you really need to change? The best way to decide this is to re-read Chapter 1, “Eating Right for Life,” and examine how closely its dietary recommendations are already represented in your diet. This will help you determine if you feel dietary change is required, and if so, to what degree.

To estimate how closely your current diet reflects the Nutrition chapter’s recommendations, we suggest you try to express the relationship as a percentage, however rough. It is unlikely that your current diet is 0% healthy, nor is it likely to be 100% healthy. Your diet lies somewhere in between. Take an honest look at your diet in comparison with the “prostate cancer prevention” nutrition recommendations in Chapter 1 and judge for yourself how healthy your current diet is. Place a check mark in the scale below that you feel best represents your current diet:

If you're satisfied with the “healthiness” of your current diet, you may not need to change it, preferring to direct your energy elsewhere. On the other hand, if you feel improvement is necessary, place a check mark in the scale below that best represents your prostate cancer prevention “goal diet”. Remember, at this time you do not have to determine the exact dietary changes to be made; we will work that out later in the chapter.

This exercise is designed only to get a general picture of the amount of change necessary.

Subtract your ‘goal diet’ percentage from your ‘current diet’ percentage:
DECIDING TO CHANGE AND CHANGING DECISIVELY

The Overall Change represents the percentage change you feel must
be made to your current diet for it to be effective in preventing prostate
cancer. Making a 50% change obviously requires much more awareness,
attention and energy than a 10% one. So if you intend to start eating
healthier, we suggest you create enough space in your life for the required
expenditure of effort, keeping in mind that you do not have limitless
energy and attentional ability.

Do you really want to change? It is important to make clear decisions
about what you want to change and what you don’t want to change.
You shouldn’t try to change anything (including eating healthier foods)
until you’re sure you really want to. Many people confuse not having made
clear decisions with not having enough willpower. Don’t worry about
willpower for now. Focus on making a clear, well-considered decision.

To do this, consider the following stages people go through when making
a change. See if you can find the stage that best describes how you feel
about eating healthier. Read the description of each stage before deciding
on the one that best describes you.

Stage One: You may not know or you may not be sure if you want to
change. If that’s true, read the I’m Not Sure I Want to Change section.

Stage Two: You may be leaning toward healthier eating but haven’t
decided whether you really want to make the changes in your diet. If
that’s true, slow down and make decisions you’ll stick with. Start with the
I’m Thinking About Changing section.

Stage Three: You may be sure about eating a healthier diet and are
going ready. So prepare to proceed in the best possible way.
Start with the I’m Getting Ready to Change section.

Stage Four: You may have already started on a healthier diet but
feel you haven’t gone far enough. Start with the I’ve Made The
Change section.

Stage Five: You may be satisfied with the changes you’ve made toward
eating a healthy diet but are concerned about maintaining them.
You’re right — no room for complacency. Evidence indicates people
have to maintain their new healthy diet for quite a while to avoid backsliding. So look out for difficult situations, and read the *I’m Going Strong* section.

Now that you have identified your stage of change, proceed to the appropriate section of the chapter and continue your journey toward a healthier diet.

**HINT:** We suggest you find your stage of change, then go back one stage and start reading from there. For example, if you feel your current stage is “I’m getting ready to change”, go back one stage, and start reading “I’m thinking about changing”. This will provide you with a better foundation for progressing through your current stage to the following ones.

**I’m not sure I want to change**

You’re not sure. That’s fine. This section is designed to help you learn why you decide to do some things and not others. Specifically, it will help you increase your awareness of why you aren’t sure you want to eat a healthier diet and to ensure that this decision is made conscientiously. This is not a process of judgement but rather one of examining your decision realistically.

First, don’t worry about defending your current eating habits. If you’re happier eating a less nutritional diet, you are likely going to keep doing it. This book is not designed to “overhaul” your diet but rather to help you find a balance that suits you, so that you can be both happier and healthier.

Second, keep an open mind and take this opportunity to examine your decision — that you’re not sure you want to change your diet.
There Is Only So Much I Can Do.

We all have demands placed on us that exceed our ability to respond. To cope with them, we are forced to give priority to those most important to us. Our lives have many aspects or domains that require our attention: partners, children, parents, careers, finances, and of course, health. Any one of these aspects can be broken down further. For example, in the area of health, we must consider yearly check-ups, exercise, stress, alcohol consumption, smoking, nutrition, and other influences. It is easy to see that there are competing demands among domains in our lives and even within them.

When considering change, we need to examine these competing demands and determine if we have tried to put them in order of priority. In thinking about eating a healthier diet, for example, we need to consider the importance we place on nutrition in prostate cancer prevention, and why it hasn't received priority in your overall attention to health. For the first part of this exercise, we suggest you examine the evidence on diet and prostate cancer prevention presented in Chapter 1. For the second part, examining the priority you give nutrition, we suggest you continue reading.

Nutrition and Prostate Cancer Prevention: Is It a Priority?

You’ve probably heard a lot about the relationship between unhealthy diets and disease. This is especially true in North America, where media campaigns frequently remind you how dietary fat intake increases the risks to your health. Although you may not believe everything you hear and read, you probably acknowledge that certain dietary changes likely affect health and well-being. Despite all you’ve heard, you may never have tried to change your diet. Why not? A major obstacle may be competing demands.
What Do I Do That’s Healthy?
Take a few minutes and list what you already do that’s good and healthy. This is extremely important, so please do it carefully. These things (big or small) currently define “health” for you. So think it over — and start listing. If it’s hard to start, consider things you do that make you feel better over the long run, as in physically stronger, smarter, more self-confident, more creative and happier.

Examples:
1. I work out (e.g., walk, dance, jog, climb stairs, swim, bicycle, ice skate, lift weights) 3-4 times/week.
2. I drink alcohol moderately or not at all.
3. I wear sunscreen.
4. I try to limit my work hours to (5, 6, 7, 8, etc.) hours a day.
5. I meditate.
6. I take time for myself to relax.
7. I get enough sleep.

Now, make your own personal list of things that you do that are healthy:

1. _______________________________________________________
2. _______________________________________________________
3. _______________________________________________________
4. _______________________________________________________
5. _______________________________________________________ 

In contrast, consider unhealthy things you do that you feel you should change before attempting to change your diet.

What Do I Do That’s Not Healthy?
Take a few minutes and list things that you do that are unhealthy. These things (big and small) define how you can improve your health. Start listing. If it’s hard to get started, consider behaviours that make you feel worse over the long run, as in physically weaker, less intelligent, less self-confident, less happy or less creative.
Examples:
1. I don’t exercise (enough) (at all).
2. I smoke cigarettes.
3. I sunbathe too long.
4. I work too much, (8, 9, 10, 11, etc.) hours a day.
5. I drink too much alcohol (consistently or bingeing).

Now, make your own personal list of things that you do that are unhealthy:

1. _______________________________________________________
2. _______________________________________________________
3. _______________________________________________________
4. _______________________________________________________
5. _______________________________________________________

Before examining these healthy-unhealthy behaviours, we need to explore competing demands that affect your eating behaviour. Combining this eating-specific information with an analysis of the demands of other healthy-unhealthy behaviours will help clarify your reasons for not being sure you want to eat healthier.

**Reasons for Not Eating Healthier**

To help you explore competing demands and challenges to healthier eating, we have listed a few common ones other people in your position give:

- I don’t have time to prepare and eat healthy meals.
- I like going to restaurants and they don’t offer healthy choices.
- I need to reward myself and eating a steak/French fries/chocolate is one of my rewards.
- I have been eating whatever I want all my life and I don’t have the “will” to change it.
- I haven’t learned how to eat a more healthy diet.
Other factors may also be at work:

- **Emotional support**: Eating “comfort foods” can help you through bad times.

- **Stress management**: Unhealthy foods may just be a regular part of your relaxation routine. Nibbling on potato chips or a chocolate bar while you read a magazine can help melt away the day’s stress.

- **Social habit**: Eating can be a big part of how you socialize. Often we get together with friends and family around a festive meal or at a favourite restaurant.

Now, make your own personal list of demands and challenges to eating a healthier diet:

1. _______________________________________________________
2. _______________________________________________________
3. _______________________________________________________
4. _______________________________________________________
5. _______________________________________________________

**So Now What?**

In the beginning of the chapter, we said we’d help you find out more about why you do things that are unhealthy for you.

The *why* question can be simple or complicated depending on the number and intensity of competing demands on your time and energy. The answer starts with awareness. Your lists have helped you increase your general awareness of competing demands related to your health as well as specific awareness of challenges to eating healthier.
Now take the time to examine your lists and determine if your attention and energy are focused on the things most important to you. You still may not want to change. That’s OK. At least now the decision is informed.

If you think you want to make a change, read on. The next section will help you strengthen your decision to eat healthier.

If you feel caught in the middle, wanting to change but concerned about the attention and effort required, try slightly altering your diet by following a few of the prevention recommendations. This might help you learn more about which “reasons” hold you back most, and whether emotional support, stress reduction, or social factors play a role. In short, you will learn more about whether you have the space available in your life for the investment of time and energy. If you decide you want to try slightly altering your diet, read on — the next section is designed to examine the benefits and drawbacks of doing so.

I’m Thinking About Changing

Thinking is the first essential step. But thinking is not doing. This section helps you make a decision specific to changing your diet — an essential step before planning your dietary change. It answers the question: Are you ready to move from thinking about it to actively planning for it?

First, you need to understand the “cons” of changing as well as the “pros”. We suggest you use the table on the next page to list your own pros and cons for eating a healthier diet. Be honest with yourself and spend the same time and energy working on the cons as you do on the pros. This sounds tedious but it works. Rate each pro and con on a scale of 1–10, with 10 being the highest score and 1 the lowest. As you do this exercise, consider the following:

Habit and Reason
You have a “strong reason” or “strong pro” for eating healthier: preventing the onset or recurrence of prostate cancer. The problem with changing eating habits is that our diets have remained similar for many years and have become cemented in routine and habit. When we eat poorly, like ordering fries instead of salad, we’re running on automatic pilot. Without thinking about it, we generally eat what’s in the cupboard.
or served to us in restaurants. This behaviour, termed the *mechanics of habit*, has to be interrupted or broken. One effective way to do this is to *search for reasons* for eating what you eat rather than just consuming out of routine. Finding reasons sharpens awareness of your eating behaviour and thus helps you break free of habitual eating.

Now it is time to take advantage of your strong reason to eat healthier. Place this reason at the top of your pros list followed by other pros for eating healthier. The strong reason of prostate cancer prevention gives you a head start in overcoming the cons. The more the pros outweigh the cons, the stronger your reasons to eat healthier, and the greater your awareness of your eating habits.

<table>
<thead>
<tr>
<th>PROS of Dietary Change</th>
<th>CONS of Dietary Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PROSTATE CANCER PREVENTION</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
<td>5.</td>
</tr>
<tr>
<td>6.</td>
<td>6.</td>
</tr>
<tr>
<td>7.</td>
<td>7.</td>
</tr>
<tr>
<td>8.</td>
<td>8.</td>
</tr>
<tr>
<td>9.</td>
<td>9.</td>
</tr>
<tr>
<td>10.</td>
<td>10.</td>
</tr>
</tbody>
</table>

**Totals:**

After you have scored the pros and cons, total them up to see which is greater.

If your pros of eating a healthy diet outweigh your cons, then, technically speaking, you’ve decided that a healthy dietary change is worth it. You will need your “reasons for” eating healthier throughout the remainder of the change process to help you break long-held habits, and later overcome unhealthy dietary triggers. Keep this list handy while you embark on the next step — planning to change your diet successfully. Read the next section for help in doing this.

If your cons of eating a healthy diet outweigh your pros, your reasons for changing are not yet strong enough. What next? You can either reconsider or just let it go for the time being.
I’m Getting Ready To Change

OK, you’re ready now. But are you prepared? Thorough preparation is the key to successful dietary change. This chapter helps you prepare in ways that maximize your chances of success.

Keeping A Diary

Keeping a diary helps you be aware of your dietary habits and your efforts to change them. It tracks when and where you do what you do and how you feel at the time. The following two types of diaries can prove helpful:

- **The “Status Quo” Diary**: This diary is used to learn more about the conditions under which you consume unhealthy foods. You identify the reasons for your choice each time you eat something unhealthy. This is the first step to finding the best alternatives to unhealthy choices.

- **The “Trial Change” Diary**: This diary is used to learn more about your reaction to changing your eating behaviour. Choose one or more of the prostate cancer prevention recommendations from Chapter 1 and alter your diet accordingly. Use the diary to record conditions under which you failed to stick to the recommendation(s). This trial provides insight into what you can expect when you decide to change your diet for good. It can help you understand lapses and provide strategies to recover from them. The “trial change” can provide you with a reliable formula for change.

We suggest you begin with a “Status Quo” diary. Over the next 3 days try to write down your experience of your current unhealthy eating behaviour (see the sample diary on the following page). Once you feel you understand the conditions under which you eat unhealthy foods, begin your “Trial Change” diary. The sample diary can also be used for recording your trial change. Your focus is now on your experience of slightly altering your usual eating routine (“trial change”). Remember to record the circumstances of your lapses from attempts to change. When recording your trial change, we suggest you keep the diary for at least one week.
How Do I Set Up My Diaries?

Both diaries can be set up the same way. In working with the change process, we have found that a lot can be learned from describing the conditions under which you eat unhealthy foods or lapse in following a recommendation. We suggest that when recording the conditions of unhealthy eating, you include such things as your mood and your level of energy/fatigue at the time.

Completing these diaries takes time — but they will be helpful only if they are complete. With this in mind, try to keep it simple. Don’t worry about recording healthy food consumption. Focus only on consumption of unhealthy foods or lapses from dietary recommendations.

Below is a sample diary that can be used for both your “Status Quo” and your “Trial Change” diary.

<table>
<thead>
<tr>
<th>Date: _____________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>Unhealthy Food or Dietary Recommendation Lapse</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Use these diaries to learn about yourself: when you feel vulnerable, when you need comfort, who among friends and family is supportive, when you feel stressed, and how fatigue affects your will to maintain dietary change. If you find that at certain times and under certain conditions you’re more vulnerable to unhealthy eating, see what you can do to reduce their frequency and impact.
Plan for Hard Times
To change your diet, you need to plan alternative solutions for situations when you are more likely to ignore your healthy diet. Here are some tips.

Avoidance: The easiest way is simply to stay away from your unhealthy eating triggers for the first few weeks. Don’t go to unhealthy restaurants. Bring healthy lunches to work rather than frequenting the food court. Drink less alcohol. Don’t socialize with anyone who will give you a hard time about ordering a salad.

Change Routine: If you always eat unhealthy foods when watching television, change your routine. Go for an evening walk instead or read a book. The urge to have dessert or eat a piece of chocolate usually lasts only 3 to 5 minutes, so think of things to keep you occupied until this time passes.

Plan to Cope: You’re not going to be able to avoid all your triggers, so plan how to deal with them. Develop a strategy to manage tough situations. Engage someone close to you to support and perhaps even join you in your avoidance of unhealthy eating.

Matching Meaning and Change
Changing behaviour is a challenge. We are forced to ignore old comfortable patterns of behaviour and embrace new, less familiar ones. A lot is happening at once. People face this novel change on a moment-by-moment, situation-by-situation basis. This step-by-step process is necessary in the gentle acquisition of change. However, in these early stages of change, people can lose track of why they decided to change in the first place. In their daily “struggles”, the meaning of the change can be lost. Ironically, your reasons for initiating change are probably more important early in the change process than at any other time.
A simple method of maintaining your awareness of why you decided to change is the use of “self-statements”. Consider the pros and cons list of change you completed in the previous section. Write down your most meaningful pros (those weighted 8 or above) on a separate piece of paper. Carry it with you and refer to it often. If you feel that things are not progressing as quickly as you want or feel you are slipping, read these self-statements to reinforce the meaning of your change.

**Deciding On What To Change**
Besides deciding to change your diet, you are free to choose precisely how you want to change it and at what pace. The next page shows a chart of all the dietary recommendations made in Chapter 1. Use it to decide which of them you intend to follow. You need to strike a balance between too few recommendations, so that you feel you are gaining little benefit, and too many, so that you risk relapse and discouragement. Remember that as you succeed in making initial changes to your diet, you can take on more recommendations. The important point is to find the balance that offers the greatest likelihood of success and gives you the confidence to persevere.

Notice that the chart includes the question, “How confident are you in changing this behaviour?” Behavioural science research has determined that your level of confidence in embarking on a health-related change is the strongest predictor of success. Any dietary recommendations that you choose with a confidence rating of less than 70% may represent your Achilles’ heel. Knowing this can help you realize the extra attention and effort that a particular recommendation may require. We suggest that you do not take on more than two recommendations with a confidence rating under 70%. Keep in mind that it still requires attention and energy to adhere to recommendations with confidence ratings of 70% or more.
<table>
<thead>
<tr>
<th>FOR MY “FULL” DIETARY CHANGE I WILL...</th>
<th>Do you wish to make this change?</th>
<th>How confident are you in changing this behaviour?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>...reduce the amount of chips, cookies and muffins I eat</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...reduce the number of servings of red meat</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...use less butter and margarine</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...substitute healthier options for fried foods (i.e., substitute garden salad for French fries)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...choose low-fat dairy products</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...trim and/or drain the fat off meat I am preparing</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...limit fat intake by reducing/eliminating ________________ from my diet</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...substitute whole-grain breads for white breads</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...consume more soy products (tofu, tempeh, miso, soy beverages)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...substitute green tea for coffee or black tea</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...eat at least 2 servings of fish per week (herring, mackerel, salmon, tuna, sardines, bass)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...eat a minimum of 5 servings of fruits &amp; vegetables per day</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...drink 1 glass of tomato juice/vegetable cocktail or eat 1 tomato-based product each day</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...eat more “red” fruits &amp; vegetables (red grapes, pomegranate, tomatoes)</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Continued on the following page
<table>
<thead>
<tr>
<th>FOR MY “FULL” DIETARY CHANGE I WILL...</th>
<th>Do you wish to make this change?</th>
<th>How confident are you in changing this behaviour?</th>
</tr>
</thead>
<tbody>
<tr>
<td>...eat more “green” vegetables (broccoli, broccoli sprouts, leafy greens)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...reduce my alcohol intake</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...take a daily supplement of up to 30 mg of lycopene</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>...take a daily supplement of up to 200 IU of vitamin E</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>…take a daily supplement of up to 200 µg of selenium</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Finally, Decide On A Date to Initiate Your Healthy Diet Change

By now you know a lot about making a healthy dietary change. You know how it will affect current behaviour (“Status Quo Diary”), what to expect when you try eating healthily (“Trial Change Diary”), what you plan to change, how to manage potential lapses (Plan for Hard Times), and what eating well means to you (self-statements).

It’s time now to pick a date when you are going to start your “full” healthy diet. Set a date a week or two, or three, from now. If that seems too soon, review your reasons for waiting longer. If they’re good, fine. If they seem flimsy, review your self-statements and set a more challenging date.

Things you should look for when picking a date to initiate your healthy diet:

- A time relatively free of stress
- A time when you can put out some extra effort
- A time when you feel you will have the support you need

I’ve Made The Change

You have made your change and are eating healthier. Congratulations! You may be finding the dietary change to be no big deal or still a stiff challenge. Either way, you have taken an important step. Getting to the point of changing your diet is a long and difficult process, and you have done it. This section offers some tips to help you maintain a healthier diet.

Use Positive Self-Talk

There will be times of doubt, when nagging, derisive voices in your mind tell you that keeping up this healthy diet is impossible. Don’t worry, doubts are normal. Using positive-realistic self-talk is probably the best approach for preventing or neutralizing ‘negative’ self-talk. It helps you control doubts, by talking back to the nagging. For every doubt you have, there’s a positive view. If you keep at it, doubts will give way.
Here are some common doubts. We offer responses to them to show how it can work:

<table>
<thead>
<tr>
<th>DOUBTS</th>
<th>RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is too hard!</td>
<td>Yes, it’s hard, but you can do it. You now know better what to expect. You can take it step by step. You can pace yourself. It might take longer but you’ll get there.</td>
</tr>
<tr>
<td>I can’t change the way I have been eating all my life.</td>
<td>You learned to eat the way you do; so, you can unlearn it. It took a while to learn, give yourself a while to unlearn it.</td>
</tr>
<tr>
<td>I don’t have the will-power.</td>
<td>It doesn’t take willpower — it takes intelligence (skillpower). You have strong reasons for eating healthier, you have decided to eat healthier, you have personalized the healthy diet, you planned your change, and you prepared yourself for hard times. You have the intelligence and ‘skillpower’ to do this.</td>
</tr>
<tr>
<td>It’s not the right time.</td>
<td>There’s no perfect time. Now may be as good a time as any. There will always be some stress in your life. There will always be distractions. You can make progress now.</td>
</tr>
<tr>
<td>My life is all wrong. This little change isn’t going to make a difference.</td>
<td>Just the opposite. You’ve got to start somewhere. If you’re sure this is the right place, and that you’re going in the right direction, then you are already turning wrongs into rights.</td>
</tr>
</tbody>
</table>

**Reward Yourself**

Rewarding yourself is an art. So do it artfully. Try to reward yourself consistently. Don’t worry about being too conventional and don’t wait until the victory is won. Rewarding yourself amid the struggle is more important. During the first two weeks of change, try rewarding yourself a little each day. It may be sleeping an extra hour (or 10 minutes) or listening to your favourite music. It doesn’t have to take long and need not be expensive.

**Support**

Research has shown that social support contributes to healthy change. In study after study, support has made a major difference, especially if your spouse/partner is also participating in eating a healthy diet. A joint effort to eat healthier is central for both practical reasons, such as shopping and cooking, and mutual encouragement.
For providing support to your significant other and vice versa, and for encouraging support from others, remember the most useful support is support precisely for the change you are making — eating a healthy diet.

The key ingredients of ‘precise support’ are threefold:

- **Timing:** It must be there when a person needs it.
- **Focus:** It must be focused where a person needs it — emotionally, practically, etc.
- **Expression:** It must be expressed in the specific way that props the person up.

**Final Comments on Taking Action**

When taking action, at first you feel stimulated, even excited, but the movement toward positive change is a step-by-step procedure, a moment-by-moment challenge, and an experience in humility. It’s surprising how much effort is involved in changing your behaviour, so ingrained are routines and habits. On the other hand, the effort is worth it if it makes you healthier.
I’m Going Strong

You are continuing to eat healthier; now the challenge is to keep going. This stage is the longest in the change process. The good news is that sustaining change gets easier with time. Old routines fade and new ones take hold.

Lapses and relapses will still occur, but managed properly, they need not stand long between you and your goal.

Managing Lapses and Relapses

A lapse and a relapse differ in frequency and duration. A lapse is a single instance of failing to stick to your healthy diet; a relapse is a series of lapses in succession. Lapses last only as long as it takes to deviate from your diet, for example, the time it takes to eat a plate of French fries. Relapses are lapses repeated and prolonged; for example, a relapse involves eating fried foods again and again, sometimes for a short duration (lunch and dinner), usually over much longer periods.

Most people experience lapses and relapses when they try to make a significant, healthy dietary change. They are a normal part of behavioural change. How they are managed determines how seriously they threaten long-term change. Two factors should be considered when managing lapses and relapses: (1) interpreting the lapse or relapse — is it progress or failure? (2) learning from, versus giving in to, the lapse or relapse.

Interpretation of Lapses and Relapses

If you do experience a lapse or relapse, remember that eating healthier is a step-by-step process. You can easily miss a step or two and lose enthusiasm. The key is to turn around the lapse or relapse quickly by re-starting your diet as soon as possible. A lapse or relapse is a slip, and a slip is not failure.

Decisive action and careful planning have enabled you to build a foundation for eating healthier. Upon lapse or relapse, we suggest you return to
this foundation and review your reasons and plans for eating healthier (use the pros and cons list) as well as your methods for handling hard times. Use this re-examination to challenge the lapse or relapse. Managing these temporary setbacks differs only in the intensity of re-examination and the intensity of attention and energy needed to reverse the unhealthy momentum. The longer the relapse, the more vulnerable your commitment to eating healthier.

**Learning from Lapses and Relapses**

A slip signals the need for a new way to handle the kind of situation that caused it. See what you can learn from your lapse or relapse. To get started, here are some common answers to the question: Why did I stop following my healthy diet?

- It was going well until my kid got sick (or something else happened) and then I just fell off my diet.
- I got busy with work (or something else) and just let go of the diet without giving it much thought.
- It was just too hard. Instead of feeling energized or happier, I felt worn out and frazzled.
- I just lost focus and ate whatever was in front of me. It wasn’t better, it was just easier and more familiar.
- My family (or my spouse) wasn’t interested in healthier eating.

**Now it’s your turn.**

Reasons Why I Lapsed or Relapsed

1. _______________________________________________________
2. _______________________________________________________
3. _______________________________________________________
4. _______________________________________________________
5. _______________________________________________________

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How to Read Your Reasons

The information collected through this exercise should help you surmount similar obstacles. The right things people do are disrupted whenever ‘big’ events, good or bad, happen to them. Everything gets jarred. Thus, you may recall that your eating habits were going well until such-and-such happened. What’s important is realizing that good health helps you cope with major events even when they disrupt healthy routines. Instead of letting disruption discourage you, expect it and get your healthy routines back on track so you’ll be better able to deal with future events — big and small.

Final comment:
Successful change lies in Awareness, Decision-making, Planning, and Trial and Error, all leading to Confidence to Change. Please note that principles and exercises outlined in this chapter can be applied equally to changing physical activity (fitness) behaviour.
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Important note:
This book represents our best attempt at interpreting the latest research relating to prostate cancer and the potential health benefits of nutrition and exercise. Given that scientific investigation remains ongoing in this area, we cannot make absolute claims that the lifestyle change suggestions described in this guide will necessarily result in reduction in risk or progression of prostate cancer. Men currently taking medications and/or men with pre-existing health conditions, such as kidney disease, diabetes, or cardiovascular disease, should consult their physicians before making any changes to their current dietary and exercise routines. The suggestions in this book are not meant to replace treatment or therapy suggested by your doctor but rather to complement them.
Challenging Prostate Cancer: Nutrition, Exercise and You is a guide to the most recent complementary strategies for preventing and fighting prostate cancer. Inside you will find information about healthy eating and physical activity that is based on the latest research in the field. As well, readers will also learn specific recipes and exercises that will help put these recommendations into practice!

This guide was created by independent specialists and a multidisciplinary health care team from The Prostate Centre at Princess Margaret Hospital, Toronto, Ontario.

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www.prostatecentre.ca