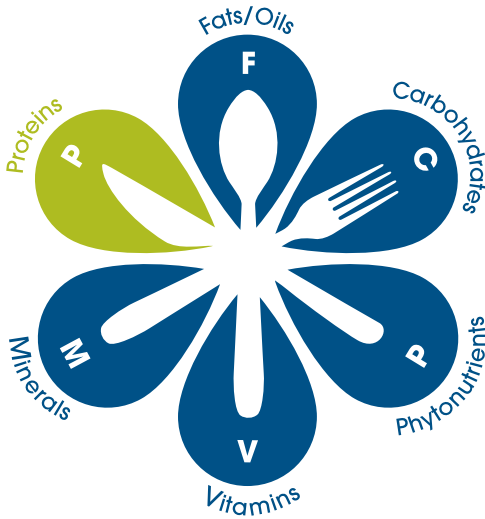




Macronutrients: Proteins



Macronutrients are a class of chemical compounds that provide humans with energy and essential nutrients. They are required by the body in relatively large amounts on a daily basis and make up the bulk of the diet. Proteins, fats, and carbohydrates are the main types of macronutrients that provide the body with energy.

Proteins are found in every living thing on earth. In the human body, protein is an essential component of muscles, skin, hair, and bones, and is found in nearly every other tissue and body part. Protein is essential for proper muscle development and function, bone health, connective tissue strength, tissue repair and growth, blood oxygenation, and basic cell activity.

All proteins are made up of amino acids, which are considered to be the building blocks of life. Our RNA, DNA, neurotransmitters, hormones, and most of our muscles are made almost entirely from amino acids. Our bodies do not store protein, nor do they make all of the amino acids needed for the body to function properly. This means that we must take in protein from our food on a daily basis. Thankfully, protein is found in many different foods.

Sources of Protein

Animal proteins	Proteins from animal sources are considered to be “complete” proteins, because they contain all of the amino acids your body needs to get from food (known collectively as essential amino acids). Animal proteins include meat, poultry, eggs, fish, and shellfish.
Plant proteins	Most plant proteins are considered to be “incomplete”, because they do not contain all of the essential amino acids. High-protein vegetables include dark leafy greens (collard greens, spinach, mustard greens, etc.), asparagus, Bok choy, broccoli, Brussels sprouts, and cauliflower. Foods like tofu, tempeh, and spirulina are also plant proteins.
Protein powders	Protein powders are usually added to smoothies and other blended foods for an extra protein boost. They can be an inexpensive and convenient addition to a balanced diet, especially for athletes, the elderly, or people with digestive issues. Protein powders are made from either animal protein (whey, casein, beef, or eggs) or plant protein (soy, rice, pea, hemp, or sprouted grains).
Beans and legumes	Beans and legumes are good sources of both protein and carbohydrates. They also contain other vitamins and minerals like folate (vitamin B9), potassium, iron, and magnesium.
Dairy products	Dairy products like milk and yogurt are good sources of both protein and carbohydrates. Cheese is also a good protein source, but is low in carbohydrates. Note that not everyone can digest dairy properly, and dairy is not necessary to include in a balanced diet. For those who choose to consume dairy, full-fat and organic sources are preferred.
Nuts and seeds	Nuts and seeds are sources of both protein and fat. They also contain many other vitamins and minerals like magnesium, zinc, selenium, and copper.

Recommendations for Protein Intake

In the United States, the recommended dietary allowance of protein is 46 grams per day for women and 56 grams per day for men. These figures apply to healthy adults over the age of 19, and are a measure of the level of protein needed to meet daily nutritional requirements. Other research suggests that adults should get a minimum of 8 grams of protein for every 20 pounds of body weight.

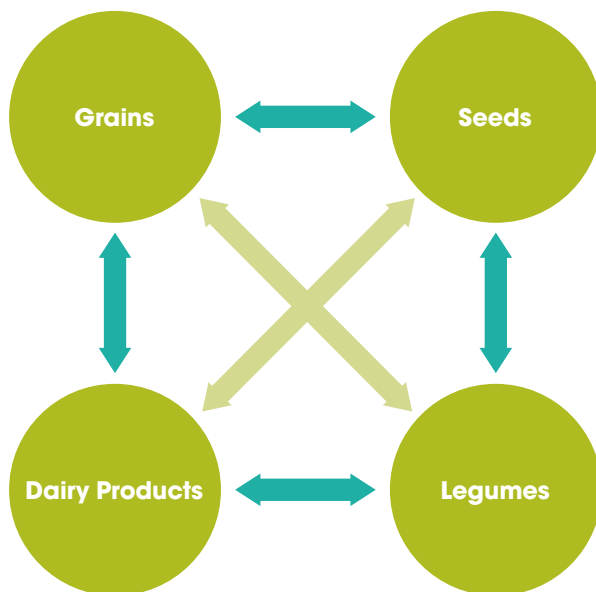
The National Academy of Sciences recommends that protein should account for about 10% to 35% of calories per day. Note that extra protein is required for pregnant or nursing women, athletes, active individuals, the elderly, and those suffering from or recovering from an illness. IFM recommends that protein should account for 20% to 30% of daily calories for most individuals, including those with specific health concerns requiring advanced therapeutic dietary interventions.

If you're unsure about how much protein you should be eating, ask your Functional Medicine healthcare practitioner. You may need extra protein to help build or repair tissues temporarily, but remember that excess protein you consume is not stored in the body. Consuming too much protein on a regular basis can put a strain on your kidneys, which can lead to serious health conditions.

Incorporating Protein into a Balanced Diet

Eating protein from a variety of sources is an important part of a balanced diet. Variety is especially important for vegans and vegetarians, because plant proteins don't contain all of the essential amino acids needed by the body.

Regardless of your dietary preferences, a good way to help balance your diet is by eating foods that complement one another. For example, beans (a legume) and rice (a grain) are both incomplete proteins on their own. But when eaten together, they form a complete protein, because they contain different and complementary amino acids.



References

- Protein. The Nutrition Source. <https://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/protein/>. Published August 9, 2016. Accessed March 1, 2017.
- The Protein Myth. Physicians Committee for Responsible Medicine. <http://www.pcrm.org/health/diets/vsk/vegetarian-starter-kit-protein>. Published November 15, 2016. Accessed January 12, 2017.
- Sienkiewicz Sizer F, Whitney E. Nutrition Concepts & Controversies. 12th ed. Belmont, CA: Wadsworth Cengage Learning; 2011.

