

"Plant-based" is a broad term that includes any diet that is rich in plant foods. Some, like the traditional Mediterranean Diet, include modest amounts of animal foods, especially dairy foods and fish. This guide focuses on vegetarian diets which are plant-based diets that eliminate all meat, fish, and poultry. Two types of vegetarian diets are most common:

Lacto-ovo Vegetarian Diet: Includes all plant foods as well as dairy products and eggs.

Vegan Diet: Includes only plant foods.

Adding plant foods to your diet can be a powerful way to reduce risk for certain chronic diseases. Studies show that people who eat plant-based diets, including vegetarians and vegans, often have lower blood pressure and are less likely to have diabetes. These diets may also reduce risk for heart disease and some types of cancer. People who eat more whole plant foods often have lower body weights.

Many factors in plant foods, including fiber and antioxidants, are responsible for protective effects. Plant foods are also low in saturated fat and do not contain cholesterol. This makes a diet based on these foods ideal for those at risk for heart disease. People may also choose plant-based diets for reasons related to climate change and animal welfare.



Vegetarian Food Guide

Food Group	Foods and Serving Sizes	Notes	
Legumes, Dairy, and Eggs 3 or more servings per day	½ cup cooked beans, tofu, tempeh, TVP 1 cup fortified soymilk, fortified pea protein milk or cow's milk ¼ cup peanuts or soy nuts 2 tablespoons peanut butter 3 ounces plant-based meat 1 cup cow's milk or fortified soy milk yogurt 1 ounce hard cheese 1 egg	Plant-based milks other than soymilk or pea protein milk are not included in this group since they are usually low in protein. Either cow's milk or fortified soy or pea protein milks contribute calcium.	
Grains and Starchy Foods 4 or more servings per day	½ cup cooked cereal, rice, quinoa, pasta or other grains I ounce dry cereal I slice bread I medium corn or flour tortilla ½ cup potatoes or sweet potatoes	When eating grains, choose whole grains most often.	
Fruits and Vegetables 8 or more servings per day	½ cup cooked vegetables 1 cup raw vegetables 1 piece of whole fruit ½ cup cut-up fruit ½ cup fruit or vegetable juice ¼ cup dried fruit	Choose vegetables more often than fruits and whole foods more often than juices. Certain leafy green vegetables - kale, bok choy, collard greens, and turnip greens - contribute calcium to diets.	
Nuts and Seeds 1 or more servings per day	¼ cup nuts, 2 tablespoons seeds, 2 tablespoons of nut or seed butter.	Include a daily source of the essential omega-3 fat ALA from either the Nuts and Seeds or Healthy Fats groups: 1 tablespoon ground flaxseed	
Healthy Fats Limit these foods if you desire a lower calorie intake	1 tsp oil, butter, margarine, mayonnaise	¼ cup chopped walnuts 1 teaspoon flaxseed oil 1 tablespoon canola or walnut oil.	
Optional Fortified milks made from nuts, flaxseeds, hemp seeds, rice, and oats.	1 cup	These foods can help you meet calcium needs.	
Other Essentials	25-100 micrograms of vitamin B12 600 IUs of vitamin D 150 milligrams of iodine or a pinch of iodized salt		

Eat at least 3 cups per day of a combination of these calcium-rich foods: fortified plant milks and yogurts, cow's milk, cow's milk yogurt, fortified juices, tofu, kale, bok choy, turnip greens, collard greens.



Planning Healthy Vegetarian Diets

Choosing a variety of plant foods (along with dairy and eggs for lacto-ovo vegetarians) from the Vegetarian Food Guide on page 00 will help you meet nutrient needs on your vegetarian diet. Some nutrients need extra attention, though, depending on the type of diet you choose. You can refer to our other education materials at vndpg.org for more information on these nutrients.

Protein

Protein is made of amino acids, which are building blocks for many body structures. All legumes, nuts, seeds, grains, and vegetables provide all essential amino acids. There is no need to combine foods to meet needs for amino acids. The best sources of protein for vegetarians are:

- · Soy foods (tofu, tempeh, soymilk, TVP, and edamame)
- · Plant-based meats
- · Peanuts and peanut butter
- · Milk and cheese
- Eggs.

Choose at least three servings of these foods every day. Older people and those on low calorie diets may need more protein and can aim for 4 to 5 daily servings of these foods. Higher protein diets can protect bone and muscle health in older people.

Vitamin B12

Vitamin B12 occurs naturally only in animal foods. All vegans need supplements or foods that are fortified with vitamin B12. Although dairy foods and eggs have B12, lacto-ovo vegetarians may also benefit from B12 supplements.

Some foods, such as seaweed, spirulina, and tempeh, contain B12 analogs. These compounds are similar to vitamin B12 but they are not

active vitamins. Eating these foods will not meet your needs for vitamin B12. Vitamin B12 deficiency causes anemia and may result in damage to the nervous system.

For all vegetarians, taking a supplement is the best way to make sure your vitamin B12 needs are met. Look for supplements of cyanocobalamin which is a form of B12 proven to protect health. Choose a supplement that provides 25 to 100 micrograms of vitamin B12. Although this amount is much higher than the RDA, it will ensure that you are absorbing enough of the vitamin.

Vitamin D

Vitamin D is needed for healthy bones, and it may also protect against chronic diseases. Very few foods are natural sources of vitamin D. Most people need fortified foods or supplements to meet needs.

Although we can make vitamin D when skin is exposed to sunlight, many people don't make enough. Sunscreen blocks synthesis of vitamin D. Older people and those with darker skin require more sun exposure to make vitamin D. Because of the uncertainty of vitamin D production from sunlight, it's a good idea to have a dietary source of this nutrient. This can be either a supplement or fortified foods. Fortified foods include many breakfast cereals, cow's milk and many plant milks.

The type of vitamin D used in breakfast cereals and cow's milk is vitamin D3 which usually comes from animals and is not vegan. Recently, though, a vegan form of vitamin D3 has become available as a supplement. Vegans can also take supplements of vitamin D2, which is derived from yeast and is always vegan. A daily supplement providing 600 to 1000 International Units of vitamin D is a wise choice.

lodine

lodine is a mineral needed to make thyroid hormones. Low iodine intake can disrupt the function of the thyroid gland and affect metabolism. In pregnancy, lack of iodine affects brain development in the baby.

Plant foods contain iodine but the amount depends on how much is in the soil where the foods are grown. Dairy foods contain iodine because it is used in cleaning products on dairy farms and is often added to the cows' feed. Some brands of plant milks are fortified with iodine, but most are not.

The amount of iodine in seaweed varies. In some cases, it may be too low to meet needs. In others it is high enough to cause iodine toxicity if these foods are consumed often. While it is okay to include seaweed in your diet, it's a good idea to limit this food to a few servings per week.

The best ways for vegans to meet iodine needs are to take an iodine supplement or to use a small amount of iodized salt. One-quarter teaspoon of iodized salt provides about half of the daily need for iodine. Since you are likely to get small amounts of iodine from other foods this may be enough for most people. Keep in mind that the salt added by the food industry to processed foods is rarely iodized.

lodine is also available from supplements. Look for pills that contain potassium iodide. The RDA for iodine for adults is 150 micrograms per day. Although lacto-ovo vegetarians may get enough iodine from dairy foods, a supplement or a small amount of iodized salt may be helpful for them, too.

Calcium

Both dairy foods and plant foods provide calcium. Good sources of calcium include:

- Leafy green vegetables such as kale, bok choy, mustard greens, turnip greens, and collard greens
- Fortified plant milks
- Oranges
- Blackstrap molasses
- Tofu when calcium sulfate is used to coagulate or "set" the tofu.

Some foods, such as spinach, beet greens, and Swiss chard, have calcium but also contain compounds that prevent calcium absorption.

To meet calcium needs, aim to consume 3 cups per day of any combination of these foods: fortified plant milks and plant yogurt, cow's milk, cow's milk yogurt, kale, turnip greens, mustard greens, bok choy, collard greens, tofu made with calcium sulfate, and fortified fruit juice.





Iron

The best plant sources of iron are:

- Whole and enriched grains
- Leafy green vegetables
- Beans
- · Dried fruit

- Nuts
 - · Seeds
 - · Blackstrap molasses
 - · Fortified cereals

Although plant foods are rich in iron, they are sometimes high in phytates. These compounds inhibit iron absorption. Vitamin C can counter the effects of phytates and make iron more available to the body. Good sources of vitamin C include:

- Oranges
- Grapefruit
- Strawberries
- Kale
- Spinach

- Swiss chard
- · Brussels sprouts
- Peppers
- Broccoli
- Cauliflower

Meals that pair vitamin C and iron-rich foods include stir-fried tofu with broccoli and peppers, oatmeal topped with sliced strawberries, and bean soup with spinach.

Tea and coffee contain compounds that reduce iron absorption so you should consume these drinks between meals rather than with meals. Lacto-ovo vegetarians may need to give extra attention to iron because dairy foods contain very little of this nutrient. A high intake of dairy foods can displace iron-rich plant foods.

Some people need iron supplements to meet needs. Talk to your doctor



before taking these supplements since too much iron may raise risk for chronic diseases.

Zinc

Zinc is a mineral needed for a healthy immune system and normal growth. Good sources of zinc are:

- Dairy products
- Whole oats
- · Wheat germ
- · Quinoa
- Beans

- Tofu
- Tempeh
- Nuts
- Seeds

Like iron, zinc in plant foods is bound to phytates which reduce its absorption. Vitamin C doesn't affect zinc absorption, but you can make zinc more available by soaking and sprouting beans, grains, and seeds or by toasting nuts. Zinc is more available from yeast and sourdough breads than from flat breads and crackers. Fermented foods like tempeh are also a good source of well-absorbed zinc.

Omega-3 Fats

An omega-3 fatty acid called alpha-linolenic acid (ALA) is a nutrient found in only a few plant foods. The best sources are:

- Walnuts
- Ground flaxseeds
- Hemp seeds

- · Chia seeds
- Flax, hempseed, walnut, and soy oils.

Vegetarians and vegans should include at least one of these foods in their diet every day.



Two other omega-3 fats, DHA and EPA, are not essential nutrients, but they may help protect heart, brain, and eye health. They are found in certain fish and in fish oil supplements. We can make DHA and EPA from the essential fat ALA but many factors affect how much a person will make. Some foods, including eggs, yogurt, juice, and soy milk may be fortified with DHA and EPA.

It is not known whether a lack of DHA and EPA in the diets of people who do not eat fish, including vegetarians and vegans, impacts health. But vegetarian supplements of these fats, derived from microalgae, are available. A supplement providing 200 to 300 milligrams of DHA every two or three days can be a good choice. Some of this DHA will convert to EPA. Increasing intake of ALA by eating more foods like walnuts, flaxseed, and chia seeds, may also help the body produce more DHA and EPA.

Choline

Choline is a part of every cell in your body and is also needed for brain function. Although we make some choline in our body, it's important to include choline-rich foods in your diet. Eggs are a good source for lacto-ovo vegetarians. The best plant sources of choline are:

- Tofu
- Soynuts
- Soymilk
- Beans
- Quinoa
- · Peanuts and peanut butter
- Asparagus
- Spinach
- Vegetables in the cabbage family such as brussels sprouts. Vegetarians
 who don't consume eggs should emphasize several of these good choline
 sources in their diet every day.

Eating Plant-based on a Budget

Rely on staples instead of "superfoods"

One of the biggest misconceptions about plant-based eating is that you need to shop at specialty grocery stores or buy trendy (and expensive!) ingredients. In reality, a healthy plant-based plate is built from budget-friendly staple foods like beans, brown rice, oats, and in-season fruits and vegetables. Keep your grocery budget in check by relying on these staple foods instead of buying specialty foods.

Buy in bulk

Buy foods in the biggest package available or find a grocery store or online retailer that sells items like grains and nuts in bulk. These larger quantities typically come with a discounted price. Store dried beans and grains in airtight containers, and store nuts in airtight containers in the freezer to keep them fresh. Not only will you save money, but you'll also have healthy staples on hand for quick meals.

Shop smart for produce

Fruits and vegetables can come with a higher price tag, but there are ways to save money on these nutritious foods. First, buy varieties that are in season. Not only will they taste better, but they will also usually be cheaper. Buy frozen or canned varieties to save even more money and extend the shelf life of your produce. Frozen produce especially is just as nutritious as fresh. When buying canned, choose varieties without added salt and that are packed in water or in their own juices instead of in syrups and sweeteners.



Cook at home

Buying pre-prepared foods or restaurant meals is more expensive than cooking at home. You'll stick to your food budget and get a more nutritious and delicious meal. Find plant-based recipes from food blogs or cookbooks and work on building simple cooking skills like sauteing, roasting, steaming, and boiling. Your wallet and your taste buds will thank you!

Check if you're eligible for assistance

Check to see if you are eligible for food assistance programs like WIC or SNAP. Most staple plant-based foods can be purchased through these programs. Eligibility requirements are different state by state, so check your state's program for more information.



Eating Away From Home

Travel

Pack your own

The best way to make sure you have plant-based meals and snacks available is to pack your own. Choose portable options like trail mix, energy bars, apples, bananas, and roasted chickpeas. If you are traveling by car, pack a small cooler or lunchbox with hummus and veggie sandwiches, guacamole dip and sliced vegetables, or grain and bean salads.

Stop at grocery stores

Instead of relying on fast food restaurants and convenience stores, stop at a grocery store to pick up healthy plant-based meals on the go. Many grocery stores have salad bars or plant-based prepared foods.

Learn to make on-the-go meals

Add hot water from the hotel coffee maker to instant oatmeal or dry soup mixes to make a perfect travel meal. Try packable recipes like overnight oatmeal and salads in mason jars.

Restaurants

Search for plant-based-friendly restaurants

Use an app like Happy Cow to find restaurants in your area with plenty of plant-based dishes to choose from. Look at menus online ahead of time to make sure they offer a plant-based option.

Make a meal from appetizers and side dishes

At restaurants that don't offer plant-based entrees, plant-based dishes are often hiding on the appetizers and sides sections of the menu. Look for components like salsas, bean dips, steamed edamame, vegetable soup, baked potatoes, steamed or roasted vegetable medley, beans, and rice. These items can be mixed and matched into a satisfying meal.

If you're not sure, just ask!

With plant-based eating growing in popularity, most restaurants are used to customizing their menus for plant-based customers. If you don't see a plant-based option, ask your server for suggestions.

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Social Events

Speak to the host before

Letting the host know about your eating preferences beforehand can feel more comfortable than bringing it up at the event. Let them know you're happy to bring a plant-based dish to share.

Bring a plant-based dish to share

Bring your favorite plant-based dish to share with the crowd. This way, you are guaranteed to have something satisfying to eat and you get to show people how tasty plant-based eating can be.

Practice simple answers to curious questions

If people aren't used to your eating choices, they may ask questions. Know that you don't have to come up with long, technical answers. Practice simple responses like, "I feel my best when I eat this way" or "My dietitian recommended I eat these foods for my health." If you want to share more about your choices, feel free to do so. But short, simple answers are okay too.



Easy Swaps

Dairy

Instead of	Try
Cow's milk	Soy, almond, cashew, rice, or oat milk
Buttermilk	Add lemon juice or vinegar to plant-based milk and let sit for 5 minutes
Cream	Blend raw cashews with liquid (water, plant-based milk) to form a thick cream
Butter	In baking, replace butter with applesauce or mashed banana. Or try vegan butter substitutes.
Cheese	For a cheesy flavor, try nutritional yeast. Look for vegan cheese recipes that use nuts or tofu as a base. Try vegan cheese substitutes.

Meat

Instead of	Try
Beef burgers	Bean burgers. Try a recipe that uses black, pinto, kidney, or white beans to make burger patties.
Grilled chicken	Grilled or baked tofu. Tofu takes on the flavor of whatever it is seasoned with. Try jerk seasoning, barbecue sauce, or your favorite seasoning blend. Seitan can also be used in place of tofu.
Ground meat	Crumbled tempeh. Like tofu, tempeh takes on the flavor of whatever it's cooked with. Try crumbling it into chili, adding to marinara sauce, or sauteing with taco seasonings.
Steak	Marinated and grilled portobello mushroom caps (Be sure to add a plant-based protein source to your meal!)



Add Umami

Umami is the lesser known fifth flavor along with sweet, salty, bitter, and sour. It's the savory flavor most often associated with meat, but plants can be umami too!

If you're craving that savory flavor, try adding one of these umami-rich ingredients to your meal:

- Cooked tomatoes
- · Tomato paste
- Sun-dried tomatoes
- Cooked or dried mushrooms
- · Miso paste

- · Soy sauce or tamari
- Olives
- Seaweeds
- Kimchi

Eggs

Instead of	Try
Scrambled eggs	A "tofu scramble" recipe or vegan egg substitute
Eggs in baking	A "flax egg". For each egg, combine 1 tbsp. ground flaxseed with 3 tbsp. water. Let sit for 5 minutes until thick. Add to recipes as you would an egg. Note: flax eggs may make recipes slightly more dense.





Day 1

Breakfast: Oatmeal with soy milk, berries, walnuts, and maple syrup

Lunch: Hummus and veggie sandwich on whole grain bread and an apple

Dinner: Tofu and vegetable stir fry with brown rice and peanut sauce

Snack: Air-popped popcorn with nutritional yeast and handful of pistachios

Day 2

Breakfast: Tofu scramble with peppers and onions, whole wheat toast, and avocado slices

Lunch: Lentil soup, whole grain couscous, side salad

Dinner: Black bean veggie burger with baked sweet potato fries

Snack: Fruit and nut trail mix

Day 3

Breakfast: Smoothie with banana, peanut butter, flaxseed, coconut yogurt, soymilk, and cinnamon

Lunch: Chickpea salad sandwich

Dinner: Loaded veggie pizza with a

side salad

Snack: Roasted edamame and an

orange

Day 4

Breakfast: Breakfast sandwich with whole grain english muffin, tempeh bacon, avocado slices, lettuce, and tomato

Lunch: Chopped kale salad with quinoa, roasted chickpeas, and tahini-lemon dressing

Dinner: Red lentil dahl with brown rice **Snack:** Apple with peanut butter

Day 5

Breakfast: Coconut yogurt parfait with granola, pecans, and sliced strawberries

Lunch: Grain bowl with farro, roasted Brussels sprouts, white beans, and herb dressing

Dinner: Pinto bean tacos with lettuce, tomato, bell peppers, and guacamole

Snack: Hummus with whole grain crackers and cucumber slices

For more information, meal and recipe ideas visit us at vndpg.org

The content found in this handout is intended for informational purposes only and is not intended to serve as a substitute for the consultation, diagnosis, and/or medical treatment of a qualified physician or healthcare provider. Please use this handout in conjunction with your dietitian.

A registered dietitian nutritionist can help you develop a healthy vegetarian or vegan eating plan that meets your needs. To find an RDN in your area, visit https://www.eatright.org/find-a-nutrition-expert. ©2023 by VN DPG. RD Resources are a project of the Vegetarian Nutrition Dietetic Practice Group. More topics available at www.VNDPG.org.

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