Basic Diet for Cancer Patients

This dietary program is appropriate for most patients. It is designed to support patients living with chronic illness, and also for patients seeking to prevent illness and maximize wellness.

Although there is no one diet that is universally applicable, certain general guidelines are offered. Its main themes include:

- Emphasis on wide range of fresh vegetables and fruits.
- Emphasis on complex carbohydrates, primarily from whole grains.
- Elimination of saturated fats.
- Elimination/reduction of animal protein.
- Reduction of concentrated sweets.

The program consists of whole, unprocessed foods and eliminates heavily refined, highly heated and chemically adulterated foods. Vegetables and fruit ideally should be organically grown if possible, and all canned, bottled and prepackaged foods should be avoided. The dietary modifications also include certain foods cited in the scientific literature as having special immune-enhancing, or potential anti-tumor properties.

In the beginning, keep it simple.
For people who have eaten a Standard American Diet, these guidelines may seem confusing at first glance. Some initial guidance:

1. Eat a lot more plants and a lot less meat.
2. Eat a clean diet, as free as possible from chemical additives, dyes, and pesticides.
3. Begin to just substitute healthier carbs for less healthy carbs, healthier fats for less healthy fats, and plant proteins for animal protein.

Next, **explore the right food pyramid**. Look at the University of Michigan Healing Foods Pyramid (http://www.med.umich.edu/umim/clinical/pyramid/index.htm) or the Asian food pyramid (http://oldwayspt.org/asian_pyramid.html). These will give you the right idea of relative portions of different food groups. The most basic pyramid idea is to eat a lot from the bottom and little to none from the top:

+Meat+
++Poultry++
++++Eggs++++
++++++Dairy ++++++
++++++++++Fish++++++++++
++++++++++Healthy fats++++++++++
++++++++++++++++Legumes++++++++++++++++
++++++++++++++++Whole grains++++++++++++++++
+++Fresh vegetables and fruits (more vegetables than fruits)+++
++++++++++++++++Clean water / herbal teas++++++++++++++++

SPECIAL CONSIDERATIONS

Patients undergoing chemotherapy and radiation therapy have to prioritize adequate **calorie** and **protein** intake over all other goals. The first goal is to eat enough, the second goal is to eat as healthy as possible. See section L below about maintaining body weight during treatment. Daily calorie requirements vary according to body size and level of activity. As a rule of thumb, an average adult who is not exercising requires about 1800 **calories** a day to keep weight stable. Also, protein intake should be about 1 gram of **protein** for every 3 pounds of ideal body weight (150 lb person would require about 50 grams of protein).

Prostate cancer patients ought to consider the inclusion of **soy** and sources of **lycopene** in their diet. Soy is a source of phytoestrogens, which may have some suppression effect on prostate cell growth. Lycopene is a chemical that gives tomatoes and watermelons their red color (see section K below); lycopene consumption may protect against prostate tumor growth.

We also recommend that prostate cancer patients, and men with a strong family history of prostate cancer, do not supplement with flax seed or flax seed oil which may stimulate prostate cancer cells.

Breast cancer patients often are concerned about eating **soy**. Studies have shown that including soy foods as part of a healthy diet is safe for women with active breast cancer or with a history of breast cancer. These include tofu, tempeh and edamame. On the other hand, artificially concentrated, processed soy powders and products with high concentrations of genestein should be avoided because these may stimulate breast cancer cells.

Patients with surgical or radiation changes to their digestive tracts may need to modify fiber intake. We recommend you discuss your individual situation with your physician.

A. Vegetables

1. Vegetables should comprise a large part of your diet. They are rich in fiber, minerals, beta-carotene, Vitamin C and phytochemicals (food properties that protect cells against free-radical damage and possess anti-tumor effects.)

2. Cooked vegetables should be steamed lightly, sautéed, or baked so they are tender, but still crisp. (Especially, broccoli).

3. Sprouts are excellent. However, bacterial contamination with Salmonella and E. coli 0157:H7 bacteria have occurred. People with compromised immune

systems (including patients on chemotherapy), along with the very young and the very old, should avoid uncooked sprouts.

4. Include large amounts of green, leafy vegetables and choices from the cabbage family (cabbage, cauliflower, broccoli, brussel sprouts).

5. Include orange, yellow and red vegetables.

6. Carrot juice contains a high amount of natural sugars and may need to be limited for certain individuals.

7. Tomatoes and watermelons are excellent sources of lycopene. See section K below. Research shows that lycopene in tomatoes can be absorbed more efficiently by the body if heated and processed into juice, sauce, paste and ketchup.

B. Protein

1. People need an adequate amount of protein each day to maintain muscle mass and maintain proteins in the blood. This is important for immune function, and to carry vitamins and minerals.

2. We generally recommend four daily servings of protein food for women, six daily servings for men. These needs vary depending on health, activity level, and genetics. Athletes generally need to consume higher quantities of program. As a rule of thumb, we generally recommend ½-1 gram of protein per kilogram (2.2 pounds) of body weight each day.

3. There are three categories of protein foods: beans (legumes), soy products, and fish/animal products. In addition, grain derived concentrated protein foods such as *Seitan* can be used as protein.

4. Beans contain gas-producing carbohydrates, so we recommend beginning to use them gradually if you are not already accustomed to eating beans. This means half-cup portions 2-3 times per week during a short adjustment period. Remember to prepare beans properly for good digestion. For instance, including a 4 inch strip of kombu (a sea vegetable) in the pot with each cup of beans you simmer will add some mineral and vitamin value and may minimize the properties in beans responsible for flatulence.

5. Soybean products - including tofu and tempeh, are good protein sources containing all of the essential amino acids and also provide iron and calcium. These products are less gas producing for most people, and can be used more frequently at the start of the program. Half a cup of roasted soybeans

provides an ample amount of daily soy intake. Soy milk and powdered soy drinks can also be used. **See box at top of p. 2 and also section K below.**

6. **Fish, poultry and meat** proteins are included here, although fish is advised over other animal foods. Although a predominantly vegetarian diet is recommended, some individuals require a greater amount of animal protein in their diet.

   a. Preferred fish are cold water, deep ocean varieties such as white fleshed fish, which are low in total fats. Some examples are cod, haddock, founder, pollock, orange roughy, sole. Chemical contamination of fish is a real concern. Organochlorine contamination (DDT, PCBs, Dioxin) can be found in lake or river fish. They concentrate in the fish fat, and may block or mimic sex hormone effects. Methylmercury can be found in high concentrations in fresh water game fish. Pesticide, herbicide, and antibiotic runoff from nearby agricultural areas can contaminate the water of fish farms. Generally, the safest fish to eat more frequently are smaller, low-fat fish caught offshore.

   b. Also recommended are the fattier types such as bluefish, herring, mackerel, sablefish, salmon (wild), sardines, and tuna (particularly albacore and yellowfin). These fish are excellent sources of Omega 3 fatty acids which help your body reduce inflammation, protect against heart disease, help inhibit cancer growth and benefit the immune system.

7. IMPORTANT: <u>The portion of animal protein needed is not large</u>. For example, the meal sized portion of fish we recommend is about the size of a deck of cards. the focus of the meal should be on grains and vegetables. Protein foods should take up no more than a quarter of your plate, with grains and vegetables making up the remainder.

8. **Dairy**: For those who do well with dairy, cultured products (yogurt, kefir) are recommended. Organic and biodynamic products are preferred. Dairy is a common allergen and some individuals feel best when dairy intake is minimized or eliminated altogether. Reduced fat or non-fat dairy products are preferred when weight maintenance is not an issue.

9. Protein drinks made from **soy** or **whey** can also be utilized. Whey protein appears to have effects that support immune function and detoxification. Whey may also have suppressive effects on cancer cells.

C. Grains

1. Avoid all refined, polished grains, flours and their products. They contain little fiber and are reduced in vitamin/mineral content.

2. Eat whole grains such as brown rice, quinoa, millet, rye, buckwheat, barley, and oats (including the bran).

D. Fats, Nuts, Seeds and Oils

1. Consumption of fat is best kept to a minimum. However, you must assure an adequate consumption of essential fatty acids (EFAs) which are vital to healthy immune function. Avoid foods containing saturated fats and trans-fatty acids. Cold water fish are an excellent source of EFAs—see discussion above in Section B of this handout.

2. For sautéing or for salad dressings, preferred oils are canola and olive oil. Flax seed oil can be added to dressings. Udo's Choice Ultimate Oil Blend can also be used. Eliminate polyunsaturated oils from your diet, avoiding: safflower, sunflower, corn, soy, peanut, and cottonseed oils (many of these oils are contained in packaged foods).

3. When used, oils should be cold pressed and unrefined and should be kept refrigerated.

4. Do not deep fry foods.

5. Mayonnaise and margarine are to be eliminated.

6. All seeds and nuts should be consumed raw (sesame, pumpkin, sunflower). A good way to eat seeds is sprouted (alfalfa, radish, sunflower).

7. Seeds can also be pulverized in a grinder and sprinkled over soups, salads and cereals.

   Flax seeds are a rich source of essential fatty acids (Omega 3) and fiber. We recommend 1-2 tsp of freshly ground flax seed as a daily portion.

   Like soy, flax seed shells (not the oil) are a source of phytoestrogens, chemicals that act on estrogen receptors. However, research suggests that flax may have anti-cancer effects on the breast. To emphasize, these phytoestrogens are only present in the shell or husk, and not in the oil itself.

   Prostate cancer patients should avoid flax seed and flax oil: Flax oil contains alpha linoleic acid (ALA), which appears to stimulate growth in prostate

cancer cells. Higher consumption of ALA also appears to be correlated with increased risk of developing prostate cancer. Research in this area is conflicting, but for now we recommend that prostate cancer patients not supplement with flax oil.

8. In small amounts, nuts are acceptable provided they are fresh, raw, unsalted and unshelled and kept in the freezer. Almonds, Hazel nuts and pecans are the best. No peanuts.

E. Fruits

1. Eat fruit raw.

2. Fruit should be preferably eaten alone as a meal in itself, or between meals.

3. Eat fewer servings per day, as fruit is rich in simple sugars.

4. Mexican cantaloupe, Chilean grapes, apples, apricots, cherries, strawberries, peaches are the most highly contaminated with pesticides. Find organic sources.

F. Sweets

1. Avoid concentrated simple sugars, especially refined sugars, syrups and artificial sweeteners.

2. Natural rice syrup, Stevia, barley malt and pure maple syrup may be used in small amounts.

G. Beverages

1. Avoid soft and artificial drinks.

2. Avoid stimulant beverages such as coffee and black tea. Herbal teas or green teas are recommended.

3. Fluid intake of six, eight ounce glasses of water daily is recommended. Tap water is to be avoided. Mountain spring water or filtered water should be used.

H. Soups

1. Soups are an excellent addition to daily meals.

2. They should include a variety of vegetables and/or sea vegetables, such as kombu, nori, wakame, dulce, and hiziki.

3. Miso (fermented rice, barley or soy) are an excellent source of minerals.

I. Condiments

1. Salt use should be kept minimal and should be sea salt, natural soy sauce, or gomajio (baked sesame seeds in salt).

2. Garlic may be used liberally (1-4 cloves daily).

3. Learn to enjoy fresh herbal seasonings.

J. Miscellaneous

1. Avoid foods with chemical additives (colors, dyes, preservatives, flavor enhancers, etc.) and smoked foods.

2. Avoid foods know to be allergenic or poorly tolerated. You may be tested for food intolerances.

3. Eat mindfully. Seek out a quiet space in which to have your meal or snack. Pay full attention to the flavor, texture, aroma, color, music, and other qualities of the food you are eating. Observe what inner responses are brought about through smelling, chewing, swallowing, digesting. Let sipping a beverage or eating a piece of food be a meditation in itself. By eating mindfully we tend to eat smaller amounts, have greater pleasure in eating, enhance digestion, and choose foods more wisely.

K. Dietary Sources of Lycopene

Product	Lycopene (mg /100 g)	Serving Size	Lycopene (mg /serving)
Tomato Juice	9.5	250 mL (1 cup)	25.0
Tomato Ketchup	15.9	15 mL (1 tbsp)	2.7
Spaghetti Sauce	21.9	125 mL (1/2 cup)	28.1
Tomato Paste	42.2	30 mL (2 tbsp)	13.8
Tomato Soup (Condensed)	7.2	250 mL prepared	9.7
Tomato Sauce	14.1	60 mL (1/4 cup)	8.9
Chili Sauce	19.5	30 mL (2 tbsp)	6.7
Seafood Sauce	17.0	30 mL (2 tbsp)	5.9

Watermelon	4.0	368 g (1 slice 25 x 2 cm)	14.7
Pink Grapefruit	4.0	123 g (1/2)	4.9
Raw Tomato	3.0	123 g (1 medium)	3.7

K. Dietary Sources of Soy

1. See caution on top of page 2 in relation to breast cancer.

2. The optimal dose of soy protein is not known. It seems reasonable to include at least 25 grams in the daily diet, keeping the total daily protein consumption (all foods) around 0.5 grams protein per kilogram (2.2 pounds) of body weight.

3. Foods that are good sources of soy include:

   - Tempeh (half cup=19.5 grams (g) soy protein)
   - Soy Nuts (1/4 cup=19 g)
   - Tofu (4 ounces=13 g)
   - Meat Substitutes, such as soy "hamburgers" or "hot dogs" (10-12g each)
   - Soy Cheeses (approximately 11 g protein per 1/4 cup)
   - Soy Milk (8 ounces=10 g on average, but varies greatly according to product)
   - Soy Nut Butter (akin to peanut butter)

4. Powdered soy shakes can also be used.

L. Maintaining Body Weight During Treatment

Some patients have difficulty eating healthfully and maintaining or increasing their weight. Here are some suggestions to help with this:

1. Keep a food diary – what you eat and when – to review with your physician or nutritionist. This is an important step to understanding how may calories you are consuming and how many more you might need.

2. Between-meal healthy snacking is essential.

3. Healthier fats and oils are good sources of calories. These include:
   a. Olive oil, Udo's oil, flax oil provide about 150 calories per tablespoon. Can be drizzled on vegetables and salad or blended into shakes.

b. Raw nuts are a good source; some nuts have a healthier fat content than others. We recommend almonds, brazil nuts, hazel nuts or walnuts. Almond butter can be spread on whole grain bread or cracker. Avoid peanuts. Also, see section D above.

c. Other sources of fats include avocado and fatty fish.

4. Dried fruits (preservative free) provide calories: dried cranberries, dates, figs, blueberries.

5. Nutritional shakes can add an additional 500 calories in between meals. An excellent source of recipes is the website of Diana Dyer, MS, RD: http://www.cancerrd.com/index.html. You can substitute whey protein for soy and almond milk for soy milk. Your physician can recommend additional nutritional powders that can be added to shakes.

M. Additional resources:

2 great reference books to own and look through at your own pace are:

Beating Cancer with Nutrition by Patrick Quillin.

The Cancer Nutrition Center Handbook by Carolyn Katzin, MSPH, CNS.