

Cooking with Plant-Based Protein

Commissioned by the National Resource Center on Nutrition & Aging; Written by: Amy Myrdal-Miller, MS, RDN, FAND

Plant-based protein is a hot topic today.

Many people are looking for foods that provide as many nutrition benefits as possible while also being sustainably produced. Ingredients that provide plant-based protein also provide other nutrient benefits, including dietary fiber, iron, potassium, and other micronutrients. Beans and other pulses, as described below, are great sources of protein, fiber, iron, and potassium. Additionally, many plant-based protein sources contain little or no saturated fat, and in their raw form contain very little sodium.

Plant-based protein ingredients can support both your organization and the seniors you serve.

Using such ingredients often is very cost effective. If you compare the price of a pound of black beans, for example, with a pound of pork, the black beans will likely cost one-half to one-third per pound compared to the pork. In addition, plant-based protein ingredients can support healthy aging by being beneficial for bone health, bone strength, and retaining skeletal muscle – all of which can support greater physical function and independence. Senior nutrition program providers don't have to go to extremes with using plant-based protein; combining plant-based protein ingredients with animal protein offers the best of both worlds. This is an important step because most food sources rich in plant-based proteins offer incomplete proteins but if combined with other complete proteins (found in animal proteins), the whole dish becomes a nutritionally complete meal.

PROTEIN 101

What is a protein?

Proteins are comprised of hundreds or thousands of smaller units, called amino acids. There are two kinds of amino acids:

- Essential amino acids (not made by the body but required for normal body functioning).
- Non-essential amino acids (able to be made by the body or leveraged from the normal breakdown of protein in the body).

Are proteins all the same?

Proteins differ depending on if they are from animal or plant-based foods. There are generally three kinds of protein:

- Incomplete proteins do not contain or do not have enough of the essential amino acids to be a complete protein. Most plant foods (such as beans, peas, grains, nuts, vegetables, fruits) are incomplete protein sources.
- Complete proteins contain appropriate levels of essential amino acids. Animal foods (such as meat, poultry, and seafood) and soy, are complete proteins.
- Complementary proteins contain two or more incomplete proteins but when consumed together, compensate for each other's lack of essential amino acids (e.g., beans and rice, bread with peanut butter).



Whole Food Sources of Plant-Based Protein

For senior nutrition program clients requesting more plant-based sources of protein, there are many ingredient options available. Some are whole food ingredients that contain significant amounts of protein while others are processed forms that mimic the flavors, textures, or forms of animal protein.

PULSES: Beans, Dried Peas, Lentils, and Chickpeas

Pulses are the edible seeds of legumes, including beans, dried peas, lentils, and chickpeas. The word “pulse” comes from the Latin word *puls* meaning “thick soup”. Pulses contain significant amounts of not only protein but also fiber, folate, potassium, and iron. A half-cup serving of cooked pulses contains more protein than a large egg (6 grams).

PULSE	AMOUNT	PROTEIN
Black Beans	½ cup cooked	8 grams
Black Eyed Peas	½ cup cooked	7 grams
Chickpeas (a.k.a. Garbanzo Beans)	½ cup cooked	7 grams
Kidney Beans	½ cup cooked	8 grams
Lentils	½ cup cooked	9 grams
Pinto Beans	½ cup cooked	8 grams
Split Peas (Green or Yellow)	½ cup cooked	8 grams

Check out these websites for more information and recipes:

- ★ The USA Pulses site, www.usapulses.org, has a section for School Meals, which includes large volume recipes.
- ★ The Bean Institute site, beaninstitute.com, has a wonderful recipe search feature. You can search by “Chef Creations” to access recipes created by chefs at The Culinary Institute of America.

LEGUMES: Peanuts and Soybeans

The distinction between pulses and legumes can be confusing. All pulses are legumes, but not all legumes are pulses. But the definitions don’t really matter. What matters is that they all provide significant amounts of plant-based protein. Legumes like peanuts come in many different forms that can be used as ingredients in a number of recipes.

LEGUME	AMOUNT	PROTEIN
Edamame	½ cup shelled, cooked	9 grams
Peanuts	¼ cup roasted in oil	8 grams
Peanut Butter	2 tablespoons	8 grams
Peanut Flour (defatted)	1 oz. (~ ¼ cup)	15 grams

The National Peanut Board website, www.nationalpeanutboard.org, has a recipe section that shows how to use peanut ingredients in a wide variety of ways.

DARK LEAFY GREEN	AMOUNT	PROTEIN
Broccoli, frozen, chopped	1 cup	4 grams
Collard greens, frozen, chopped	1 cup	8 grams
Kale, frozen, chopped	1 cup	5 grams
Spinach, frozen, chopped	1 cup	8 grams

DARK LEAFY GREENS

The amount of protein in dark leafy green vegetables surprises many people. These nutrient-rich vegetables can be added to soups, sauces, curries, pasta dishes, and more to add plant-based protein.

PROCESSED SOURCES OF PLANT-BASED PROTEIN

PLANT-BASED BEVERAGES

There are more and more plant-based dairy alternatives appearing in the marketplace each month. These products can be used in place of dairy milk for clients who make that choice, but these products don't necessarily match the nutrients in cow's milk. A one-cup portion of cow's milk contains 8-10 grams of protein. Here's how some of the most popular plant-based beverages compare to one another when it comes to protein content:

PLANT-BASED BEVERAGE	AMOUNT	PROTEIN
Almond Milk, plain, unsweetened	1 cup	1 gram
Oat Milk, plain, unsweetened	1 cup	3 grams
Soymilk, plain, unsweetened	1 cup	6 grams

The Produce for Better Health Foundation recently launched their "Have A Plant" campaign to promote increased consumption of fruits and vegetables.

Their website, fruitsandveggies.org, is a wonderful source for plant-based recipes, including budget-friendly recipes that may provide some inspiration for your senior dining program.

MEAT ALTERNATIVES

Like dairy alternatives, there is an increasing number of meat alternatives available in retail and foodservice. The top two brands, one product based on pea proteins and another based on soy-proteins, have both released alternatives that mimic beef and pork. Here's information on the protein content of these products, but many other products are becoming available throughout the country:

MEAT ALTERNATIVE	AMOUNT	PROTEIN
Soy-based Burger	1 oz.	5 grams
Soy-based Pork	1 oz.	4 grams
Soy-based Sausage	1 oz.	3.5 grams
Pea-based Meat	1 oz.	5 grams
Pea-based Sausage	1 oz.	4.5 grams

Field-Tested Suggestions

1. Peanut butter can be used as a flavoring and thickening agent in vegetable-based curries. Note: Defatted peanut flour can be used in place of wheat-based flours in quick breads and flat breads.
2. Explore marketing strategies and narratives that favor clear positives ("fresh," "seasonal," "farm-to-table," "global flavors," etc.) over menu language that could be perceived as a mix of negatives and positives ("meatless" or "healthy" or "reduced calorie").
3. Develop meat/vegetable (e.g., mushrooms) and meat/legume (e.g., chickpeas, beans) blends to replace or complement menu favorites.
4. Explore plant-based culinary traditions and techniques used in regional American cooking, the Mediterranean, Asia, Latin America, and other locations around the world that feature plant-based proteins and no or small amounts of animal protein.

References & Sources of More Information

- National Peanut Board website. Available at: www.nationalpeanutboard.org.
- Culinary Institute of America and the Harvard T. Chan School of Public Health. Available at: www.menusofchange.org.
- Produce for Better Health Foundation. Available at: www.fruitsandveggies.org.