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THE UNIVERSITY OF TEXAS

**MD Anderson
Cancer Center**

Making Cancer History

Nutrition Basics for Patients and Caregivers

Developed by
The University of Texas MD Anderson Cancer Center
Department of Clinical Nutrition

*This booklet was made possible through
generous donations from Jason's Deli.*



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Importance of Nutrition

Nutrition plays a role in cancer at all stages – prevention or risk reduction, treatment and post-treatment. The American Cancer Society (ACS) and the American Institute of Cancer Research (AICR) advise a plant based diet. A plant based, whole food diet emphasizes vegetables, fruits, whole grains, legumes, nuts and seeds. Lean protein such as dairy, meats, poultry, seafood and eggs are included.

Cancer treatments include chemotherapy, radiation therapy, surgery, immunotherapy, and T-cell therapy. Nutrition plays a role in overall cancer treatment and healing.



Receiving adequate nutrition provides the body energy to sustain itself through treatment. Nutrition also helps to manage treatment side-effects (such as nausea and fatigue) and aids in recovery after treatment.

Registered dietitians (RDs) are available to assist you throughout the treatment and post-treatment process in addressing nutrition questions and concerns. This booklet answers common nutrition questions; however, it does not substitute for an evaluation by a registered dietitian to provide a plan of care designed specifically for you.

The Department of Clinical Nutrition strives to promote comprehensive nutrition care for our patients. RDs provide education, assessment and counseling to patients and their care givers and work closely with your health care team to provide specific nutrition support for your individual needs. Many of our RDs are Board Certified Specialists in Oncology Nutrition or Certified Nutrition Support Clinicians.

If you would like to see a dietitian please ask your medical team for a consult, send a message through MyChart, or call the Department of Clinical Nutrition at 713-563-5167.

Strengthening the Immune System

Adequate protein and energy (calorie) intake as well as a healthy weight are essential to support the immune system. Both undernutrition and obesity affect the immune system negatively.

There are multiple vitamins, minerals, and components of food that are essential to support the immune system mentioned throughout this guide.

- Vitamins C, D and E
- Carotenoids such as beta carotene (which the body can convert to vitamin A)
- Phytochemicals



- Minerals selenium, copper and iron
- Omega-3 fats
- Fiber (prebiotics)
- Spices turmeric, garlic and cinnamon

Imbalances in the diet and inadequate intake of these nutrients negatively impact the immune system.

Phytochemicals

There are thousands of phytochemicals in a whole food plant based diet. These powerful compounds have many disease-fighting properties including working as antioxidants, strengthening the immune system and fighting viruses.

For more information see pages 11, 12, 48, 52, 58 in this booklet or visit AICR.org.

Prebiotics and Probiotics

A healthy Gut Microbiome includes beneficial bacteria which helps strengthen the immune system. Foods which contain Prebiotics and Probiotics act as “fertilizer” to healthy organisms in your gut.

PREBIOTICS are fermentable dietary fibers that encourage the growth of good bacteria in your gut. Examples of foods containing prebiotic fiber include: chicory root (inulin), ground flaxseed, legumes, onions, garlic, oats, barley, bananas, apples with skin, asparagus, tomatoes.

PROBIOTICS are live bacteria that can be found in yogurt and other fermented foods. There are hundreds of probiotic species available. Which of these species are best for the average healthy person is still unknown. Speak to your medical provider before taking any supplements for probiotics. Foods are best. Examples of cultured foods that contain probiotic organisms include: yogurt, kefir, buttermilk and other fermented products like kimchee and sauerkraut.

For more information see pages 14, 15, 52, 54 in this booklet or visit [AICR.org](https://www.aicr.org).

Omega-3 Fatty Acids

The essential polyunsaturated fatty acids called “Omega-3 fats” have biological effects such as regulating the inflammatory response and cell growth.

Examples of foods that are rich in Omega-3 fatty acids include: cold water fish (ie. salmon), ground flaxseed, walnuts, flaxseed, canola or walnut oil, dark leafy green vegetables, grass fed meat, chicken or eggs from chickens that are grass fed.

For more information see pages 20, 50, in this booklet or visit [AICR.org](https://www.aicr.org).



Power of Plants

Plant foods are rich in phytochemicals that can help protect against cancer. Phytochemicals are naturally occurring compounds in plants. When eaten, they have a wide range of health benefits. The American Institute for Cancer Research (AICR) recommends that at least two-thirds of your plate be filled with plant-based foods. Plant-based foods include vegetables, legumes, whole grains, nuts, tea and spices. Choose bold, colorful and strong flavored vegetables and fruits for the best sources of phytochemicals.



Phytochemicals have been found to:

- Stimulate the immune system
- Block production of carcinogens
- Reduce inflammation that can trigger cancer growth
- Prevent DNA damage and assist with DNA repair
- Reduce oxidative damage to cells that can induce cancer
- Slow cancer cell growth and reduce reproduction of damaged cells
- Help regulate hormones

Examples of phytochemicals include:

- **Beta carotene:** pumpkin, sweet potatoes, carrots, cantaloupe, broccoli, spinach, kale, collard greens
- **Lycopene:** red bell peppers, tomato/tomato products, watermelon
- **Lutein:** broccoli, Brussels sprouts, artichokes, kale
- **Polyphenols:** green tea, grapes, wine, whole grains, peanuts
- **Anthocyanidins:** blueberries, blackberries, plums, cranberries, strawberries, red onions, radishes
- **Isoflavones:** soy beans and soy products (tofu, edamame, soy milk, etc.)

Carbohydrates

Carbohydrate is one of the main building blocks of a healthy diet, along with protein and fat. It provides a source of energy for your body and brain. There are two special components to pay attention to when choosing carbohydrates: fiber and sugar.



Fiber

Vegetables, fruits, legumes and whole grains are a great source of fiber, which aids in digestive health and prevention of certain cancers. Fiber can also help maintain normal blood sugar levels as well as a healthy weight. During some cancer treatments, fiber type or amount may need to be adjusted. Talk to your doctor or dietitian if you have questions.

Whole grains are a good source of energy. They also provide a variety of B vitamins, manganese, selenium and phytochemicals. Try these high-fiber grains for their unique taste and texture.

Amaranth	Farro	Quinoa (seed of a grain)
Barley	Kasha	Sorghum
Brown Rice	Millet	Teff
Bulgur	Whole wheat	Oats

Aim to include whole grains in each meal as part of a plant-based diet. If you do not already include whole grains, start by adding them in small amounts:

- Add a tablespoon of oats to yogurt in the morning
- Try a sandwich made with whole wheat bread instead of white bread
- Substitute half of your rice with brown rice if you are used to eating white rice

Make it fun and try a new grain each week. See the Recipes section of this booklet for tasty recipes made with whole grains.



Sugar

Sugar is the simplest form of carbohydrate. It exists naturally in whole foods such as fruits. It is also an added source of calories such as those found in sweets (cookies, cakes, ice cream, sodas, etc). One of many concerns related to nutrition and cancer is whether sugar increases cancer risk or promotes the growth of existing cancers. More research is needed to fully understand this topic. You cannot “starve” cancer cells without starving healthy cells. Therefore, it is best to follow a well-balanced diet that includes carbohydrates from whole foods while minimizing intake of foods that contain added sugars.



Protein Sources

A well balanced diet must include lean proteins. Protein is essential for growth, repairing body tissues and maintaining a healthy immune system. As outlined by AICR guidelines, you should fill no more than one-third of your plate with fish, poultry, meat, eggs or dairy foods. At least one day a week, try eating plant based proteins, such as beans, lentils, or tofu/soybeans, instead of animal proteins. Your body will benefit from the additional fiber as well.

According to research, diets high in red meat and processed meats increases risk for colorectal cancer. Limit intake of red meat, such as pork, lamb or beef, to about 18 ounces (oz) or less a week.

Nutrition Basics for Patients and Caregivers • **Protein Sources**



Avoid processed meats, such as deli meats, sausages, salami, pepperoni, bacon, hot dogs, corned beef, bologna or ham, entirely. Fresh foods with minimal additives are recommended.

Minimize the use of high temperature cooking methods such as direct contact with flames when barbecuing. This will reduce exposure to potentially harmful compounds that may contribute to cancer risk.

Soy

Soy is a plant-based protein that contains fiber, potassium, magnesium and other essential nutrients. Soy foods include edamame, soy milk, tofu, and tempeh (a vegetarian replacement for meat).

Patients sometimes question if soy may increase the risk for certain types of cancer. Soy contains compounds called isoflavones, which can act like estrogen in the body. The American Cancer Society recommends that whole food sources of soy are safe to consume in moderate amounts, even for most breast cancer patients. Typically 1-3 servings of a soy-based food is safe to have as part of a healthy balanced diet. One serving would be 1 cup of soy milk, 1/2 cup of edamame or 1/3 cup of tofu. If you are still concerned about including soy in your diet, ask for a consult with your dietitian for more information.

Fats

Fats can be broken down into three main types – unsaturated, saturated and trans fats. Fat is essential for our bodies as it provides energy and can promote good health through their anti-inflammatory properties. They also help the body absorb essential fat soluble vitamins. These include vitamins A, D, E and K.

Not all fats are created equal and must be consumed in moderation to avoid unwanted weight gain, since all fats and oils are high in calories (including healthier fats).



Unsaturated Fats

Unsaturated fats have historically been considered healthy. They come in two forms: mono-unsaturated and polyunsaturated fats.

Mono-unsaturated fats are found in avocados, olive oil, canola oil and peanuts.

These fats are considered to have heart health benefits by reducing cholesterol and lowering the risk of heart disease.

There are two types of polyunsaturated fats: omega-3 and omega-6 fats.

Omega-3 fats are found in walnuts, chia seeds, flax seed and fatty fishes including salmon, mackerel, herring, tuna, trout and sardines.

Omega-6 fats are primarily in vegetable oils including corn oil, safflower oil, sesame oil, peanut and soy oil. Deep fried vegetables and fried or deep fried meats, poultry and fish are also high in omega-6 fats.

Omega-3 and omega-6 fats are essential to the body and must be provided through diet. Since omega-6 fats are found in many processed foods, we tend to get too many in our diet. Inflammation can occur if a diet is higher in omega-6 fats than it is omega-3 fats. To help reduce chronic inflammation and cancer risk, eat more omega-3 rich foods and fewer omega-6 rich foods.

Saturated Fats

Saturated fats are not essential and should be limited. They are found in animal products and tropical oils. These fats are usually solid at room temperature. Saturated fats are found in butter, lard, coconut oil, palm kernel oil and palm oil. Other sources include:

- Fatty (marbled) cuts of meat (prime cuts of beef, ribs, T-bone steaks and regular hamburger)
- Bacon or sausage
- Salami and bologna
- Poultry (chicken and turkey) fried or with skin

Trans Fats

Trans fats are primarily found in partially hydrogenated oils, which are an ingredient in many processed foods. Fats that are solid at room temperature with an extended shelf life, are often high in either hydrogenated or partially hydrogenated oils. Common sources of trans fats are packaged cookies, cakes, candies, dessert snack foods and regular chips. Commercially prepared muffins, pastries, pies, cookies or cakes also contain trans fats.

Limit your intake of saturated fats and avoid trans fats, as these are linked to cardiovascular disease.



Hydration

Staying hydrated (taking in fluid) is essential for life. Most people stay hydrated by drinking water and other beverages. Foods high in water content also contribute to our daily water intake. Not staying hydrated (called dehydration) is life threatening. Dehydration can cause headaches, tiredness, mental confusion and kidney failure. Other symptoms of dehydration include a dry and sticky mouth, little or no urine and dry skin that “tents” when lightly pinched. If you feel that you are not drinking enough fluids, try the following tips.



- Keep a bottle of water with you at all times and drink throughout the day.
- Suck on ice chips or popsicles if you can't drink enough water. This will also help moisten your mouth.
- Keep a cooler next to you filled with water bottles, juice boxes and other beverages if you have problems walking.
- Eat foods high in water content like fruits, vegetables, soups, puddings, gelatins, yogurts and other moist foods.
- Ask your doctor or dietitian how much fluid is recommended for you each day.

Fruits and vegetables are high in water content. 1 cup of watermelon and 3/4 cup of blueberries contain as much fluid as 1 cup of water. And one small apple has about 1/2 cup of water.

If you experience side effects of your treatment that limits your fluid intake, check out the Managing Sides Effects section of this booklet for tips. You can also schedule an appointment with a registered dietitian for further education.

Tasty beverage recipes that can help keep you hydrated are located in the Recipes section.

Buying Organic?

Organic foods are produced using farming practices that restrict the use of certain pesticides and fertilizers. They have not been processed using industrial solvents or synthetic food additives. Buying organic foods can be more costly; however, organic foods are not more nutritious than conventionally grown foods.

Certain non-organic foods are grown with more pesticides than others. The Environmental Working Group (EWG) refers to these foods as the “Dirty Dozen.” They typically contain the highest levels of pesticide residue. When buying organic, consider choosing foods from the list below to avoid pesticide residue.

Nutrition Basics for Patients and Caregivers • **Buying Organic?**



The “Dirty Dozen” listed in order from highest pesticide content to lowest:

- | | |
|-----------------|------------------------|
| 1. Strawberries | 7. Cherries |
| 2. Spinach | 8. Pears |
| 3. Nectarines | 9. Tomatoes |
| 4. Apples | 10. Celery |
| 5. Grapes | 11. Potatoes |
| 6. Peaches | 12. Sweet Bell Peppers |

It is recommended to rinse all fresh fruits and vegetables thoroughly.

Keep in mind that the benefits of eating fruits and vegetables (organic or not) far exceed the risk associated with potential chemicals or pesticides.

Organic animal products such as meat, fish, eggs and dairy are produced from animals that have not been given any antibiotics or growth hormones.



Look for the USDA Organic symbol to know if a product is organic or not.

Note: The EWG updates the list yearly, so foods listed on the “Dirty Dozen” are subject to change. For the most up to date information, visit their website: <https://www.ewg.org/foodnews/list.php>

Managing Side Effects

Although treatment side effects can make eating difficult, it is very important to eat enough to maintain your weight. Try the tips below to help manage side effects.

Nausea/Vomiting: Eat small frequent meals. Snack on dry foods like crackers, toast or cereal. Avoid spicy or greasy foods and food with strong smells. Be sure to drink enough fluid to help your bowels move regularly, as dehydration and constipation can contribute to nausea. Try lemon drops, mints or ginger-containing items. (See Recipe section for ginger and turmeric hot cider.) Avoid strong odors that occur during cooking preparation.



Diarrhea: Avoid spicy, greasy, fatty and high fiber foods. Eat small frequent meals. Hydrate well and replace electrolytes using an electrolyte replacement drink, such as sports drinks.

Constipation: Drink plenty of fluids and eat high fiber foods. Dried prunes or warm prune juice may also help. Talk to your doctor or RD about soluble fiber supplement.

Loss of Appetite: Eat small frequent meals, focusing on calorie and protein dense meals, even if it is just a few bites. Keep snacks on hand.

Sore Mouth/Throat: Avoid spicy, acidic, tart and rough-textured foods, alcohol and carbonated beverages. Try soft, moist foods with a mild gravy or sauce.

Try a baking soda rinse after each meal made with 1/4 teaspoon of baking soda and 4 ounces of water.

Taste Changes: Practice good mouth care by brushing your tongue and teeth after each meal. Try the baking soda rinse to cleanse your palette, or sugar-free gum, peppermints, lemon drops, sorbets or frozen fresh fruits.

For more help managing these and other side effects, and to ensure you're obtaining the best nutrition throughout your treatment, ask your medical team for a nutrition consult or call the Department of Clinical Nutrition at 713-563-5167 to schedule a nutrition consult.

Managing Blood Glucose During Steroid Treatment

Steroid-Induced Diabetes

Some patients may need to take steroids. Steroids may increase blood sugar levels. In some people this results in a condition called steroid-induced diabetes and some patients can control it by taking insulin. A diet which limits food high in added sugar can help control blood sugar levels while taking steroids. Usually once steroids are stopped, blood sugars return to normal levels in persons with no previous diabetes.



Guidelines for No Concentrated Sweets Diet

- Avoid sugar and foods high in sugar, including cookies, cakes, pies, jelly, jam, marshmallows, ice cream, gelatin, pudding, molasses, honey, syrup, sugar sweetened carbonated beverages, pre-sweetened cereals, pastries, donuts, sports drinks, flavored or sweetened milk or yogurt, candy, granola and fruits canned in syrup.
- Limit fruit juice to no more than 1/2 cup daily. Canned fruits should be packed in water or their own juice.
- Use sugar substitutes.
- For dessert, try angel food cake, vanilla wafers, graham crackers, sugar free puddings and ice cream. Eat plain or lite yogurts.
- Try these sugar free products:
 - Drinks and plain tea or coffee sweetened with sugar substitutes
 - Syrups, jellies, jams and gelatins

Introduction to Nutrition Support

Some patients need help to meet their nutrition needs. This is called nutrition support. For example, the stomach or bowel may not be working quite right, or a person may have had surgery to remove part or all of these organs. Under these conditions, nutrition must be supplied in a different way and in a different form. Nutrition support may be short-term or long-term depending on your needs. Nutrition support can be delivered through the gastrointestinal tract (tube feeding) or through the veins (parenteral feeding).



Tube Feeding: A dietitian will discuss with you and determine your nutritional needs. The feedings are given through the gastrointestinal (GI) tract if you have difficulty getting enough nutrition by mouth or if you are unable to safely swallow.

Tube feedings are given through a feeding tube that may be placed in your nose or abdomen with the end of the tube either in your stomach or small intestine.

If you require tube feedings at home, a dietitian will arrange for your supplies with a durable medical equipment company of your choice. You do not need to be admitted to the hospital to start tube feedings.

Total Parenteral Nutrition (TPN or IV nutrition): If your GI tract is not working, then you may require nutrition support that does not use your GI tract and instead goes into your bloodstream. This is called TPN.

TPN must be given through a central line into the blood. TPN provides full nutrition in liquid form. The liquid provides protein, carbohydrates, fats, electrolytes, vitamins and minerals. Our board certified nutrition support team prescribes all TPN orders.

In order to begin TPN, you must be admitted to the hospital for monitoring. Insurance coverage for home nutrition support varies by provider and benefits depend on certain criteria.

Dietary Supplements

Dietary supplements include vitamins, minerals, herbals, botanicals and many other products. They come in many forms such as pills, powders, gummies, drinks and bars. It is very important to tell your health care provider if you take any dietary supplements as they may interfere or interact with your current medicine. This can be harmful or alter your cancer treatment.



If you have questions on dietary supplements, ask your health care provider. Your health care provider can help you determine which dietary supplements are safe for you to take.

Learn more about dietary supplements through the resources below. **Please do not take any dietary supplements until you receive an okay from your health care provider.**

Consumer lab

<https://www.consumerlab.com/>

National Institutes of Health Office of Dietary Supplements

<http://medlineplus.gov/dietarysupplements.html>

Natural Medicines Comprehensive Database

<http://naturaldatabase.therapeuticresearch.com/home>

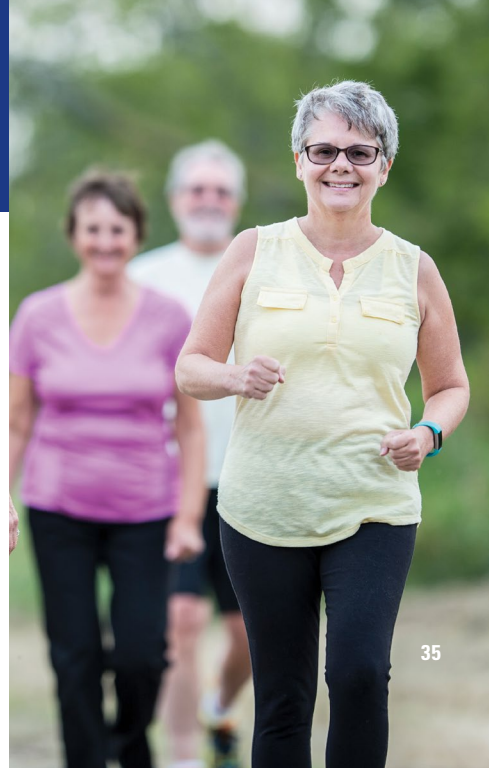
United States Pharmacopeia (USP)

<http://www.usp.org/dietary-supplements-herbal-medicines>

Importance of Activity

Activity simply means move more and sit less. Benefits of activity include:

- Lowers cancer risk or risk of recurrence
- Improves overall health
- Promotes healthy heart and lungs which lowers the risk for heart disease
- Helps prevent diabetes and osteoporosis
- Helps with weight loss and maintenance which can reduce cancer risk
- Increases energy level, endurance, strength and flexibility
- Lessens the effects of stress, anxiety and fatigue and promotes emotional well-being
- Helps maintain normal bowel function



Use the chart below to learn about exercise and how it can benefit you.

Type of Exercise	Benefit	How Often	Examples
Aerobic - any activity that keeps your heart rate and breathing raised for a period of time	Improves heart and lung strength	Based on your ability and goals, aim for: 150 minutes of moderate aerobic exercise each week, OR 75 minutes of vigorous exercise each week, OR a combination of both moderate and vigorous each week	<ul style="list-style-type: none">• Biking• Swimming• Walking at a brisk pace• Running• Water aerobics

Type of Exercise	Benefit	How Often	Examples
Strength training - any activity that provides resistance against a force	Improves muscular strength and bone health.	Include strength training at least 2 days per week	<ul style="list-style-type: none">• Free weights/ weight machines• Body weight movements• Resistance bands
Stretching - holding a position that stretches a muscle	Improves flexibility, helps keep full mobility in joints and helps avoid injury	Daily	<ul style="list-style-type: none">• Yoga• Static stretching

Try the suggestions below to be more active throughout the day:

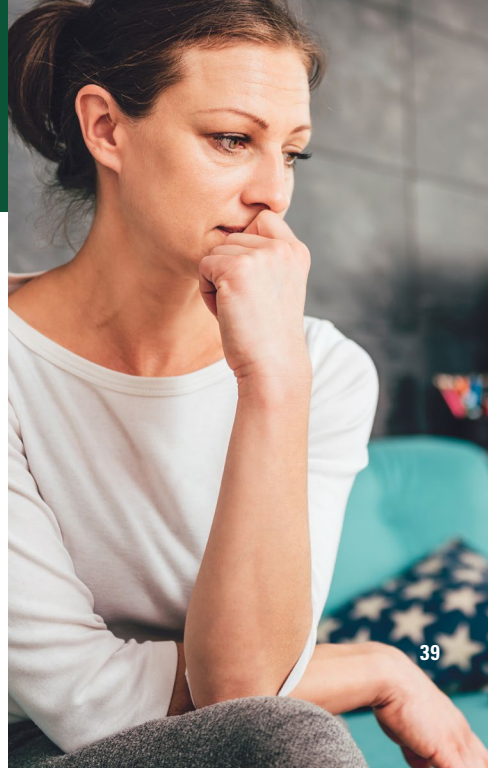
- Use the stairs instead of the elevator
- Park at the far end of the parking lot
- Walk, jog or jump rope in place for 2 minutes every hour
- Walk whenever you can
- Take a break every hour to stretch and move around
- Buy a stationary bike and place in front of the television. Pedal while watching television.

Consult with your doctor about which exercises/activities are best for you. Some cancers and its treatments may limit activity.



Cancer Related Fatigue

Cancer-related fatigue is the most common cancer symptom and treatment side effect. Cancer-related fatigue is described as fatigue that affects your activities of daily life. It is more than just simply being tired. Talking on the phone, eating, shopping, bathing or walking may be hard to do when you feel fatigued. Cancer-related fatigue is described as a feeling of being exhausted, weak, tired, worn out or having a hard time thinking and/or doing daily tasks. It may cause shortness of breath, difficulty sleeping, irritability or anxiousness.



Causes of cancer-related fatigue

- Having cancer
- Cancer treatment
 - Chemotherapy and new drug treatments
 - Radiation
 - Surgery
 - Stem cell transplant
 - Biological therapy
- Anemia
- Poor nutrition
- Sleep disorders
- Inactivity
- Pain
- Medicine
- Psychological issues and mental fatigue

Exercise has been shown to help relieve fatigue. Studies show that cancer patients who exercise have more energy, increased appetite, improved ability

performing routine physical activity, better quality of life, and an improved outlook and sense of well-being. Safe and helpful exercises include brisk walking, stretching and light weight training, water aerobics, yoga and stationary indoor cycling.

Saving energy throughout the day can help you feel less fatigued. Try these energy savers.

- Plan and organize work
- Pace yourself in daily activities
- Schedule rest time
- Move your body safely
- Prioritize tasks
- Control your surrounding

Food Safety Tips

Some cancer treatment can increase risk of infection. Learn about food safety to help reduce risk.

Food Preparation: Wash hands with warm soapy water for 20 seconds before handling food. Use separate cutting boards for fruits/vegetables and raw meats. Wash cutting boards and utensils with hot soapy water after preparing each food item. Rinse fruits/vegetables under running tap water, including before cutting into them. Wipe canned food lids before opening. Thaw and marinate meats in refrigerator.



Food Temperatures: Eat fully cooked meats, poultry, fish and eggs. Cook and reheat to proper temperatures. Bring sauces, soups and gravy to a boil when reheating. Use thermometers to measure food's internal temperatures and refrigerator and freezer temperatures. See chart below for more information.

Shopping: Choose fruits and vegetables that can be washed well. Avoid bulk "serve yourself" bins and food/salad bars. Buy and consume only pasteurized milk, cheeses, yogurts and juices. Avoid cheese with live cultures (blue-veined), fresh deli meats, sprouts and raw sushi. Place meats in plastic bags and keep separate from other fresh foods in shopping carts. Avoid raw honey.



Food Storage: Cover foods in refrigerator. Refrigerate perishables within 2 hours of purchasing or cooking. Keep raw foods separate from cooked foods. Place cooked foods above raw foods to prevent contamination. Check expiration dates. When in doubt, throw it out.

Safe Minimum Internal Temperatures

Beef, Pork, Veal, Lamb (steaks, roast and chops)	Fish	Beef, Pork, Veal, Lamb (ground)	Egg Dishes	Turkey, Chicken, Duck (whole, pieces and ground)
145°F with 3 min rest time	145°F	160°F	160°F	165°F



Grocery Shopping Tips

To prepare a healthy meal rich in cancer prevention properties, buy various colors of fruits and vegetables. Here is a grocery list to get you started on thinking in color.

Fresh foods including produce, along with the meat, seafood and dairy sections are typically found in the outer perimeter of the grocery store. Do most of your shopping in these sections.






The table on the next page provides examples of a variety of produce that are rich in healthy nutrients.



The following healthy pantry staples may be located in the middle aisles of the grocery store:

Dry beans and peas, whole grains, nuts and seeds, herbs and spices and tea and coffee

Recommended cookbooks can be found online (mdanderson.org/recipes) or in the Learning Centers located in the Main Building (Floor 4, near Elevator A) and the Mays Clinic (Floor 2, near the Tree Sculpture).

Green	White	Yellow/ Orange	Red	Blue/Purple
				
spinach, kale, broccoli, collard greens, grapes, honeydew, kiwi	mushrooms, cauliflower, garlic, onion, banana, pears	carrot, butternut squash, sweet potato, orange, peach, lemon	beets, bell pepper, radish, apple, cherry, cranberry, tomatoes	purple cabbage, eggplant, blueberries, figs, plums

Recipes



Berry Nutty Breakfast Parfait

Blueberries contain many phytochemicals including anthocyanins, catechins, quercetin, ellagic acid and resveratrol. Polyphenols such as ellagic acid and resveratrol may act as an antioxidant, prevent inflammation and reduce cancer risk. Top this recipe off with chopped nuts to get your daily dose of magnesium, which aides with DNA repair, controlling cell growth and blood sugar levels.

Makes 4 servings

Per serving: 257 calories, 8 g total fat (2 g saturated fat), 41 g carbohydrate, 10 g protein, 5 g dietary fiber, 118 mg sodium.



BERRY NUTTY BREAKFAST PARFAIT

Ingredients

2 cups blueberries
2 cups sliced strawberries
1 tablespoon honey
2 cups low-fat plain yogurt
1/2 cup low-fat granola
4 tablespoons chopped walnuts
(pecans or almonds can be substituted)

Directions

1. Rinse berries well and dry on a paper towel. Place berries in mixing bowl. Drizzle with softened honey and toss gently to coat.
2. Spoon 1/4 cup yogurt into 4 parfait glasses and top with layer of berry mixture. Repeat layers with remaining yogurt and berry mix. Top with granola and nuts. Serve.

Tip: microwave honey in 20-second intervals, stirring between intervals, or place honey jar into hot water bath to soften

Lemon Mustard Salmon Salad

Lemon and other citrus fruits contain Vitamin C, which may help reduce cancer risk by protecting cells against oxidative damage. Vitamin C also aides in wound healing, immune function and iron absorption.

Salmon is a great source of omega-3 fatty acids. These healthy fats are often associated with prevention of cardiovascular disease. However, some studies have shown that this healthy fat may also have benefits for cancer prevention.

Makes 2 Servings

Per serving: 180 calories, 8.5 g total fat, 1 g carbohydrates, 27 grams protein, 0 g dietary fiber, 670 mg sodium

Nutrition Basics for Patients and Caregivers • **Recipes**



LEMON MUSTARD SALMON SALAD

Ingredients

- 1 (7-1/2 ounce) canned or fresh cooked, boneless, skinless, sockeye salmon, drained
- 3 teaspoons Dijon mustard
- 2 teaspoons freshly squeezed lemon juice
- 2 teaspoons extra-virgin olive oil
- Pinch of cayenne
- Pinch of sea salt
- 3 tablespoons finely chopped celery
- 2 tablespoons finely chopped fresh flat-leaf parsley

Directions

Put the salmon in a bowl and break it into small pieces with a fork. Stir in the mustard, lemon juice, olive oil, cayenne, salt, celery and parsley, then taste. If needed, adjust the flavors by adding lemon juice and a pinch of salt before serving.

Veggie Chili

Dry beans and peas are a good source of fiber and are a lean, cholesterol-free, source of protein. They contain phytochemicals such as lignans, saponins, flavonoids, inositol and sterols with potential cancer protective benefits. They also contain resistant starch which may have benefits for colon cancer prevention, diabetes and weight management.

Makes 4 servings

Per serving: 214 calories, 5 g total fat <1 g saturated fat), 35 g carbohydrate, 11 g protein, 12 g dietary fiber, 367 mg sodium.

Ingredients

1 Tbs olive or canola oil
1/2 large onion, chopped
1 medium red bell pepper, chopped
1 garlic clove, finely chopped
1 jalapeño pepper, seeded, de-ribbed, and minced (keep the seeds as desired for spice)
1 Tbs ground chili powder
1-1/2 tsp ground cumin
1-1/2 tsp dried oregano

1 (14-1/2 oz.) can, no-salt added, diced tomatoes in juice
1-1/2 Tbs tomato paste
1 cup water
2 (15 oz.) cans black beans, rinsed and drained (or about 3 cups cooked dry beans)
1/2 tsp salt

Garnish:

Chopped fresh cilantro

Chopped scallions

Reduced-fat sour cream (optional)

VEGGIE CHILI

Directions

1. Heat oil in large saucepan. Add onions, sweet pepper, garlic and jalapeño pepper and cook until onion is translucent, about 5 minutes. Add chili powder, cumin and oregano. Stir and cook for 1 minute.
2. Add canned tomatoes, tomato paste and 1 cup water, then beans and salt. Bring to boil. Reduce heat and simmer, uncovered, for 30 minutes. If desired, serve garnished with chopped cilantro, scallions and a dollop of sour cream.



Quinoa with Cauliflower and Broccoli

Quinoa is a great source of fiber and can provide up to 6g of fiber per half cup serving. It is extra special because it contains all essential amino acids, making it a complete protein. Adding vibrant colorful vegetables packs this delicious dish with extra vitamin C, folate and fiber.

Makes 8 servings

Per serving: 120 calories, 3.5 g total fat (0g saturated fat), 20 g carbohydrate, 5 g protein, 4 g dietary fiber, 50 mg sodium.

Ingredients

1 tsp extra virgin olive oil, divided
2 cups cauliflower florets
2 cups broccoli florets
1 med green bell pepper, sliced into strips
1 med red bell pepper, sliced into strips
1 cup chopped onion, divided
3 cloves garlic, minced

1 Tbs fresh thyme, chopped medium (1 tsp dried may be substituted)
1 Tbs fresh oregano, chopped medium (1 tsp dried may be substituted)
1 cup quinoa
2 cups reduced sodium vegetable broth
Salt and freshly ground black pepper

QUINOA WITH CAULIFLOWER AND BROCCOLI

Directions

1. In skillet, heat 2 teaspoons olive oil over medium-high heat. Add cauliflower, broccoli, peppers, 1/2 cup onion and garlic. Sauté 5 minutes until vegetables start to soften. Stir in herbs and sauté 2 minutes. Remove from heat and set aside.
2. In strainer, place quinoa and rinse thoroughly with cold water. Using your hand, swish quinoa under running water for 2 minutes to remove bitter natural coating. Drain and set aside.
3. In medium saucepan, heat remaining teaspoon oil over medium-high heat. Add remaining onion. Sauté about 3-4 minutes. Add broth and quinoa. Increase heat to bring mixture to boil. Reduce heat to medium-low, cover, and simmer until quinoa is tender, about 20 minutes.
4. Gently stir in vegetable mixture and combine well with quinoa. Season with salt and pepper to taste. Serve.



Ginger and Turmeric Hot Cider

Fresh ginger contains gingerol, while turmeric contains curcumin; both may provide anti-inflammatory and antioxidant properties. Research has shown ginger to be effective in relieving nausea.

Makes 1 Serving

Per serving: 120 calories, 0 g total fat (0 g saturated fat), 30 g carbohydrate, 0 g protein, 0 g dietary fiber, 8 mg sodium.



GINGER AND TURMERIC HOT CIDER

Ingredients

1 cup fresh apple cider

1 teaspoon grated fresh ginger

1 teaspoon grated fresh turmeric

1-1/2 inch by 1/2-inch strip lemon peel, white part included

Directions

In small saucepan, combine cider, ginger, turmeric and lemon peel. Over medium-high heat, heat until ring of bubbles appears around edge of pan, 3 minutes. Cover pan and set aside to steep for 5 minutes. Pour hot-spiced cider through fine tea strainer into mug. Serve immediately.

Green Tea Slush with Apricot Nectar

Tea polyphenols may act as antioxidants, prevent tumor growth and improve immunity. Ready-to-drink and instant teas may contain less polyphenols than brewed teas. For potentially greater health benefits try this recipe with home brewed green tea leaves.

Makes 4 servings

Per serving: 51 calories, 0 g fat, 13 g carbohydrates, 0 g protein, <1g dietary fiber, 2 mg sodium



GREEN TEA SLUSH WITH APRICOT NECTAR

Ingredients

3 cups of prepared green tea (use decaffeinated if desired)

1 cup of apricot nectar

1 cup of crushed ice

1 tablespoon honey

Directions

In blender or food processor, combine all ingredients and puree until smooth.



Resources

MD Anderson Cancer Center Resources

MDACC Clinical Nutrition Department <https://www.mdanderson.org/research/departments-labs-institutes/departments-divisions/clinical-nutrition.html>

MD Anderson Cancer Center Integrative Medicine News Letter for cooking demonstrations <https://www.mdanderson.org/research/departments-labs-institutes/programs-centers/integrative-medicine-program/news.html>

@The Table Cookbook www.mdanderson.org/recipes

The Learning Center located in the Main Building (Floor 4, near Elevator A) and the Mays Clinic (Floor 2, near the Tree Sculpture)

Nutrition Basics for Patients and Caregivers • **Resources**

Other Evidence-based Resources

American Cancer Society www.cancer.org

American Diabetes Association www.diabetes.org

American Institute for Cancer Research www.aicr.org

American College of Sports Medicine & Irwin, M.L (2012). ACSM's Guide to Exercise and Cancer Survivorship. Champaign, IL; Human Kinetics.

American Institute for Cancer Research, Livestrong.com and Meals-to-
heal.com evidence based resource: Heal Well: A Cancer Nutrition Guide
<http://www.aicr.org/assets/docs/pdf/education/heal-well-guide.pdf>

Environmental Working Group www.ewg.org

Fruit and Veggies More Matters <http://www.fruitsandveggiesmorematters.org/>

National Cancer Institute <https://www.cancer.gov>

The Office of Disease Prevention and Health Promotion <https://health.gov/>;
<https://healthfinder.gov>; <https://healthypeople.gov>

USDA MyPlate <https://www.choosemyplate.gov/MyPlate>

Recipes

Recipes from the American Institute for Cancer Research website, www.aicr.org, include Berry Nutty Breakfast Parfait, Veggie Chili, Quinoa with Cauliflower and Broccoli, Ginger and Turmeric Hot Cider Tea, Green Tea Slush with Apricot Nectar

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