

Macronutrients: Why We Need a Balanced Diet

Heather Norman-Burgdolf, Dietetics and Human Nutrition, and Emily DeWitt, Family and Consumer Sciences



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Have you ever heard people say they are counting their “macros”? Has someone told you to eliminate or prioritize a specific macronutrient for health benefits? Macronutrients are the main parts of food that give our bodies energy, and they are needed in large amounts in our diets. When we eat, our bodies can break macronutrients down into a useable form of energy for our cells.

Despite popular belief, we need all three macronutrients—carbohydrates, proteins, and fats—for our bodies to function properly. There is a reason why the Dietary Guidelines for Americans encourages a diet that includes foods with all three macronutrients. Each macronutrient plays a unique role in a balanced, nutritious diet.

This publication will explain each type of macronutrient, including why each is important and how each contributes to a balanced diet.

Carbohydrates Are Fuel for Life

Carbohydrates are one of three macronutrients we get from the foods we eat. They are our bodies’ preferred source of energy and give us many essential vitamins and minerals. There are three different types of carbohydrates, or “carbs,” that can be part of a balanced diet: sugars, starches, and fiber.

- Sugars are rapidly digested and absorbed in our bodies, offering a quick boost of energy. We find them naturally in foods like fruit and dairy products. Added sugars are found in many foods that have been prepared or processed, including breads, desserts, cereals, ketchup, pasta sauce, salad dressings, candy bars, and soda, to name a few. Foods with added sugar provide quick

energy but lack nutrients, providing “empty calories.” Strive to prioritize natural sources of sugar and limit sources of added sugar.

- Starches are digested over a longer time, offering a slow release of energy for our bodies. Starchy foods are often high in fiber, too. We find starches in foods like oats, beans, and rice, but also in starchy vegetables such as potatoes, peas, and corn. We also find them in refined grains like pastries, white bread, and crackers, though these sources often lack B vitamins and other important nutrients. Aim to prioritize starchy vegetables and whole grains and limit refined grains.
- Fiber is an indigestible carbohydrate found in many fruits and vegetables (particularly the skins), whole grains, nuts, and beans. Foods containing fiber can help us feel full for longer periods and offer many health benefits over time. There are two main types of fiber: soluble and insoluble. Soluble fiber can help lower cholesterol and blood sugar levels, while insoluble fiber promotes digestion and regularity.

Our bodies need all three sources of carbohydrates to function at their best. When we eat these carbohydrate sources, sugars and starches are broken down into simple sugars, mainly in the form of glucose. The glucose is then absorbed into the bloodstream, where it is known as blood sugar, and it enters our bodies’ cells with the help of insulin. Our bodies then use the glucose for energy within our cells. Any extra glucose is stored in the liver or muscles for later use, or it can be stored as fat.

Sugars	
Fruit	Apples, bananas, berries, oranges, watermelon, melons, mangoes
Dairy	Milk, yogurt, kefir, cheese

Starches	
Grains	Oats, quinoa, rice, barley, farro, bulgur, millet, whole-wheat foods
Vegetables	Corn, green peas, white potatoes, sweet potatoes, lima beans
Other	Beans, lentils, tortillas

Fiber	
Soluble	Beans, oats, Brussels sprouts, oranges, nuts, seeds, apples, bananas
Insoluble	Peppers, cucumbers, potatoes, carrots, whole grains, pears

Table 1. Examples of dietary carbohydrate sources.

The Dietary Guidelines for Americans recommends that carbohydrates comprise 45 to 65 percent of daily calories for healthy adults. Table 1 provides examples of sources of carbohydrates to prioritize in our diets. This is not a complete list but offers ideas for consideration. Many sources overlap and provide multiple vitamins and minerals. Aim to include a mixture of all three sources in your diet. Some conditions, like diabetes or heart disease, may require personalized modifications. These foods can still be part of a balanced diet, but you may need to change intake of certain carbohydrate foods to manage health conditions.

Carbohydrates often get a bad rap, but they are essential to our well-being. Prioritize nutrient-rich carbohydrates from whole foods like fruits, vegetables, whole grains, and dairy products to reap the benefits.

Power Up with Protein

Protein is another macronutrient that supplies us with the calories we need for energy. Proteins are vital for daily function. Experts refer to them as the building blocks for our bodies because every cell in our bodies contains protein. Protein also helps our bodies when we are sick or injured, supporting tissue repair, blood clotting, and immune response.

Proteins consist of smaller units called amino acids that connect to each other and perform various roles in the body, offering support for our muscles, tendons, skin, and hormones. Twenty amino acids connect to make every protein in our bodies. Think of these single amino acids as tiny pearls, strung together to create a full necklace. Our bodies produce some amino acids naturally, while others must come from our diets.

- **Essential amino acids** cannot be produced by our bodies and must come from food sources.
- **Nonessential amino acids** are those our bodies make from essential amino acids or in the breakdown of proteins.

We need both essential and nonessential amino acids, as each plays a different role. Of the 20 amino acids in our bodies, nine are essential amino acids that we must consume in our diets, whether from plant-based or animal-based sources.

- **Complete proteins** contain all essential amino acids needed. Animal-based proteins, which include meats, poultry, dairy products, fish, and eggs, are complete. Some plant-based sources of protein are also complete. These include soy products such as tofu or edamame, quinoa, and chia seeds.
- **Incomplete proteins** are missing one or more essential amino acids. Most plant-based proteins are incomplete. This means we need a variety of plant-based sources to consume all essential amino acids. These can include beans, nuts, legumes, and seeds.

We do not store protein in our bodies like we do carbohydrates or fat, and therefore we need to consume protein every day to nourish our bodies well. A mix of both animal- and plant-based sources can help us reach protein goals. However, we do not need animal-based proteins so long as we include a variety of plant-based sources.

Most Americans think that their bodies require more protein than they do. The Dietary Guidelines for Americans recommends healthy adults consume 10 to 35 percent of daily calories from protein sources. Some conditions, like kidney disease or pregnancy, may require personalized modifications to protein intakes.

Choosing a variety of protein sources will help us to get the nutrients we need every day. Consume a mix of plant- and animal-based protein sources to enjoy the benefits offered.

Facts about Fat

Fats are the third macronutrient source we obtain from foods we eat. Fats allow our bodies to absorb and transport vitamins, specifically vitamins A, D, E, and K. We need fats for growth and development, blood clotting, nervous system function, and healthy skin. Fat also functions as insulation to regulate our body temperature and protect our organs. When our bodies have more than we need, we store excess fat for an alternative energy source when carbohydrates are not available.

We find fats in foods from both plants and animals, yet not all fats are created equal. Prioritizing certain types of fats in our diets while consuming others in moderation can help to ensure our bodies get what they need.

- **Unsaturated** fats are those that dietary guidelines recommend we prioritize in our diets. We find these in plant-based oils that are liquid at room temperature, such as olive oil or canola oil. They can also be found in other plant-based sources, including nuts and avocados, and in fatty fish such as salmon. These fats can be beneficial for our heart health and help lower LDL cholesterol, which when high is a risk factor for heart disease.
- **Saturated** fats are recommended to be consumed in limited amounts. These are present in fatty meats, and they are often in products derived from animal sources that are solid at room temperature, such as butter or lard. You also can find them in some plant-based sources like coconut oil, or in processed foods that contain any of these items. These fats can be harmful to our health if consumed in excess and can raise our LDL cholesterol levels, placing us at greater risk of heart disease or other health problems.

Our bodies cannot make some unsaturated fats, so we must get them from our food. We call these omega-3s. Other unsaturated fats, omega-6s, can be partially made in our bodies and absorbed from our foods. Table 2 lists examples of omega-3s and omega-6s. Together, these fats may support heart and brain health. When possible, strive to choose foods with unsaturated fats to reap all nutritional benefits.

The Dietary Guidelines for Americans generally recommends we consume 20 to 35 percent of daily calories from fat sources, with less than 10 percent being from saturated fats. Some conditions, like heart disease or high cholesterol, may require personalized modifications for fat intakes.

Fat is part of a balanced, nutritious diet. Including the right types of fats in our diets can help us enjoy our food and keep us satisfied. Aim to incorporate unsaturated fat sources most often and limit saturated fats in the diet to enjoy the positive health benefits of this macronutrient.

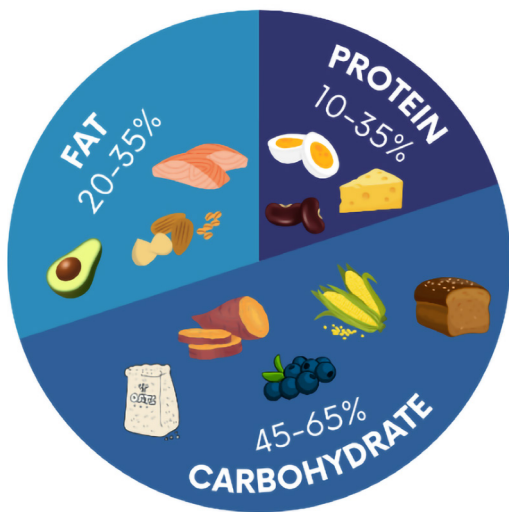


Figure 1. General recommendations for macronutrient caloric intake.

Omega-3s		Sources
ALA	Alpha-linolenic acid	Flaxseed, chia seeds, walnuts, soybean and canola oils
EPA	Eicosapentaenoic acid	Salmon, sardines, fish oils
DHA	Docosahexaenoic acid	Salmon, sardines, trout

Omega-6s		Sources
LA	Linoleic acid	Sunflower seeds, pumpkin seeds, soybean oil, corn oil, pine nuts, pecans
AA	Arachidonic acid	Meat, poultry, eggs

Table 2. Common names and dietary sources of omegas.

Why We Need a Balanced Diet

Each macronutrient plays an important role in the body. Without the balance of these macronutrients from various dietary sources, our bodies lack the building blocks necessary for optimal function. Together, carbohydrates, protein, and fat ensure that our bodies have the energy necessary to function at their best.

Although the Dietary Guidelines for Americans provides general recommendations, the amount of each macronutrient we need may vary from person to person and may be dependent on existing health conditions. Figure 1 depicts general recommendations of daily calorie sources for healthy adults: 45 to 65 percent from carbohydrates, 20 to 35 percent from fats, and 10 to 35 percent from proteins. It also provides examples of foods for each macronutrient. Consult with a registered dietitian nutritionist (RD/RDN) or your primary care provider to know what balance of macronutrients will work best for you.

This information is offered to help you make nutritious food choices that include all three macronutrients. This ensures your body receives the energy it needs to function every day. In sum, limit added sugars, vary protein sources from plants and animals, and limit saturated fats. Prioritize a variety of nutrient-rich fruits and vegetables, whole grains, lean proteins, and unsaturated fats, and you will meet the recommendations for all three macronutrients.

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