



# Nutrition & Cancer

The Ultimate Guide to Nutrition  
During Cancer Treatment



ALCHEMY

*By Sarah Lili*

# Welcome to Alchemy by Sarah Lili

I am excited to welcome you on your healing journey.

This guide is designed to give you a general nutritional education on food choices, dietary strategies, & managing side effects so that you may feel confident in your nutrition.

For cancer healing, I believe in the power of a plant-based, whole foods diet. This means the majority of foods you eat should come from plants and be as minimally processed as possible (in their natural form, like an apple). This approach also limits the amount of foods you consume from animal sources. This does not mean you cannot eat food from animals, but that plants should be the basis of your diet.

There are certain foods you should may also wish take care to avoid in your diet during treatment. These include:

- Gluten
- Dairy
- Corn
- Added sugars
- Fried or processed foods
- Red Meat
- Shellfish
- Tuna
- Peanuts

These are only suggestions and does not factor in allergies, intolerances or food preferences. Ultimately, you know your body best, so choose what agrees with you!

Within this packet you will find nutritional information, reference guides, and recipes to help you.

# WHY EAT ORGANIC FOOD?

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Our current food system produces the majority of food products by utilizing chemicals, pesticides, or food additives that greatly improve productivity and yield: ie. making food production cheaper and more efficient for manufacturers and farmers. Organic food is the closest option that consumers have to items that are grown or raised in their natural environment



For a food to be labeled as 'organic' it must have been produced following specific guidelines. Produce and grains must be grown without the use of pesticides, GMO's, or other additives, as well as grown in an area of soil that has not been treated with these products for at least 2 years.

Animal products labeled organic must also be fed organic food, given no additional antibiotics or hormones, and must be raised in an environment that supports their natural habits, such as in a pasture or having 'free-range'.

## Are Organic Foods Better for You?

The science supporting the negative health impact of pesticides and food additives, such as hormones and antibiotics, is strong. You have probably already heard of the link between the common herbicide, Round-Up, and cancer. Round-Up contains glyphosate, which is not only linked to cancer, but also immune system disruption, such as by increasing inflammation, negatively affecting the functioning of lymphocytes, and altering how beneficial microorganisms may interact with the immune system. Other pesticides, in addition to glyphosates and other organophosphates, such as organochlorines and bipyridyl herbicides disturb the body's antioxidant capacity. Oxidative stress is directly linked to cancer growth.

## 25% More Nutritious

Organic foods are on average 25% nutritionally superior to conventional foods. This means that they contain more micronutrients: ie. vitamins and minerals.



Additional food labels such as 'all-natural' or 'hormone-free' sound similar to organic, but the regulation on these statements is far less rigorous. There is also a stark difference between items labeled 'grass fed', which may lead consumers to believe the animal product was only fed natural grass from a pasture, versus 'grass finished', which is the true label suggesting the animal exclusively ate from a pasture without supplemental products. Additionally, while the USDA organic label is highly beneficial to manufacturers and consumers, the expensive and lengthy process to have an item certified in this way can be difficult for smaller food manufacturers. There are some products out there that may be produced organically, yet not have the ability to be labeled as such.

# WHY AVOID CERTAIN FOOD?

Gluten

Increases gut permeability /  
increases inflammation

Fasano A. All disease begins in the (leaky) gut: role of zonulin-mediated gut permeability in the pathogenesis of some chronic inflammatory diseases. *F1000Res.* 2020 Jan 31;9:F1000 Faculty Rev-69. doi: 10.12688/f1000research.20510.1. PMID: 32051759; PMCID: PMC6996528.

Dairy

Contributes to inflammation  
High in IGF-1  
High in calcium

Jin, S., & Je, Y. (2022). Dairy Consumption and Total Cancer and Cancer-Specific Mortality: A Meta-Analysis of Prospective Cohort Studies. *Advances in nutrition* (Bethesda, Md.), 13(4), 1063–1082. <https://doi.org/10.1093/advances/nmab135>

Corn

GMO  
Mycotoxin exposure

Munkvold, Arias, Taschl, Gruber-Dorninger, Mycotoxins in Corn: Occurrence, Impacts, and Management, AACC International Press, 2019, Pages 235-287, ISBN 9780128119716, <https://doi.org/10.1016/B978-0-12-811971-6.00009-7>.

Red Meat /  
Processed Meats

High in Heme Iron  
Cooking at high heats contributes to  
mutogenetic compounds  
Produces secondary bile acids

Diakité MT, Diakité B, Koné A, et al. Relationships between gut microbiota, red meat consumption and colorectal cancer. *J Carcinog Mutagen.* 2022;13(3):1000385.

Salnikow K. (2021). Role of iron in cancer. *Seminars in cancer biology*, 76, 189–194. <https://doi.org/10.1016/j.semcancer.2021.04.001>

Sugars

Cancer cells utilize glucose for  
aerobic fuel

Zam, W., Ahmed, I., & Yousef, H. (2021). The Warburg Effect on Cancer Cells Survival: The Role of Sugar Starvation in Cancer Therapy. *Current reviews in clinical and experimental pharmacology*, 16(1), 30–38. <https://doi.org/10.2174/1574884715666200413121756>

Fried / Processed  
foods

High in Omega-6, trans fats  
Increase inflammation

Montecillo-Aguado, M., Tirado-Rodriguez, B., Antonio-Andres, G., Morales-Martinez, M., Tong, Z., Yang, J., Hammock, B. D., Hernandez-Pando, R., & Huerta-Yepez, S. (2022). Omega-6 Polyunsaturated Fatty Acids Enhance Tumor Aggressiveness in Experimental Lung Cancer Model: Important Role of Oxylipins. *International journal of molecular sciences*, 23(11), 6179. <https://doi.org/10.3390/ijms23116179>

Peanuts

Mycotoxin exposure

Saha Turna, N., Comstock, S. S., Gangur, V., & Wu, F. (2023). Effects of aflatoxin on the immune system: Evidence from human and mammalian animal research. *Critical reviews in food science and nutrition*, 1–19. Advance online publication. <https://doi.org/10.1080/10408398.2023.2219336>

Shellfish

Microplastic exposure

Lorenzoni, G., Melillo, R., Mudadu, A. G., Piras, G., Cau, S., Usai, K., Corda, L., Salza, S., Tedde, T., Vodret, B., Virgilio, S., & Meloni, D. (2022). Identification and quantification of potential microplastics in shellfish harvested in Sardinia (Italy) by using transillumination stereomicroscopy. *Italian journal of food safety*, 11(4), 10738.

# Macronutrient Overview

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## CARBOHYDRATES

- Preferred source of energy by the body
- Consist of sugars and fiber. Plant structures contain mostly carbohydrates
- Carbohydrates are reduced to glucose in the body, which provides fuel and feeds the brain
- Carbohydrates have **4 calories per gram**

## VITAMINS

- Essential for conversion of food to energy, growth and repair of body tissue
- Must be taken in through diet
- Found in both plant and animal products
- Reduction of vitamin levels over extended periods can result in vitamin deficiency

## PROTEIN

- Building blocks for body structure
- Tissues of humans and animals are built from protein. Consists of amino acids
- Proteins are found in plants and animal products
- Protein has **4 calories per gram**

## MINERALS

- Activate thousands of enzymatic reactions
- Act as electrical transmitters and assist vitamins in their function
- Help metabolize proteins, carbohydrates, and fats
- Regulate water and electrolyte balance

## FAT

- Important for energy storage, insulation, and organ protection
- It is recommended to limit saturated fat intake, primarily found in animal products
- Tran-fats should be completely avoided
- Fat has **9 calories per gram**

## WATER

- Eliminates waste from body
- Maintains normal body temperature
- Lubricate joints
- Maintains healthy tissue

# Carbohydrates

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The connection between blood sugar and cancer lies in the relationship between glucose metabolism and tumor growth. Cancer cells have a high demand for glucose, which they use as a primary energy source to fuel their rapid proliferation.

This phenomenon, known as the Warburg effect, describes how cancer cells preferentially rely on glycolysis (a less efficient process of breaking down glucose) even in the presence of oxygen.

## **Key aspects of the blood sugar-cancer connection include:**

1. **Elevated Blood Sugar Levels:** Chronic high blood sugar, often associated with conditions like diabetes, can create an environment conducive to cancer development. High insulin levels (from insulin resistance) and insulin-like growth factors can promote cell growth and survival, including cancerous cells.
2. **Cancer Risk in Diabetics:** Studies have shown that individuals with diabetes have a higher risk of developing certain cancers, such as liver, pancreatic, colorectal, and breast cancer, likely due to the interplay of hyperglycemia, insulin resistance, and inflammation.
3. **Cancer Therapy:** Targeting glucose metabolism is a potential cancer treatment strategy. Some therapies aim to disrupt glucose uptake or metabolism in cancer cells, effectively "starving" them.

In essence, the connection revolves around the ways in which altered glucose and insulin dynamics can promote or sustain cancer growth.

## **Why Carbohydrate Choices Matters in Cancer Treatment:**

1. **Cancer Cells Depend on Glucose:**
  - Many cancer cells have an increased demand for glucose to fuel their rapid growth. Foods with a high GI cause rapid spikes in blood sugar, providing a more readily available source of glucose for cancer cells.
2. **Insulin and Growth Factors:**
  - High-GI foods can lead to spikes in insulin and insulin-like growth factor (IGF-1), both of which can promote cell proliferation, including cancer cell

growth. Managing insulin levels through diet may help reduce these growth signals.

### 3. Inflammation:

- Diets rich in high-GI foods are associated with increased inflammation, which can create an environment favorable to cancer progression.

### 4. Supporting Treatment Efficacy:

- Stable blood sugar levels can enhance the effectiveness of certain cancer treatments and reduce side effects. High-GI foods may interfere with metabolic therapies designed to exploit cancer cells' reliance on glucose.

## **Choosing Carbohydrates for Cancer Treatment:**

- **Low-GI Foods:** These release glucose more slowly into the bloodstream, helping to maintain stable blood sugar levels. Examples include whole grains, legumes, vegetables, and some fruits like berries and apples.
- **High-Fiber Foods:** Fiber slows the digestion of carbohydrates, reducing GI and providing other health benefits, such as improved gut health and reduced inflammation.
- **Limit High-GI Foods:** Processed foods, sugary drinks, white bread, and sweets should be minimized to avoid sharp blood sugar and insulin spikes.
- **Avoid eating carbohydrates alone** – pair with a protein or fat source.



# Carbohydrates

Carbohydrates contain compounds that support optimal health - but all carbohydrates are not created equal. When carbohydrates are processed, the positive impact they have on health can be impacted.

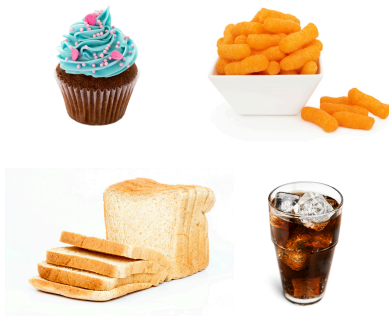
The level of processing is one way to classify carbohydrates.

## Unprocessed

Unprocessed carbohydrates are found in whole foods such as whole grains and whole grain products, beans, lentils, vegetables, and fruit. Foods with high-quality carbohydrates from unprocessed foods offer fiber, vitamins, minerals, and phytochemicals - all of which contribute to optimal health.



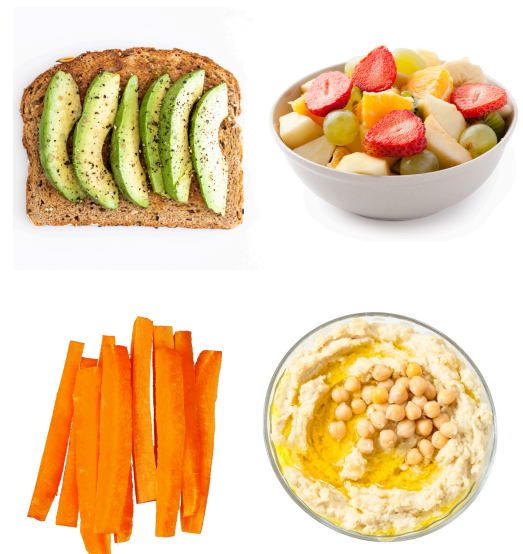
## Highly Processed



Highly processed carbohydrate foods include those with refined grains and added sugars like desserts, white bread, soda, and snacks. These are processed very quickly in the digestive system, leading to a spike in blood glucose. Foods with highly processed carbohydrates also may contain nutrients harmful to health if consumed regularly such as saturated and trans fats, added sugars, colors, and preservatives.

Because all plant foods have carbohydrates, high-quality whole-food carbohydrates are the foundation of a health-promoting way of eating.

- **Fiber.** High-quality carbohydrate foods contain fiber, an indigestible carbohydrate that is important for health. Fiber helps blunt the normal rise in blood sugar that occurs after eating.
- **Balance.** Eating a balance of macronutrients (carbohydrates, protein, and fat) helps manage and stabilize blood sugar. Fill at least 85% of your plate with plant foods - vegetables, fruit, legumes, whole grains, nuts, and seeds.
- **Moderation.** Eat whole-food carbohydrates most often. Try to avoid highly processed or simple carbohydrates.



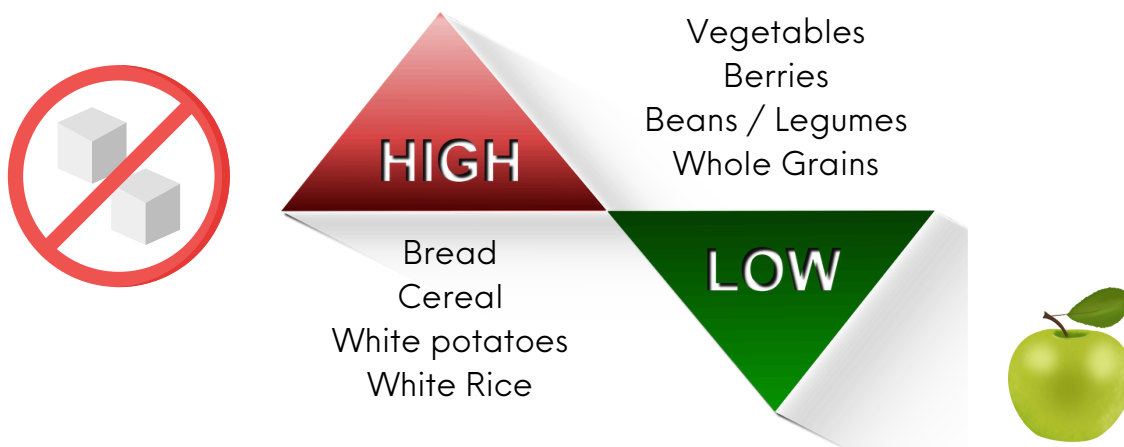
# Carbohydrates

## Low Glycemic Diet

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Certain foods trigger more or less of an increase in your blood sugar, based on the carbohydrate content of the food, how much is consumed, and how easy is it for the body to break it down. This time / increase is quantified into a system called the Glycemic Index. This system rates carbohydrate rich foods on a scale of 0-100, based on how quickly they are digested, absorbed, and affect blood sugar. For example, pure sugar has a glycemic index of 100, while apples have a glycemic index of 40. This means that pure sugar will cause blood sugar to raise higher and faster than apples after consumption.

Low GI foods are those that have a glycemic score of less than 55, and have less of an effect on blood sugar levels. Controlling blood sugar spikes can be extremely important. A diet rich in low-glycemic foods is necessary to limit circulating glucose in the blood stream.



**High GI foods are not limited to simple sugars. Breads, cereals, some fruits, and even potatoes can cause a high spike in blood sugar. Low GI foods include many whole grains, vegetables, beans and legumes, and fruits. A low-GI diet favors these foods over high GI foods.**

# Carbohydrates

## Glycemic Index vs. Glycemic Load

Most people are aware of the glycemic index (GI) but might not be familiar with glycemic load (GL). GI is a measure of how quickly a food makes your blood sugar rise, while GL takes into account both the GI and how much carbohydrate is in a food. Using GL may be more accurate than using GI when deciding which foods to eat to starve off cancer. In this post, we will explore what the evidence says about the benefits of using GL instead of GI.

### What is the Glycemic Index?

The glycemic index (GI) is a ranking of foods with carbohydrates on a scale from 0 to 100 according to the extent to which they raise blood sugar (glucose) levels after eating.

Here are the glycemic index categories:

Low GI: 55 or less

Medium GI: 56–69

High GI: 70 or higher

### What is the Glycemic Load?

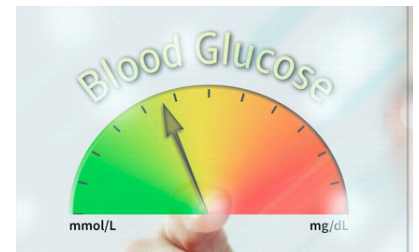
The glycemic load (GL) is also a measure of how foods impact blood sugar but it considers the serving size of the food, not just the food itself. For example, watermelon has a high GI score, but per serving has a lower glycemic load. Glycemic load gives you a more complete picture of how foods impact your blood sugar.

Here are the glycemic load categories:

High GL: 20 or higher

Medium GL: 11–19

Low GL: 10 or less



# What is Fiber?



Dietary fiber consumed from foods refers to complex carbohydrates that are non-digestible by our bodies. This means, when we consume fiber, it is not broken down into energy like other foods. Instead, fiber contributes to our gastrointestinal health, immune system, and microbiome. As humans, we lack the necessary enzymes in our gut to break down these fiber materials. There are two main types of consumable fiber; soluble fiber and insoluble fiber. Together, they represent the total fiber content of a food item. Resistant starch is another type of carbohydrate that acts similarly to fiber.

## Soluble

Soluble fiber dissolves in water and acts like a sponge. When eaten it creates a sticky bolus [a small gel-like mass] that helps lower blood glucose and cholesterol levels. It also works with your liver to escort excess hormones, like estrogen and testosterone, from the body. Dietary soluble fibers are fermented by gut bacteria into short-chain fatty acids.

### Sources:

oats, oat bran, beans, lentils, chia seed, flax meal, nuts and seeds, barley, citrus fruits, apples, strawberries, blueberries, pears, and sweet potatoes.

## Insoluble

Insoluble fiber does not dissolve in water and acts like a broom, facilitating movement of food through the digestive tract. It also contributes to bulking up stool which promotes regularity and reduces constipation.

### Sources:

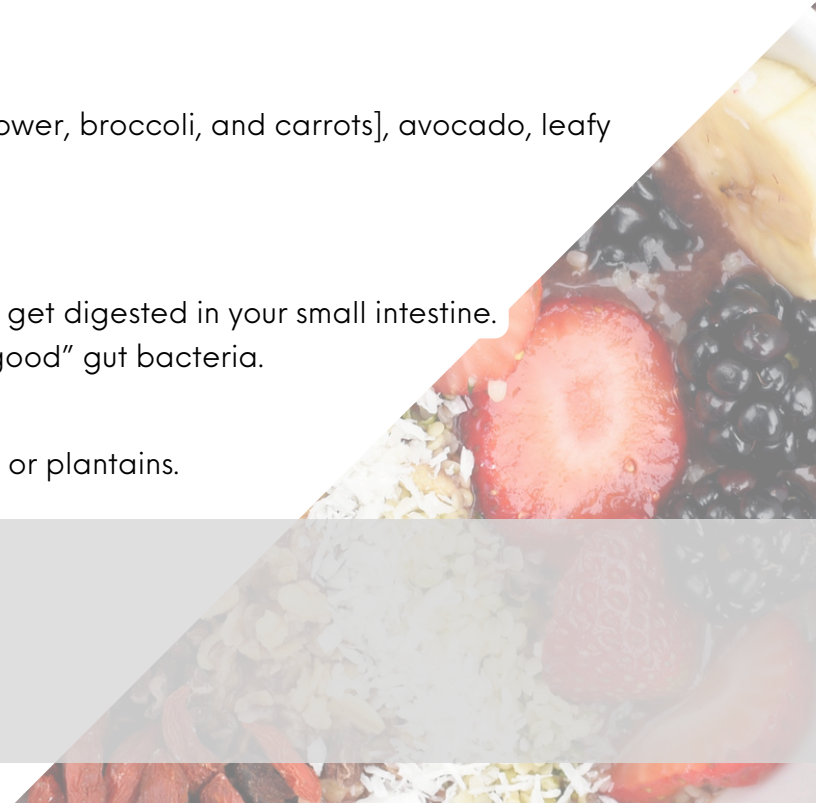
whole grains, vegetables [like zucchini, cauliflower, broccoli, and carrots], avocado, leafy greens.

## Resistant Starch

Resistant starch is a type of carbohydrate that doesn't get digested in your small intestine. Instead, it ferments in your large intestine and feeds "good" gut bacteria.

### Sources:

potatoes, legumes, nuts, seeds, green bananas or plantains.



Protein is important because it builds and repairs tissues, helps produce enzymes and hormones, maintains electrolyte and fluid balance, and helps build strong bones, muscles, cartilage, and skin.

Our bodies are made of up proteins, and these proteins are similar to the ones we find in food; chains of amino acids. The amino acids we consume are used in our bodies to rebuild existing proteins or to create new ones. There are two kinds of amino acids, essential and non-essential. Non-essential amino acids can be found naturally in our bodies, while essential amino acids must be consumed through the diet.

## Complete vs. Non-complete Proteins

Some foods contain a full profile of amino acids, and these are called 'complete proteins'. Animal protein is the only complete source of complete amino acids; but is a highly inflammatory source; research shows that high animal protein intake is associated increase in cancer rates. An effect anti-cancer dietary program should limit certain animal-based protein sources, i.e. dairy and red meats. Some amino acids heavily concentrated in animal protein, i.e., glutamine, leucine, isoleucine, and valine are regularly used by cancer metabolically

A non-complete protein contains some, but not all, of a full amino acid profile, examples of which include many grains such as rice, vegetables, some legumes, and other plant-based foods. Plant-based protein does lack a complete source of the essential amino acids, but is less inflammatory than animal sourced protein and is associated with lower cancer rates. The complete source of essential amino acids can be easily overcome through a variation of plant-based protein intake and the intermixing of a few acceptable animal-based protein sources.

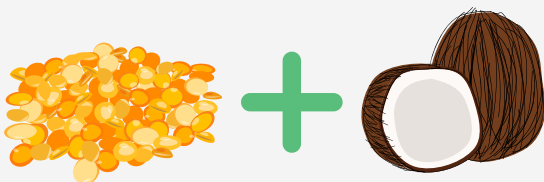
Current dietary guidelines recommend 10-35% of daily calorie intake to be protein. Current research suggests 1.5 g/Kg/day of protein is required to maintain muscle mass. Muscle wasting and cachexia is common to advanced cancer and dietary protein intake < 1 g/Kg/day will contribute to muscle wasting and cachexia

### Complete Proteins

Fish  
Chicken  
Eggs  
Soy  
Quinoa  
Hemp Seeds

### Incomplete Proteins (mix and match)

Kidney Beans	Wild Rice
Black beans	Pumpkin Seeds
Lima Beans	Sesame
Pinto Beans	Sunflower seeds
Navy Beans	Flax Seeds
Peas	Almonds
Chickpeas	Brazil Nuts
Lentils	Cashews
	Coconut
	Macademia
	Pecans
	Pine nuts
	Walnuts



# Fats

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Fat is an essential part of our diets, but have many different properties and bases in our health. You have probably heard that there is 'healthy fat' and 'unhealthy fat', but is this true and if so, what makes them so?

There are four main types of different consumable fats: saturated fats, monounsaturated fats, trans-fats, and polyunsaturated fats. Saturated fats tend to be solid at room temperature, such as butter. Monounsaturated fats include olive oils, and are considered 'good' fats. Polyunsaturated fats are found in corn, safflower, and soybean oils are 'bad' fats, and these both tend to be liquid at a room temperature. Vegetable oils found in margarine, shortening, and baked goods are all examples of trans-fats.

Unsaturated fat is considered to be the 'healthy fat'. A low intake of these in place of saturated or trans-fats may put one at a higher risk of cancer-related complications. Omega-3 and omega-6 fatty acids, which are polyunsaturated fats, can improve blood clotting, inflammation responses, blood pressure, and cardiac functioning.

Fats contain more calories than other macronutrients, which may contribute to obesity, diabetes, or other related metabolic disorders. Trans-fats have been shown to increase the risk of cancer. A high intake of saturated fats is associated with greater cancer mortality and is also linked to certain types of cancer such as colon, lung, and breast cancers.

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Western diets high in processed foods tend to have excessive amounts of omega-6, a pro-inflammatory fatty acid. While omega-6 is necessary for a normal immune response to injury, high amounts can drive down levels of omega-3, an anti-inflammatory fatty acid. To achieve a better balance of omega-3 to omega-6 intake, reduce consumption of processed foods and highly refined vegetable oils and replace with sources rich in omega-3 in your meals and snacks.

## OMEGA-3

salmon  
chia seeds  
flax seeds  
hemp seeds

## OMEGA-6

corn oil  
soybean oil  
safflower oil  
canola oil

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# Healthy Carbohydrate Sources

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Whole grains, vegetables, and fruit are all nutrient-dense and unprocessed sources of complex carbohydrates, fiber, and important vitamins.



Berries



Green Apples



Pears



Vegetables



Quinoa



Wild Rice



Gluten-Free Oats



Root Vegetables



Beans



Lentils



Millet



Teff



Sweet Potato



## 100% plant-based eating can meet required daily protein needs



3 Tbsp  
Sesame seeds  
4.8 g protein



3 Tbsp  
Pumpkin seeds  
2 g protein



3 Tbsp  
Chia seeds  
7 g protein



3 Tbsp  
Flaxseeds  
5.7 g protein



1 ounce  
Cashews  
5 g protein



1 ounce  
Almonds  
6 g protein



1 ounce  
Walnuts  
4.3 g protein



1 ounce  
Pecans  
2.6 g protein



1 cup  
Wild rice, cooked  
6.5 g protein



1 cup  
Black beans  
15.2 g protein



1/2 cup  
Quinoa, cooked  
4 g protein



1/2 cup  
Chickpeas  
6 g protein



1 cup  
lentils  
18 g protein



1 cup  
edamame, cooked  
15 g protein



6 ounce  
raw broccoli  
4.2 g protein



1 cup  
pinto beans, cooked  
15 g protein



1 scoop  
protein powder  
15-30g protein



1 ounce  
raw  
hemp seeds  
9.7 g protein



1/2 cup  
tofu  
10 g protein

## Animal Sources of Protein



Wild-Caught Fish



Free-Range,  
Organic Chicken



Cold Water Fish



Free-Range,  
Organic Turkey



Eggs

## Sources of Healthy Fats



Olive Oil



Avocado Oil



Coconut Oil



Avocado



Raw Nuts



Nut butters



Seeds



Tahini

# Fruits and Vegetables

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**It has been well-established that micronutrient deficiencies can adversely affect the immune system and predispose individuals to cancer. In order to achieve ideal immune function, optimal levels of micronutrients are required. Adequate micronutrient intake from real, nourishing fruits and vegetables is essential to both prevent and aid in recovery from disease.**

Damage to cells begins the second we are born and continues throughout our lifetime. Over time, damaged cells can cause disease (i.e. cancer). The goal of food is to either repair a cell or promote its death. There are compounds in foods that may encourage both. Phytochemicals found in plants ("phyto" is Greek for plant) are antioxidants. When we eat plants, our bodies are able to utilize them to neutralize the free radicals (oxidants) and prevent and reverse damage to cells.

Vegetables are natural sources of these phytochemicals and fiber and should account for the bulk of your diet.

Fruits are also strong carriers of these chemicals, but certain fruits may need to be avoided for their high glycemic index ranking. These include melons, bananas, and mangos.

## **Phytochemicals may have the potential to:**

- Stimulate the immune system
- Block substances we eat, drink and breathe from becoming carcinogens
- Reduce the kind of inflammation that makes cancer growth more likely
- Prevent DNA damage and help with DNA repair
- Reduce the kind of oxidative damage to cells that can spark cancer
- Slow the growth rate of cancer cells
- Trigger damaged cells to commit suicide before they can reproduce
- Help to regulate hormones

**There are more than 25,000 different phytochemicals and these are divided across a number of sub-groups. The easiest way to think about this is that different colors in plant foods provide different types of phytochemicals. That's why "Eating the Rainbow" provides you with a wide range of phytochemicals. Phytochemicals are important because, as antioxidants, they neutralize free radicals - molecules we are exposed to that do damage to our cells and increase the risk of disease.**

# Fruits and Vegetables

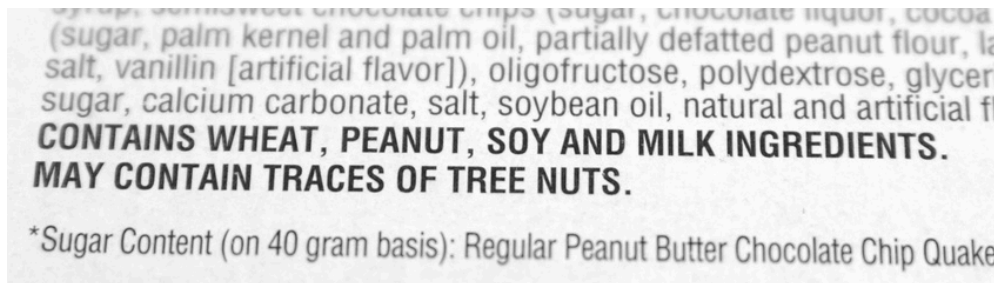
## Phytochemicals & Antioxidants

A well-balanced diet including a variety of colors helps ensure you're providing your body with beneficial compounds including phytochemicals and antioxidants. Phytochemicals are non-nutrient compounds in fruits, vegetables, whole grains, and other plant foods. Antioxidants are substances that prevent damage to cells from free radicals.

	food sources	protective compound(s)
 <b>RED</b>	<ul style="list-style-type: none"><li>Tomatoes</li><li>Red Peppers</li><li>Apples</li><li>Raspberries</li><li>Red cabbage</li><li>Radishes</li></ul>	 Lycopene
 <b>ORANGE</b>	<ul style="list-style-type: none"><li>Pumpkin</li><li>Sweet Potato</li><li>Carrots</li><li>Cantaloupe</li><li>Apricots</li></ul>	 Beta-Carotene
 <b>YELLOW</b>	<ul style="list-style-type: none"><li>Lemons</li><li>Yellow Peppers</li><li>Squash</li><li>Yellow Beans</li><li>Golden Beets</li></ul>	 Vitamin C & Flavanoids
 <b>GREEN</b>	<ul style="list-style-type: none"><li>Collard Greens</li><li>Kale</li><li>Spinach</li><li>Broccoli</li><li>Brussels Sprouts</li></ul>	 Folate, Lutein
 <b>BLUE</b>	<ul style="list-style-type: none"><li>Blueberries</li><li>Blackberries</li><li>Figs</li><li>Black Currants</li><li>Elderberries</li></ul>	 Anthocyanins
 <b>PURPLE</b>	<ul style="list-style-type: none"><li>Cranberries</li><li>Red Onions</li><li>Beets</li><li>Eggplant</li><li>Purple cabbage</li></ul>	 Resveratrol
 <b>WHITE/ BROWN</b>	<ul style="list-style-type: none"><li>Garlic</li><li>Onions</li><li>Cauliflower</li><li>Mushrooms</li><li>Parsnips</li><li>Turnips</li></ul>	 Indoles, Allicin, Quercetin

### What to look for on a food label

Items will not necessarily say 'gluten' on the ingredient list or nutrition facts label. Look for the "allergen" list usually located below ingredients to identify if product contains wheat or milk.



**Avoid foods, food products & drinks that contain the following:**

**Wheat varieties and derivatives of wheat:**

- Wheat berries
- Durum
- Einkorn
- Emmer
- Farina
- Farro
- Graham
- Kamut
- Spelt
- Semolina



- **Barley**
- **Rye**
- **Triticale** (a cross between wheat and rye)
- **Oats** (unless labeled "gluten-free")
- **Malt** (and various forms: malted barley flour, malted milk/milkshakes, malt extract, malt syrup, malt flavoring, malt vinegar)
- **Brewer's yeast**
- **Wheat starch** (that hasn't been processed to remove gluten to below 20 ppm and adhere to FDA labeling law)
- **Anything that uses "wheat flour" as an ingredient.**

# Foods to Avoid

## Dairy and Gluten

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### Check the Label

It is important to understand that dairy is found in many processed products. However, it is not always clear that a product contains dairy, there are many terms used on a label that could mean it contains lactose.

Milk	Iron Caseinate
Butter	Lactoferrin
Cheese	Lactoglobulin
Cream	Lactulose
Dried Milk	Magnesium Caseinate
Milk Solids	Malted Milk
Powdered Milk	Potassium Caseinate
Caseinate	Rennet Casein
Calcium Caseinate	Whey
Condensed Milk	Whey Protein Concentrate
Cottage Cheese	Whey Protein Hydrolysate
Curds	Whipped Cream
Hydrolyzed Casein	Whipped Topping

### Dairy-Free Options

Dairy alternatives have become increasingly popular. This makes it easy to find products that have little to no dairy content and can be used in different ways. Below are some swap options.

#### Milk

Oat milk  
Coconut milk  
Almond milk  
Rice Milk  
Hemp Seed Milk  
Flax Seed Milk

#### Butter

Coconut oil  
Olive oil  
Avocado oil plant-based butter  
Fruit purees for baking  
Oat milk butter  
Nut butters

# Foods to Avoid

## Dairy and Gluten

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### Yogurt

Coconut milk yogurt  
Almond milk yogurt  
Cashew milk yogurt

### Cream

Coconut cream  
Oat milk creamer  
Blended Silken Tofu

### Cheese

Nut based cheese  
Cashew  
Macadamia  
Brazil nuts  
Almonds  
Tofu  
Nutritional Yeast

## Tips for eating out:

- Read restaurant menus online ahead of time or call the restaurant to be sure there are healthy options
- Eat out early or later in the day when a restaurant is less busy and better able to address your needs
- Feel free to ask the server or restaurant manager any related questions to ensure cross-contamination is avoided when preparing your meal

### **Be mindful of nutrient content of gluten-free foods.**

For example, some gluten-free options have significantly different nutrient levels as compared to those that do contain gluten/products they are replacing. That said, "gluten-free" food products don't necessarily mean that they are the most nutritious/nourishing foods.



# Reading a Nutrition Label

Learning to read and understand nutrition labels can make it easier to find and choose healthy options

## Start here

Check the serving size and number of servings in the package. The serving size is important to note because it influences the amount of calories and nutrients listed on the Nutrition Facts label. It's okay to consume more than one serving of certain items, but be mindful of how that will change the calorie and nutrient amounts on the Nutrition Facts label.

## Check calories

Calories are a measure of how much energy is in a serving of food. Excess calories may not be a good thing, but don't stop at just the calories. Finish reading the Nutrition Facts labels to determine if the calories are empty or nutrient-dense.

## Be mindful of these

Eating too much saturated fat, trans fat, sodium, or sugar may have negative health effects.

<b>Nutrition Facts</b>	
8 Servings Per Container	
<b>Serving Size</b>	<b>2.5 cups</b>
<b>Amount Per Serving</b>	
<b>Calories</b>	<b>340</b>
	<b>% Daily Value*</b>
<b>Total Fat</b> 23g	<b>29%</b>
Saturated Fat 5.2g	<b>26%</b>
Trans Fat 0g	
<b>Sodium</b> 330mg	<b>14%</b>
<b>Total Carbohydrate</b> 28g	<b>10%</b>
Dietary Fiber 4g	<b>14%</b>
Total Sugars 8g	
Includes 2g Added Sugars	<b>4%</b>
<b>Protein</b> 9g	<b>18%</b>
Not a significant source of cholesterol, vitamin D, calcium, iron, and potassium	
* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	

## % Daily Value

The % Daily Value (% DV) is based on the Daily Value recommendation of key nutrients for a 2,000 calorie diet. 5% DV or less is a low amount per serving and 20% DV or higher is a high amount per serving. Look for a lower % DV for nutrients you may want to limit (saturated fat, trans fat, sodium, and added sugar) and look for a higher % DV for nutrients you want to consume in greater amounts (fiber, protein, etc)

## Ingredient List

On a product label, the ingredients are listed in order of predominance. The ingredients used in the greatest amounts are listed first, followed in descending order by those used in smaller amounts.

## Plant-Based

A plant-focused diet can be defined as:

**Vegan:** 100% plant-based – No animal products, may also exclude honey or gelatin.

**Vegetarian:** Mostly plant based, but includes eggs and dairy

**Ovo-vegetarian:** Plant-based, but includes eggs.

**Pesco-vegetarian:** Also known as “pescatarian” Plant-based, but may include eggs, products, and occasional consumption of fish, but excludes red meat and poultry.

**Flexitarian** Semi-vegetarian – when a person focuses on plant-based eating while reducing the amount of animal products.

### Animal Products and Cancer:

While animal products may be beneficial in small portions to fill in nutritional gaps, such as protein needs, meat can have negative effects on cancer outcomes, particularly red meats such as beef or pork. Animal products also are also often highly processed, and fed undesirable foods and chemicals which alter meat's cellular structure.

The digestion of animal products (meat and dairy) also release high amounts of iron, ferritin, calcium, and ammonia, all of which are used within the tumor microbiome to suppress immune function.

### Raw Food Veganism

A raw foods diet is often used as a dietary strategy in cancer treatment. By eating foods uncooked, it preserves all of the natural nutritional value of the food without depreciating nutrient levels, or creating additional carcinogens in the cooking process. Usually, a raw foods diet is made up of plant products, such as fruits and vegetables, as well as nuts and seeds.

This type of diet can be extremely difficult to stick to, and offers some additional concerns. This type of diet severely limits sources of protein, as well as other food groups, so risk of malnutrition and nutritional deficiencies is high. This may also be sub-optimal if cachexia is a concern. There is little scientific study related to raw food diets and cancer outcomes.

Adherence to a raw-foods diet should be closely monitored by your physician to ensure you are meeting your caloric and nutrient needs.

Raw food examples:

- Nuts and seeds (cashews, almonds, brazil nuts, macadamias, chia seeds, hemp seeds)
- Raw Vegetables (broccoli, cauliflower, celery, radishes, spinach, kale, chard, carrots, bell peppers, zucchini, sprouts, etc)
- Healthy fats (olives, avocado, coconut meat / oil)
- Fruits (apples, oranges, berries, pears, lemons)

## Fasting

While this dietary practice dates back to the hunter-gatherer period, fasting was also used by civilizations including the Greeks, Romans, and Chinese for medicinal purposes. Interestingly, there are a number of religious entities that continue to practice fasting including Christianity, Buddhism, and Islam.

You may be asked to fast prior to a blood test, treatment, or diagnostic procedure. During these fasts, you must abstain from any foods or beverages (besides water). This includes gum, coffee, or tea. Sometimes, you may also need to avoid taking certain medications (ask your physician prior to skipping doses).

Look out for warning signs of hypoglycemia when fasting, especially if you are diabetic. These include:

- Dizziness
- Fatigue
- Confusion
- Weakness
- Shaking

Common fasting windows for blood tests or procedures range from 10-12 hours. So if you are having a blood test at 9am, you will have to stop eating usually about 9-10pm the night before.

## Plant-Based Recipes

### Herb Mushroom Salad with Wild Rice

Serves 4

#### Ingredients

- 1 cup wild rice
- 8 cup water
- 1 lb baby portabello mushrooms
- 1/2 onion, sweet
- 2 Tbs fresh dill, chopped
- 2 Tbs fresh parsley, chopped
- 2 Tbs fresh thyme, chopped
- 1 lemon
- 1 Tbs olive oil
- salt, to taste



#### Prep

1. Add rice and cool water to a saucepot. Bring to a boil then reduce heat and simmer rice for about an hour until it is tender.
2. Preheat oven to 350°F.
3. Cut off stems and quarter each mushroom.
4. Dice onion into small pieces.
5. Chop dill, parsley, and thyme into fine pieces.
6. Cut lemon into wedges.

#### Make

1. Add mushrooms and onions into a mixing bowl. Add olive oil and toss together until mushrooms and onions are completely coated and place on a parchment-lined baking sheet.
2. Bake for 15 to 20 minutes, or until mushrooms and onions are slightly browned.
3. Once the rice is cooked, toss with mushrooms, onions, dill, parsley, and thyme together to complete salad.
4. Add salt and pepper to taste and serve with lemon wedge.

## Plant-Based Recipes

### Roasted Chickpea Veggie Bowl

Serves 4

#### Ingredients

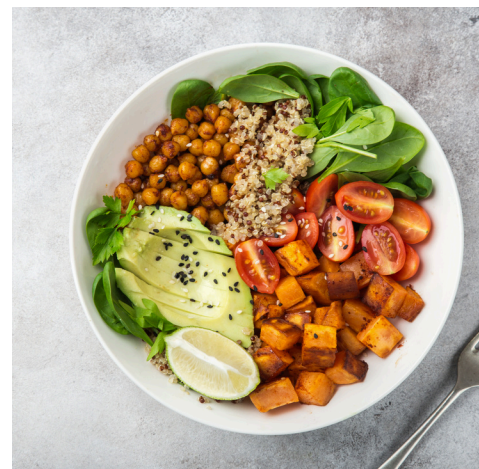
- 2 cups broccoli
- 2 cups Brussel sprouts
- 1 large sweet potato
- 15oz. chickpeas
- 1tbsp. olive oil
- 1 tbsp. garlic
- Salt / pepper (to taste)
- 1/2 cup dijjon mustard
- 1/2 cup tahini
- 1/2 cup water
- 1/4 cup apple cider vinegar
- 2tbsp. lemon juice

#### Prep

1. Preheat oven to 400°F. Line a baking sheet with parchment paper.
2. Chop sweet potato into cubes, and slice the Brussel sprouts in half.

#### Make

1. In a medium bowl, mix the vegetables with the chickpeas, and toss with olive oil, garlic, salt, and pepper.
2. Transfer vegetables to baking sheet, and roast for 15 minutes. Move the vegetables around the pan with an oven-safe utensil and cook for an additional 5 minutes.
3. Allow to cool slightly, then transfer vegetables to a large bowl.
4. In a smaller bowl, mix the mustard, tahini, water, apple cider vinegar, and lemon juice. Add salt and pepper to taste.
5. Serve vegetables and chickpeas on top of quinoa, and top with the dressing or additional toppings, such as avocado, lemon, or diced tomatoes.



## Mediterranean / Anti-Inflammatory Diet

Almost all eating patterns defined as 'healthy' will trace back to the quintessential anti-inflammatory diet. The overlying principle of an anti-inflammatory diet is to do as the name suggests: to reduce inflammation in the body, which is known to be a factor in the development of most chronic diseases. This diet promotes the inclusion of foods that have been registered on the Dietary Inflammatory Index to have a negative Inflammatory Effect Score. It also encourages a high intake of colorful vegetables, fruits, herbs, along with a daily serving of nuts or seeds. The anti-inflammatory diet recommends increasing the consumption of unsaturated and mono-unsaturated fat, such as olive oil and avocado, while reducing consumption of red meat and processed foods high in omega-6's. The diet recommends implementing tactics that support the health of the microbiome.

The Mediterranean diet is an iteration of an anti-inflammatory diet. There is currently no other dietary pattern with as much supporting, clinical evidence than this diet for supporting health and combating disease. Like the anti-inflammatory diet, a Mediterranean diet favors fish, healthy nuts and seeds, oils, and vegetables over processed food items or heavy carbohydrate sources.

### Fight Inflammation with Food - The Anti-Inflammatory Diet

Low-Glycemic  
Veggies & Fruit



Whole  
Carbohydrates  
- High in Fiber -



Mono & Polyunsaturated Fats  
(High omega-3 than omega-6)  
Recommend ratio 1:4



Antioxidants



## Mediterranean / Anti-Inflammatory Recipes

### Pan-Seared Salmon with Artichokes

Serves 4

#### Ingredients

- 1 1/2 lb salmon, cut into fillets
- 2 Tbs olive oil
- 2 lemons
- 2 cup spinach
- 1 1/2 cup artichokes, canned,  
drained

#### Prep

1. Zest and juice 1 lemon. Cut one into wedges for serving
2. Whisk together olive oil, lemon juice, and 2 teaspoons of zest.
3. Brush salmon with this mixture and sprinkle with pepper to taste.

#### Make

1. Heat a medium non-stick skillet on medium heat. Drizzle with 1 tablespoon of oil.
2. When pan is hot, place salmon fillets in the pan skin side down. Cover the top and let them cook for 4-5 minutes until cooked throughout. Flip them over for a few seconds to brown the top.
3. Remove from pan and add remaining oil and artichoke hearts and sauté until browned. Add spinach - heat over low until spinach just wilted.
4. Serve salmon over spinach and artichokes with lemon wedges.



### Red Pepper Dip with Walnuts

Serves 4

#### Ingredients

- 4 roasted red peppers, jarred, drained and rinsed (fresh roasted red peppers work too)
- 1 Tbs olive oil
- 3 Tbs balsamic vinegar (pomegranate molasses)
- 1/2 tsp cumin, ground
- 1 lemon, juiced (for 2 Tbs juice)
- 1 clove garlic, chopped
- 1 cup walnuts, raw
- 1 tsp crushed red pepper flakes
- salt, to taste

#### Prep

1. Drain and rinse roasted red peppers. If using freshly roasted red peppers, you can leave the skin on.
2. Chop garlic.

#### Make

1. Add all ingredients to a food processor and process until creamy with a bit of texture.
2. Garnish with some additional walnuts and a drizzle of olive oil. Season with salt to taste.
3. Serve with fresh vegetables like endive.



## Ketogenic Diet

A keto diet includes a high ratio of fats in the macronutrient profile, usually comprising upwards of 60% of an individual's daily caloric intake, with carbohydrates making up less than 20% of daily calories. Restricting carbohydrates may help to slow cancer growth through the alteration of tumor metabolism, gene expression, and may prolong survival.

A ketogenic diet favors fat as the main macronutrient and energy source, as opposed to carbohydrates. This dietary pattern was originally created to treat epilepsy, but can be effective for certain types of cancers by starving the cells of its modulating energy source: glucose. By limiting carbohydrate intake, insulin levels are lower and lipolysis begins.

During lipolysis, the body breaks down adipose tissue into free fatty acids. When there isn't enough glucose available to meet the body's energy needs, the body then starts to use fatty acids and ketones for energy (aka ketosis). These ketones are then used by the muscle cells and neurons (brain cells) to generate the primary carrier of energy cells in the body (adenosine triphosphate or ATP). With the availability of ketones and fatty acids, the body does not depend on glucose for energy.

Ketones are a more efficient source of energy for our bodies than glucose is and so they can help keep many of our cells working well - even during periods of fasting. This is particularly true for brain cells. Keto diets can help to support autophagy and apoptosis.

Common foods on a ketogenic diet include nuts, oils, and seeds. Grains, starchy vegetables, and any bread products are eliminated, as well as added sugar or fruit (albeit some berries).

Ketogenic diets, due to their restrictive nature, may not always be recommended. They can be difficult to stick to, and eliminate large portions of food groups that may offer additional necessary fibers or micronutrients (such as those found in whole grains). Taking certain medications while on a ketogenic diet may also increase risk of metabolic acidosis.



## Ketogenic Recipes

### Almond Joy-ful Smoothie

Serves 2

#### Ingredients

- 3/4 cup coconut milk, full-fat
- 1/2 cup water
- 2 Tbs almond butter, unsweetened
- 1 Tbs chia seed
- 2 Tbs hemp seeds
- 2 Tbs cocoa powder, unsweetened
- 2 Tbs coconut flour
- 2 Tbs monk fruit sweetener
- 1 tsp vanilla extract
- salt, pinch
- 4 ice cubes, optional

#### Make

1. Add all ingredients to a blender and process until smooth. Let stand for a few minutes to thicken.



### Cauliflower Lime Rice

Serves 4

#### Ingredients

- 2 Tbs olive oil
- 2 scallions, diced
- 1 Head cauliflower, trimmed and grated
- 1/4 tsp salt
- 1/4 cup cilantro, chopped
- 2 limes, zested and juiced (for 2 tablespoons juice and teaspoon of zest)

#### Prep

1. Chop scallions.
2. Trim cauliflower. Hold the entire head and shred on box shredder to create rice. Alternatively, you can chop finely or place florets in a food processor and chop to resemble rice grains.

#### Make

1. In a large skillet, heat olive oil over medium heat.
2. Sauté scallions until soft.
3. Add cauliflower to skillet, cover and cook 5–10 minutes, until soft, then add salt to taste.
4. Stir in lime juice, zest, and cilantro.



## Glucose and Ketone Monitoring

When following a low-glycemic or ketogenic diet, it may be helpful to keep an eye on the levels of ketones in your body or the fluctuations in your blood glucose. One way to do this is through blood testing, but a more practical, daily strategy would be glucose or ketone monitors.

## Glucometers and Keto-Meters

These handheld devices use a small drop of blood, usually from the finger, to assess the amount of glucose or ketones in your blood.

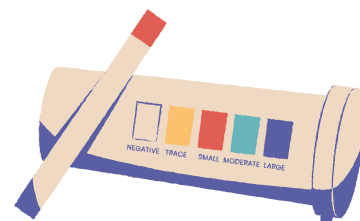
Testing your blood glucose fasting first thing in the morning, and 30 minutes to an hour after meals can give you insight into how your body reacts to the ingestion of different types of foods. Ideally, you want to maintain a steady blood sugar level throughout the day and avoid spikes.

Keto meters can detect the presence of ketones, indicating whether or not your body is utilizing fat at its main energy source.



## CGM Devices

Constant glucose monitors are small devices that are inserted into the upper arm or belly for an extended period of time. Instead of requiring finger-pricks to assess blood glucose, CGM devices can pick up data at all times, giving a full picture of blood sugar fluctuations throughout the day.

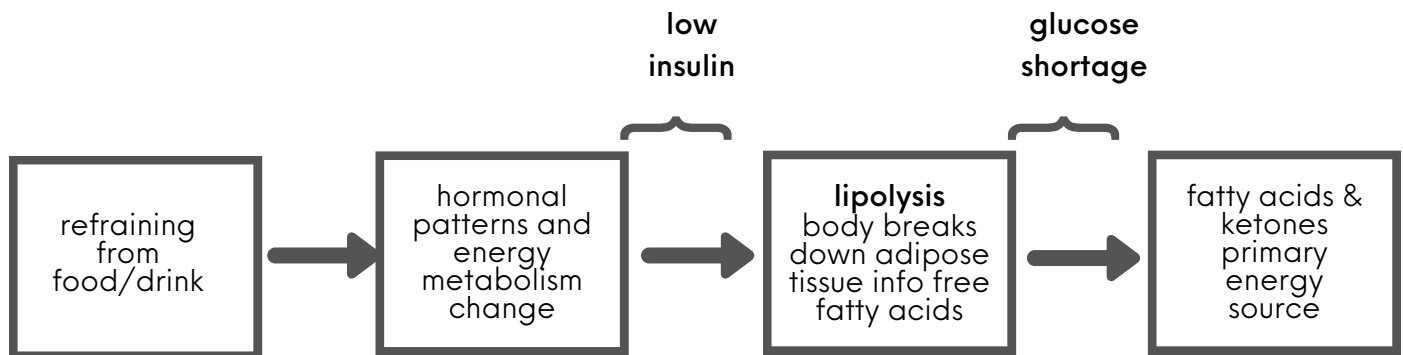


## Ketone Strips

Ketone strips are used to assess the presence of ketones through urine. These are small strips that change color based on the amount of ketones present in the sample. The more your body is using fat as an energy source, rather than carbohydrates, the more ketones will be present on the strip.

## Intermittent Fasting

Intermittent fasting is a broad term that encompasses a variety of programs that manipulate eating practices to include short periods of abstaining from food.



Overall, research on the effect of intermittent fasting on people's health is still emerging. Most of the research on calorie restriction and intermittent fasting have been conducted in cells (e.g., yeasts), rodents, and even monkeys. But, what we know so far offers some exciting potential for cancer patients.

Based on research, intermittent fasting has the ability to favorably influence the gut microbiota by reducing systemic inflammation and gut permeability (aka leaky gut).

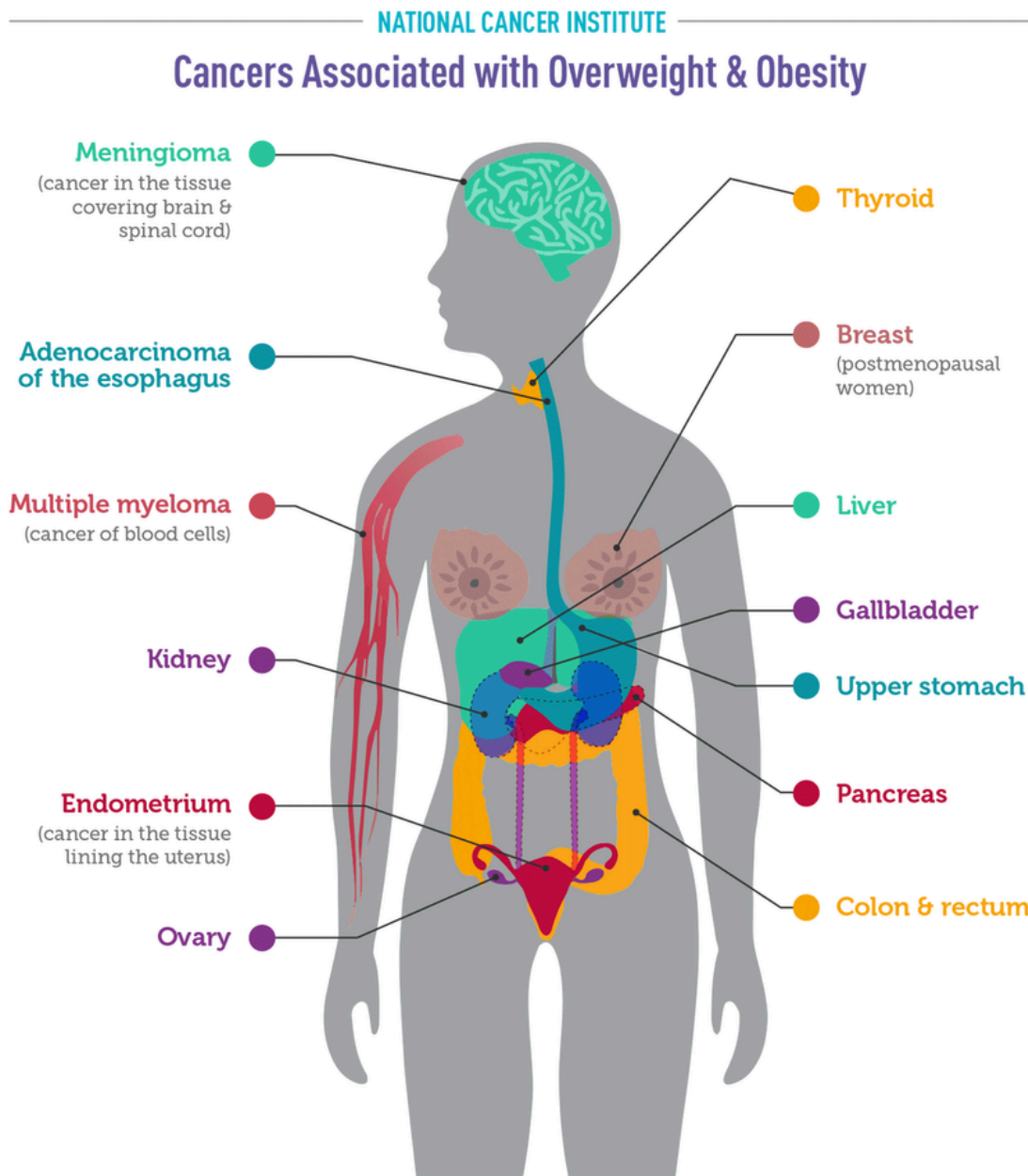
A clinical trial exploring the outcomes of modified alternate day fasting (mADF) in revealed beneficial effects on inflammatory marker and gut flora levels known to have immunomodulatory effects (increased *Lactobacillus johnsonii* and *Lactobacillus reuteri* strains).

Additionally, intermittent fasting may increase the population of *Akkermansia muciniphila*, which may be a marker for immunotherapy outcomes.

**Muscle wasting, or cachexia, may be worsened by intermittent fasting. However, this may be modulated with additional supplementation of *L. reuteri*, which can support body weight and muscle mass. Before considering intermittent fasting, know that there are certain conditions that can make it dangerous. For example, if you have diabetes you may need to eat regularly to maintain your blood sugar levels, so fasting is not recommended. Also, if you're taking certain medications like diuretics for high blood pressure or heart disease, intermittent fasting increases your risk for electrolyte abnormalities.**

# Maintaining a Healthy Weight

The NIH currently recognizes 13 cancer types associated with overweight and obesity. This is not to say other cancer types are also associated, but these have been proven by scientific evidence thus far.



[cancer.gov/obesity-fact-sheet](http://cancer.gov/obesity-fact-sheet)

Adapted from Centers for Disease Control & Prevention

Physical activity combined with moderate calorie restriction can potentially reduce risk of recurrence and improve BMI.

# Maintaining a Healthy Weight

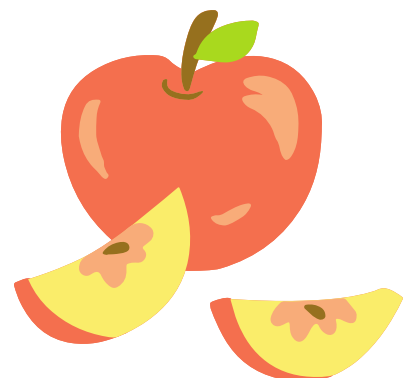
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Alternatively, muscle wasting and cachexia can be a risk for those who are underweight or experiencing cancers associated with the head / neck, and or have other complications. Ensuring you are eating not only the correct foods, but enough calories is imperative to preventing weight loss, muscle loss, or low energy levels.

Here are some tips to ensure you are getting enough out of your nutrition:

- Set a timer on your phone for every 1-2 hours, and try to eat at least a few bites of a high-protein snack.
- Stick to frequent, small meals rather than a few large ones.
- Choose calorie dense foods that are high in protein and fat, such nuts, oils, avocado, and dairy alternatives.
- Keep a protein drink or smoothie with you at all times to sip on, in addition to small handfuls of portable food items
- Add avocado, flax oil, nut butter, vegetables, or coconut cream to smoothies to increase the calories
- Snack on soups, nuts, nut butters, avocados, fibrous fruits, olives, eggs, beans, and vegetables.

**Avoid** fasting for longer than 12 hours



## What is Resilience?

Immunological resilience allows our body to remain in a state of health or recover more quickly after exposure to a virus, detrimental bacteria, or toxin(s).

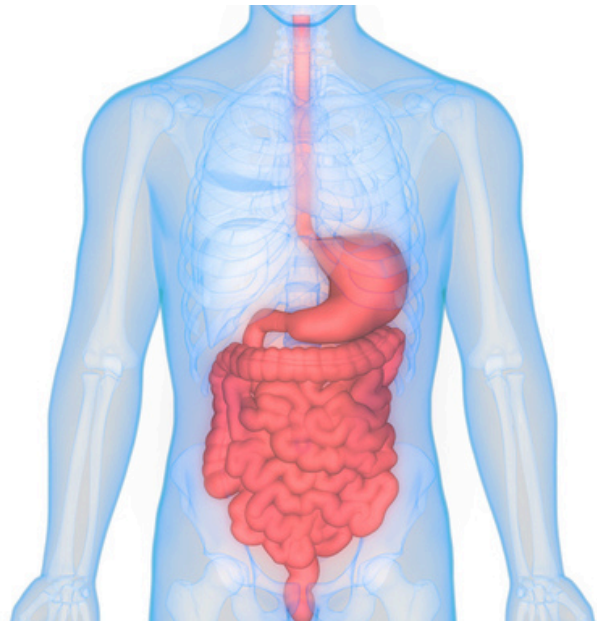
Both our mental health and immune system are dependent on a strong and resilient microbiome. While building resilience doesn't occur over the short-term, there are several practices we can engage in to support our overall immunological resilience.

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### did you know?

Trillions of microbes inhabit the intestines and form a complex ecological community that influences both normal physiology and susceptibility to disease.

Regular, intentional nutritional practices that support gut health can help to set a strong foundation and support our body's resilience.



# The Microbiome and Digestion

There are many foods that directly support digestion and support the population of healthy bacteria in your gut (the microbiome).

Your microbiome plays a large role in your digestive system, mental health, and your immune system. While we may suggest the inclusion of specific probiotics in your treatment, your food choices will also effect the health of your microbiome and help the 'good' gut bacteria flourish. Your microbiome is a proven modulator for the efficiency of immunotherapies.

The following foods can help the digestive process and support the microbiome:

- Fermented foods - kimchi, pickles, sauerkraut, coconut kefir (helps to breakdown food and promotes the growth of good gut bacteria)
- Kombucha (contains probiotics)
- Aloe Vera (soothes intestinal/stomach lining, cleanses intestines)
- Apple Cider Vinegar (stimulates digestive juices)
- Ginger (1-2 grams of fresh ginger is shown to increase nutrient absorption and assist in the breakdown of fats and proteins)
- Turmeric (anti-inflammatory)
- Bone Broth (increases secretion of stomach acid, improves mucous coating that promotes smooth bowel function)

## probiotics and fermented foods

Probiotics are live bacteria that have health benefits. Probiotics can be taken as supplements or can be found in fermented foods



## prebiotics

Prebiotics are food for probiotics. All plant food contains prebiotics



## polyphenols

Polyphenols are antioxidants that feed the good bacteria and increase the diversity and strength of the microbiome



# Maintaining Optimal Hydration

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There is no ONE fluid-intake recommendation that will suffice for everyone because of the wide diversity of fluid needs of each individual. Factors such as environment, activity level, and health status may impact needs so check with your practitioner about your personal requirements.

## Adequate water intake helps to...

- Eliminate waste from the body
- Maintain normal body temperature
- Lubricate joints
- Maintain healthy tissue
- Encourage optimal metabolism

## General guideline for water intake:

Your weight / 2 = ounces

For example:

200 lbs. / 2 = 100 ounces

10, 10 oz. glasses

This includes water intake from ALL sources, not just from drinking water.

## Tips for Optimal Hydration

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When the body needs water our brains send the signal of thirst – an essential survival mechanism that maintains fluid balance. Of course, drinking water is always appropriate, but here are some fun ways to support optimal hydration.



# Tips for Optimal Hydration

1

Eat foods that are high in water content such as apples, bell pepper, tomatoes, and cucumber.



2

Consume simply prepared foods that have water as a primary ingredient such as soups, teas, flavored seltzers, and sugar-free beverages.



3

Flavor your water and keep it interesting! Simply add citrus wedges and fresh herbs for a refreshing beverage or you can muddle soft fruit, such as watermelon and strawberries, to add more flavor density.



4

Drink a glass of water upon rising in the morning then schedule regular hydration breaks throughout the day. Bundling drinking with other tasks like getting up from your desk, going for a walk, or eating a meal can support meeting your hydration needs. If you need a more deliberate reminder, load a free water-tracking app on your phone.



5

Carry a water bottle with you and always have one in the car if you drive frequently. You will increase the likelihood of consuming fluid if it is always available.



6

Don't wait until you are thirsty to drink. Thirst is your body's signal that it is dehydrated or about to be so staying ahead of your hydration needs can help prevent dehydration from happening.

7

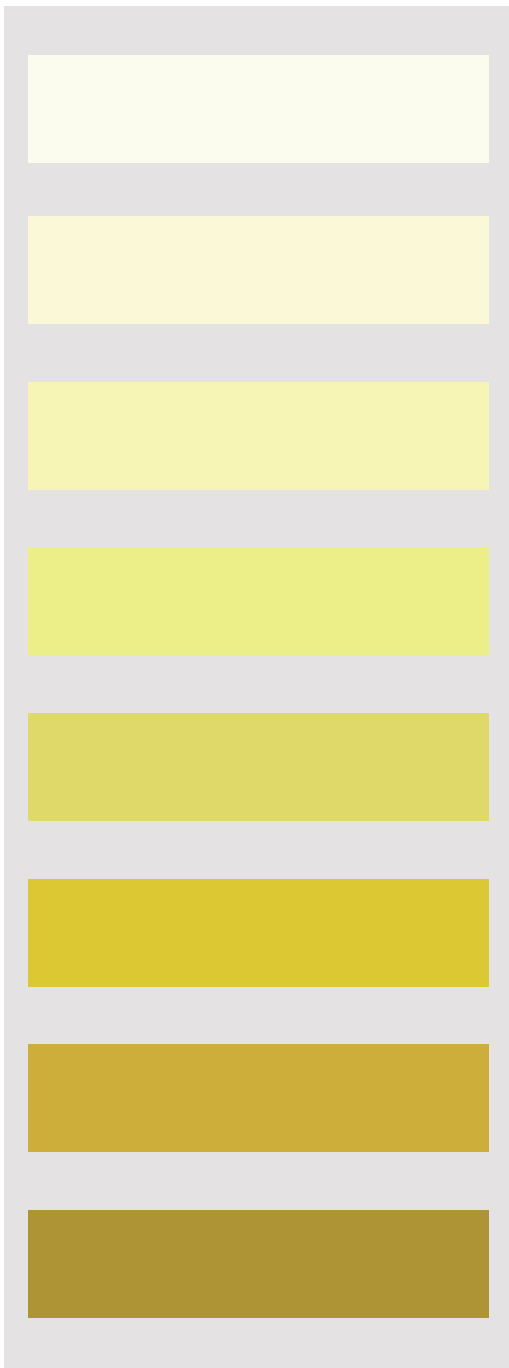
Pay attention to the weather. If it is warm enough for you to perspire, your hydration needs will likely increase and you will need to consume more water.



# Am I dehydrated?



There are a few different ways that you can determine your hydration status. The most common method is simply by checking your urine color. If your urine is light yellow or clear, then you are well hydrated. If it is dark yellow or amber, then you are dehydrated. You can use the chart below as a guide. Note that certain medications may also change the color of your urine.



**Well-hydrated:** A good volume and frequency of pale yellow urine is a good indication of optimal hydration



**Mildly dehydrated:** A decreased volume and frequency of slightly darker yellow urine is an indication that you might be slightly dehydrated and should consume more water.



**Dehydrated:** A decreased volume and frequency of even darker yellow urine is an indication that you might be dehydrated - and should consume water as soon as possible.



**Severely dehydrated:** A decreased volume and frequency of even darker yellow urine along with a strong odor is an indication that you might be very dehydrated - and should consume water as soon as possible.

# Exercise and Movement

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Engaging in regular exercise is another powerful way to support the strength of your mind and body. Exercise does not have to be strenuous, nor do you have to lift weights or run a marathon to reap the benefits of movement.

Moving your body helps to regulate fluid and electrolytes, improves circulation, boosts your immune system, and helps to preserve muscle mass. Exercise also boosts anti-tumor immunity. It can help to decrease stress hormones and release 'happy' hormones, called endorphins.

**When you exercise, your cells also become more sensitive to insulin so they can work more efficiently and remove glucose from the blood.**



Aim for at least 10-15 minutes of movement every day. On days you feel like you have more energy, aim for 30 minutes of movement.

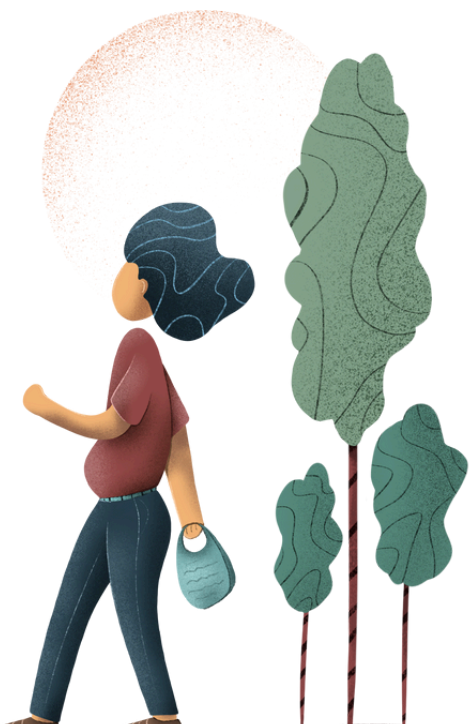
## Types of Movement

Walks in nature

Yoga

Swimming

Resistance training with  
light dumbbells or bands



# Sleep Hygiene

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Optimizing your sleep is essential to keep all cylinders firing inside your body. Your CLOCK gene regulates your circadian rhythm, which is your body's natural sleep-wake cycle. This system was highly tied to the rising and setting of the sun when we were hunter gatherers, but now is bombarded by artificial light and other disruptions. A disrupted circadian rhythm is linked to many different types of cancers.

Regulating your circadian rhythm assists many bodily systems to function optimally, by giving them accurate cues on when to release certain hormones or allowing body systems time to rest. Sleep also allows for the reallocation of energy, giving less to moving your muscles and more to the immune system.

## Adequate sleep helps to...

- Support the microbiome and digestion
- Boost the immune system
- Regulate hormones
- Reduce symptoms of anxiety or depression
- Encourage optimal cell metabolism

### 3 Tips for Better Sleep

1

Try to go to sleep and wake up at the same time every night / morning to help regulate your circadian rhythm

2

Avoid screens or bright lights 1 hour before bedtime. Instead, read a book by a low light or meditate.

3

Avoid eating a heavy meal 2-3 hours before bed time. Sip on some calming herbal tea or warm water.

### General guideline for sleep:

Aim for at least 8 hours of restful, uninterrupted sleep per night. Certain supplements, such as CBD, CBN, melatonin, or lemon balm may support better sleep.

# Dealing with Common Symptoms and Side Effects

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Throughout treatment, certain physiological side effects of cancer and therapies can impact quality of life. These include nausea, fatigue, taste changes, constipation, and diarrhea. The following information will help you combat these issues should they occur!

Cancer associated fatigue is one of the most common symptoms of cancer patients effecting 80-100% of patients during treatment, Proactive steps to combat fatigue can improve your daily routine.

## **GET MOVING**

Did you know one of the best ways to fight fatigue is through exercise!?! Small, frequent periods of movement (at your own pace) can help boost energy levels. Finding excuses and fun activities can assist with this.

## **MOVE, EAT, REST, REPEAT**

Make time and plan out these mini periods of movement in between other activities rest and relaxation, This can also help ease any digestive symptoms you are experiencing.

## **IMPROVE YOUR SLEEP**

Make your sleep hygiene and getting adequate rest a top priority. Check out the sleep section in this booklet for more tips.

## **KEEP YOURSELF HYDRATED**

our bodies are over 60% water. Treatments and medications can contribute to dehydration and subsequent fatigue.



# Dealing with Nausea

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Food may sound like the most unappealing thing at the moment, but it may be your best ally in reducing your symptoms. Choosing the right items can help replenish your body and get you feeling better, faster.

## PLAN AHEAD

Avoid an empty stomach before intense treatments by scheduling small meals and snacks. Bring your go-to meals with you and cook ahead in bulk so you have meals ready to go.

## GINGER

In any form, ginger helps to relax the stomach and soothe acute nausea. A ginger tincture, tea, or chewing on a piece of ginger can help.

## MASH SOME MINT

Peppermint can also soothe nausea. Try adding fresh mint to your water or sipping on peppermint tea.

## REPLENISH ELECTROLYTES

Vomiting, lack of appetite, or loose stools can all contribute to dehydration and electrolyte imbalance. Sodium from salt, potassium, and magnesium help to keep fluid levels balanced. Drinking electrolyte packets or coconut water can help with this.

## TRY BONE BROTH

Bone broth is full of electrolytes as well as minerals and amino acids that can provide vital nutrients and soothe the GI lining.

## KEEP IT BASIC

Stick to easy to digest foods that can help calm the stomach and repair stomach / intestinal lining, such as softly cooked chicken or turkey, tofu, eggs, whole grains, softly steamed vegetables, and sweet potatoes. Keep seasonings basic with salt, lemon, or garlic.

Avoid:

- Eating large meals
- Carbonated, caffeinated, artificially sweetened beverages
- Highly acidic or spicy foods
- Fatty foods
- Eating while laying down



# Dealing with Taste Changes

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Use the following guide to combat the taste changes you are experiencing:

## **EVERYTHING TASTES LIKE CARDBOARD**

- Use an extra teaspoon or two of seasonings on your food to boost the flavor.

## **METALLIC TASTE**

- Add squeeze or splash of citrus, such as lemon, lime, or orange to food or water
- Avoid eating with metal silverware or foods packaged in metal

## **FOODS TASTE ODD OR BITTER**

- Avoid eating hot foods, go for cold or room temperature items

## **NOTHING TASTES RIGHT**

- Rinse your mouth with salt water, ginger, or tea before eating to refresh your taste buds
- Chew on lemon or mint after meals to reduce lingering tastes

## **EVERYTHING IS BLAND**

- Try out some new foods you may not have liked before, things may have changed!
- Season foods with strong, tart flavors such as lemon, vinegar, and pickling agents
- Onion, turmeric, garlic, chili, basil, oregano, tarragon, marjoram, mustard, and mint can help add flavor to foods



# Food Storage and Preparation

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Using a system to plan, shop and prepare meals that works for you is key in feeding you and your family nutritious and satisfying meals.

## Meal Planning Strategies

- ✓ **Set a day** - for menu planning, grocery list making, and shopping
  - ✓ **Gather your recipes** and put them in one place whether it be online, in a word document or printed in a file folder, so you have access during meal planning. Cookbooks and tablets (e.g. iPad) are also good sources for recipes.
  - ✓ **Consider the cost** - If you use coupons or store specials, take these into consideration when planning your weekly menu and grocery list
  - ✓ **Not sure** what to make? - Check out cookbooks for quick, healthy meals or source online food bloggers for inspiration
  - ✓ **Make a list** of non-perishable items you use most frequently and keep those items stocked (nuts, dried beans, etc.)
  - ✓ **Keep fridge and pantry stocked** with basics to make default meals at a moment's notice
  - ✓ **Write your list** - from the daily meals and snacks you have planned and remember that your menus and grocery lists can be reused and rotated on a cycle
- Plan Weekly Meals:** This system is good for the beginner cook or those who like to plan meals ahead of time. Here are some things to consider as you plan:
- Consider what is going on with activities and work
  - Map out a complete dinner meal for each night of the week and remember to include the healthy, balanced components of a good meal
  - Focus on dinners first
  - When planning main meals:
    - Start with vegetables
    - Next, fruit and whole grains
    - Last, healthy fats and proteins



# Food Storage and Preparation

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## REFRIDGERATOR

### FOOD SAFETY

Refrigerators should be set to maintain a temperature of 40°F or below. Bacteria grow most rapidly between 40°F and 140°F.

Be sure to keep refrigerator/freezer doors closed tightly at all times, and do not open them more than necessary. Foods held at temperatures above 40°F for more than 2 hours should not be consumed.

### STORAGE

The temperature throughout the unit should be 40°F or below. Store raw meat, poultry, and seafood on the bottom shelf in containers or sealed plastic bags to prevent juices from dripping or leaking onto other foods. Freeze them if you don't plan on eating them within a few days.

Keep eggs in their original carton or egg holder and store them in the main compartment of the refrigerator rather than the door. Do not store perishable foods in the door.

### DRAWERS

Sealed crisper drawers are the optimal way to store fruits and vegetables. Higher humidity is required for vegetables, while fruits require lower humidity.

The meat drawer has an adjustable temperature to maximize the storage time of meat and directs cool air into the drawer to keep items cold without freezing.

## FREEZER

### FOOD SAFETY

When thawing frozen foods, place in your refrigerator overnight. You can quick-thaw by placing bag of frozen food under cool, running water. NEVER thaw on your countertop

### STORAGE

- fresh meats = 4-12 months
- ground meats = 3-4 months
- poultry
  - whole = 1 year
  - parts = 9 months
  - cooked = 2-6 months
- soups & stews = 2-3 months
- vegetables = 18 months
- fruits = 12 months

### OTHER FOODS FOR FREEZER

- cooked quinoa
- cooked brown rice
- cooked beans
- stock [vegetable, chicken, bone broth]
- spinach
- kale

# Food Storage and Preparation

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## National Grocery Stores with Healthy / Organic Options

- Trader Joe's
- Whole Foods
- Aldi's
- Sprout's
- Kroger's
- Costco
- Walmart
- Safeway

**Farmers markets are also great places to find whole, organic, and in-season foods!**

## Meal Preparation Companies:

- Cura Kitchen
- Scratch Culinary
- Sprinly
- Sakara
- Fresh n Lean
- Protein House

# Seasonal Produce Guide



## Summer

Apricots  
Avocados  
Bananas  
Beets  
Bell Peppers  
Blackberries  
Blueberries  
Cantaloupe  
Carrots

Celery  
Corn  
Cucumbers  
Eggplant  
Green Beans  
Herbs  
Lemons  
Limes

Okra  
Peaches  
Plums  
Raspberries  
Strawberries  
Summer Squash  
Tomatoes  
Zucchini

## Fall

Apples  
Artichokes  
Broccoli  
Brussel Sprouts  
Cabbage  
Cauliflower  
Celery  
Collard Greens  
Cranberries

Ginger  
Grapes  
Kale  
Lettuce  
Mushrooms  
Onions  
Parsnips  
Pears

Potatoes  
Pumpkin  
Radishes  
Rutabagas  
Spinach  
Sweet Potatoes  
Swiss Chard  
Parsnip  
Winter Squash



## Winter

Beets  
Brussel Sprouts  
Cabbage  
Carrots  
Celery  
Collard Greens  
Herbs  
Kale

Kiwi  
Leeks  
Lemons  
Limes  
Onions  
Oranges  
Grapefruit  
Pears  
Pomegranate

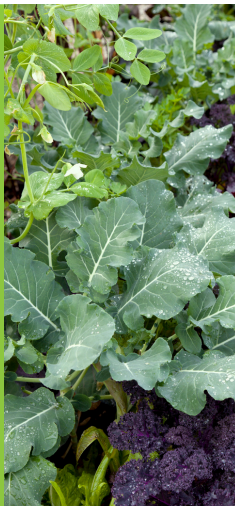
Potatoes  
Pumpkin  
Radishes  
Rutabagas  
Sweet Potatoes  
Swiss Chard  
Turnips  
Winter Squash

## Spring

Apricots  
Arugula  
Asparagus  
Avocados  
Broccoli  
Cabbage  
Carrots  
Celery  
Cherries

Collards  
Herbs  
Kale  
Kiwi  
Lemons  
Lettuce  
Limes  
Mushrooms  
Onions

Peas  
Peppers  
Pineapples  
Radishes  
Rhubarb  
Spinach  
Strawberries  
Swiss Chard  
Turnips

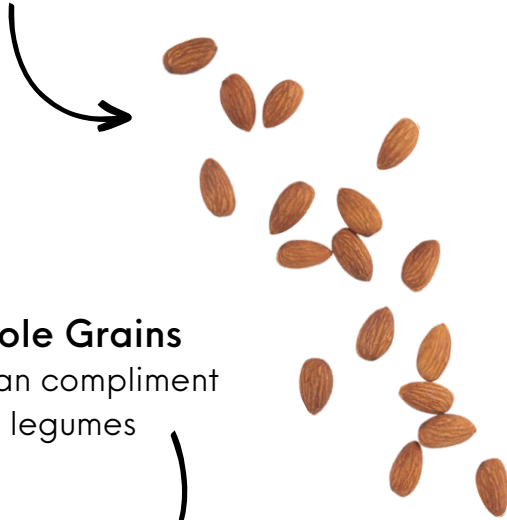


# Building Meals

Figuring out what to eat when you go home after treatment can be tricky - but its all about structure! We use a salad to visual how you should structure your meals.

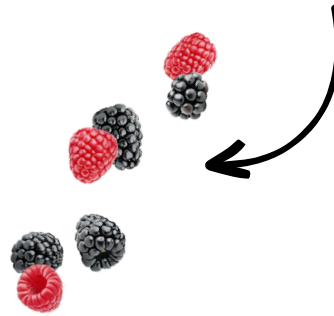
## Step 4: Fats

Healthy fats should be added as a topper to your 'salad'



## Step 5: Fruit

Fruit may be added as a snack or side dish



## Step 2: Protein

Legumes or the occasional animal protein should come second



## Step 3: Whole Grains

Whole grains can compliment beans and legumes



## Step 1: Vegetables (raw or cooked)

These should make up the bulk of a meal

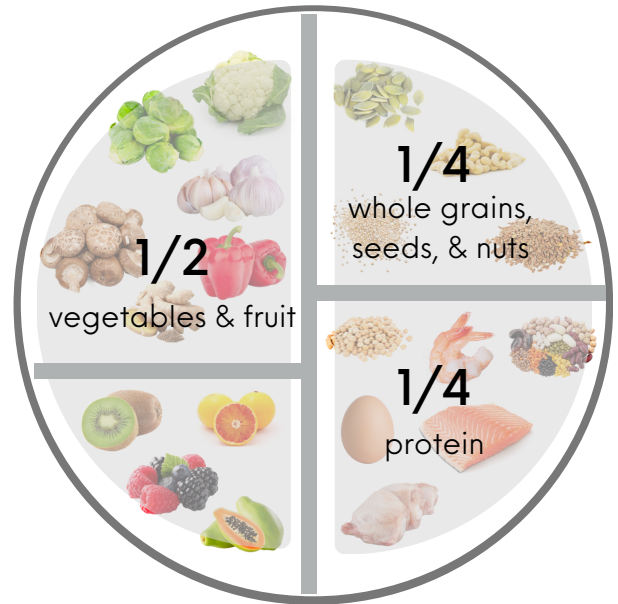


# Portion Size Guide

Sometimes it can be challenging to estimate proper portion size of the foods we consume. Use this handout for practical comparisons using everyday items as a reference. Remember these recommendations are a starting point, and not hard and fast rules for how much should be consumed at a meal.

## Tips for Building a Balanced Plate

- **1/2 plate:** **colorful fruits & vegetables.** These contain important phytonutrients and disease-fighting compounds.
- **1/4 plate:** **quality source of protein** (like fish, beans, or tofu) to keep you feeling satisfied for hours.
- **1/4 plate:** **whole grain, seeds, and nuts** for more fiber and B vitamins.



## Serving Size vs. Portion Size

**Serving size** is a standardized amount. In the case of a Nutrition Facts label, it represents the amount of a particular food that people typically consume. It can also be a recommendation.

**Portion size** is the amount of a food you choose to eat, which may be more or less than a serving.

## No measuring cups? No problem!



### Fish & Poultry

3 oz = palm of your hand  
1/4 c nuts = handful



### Grains

Oatmeal or rice = hockey puck



### Oils

1 oz = pair of dice



### Chocolate Square

1 oz = postage stamp



### Nut & Seed Butters

1 tablespoon = tip of thumb



### Fruits & Vegetables

apple or orange = baseball

## FRUITS & VEGETABLES

- 1 medium fruit = baseball
- 1 cup strawberries = about 12
- 1 cup of greens = baseball
- 1 cup carrots = 12 baby carrots
- 1 cup cooked vegetables = baseball

## PROTEINS

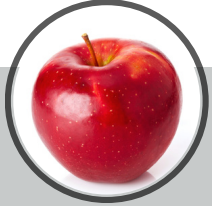
- 3 oz tofu = deck of cards
- 3 oz meat/fish = palm of hand
- 1/2 cup beans = clenched fist
- 2 tbsp nut butter = golf ball
- 2 tbsp hummus = golf ball

## WHOLE GRAINS AND NUTS

- 1/2 cup GF oatmeal
- 1/2 cup cooked quinoa
- 1 small tortilla = DVD size
- 1 oz shelled pistachios = 49
- 1 oz pepitas = 85
- 1 oz walnuts = 7 whole
- 1 oz almonds = 23 whole

# Power Snacks: How to Build a Healthy Snack

## carbs



asparagus  
broccoli  
carrots  
cauliflower  
celery  
cucumber  
edamame  
green beans  
peppers  
radishes  
snap peas  
berries  
apple  
GF cracker  
GF oatmeal

+

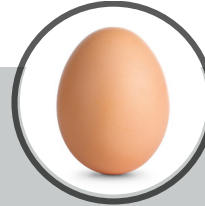
## fats



avocado  
hemp seeds  
flax meal  
pumpkin seeds  
high-quality oils  
coconut milk  
raw nut butters  
guacamole  
hummus  
walnuts  
brazil nuts  
almonds  
pecans  
macadamias  
hazelnuts  
sunflower seeds  
pistachios

+

## proteins



organic protein powders  
organic protein bar  
black beans  
lentils  
chickpeas  
pinto beans  
white beans  
free-range hard boiled eggs  
cooked quinoa

## putting it together

Be creative with your combinations!

Raw or roasted low GI-vegetables + dips:

- cucumbers + hummus
- roasted cauliflower + salsa
- carrots + raw nut butter
- peppers + guacamole

Raw fruits or vegetables + nut or seed butter: + topping:

- GF cracker + avocado + pumpkin seeds
- celery + almond butter + sunflower seeds

Smoothies [1/3 fruit + 2/3 vegetable protein powder and unsweetened non-dairy milk]

Hard boiled egg + cracker + mashed avocado

Cooked quinoa + berries + coconut cream

# Kitchen Essentials

## REFRIGERATOR

### Vegetables

#### Boxed or bagged greens:

Arugula  
Kale  
Shredded cabbage  
Spinach  
Spring mix

#### Loose greens:

Collards  
Chard  
Escarole  
Iceberg  
Kale  
Romaine

Broccoli  
Carrots  
Cauliflower  
Cabbage  
Cucumbers  
Eggplant  
Green beans  
Peppers  
Zucchini

### Fruits

Apples  
Oranges  
Pears  
Strawberries  
Blueberries  
Blackberries  
Raspberries

### Condiments

Capers  
Hot sauce  
Mustard  
Pickles  
Tamari sauce  
Olives

### Dairy / Eggs

Organic eggs  
Unsweetened nut, oat,  
or coconut milk

## FREEZER

### Vegetables

Broccoli  
Butternut  
squash  
Cauliflower  
Edamame  
Green beans  
Kale  
Onion, chopped  
Peas  
Spinach  
Vegetable  
medley

### Fruits

Avocado  
Berries  
Cherries

### Other

Basil cubes [other  
herbs]  
Wild Rice  
Garlic cubes  
Ginger cubes  
Quinoa

### Animal Proteins

Wild-caught fish      Organic Chicken  
Organic Turkey

## DRY STORAGE

Avocado [until  
ripe]      Garlic  
Citrus      Shallots  
Onions      Sweet potatoes  
Winter squash

### Prepared Foods\*

Cauliflower pizza crust  
Bean/grain blends  
Vegetable burgers



# Pantry Essentials

## BEANS

Chickpeas  
Black  
Cannellini  
Kidney  
Navy  
Pinto  
Butter  
Lentils  
[green,  
black, red]

## WHOLE GRAINS

Wild rice  
Quinoa [seed  
eaten as grain]  
Oats (gluten-free)  
Wild rice  
Buckwheat  
Amaranth  
Teff  
Sorghum

## LIQUIDS

### Milks

Almond  
Rice  
Oat  
Coconut  
Hemp

### Vinegars

Red wine  
Balsamic  
Apple cider  
Rice

### Broths

Vegetable  
Chicken  
Mushroom

### Oils

Olive  
Coconut  
Avocado  
Grape seed  
Sesame  
Oil spray

## FLOURS/DRIED

Oat  
Almond  
Cassava  
Coconut  
Baking powder  
Baking soda

## SPICES/HERBS

Salt/pepper  
Cinnamon  
Vanilla  
Ginger  
Garlic  
Onion  
Oregano  
Curry  
Cumin  
Cayenne  
Turmeric  
Chili flakes  
Basil

## NUTS/SEEDS

### Loose [raw, unsalted]

Walnuts  
Almonds  
Cashews  
Pistachios  
Brazil nuts  
Macademia nuts  
Pecans  
Chia seeds  
Hemp seeds  
Ground flax  
Sunflower seeds  
Pumpkin seeds

### Butters

Almond  
Cashew  
Tahini  
Sunflower  
Seed

## PREPARED

Gluten-free crackers  
Low-Sugar protein bar  
80% or > Dark Chocolate





# Simple Swaps for Baking & Cooking

Need this?

Sub this  
1:1 unless noted

**Egg**

**Flax "Egg" or Chia "Egg"**  
(1 Tbs ground flax or chia + 3 Tbs water)

**Cheese**

**Nutritional Yeast**

**Milk**

Alt Milks: Almond, Oat, Coconut

**Vegetable Oil**  
(in baked goods)

**Mashed Banana, Applesauce, Coconut Oil, Olive Oil**

**Sour Cream**

**Coconut Yogurt**

**White Wine**

**Vegetable Broth**

**Vinegar**

Citrus (lemon or lime juice)

**Buttermilk**

**Unsweetened Nut Milk + Vinegar**  
(1 Tbs vinegar + milk to 1 cup mark)

**Honey**

**Liquid Allulose**

**Mayonnaise**

**Mashed Avocado or Coconut Milk Yogurt**  
(creamy salads, sandwich spread)

**Corn Starch**

Tapioca Starch, Arrowroot Starch

**Breadcrumbs**

Flax Meal, Oats, Almond Meal

# Food-Related Toxins to Avoid

## BPA



- BPA (bisphenol A) is an endocrine-disrupting chemical.
- Use stainless steel, glass, or aluminum for water bottles and food storage.
  - Use alternatives to plastic wrap.
  - Choose BPA-free canned goods.
  - Brew coffee in a glass French press instead of a percolator.
  - Keep plastic out of the dishwasher, freezer, and microwave.

## Pesticides

Repeated exposure to pesticides may contribute to cancer growth or reoccurrence

- Choose organic produce when possible.
- Remove some pesticides by washing produce under running water.



## Food Dyes



Regular intake of foods with dyes have been linked to many health problems.

- Look for foods with natural dyes like fruit and vegetable extracts.
- Avoid ultra processed foods.
- Emphasize balanced choices.

## Heavy Metals

Even at low levels of exposure, heavy metals are associated with cancer.

- Avoid fish with the highest mercury levels such as swordfish, bigeye tuna, shark, marlin, orange roughy, and King mackerel.
- Reduce the amount of arsenic in rice by rinsing dry rice multiple times and cooking in a large water:rice ratio.



# Food-Related Toxins to Avoid

## Aflatoxins



Aflatoxins are a byproduct of mold found in crops such as peanuts, corn, and are linked with many types of cancer.

- Avoid consuming peanuts or peanut products
- Avoid corn
- Soak legumes and nuts to help eliminate any residual mold

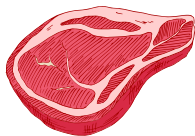
## Ochratoxin

A common mycotoxin found in many processed grain products, cereals, and other foods.

- Avoid buying grains, legumes, or cereals in bulk
- Store dry goods in a cool, dry area away from humidity
- Pay attention to expiration dates on dry goods



## PAHS



Polycyclic aromatic hydrocarbons are produced from burning carbon materials, such as coals or gas in grills. These can be absorbed into cooking food through smoke.

- Avoid cooking meats at high temperatures on a grill
- Avoid red meat
- Avoid charred or grilled food items

## **What kind of sweeteners can I use?**

Stevia and monkfruit are both sugar-alternatives that come naturally from plants. You can swap them in for sugar in coffee, tea, or recipes. Neither has an effect on insulin.

## **Can I have bread?**

Most breads are highly refined, so even if they are 'gluten-free', they are probably missing a lot of key nutrients. If you are struggling to consume enough calories, a gluten-free sprouted bread may be acceptable on occasion (1-2x per week maximum)

## **What about sourdough?**

While sourdough bread does have some more health benefits than traditional breads, real sourdough bread from organic ingredients is very rare. You will not find a 'true' sourdough bread at a grocery store.

## **Why do I have to be gluten free? I don't have a problem with gluten.**

Research has shown that even if an individual does not have an intolerance or allergy to gluten, it can still have negative effects on health. Gluten causes the lining of the intestines to become more permeable, allowing larger particles of food to pass into the bloodstream. This can lead to immune disruption and inflammation.

## **What do I eat for breakfast?**

Check out my blog or recipe packets for simple, make ahead recipes.

## **I don't have the time or energy to cook, where can I find healthy options?**

Services such as Daily Harvest provide healthful, organic, plant based meals that can be delivered directly to your home.

## **Do I need to track my calories?**

That depends! If you need to lose weight, you will most likely see progress without the need to track your calories just by switching to a whole-foods diet. If cataxia is a concern for you and you worry you are not eating enough, calorie tracking may be a beneficial tool. In the long term, it is not a sustainable method so it should only be used to educate you and to learn proper portion sizes!

## **Can I have salt?**

Absolutely! Sodium is a vital electrolyte. Natural sea salt is best. If you have an issue with fluid retention, high blood pressure, or edema, check with your provider to see if you need to limit your intake

## **What are some good low-glycemic snacks?**

Vegetables, olives, nuts/seeds, avocado, and hummus are all great options. You can find more snack recipes on the Brio Medical website and social media pages!