



vegetarian MEAL PLANNING

A Guide for Healthy Eating



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What is a vegetarian diet?

A vegetarian diet is based on plant foods and contains no meat, poultry, or seafood. Some vegetarians include eggs and dairy products in their diets, while others do not. Whether you are switching to a vegetarian diet or simply want to eat meatless meals more often, vegetarian eating opens up a whole new world of foods and flavors – with benefits to your health, too.

Use this booklet to guide you through the benefits of vegetarian eating. You'll find nutritional recommendations for different types of vegetarian diets. There's also a list of resources to help you further explore this way of eating.

DEFINITIONS

- **Lacto-vegetarians** eat dairy products (like milk, cheese, and yogurt) but avoid eggs, meat, seafood, and poultry.
- **Ovo-vegetarians** eat eggs but avoid dairy products, meat, sea-food, and poultry.
- **Lacto-ovo vegetarians** eat dairy products and eggs, but not meat, seafood or poultry.
- **Vegans** (or total vegetarians) avoid eating all animal products.

HEALTH BENEFITS OF VEGETARIAN EATING

A healthful and nutritionally sound vegetarian diet is easy to achieve with a bit of education and planning. Some research studies have shown that vegetarians may have a lower rate of health problems such as heart disease, intestinal problems, and certain cancers, but more research is needed to confirm these findings. Vegetarian eating, along with other lifestyle choices such as maintaining a healthy body weight, getting regular physical activity, and not smoking may help lower your risks for these and other health problems.

Vegetarian diets can be low in saturated fat and cholesterol, and high in “good” kinds of fats (called monounsaturated and polyunsaturated fats). Compared to those who eat a typical Western diet (high in saturated fat, lacking in vegetables and fruits), vegetarians often consume more fiber and eat more servings of vegetables, fruits, whole grains and legumes each day – all of which are known to support better health.

Nutrition guidelines for vegetarians

LACTO-VEGETARIAN or LACTO-OVO VEGETARIAN

If you choose to eat dairy products and eggs, it will probably be easier for you to get the protein, vitamins, and minerals that your body needs each day. However, you need to do more than simply eliminate meat from your diet to attain a healthy balance of nutrients. Read on for more details on how to meet your body's needs.

OVO-VEGETARIAN

If you choose to eat eggs but no dairy products or meat, it is important to incorporate foods into your diet that are rich in calcium and vitamin D. There are a variety of foods to choose from that supply these nutrients.

VEGAN (TOTAL VEGETARIAN)

In the typical Western diet, animal products are good sources of several essential nutrients such as calcium, iron, zinc, vitamin B-12, and vitamin D. With the absence of these animal products in your diet, it is very important to make informed choices and ensure that you are getting all of these nutrients from plant-based foods.

If you are transitioning to a vegetarian lifestyle, consider:

- Taking a daily multivitamin – no more than 100% of the Recommended Daily Allowance (RDA) – to ensure that you are getting the right amounts of nutrients, vitamins, and minerals in your diet each day.
- Using the resources listed at the end of this document.
- Asking your health care provider for a referral to a Registered Dietitian (RD) at Kaiser Permanente for a more personalized nutrition assessment and advice on vegetarian meal planning.

NUTRITIONAL NEEDS: Considerations for vegetarians

Protein

Proteins are found in every living cell in our body. They are necessary to build and maintain bones, muscles, and skin. Proteins are chains of small molecules called amino acids. Some of these chains are constantly being broken down while new ones are strung together

to take their place. Your body can make some of these amino acid building blocks, but not all of them. The ones you can't make are called essential amino acids. Lean meat is considered a good source of protein because it has the full mixture of essential amino acids. As a vegetarian, there are many non-meat yet protein-rich foods to choose from. They include legumes (beans), nuts, soy products, meat substitutes, grains, seeds, and some vegetables.

In particular, vegetarians have to pay special attention to the protein in their diets. While animal proteins have all the essential amino acids, plant-based proteins can have low amounts or none at all. Plant proteins are called "incomplete," meaning they do not contain all of the amino acids you need in a single food. Vegetarians have to eat protein from several different sources to get all the different amino acids they need.

Eating certain foods together or on the same day will create a complete protein. For example, if you combine rice and beans together or peanut butter and bread together, you will get all the amino acids you need. This is because grains contain the amino acids that beans and nuts lack, and vice versa. One exception is quinoa (pronounced keen-wa), a grain-like food that contains all the essential amino acids which makes it an excellent choice for vegetarians. Eggs are also a good source of complete protein. People who don't eat eggs or dairy products need to be particularly careful to get all the essential amino acids they need.

Iron

Iron carries oxygen in the blood. It is important to plan your meals so that you get enough iron, especially for women. Your body will absorb more iron if you eat a food high in vitamin C along with iron-containing foods. Because you don't absorb as much iron from plant foods as you would from red meat, an iron supplement may be a good idea. Eat plenty of dark leafy greens and iron-enriched grain and cereal products to make sure you get enough iron each day. Ask your health care provider if he or she recommends an iron supplement for you. Or request a referral to a Registered Dietitian for a more detailed nutritional assessment and to find out your specific needs.

Calcium

Calcium helps form bones and teeth and makes them resistant to breaks and decay. It is also important for muscle contraction, blood clotting, and sending nerve impulses. Lacto-vegetarians can get calcium by eating dairy products such as milk, cheese and yogurt. Ovo-vegetarians can get the recommended daily calcium intake by taking a multi-vitamin or eating additional servings of calcium-enriched foods. For example, calcium-fortified non-dairy milks, cereals, and juices are good sources of calcium. Other foods like sesame seeds, broccoli, dark leafy greens, and tofu made with calcium sulfate (check the food label) can also provide calcium in your diet.

Vitamin D

Vitamin D helps form and maintain strong bones, and helps ensure that our blood has adequate calcium levels. The most common source of vitamin D in the typical Western diet is vitamin D-fortified milk. Our bodies also make some vitamin D when our skin is exposed to the sun, but many of us living in the United States do not produce enough vitamin D from sun exposure alone. If you do not eat dairy products or do not spend time in the sun (approximately 10 minutes daily), include other sources of vitamin D in your diet such as fortified non-dairy milks (like soy or almond), juices, and cereals. You may also want to consider a supplement. Discuss this with your provider to assess your specific needs.

Zinc

Zinc is necessary for proper blood sugar control, wound healing, and immune system function for people of all ages. It is an especially important nutrient for growing teens. Whole grain cereals, peas, oatmeal, dried yeast, and wheat germ are all good sources of zinc.

Vitamin B-12

Vitamin B-12 helps our bodies build our genetic building blocks called DNA. It is also an important nutrient for maintaining healthy red blood cells and nerve function. Vitamin B-12 (also known as cobalamin) is mostly found in foods that come from animals. Reliable sources of vitamin B-12 for vegetarians are found in B-12 fortified food products such as:

- eggs
- dairy
- ready-to-eat cereals (check the food label; amounts will vary)
- nutritional yeast, specifically the brand *Red Star Vegetarian Support Formula*
- some meat substitutes
- some soy and rice milks

Getting too little B-12 can lead to a serious type of anemia. Since it may be difficult to get enough vitamin B-12 from food sources, you may want to consider using a B-12 supplement. Discuss your options with your provider or request a referral to a Registered Dietitian.

An additional consideration:

As we age, vegetarians and non-vegetarians alike, our bodies lose the ability to absorb B-12. Because of this, your provider may recommend a vitamin B-12 supplement (either in the form of direct supplementation via injection or tabs that dissolve under your tongue) if you are 50 years or older. Discuss these options with your provider.

Food sources of important nutrients

Recommended nutrient amounts and examples of vegetarian sources

The next few pages provide useful information about the approximate recommended daily amounts (RDA)¹ for men and women for protein, iron, calcium, vitamin D, zinc, and vitamin B-12. You will find a small sample of foods in each category to give you meal planning ideas.² Please note that these are not extensive lists. The nutritional content of vegetarian foods can vary greatly by brand. Be sure to read the food labels for specific nutrition information. You may want to refer to the resources listed in the back of this brochure for additional meal planning guidance.

¹ From the Dietary Reference Intakes (DRIs), National Academy of Sciences, 2002, unless otherwise indicated.

² From the USDA Nutrient Database, 2007.



Daily recommended amount of protein grams per day

age	male	female
1-3	13	13
4-8	19	19
9-13	34	34
14-18	52	46
19 and older	56	46
pregnant or breastfeeding		71

SOURCES

QUANTITY

GRAMS PROTEIN

dairy products:

ricotta, part skim	1 cup	28
cottage cheese	1 cup	26
yogurt, plain	8 oz.	13
milk, low-fat	1 cup	8
cheese, swiss, provolone	1 oz.	7
egg	1 large	6

grains:

quinoa, cooked	1 cup	8
couscous, cooked	1 cup	6
brown rice, cooked	1 cup	5
cereals, ready to eat	½ cup	5
white rice, cooked	1 cup	4
buckwheat pancakes	1 oz.	3

nuts and legumes:

soy nuts, roasted	¼ cup	19
peanut butter	2 tbsp.	9
edamame, frozen/prepared	½ cup	8
lentils	½ cup	7-11
kidney beans	½ cup	7
hummus (chickpeas)	½ cup	6



SOURCES	QUANTITY	GRAMS PROTEIN
peanuts	1 oz.	6
sunflower seeds	1 oz.	6
almonds	1 oz.	6
pistachios	1 oz.	6
walnuts	1 oz.	7

meat substitutes:

tofu, raw, firm ¹	½ cup	20
tempeh, raw or cooked	½ cup	20
meatless burger	1 patty	4–18
“chicken” nuggets	5 pieces	14
soy burger	1 patty	10–12
tofu, raw, soft	½ cup	10
veggie hot dog	1 each	10
turkey substitute	2 slices	10
veggie burger	1 patty	10
veggie sausage	1 link	6

other:

miso	½ cup	16
natto	½ cup	15
egg substitute, liquid	½ cup	14
brewer’s yeast	1 oz.	11
soy beans, caked 11	½ cup	
soy milk, plain	8 oz.	10

¹Tofu manufacturers use a variety of descriptions (such as soft, firm, or extra firm) to describe the consistency of their product. There is no standard definition for these descriptions. Manufacturers use either magnesium chloride (nigari), calcium sulfate, or both in different quantities to create the protein. Because of this, the amount of calcium and magnesium in tofu will vary. For the specific nutrient amounts, check the food label on all tofu products.



Daily recommended amount of iron milligrams (mgs) per day

age	male	female
1-3	7	7
4-8	10	10
9-13	8	8
14-18	12	15
19-50	8	18
51 and older	8	8
breastfeeding (14-18)		10
breastfeeding (19 or older)		9

SOURCES

QUANTITY

MILLIGRAMS (mgs) IRON

fortified instant cereals (varies)	1 packet	4.9–8.1
tofu	½ cup	6.7
lentils	1 cup	6.6
spinach, cooked	1 cup	6.4
sunflower seeds, roasted	3.5 oz.	6.0
beans, cooked (black, chickpea, kidney)	1 cup	3.0–5.0
seeds, sesame and pumpkin	1 oz.	4.2
chard, cooked	1 cup	4.0
oatmeal, instant	1 packet	3.8
soy nuts, roasted	½ cup	3.4
potato, baked	1 medium sized	2.8
green peas, cooked	1 cup	2.5
tempeh	½ cup	2.0
brussels sprouts, cooked	8 sprouts	1.9
edamame, frozen/prepared	½ cup	1.8
cashews, dry roasted	1 oz.	1.7
quinoa, cooked	½ cup	1.4
butternut squash, cooked	1 cup	1.2
kale, cooked	1 cup	1.2
prunes, dried	5 pieces	1.1
raisins	⅓ cup	1.0

Daily recommended amount of calcium

milligrams (mgs) per day

age	male and female
1-3	500
4-8	800
9-18	1300
19-50	1000
51 and older	1200

SOURCES

QUANTITY

MILLIGRAMS (mgs) CALCIUM

nonfat yogurt	1 cup	452
lowfat yogurt	1 cup	415
milk powder, milk	1/4 cup	377
collard greens, cooked	1 cup	358
nonfat milk	1 cup	302
soy or rice milk, fortified	1 cup	300
lowfat milk	1 cup	297
sesame seeds, roasted	1 ounce	281
blackstrap molasses	2 tbsp	274
tofu, firm, made with calcium	1/2 cup	258
spinach, boiled	1/2 cup	245
Swiss cheese	1 ounce	224
orange juice (calcium fortified)	1 cup	200-350
kale, cooked	1 cup	180
soybeans, cooked	1 cup	175
bok choy, cooked	1 cup	150
mustard greens, cooked	1 cup	100-150
American cheese	1 slice or 3/4 oz	144
parmesan cheese, grated	2 tbsp	138
tahini (sesame butter)	2 tbsp	128
tempeh	1/2 cup	96
lowfat frozen yogurt	1/2 cup	90
cottage cheese, low-fat	1/2 cup	69
broccoli, cooked	1 cup	62
edamame, frozen/prepared	1/2 cup	16
quinoa, cooked	1/2 cup	16



Daily recommended amount of vitamin D

International Units (IUs) per day

age	male and female
1–18	400
19–70	400–800
71 and older	600
pregnant or breastfeeding	400

Source: Dietary Reference Intakes (DRIs): Recommended Intakes for Individuals, Vitamins, Food and Nutrition Board, Institute of Medicine, National Academy of Science, 2004.

SOURCES	QUANTITY	IUs VITAMIN D
orange juice, vitamin D fortified	1 cup	100
milk, vitamin D fortified	1 cup	100
soy milk or rice milk, vitamin D fortified	1 cup	100
yogurt, lowfat, vitamin D fortified	6 oz	80
margarine, vitamin D fortified	1 tbsp	60
ready-to-eat cereals, vitamin D fortified	1 cup	40–50
egg (vitamin D is found in egg yolk)	1 large egg	26

Daily recommended amount of zinc

milligrams (mgs) per day

age	male	female
1-3	3	3
4-8	5	5
9-13	8	8
14-18	11	9
19 and older	11	8
pregnant (14-18)		12
pregnant (19 or older)	11	
breastfeeding (14-18)	13	
breastfeeding (19 or older)		12

SOURCES

QUANTITY

MILLIGRAMS (mgs)

ZINC

cereals, ready-to-eat (varies – check the food label)	1 to 1 ½ cups	15.00
soynuts, roasted	1 cup	8.0
pearl barley, raw	1 cup	4.3
wheat germ, raw or crude	¼ cup	3.5
ricotta cheese, part skim milk	1 cup	3.3
wild rice, cooked	1 cup	2.2
nonfat yogurt, plain	1 cup	2.2
pumpkin seeds, roasted with salt	1 oz. (142 seeds)	2.1
bulgur, dry	1 cup	2.7
wild rice, cooked	1 cup	2.2
quinoa, cooked	1 cup	2.0
beans (chickpeas, lentils, kidney), cooked	1 cup	1.8–2.5
nuts: pine, brazil, cashews, pecans	1 oz.	1.3–1.8
miso, prepared	1 cup	1.8
tempeh	½ cup	1.6
sunflower seeds, dry roasted	1 oz.	1.5
long-grain brown rice, cooked	1 cup	1.2
spinach, boiled	1 cup	1.4
quinoa, cooked	½ cup	1.0
edamame, frozen/prepared	½ cup	1.1
tahini	1 tbsp	0.7



Daily recommended amount of vitamin B-12 micrograms (mcgs) per day

age	male and female
1–3	0.9
4–8	1.2
9–13	1.8
14 and older	2.4
pregnant	2.6
breastfeeding	2.8

Source: USDA National Nutrient Database for Standard Reference, Release 20.

SOURCES	QUANTITY	MICROGRAMS (mcgs) VITAMIN B-12
soy protein burger crumbles (varies – check food label)	1 cup	10
cereals, ready-to-eat, vitamin B-12 fortified (varies – check food label)	1–1 ½ cup	6
nutritional yeast, Red Star Vegetarian Support Formula	1 ½ tbsp	8
yogurt, plain, non-fat	8 oz.	1.4
milk, non-fat	1 cup	1.3
fortified soy and rice milks (varies – check food label)	1 cup	1–3
egg substitute, frozen	1 cup	.8
egg substitute, liquid	1 cup	.8
egg	1 large	.7



Food Groups: a daily guide

By planning ahead, you can meet the recommended daily allowance of nutrients through a variety of foods. To help you get started, here is a guide for how many servings of the different food groups you need each day. For additional information and help with meal planning, ask your provider for a referral to a Registered Dietitian.

LACTO-VEGETARIAN or LACTO-OVO VEGETARIAN DIET

Grains: 6 or more servings/day

- | | |
|----------------------------|--|
| 1 slice whole grain bread | 1 tablespoon wheat germ |
| 1/3 cup brown rice, cooked | 1 whole wheat or corn tortilla |
| 1/4 cup quinoa, cooked | 1/3 cup cooked whole wheat or enriched pasta |
| 3/4 cup cereal, dry | |

Fruits and vegetables: total of 6 or more servings/day

(1 serving equals: 1/2 cup cooked, 1 cup raw, or 1 medium fruit)

Include servings from these categories of fruits and vegetables:

High in vitamin C: 2 or more servings. Examples:

- | | | |
|-----------------|----------------------|--------------|
| bok choy | red and green pepper | orange juice |
| broccoli | kiwi | raw cabbage |
| Brussel sprouts | mango | red pepper |
| cantaloupe | papaya | strawberries |
| grapefruit | oranges | tomatoes |

Dark leafy greens and orange vegetables: 2 or more servings. Examples:

- | | |
|-------------------------------------|----------------------------------|
| asparagus, boiled without salt | Romaine lettuce, raw |
| carrots, boiled without salt | red leaf lettuce |
| collard greens, boiled without salt | spinach, boiled without salt |
| Endive, raw | sweet potato, baked without salt |
| kale, boiled without salt | watercress |
| butterhead lettuce, raw | winter squash |
| iceberg lettuce, raw | yams |

Dairy: 2–4 servings. Examples:

- | | |
|------------------------|---|
| 1 cup milk | 1 cup fortified soy milk, rice milk or other non-dairy milk |
| 3/4 cup yogurt | |
| 1/2 cup cottage cheese | |
| 1 1/2 ounces cheese | |



Protein: 4 or more servings

- | | |
|----------------------------------|--|
| ¼ cup quinoa | 1 egg |
| ½ cup beans, peas, or lentils | ¼ cup egg substitute |
| ½ cup tofu or other soy products | 1 ounce nuts (peanuts, cashews, almonds, etc.) |
| ½ cup tempeh | 1 ounce seeds (sunflower, etc.) |
| ½ cup seitan (wheat gluten) | |
| 2 ½ tablespoons nut butter | |

Fats and oils: 2 servings

- | | |
|--|---------------------------------|
| 1 tbsp olive, canola oil or flaxseed oil | 1 tbsp mayonnaise |
| 1-2 tbsp oil-based salad dressing | 1 tbsp trans-fat free margarine |

OVO-VEGETARIAN DIET

Grains: 6 or more servings/day

- | | |
|-----------------------------------|--|
| ¼ cup quinoa | 1 tablespoon wheat germ |
| 1 slice whole grain bread | ⅓ cup cooked whole wheat or enriched pasta |
| ¾ cup dry cereal | |
| ⅓ cup cooked brown rice or quinoa | 1 whole wheat or corn tortilla |

Fruits and vegetables: total of 9 or more servings/day

(1 serving equals: ½ cup cooked, 1 cup raw, or 1 medium fruit)

Include servings from these categories of fruits and vegetables:

High in vitamin C: 2 or more servings. Examples:

- | | | |
|-----------------|----------------------|--------------|
| bok choy | red and green pepper | orange juice |
| broccoli | kiwi | raw cabbage |
| Brussel sprouts | mango | red pepper |
| cantaloupe | papaya | strawberries |
| grapefruit | oranges | tomatoes |

Dark leafy greens and orange vegetables: 2 or more servings. Examples:

- | | |
|------------------|----------------------|
| asparagus | Romaine lettuce, raw |
| carrots | spinach |
| collard greens | sweet potatoes |
| Endive | watercress |
| kale | winter squash |
| red leaf lettuce | yams |



Protein: 4 or more servings

- | | |
|----------------------------------|--|
| ¼ cup quinoa | 1 egg |
| ½ cup beans, peas, or lentils | ¼ cup egg substitute |
| ½ cup tofu or other soy products | 1 ounce nuts (peanuts, cashews, almonds, etc.) |
| ½ cup tempeh | 1 ounce seeds (sunflower, etc.) |
| ½ cup seitan (wheat gluten) | |
| 2 ½ tsp nut butter | |

Fats and oils: 2 servings

- | | |
|---|--------------------------------|
| 1 tsp olive, canola oil or flaxseed oil | 1 tsp mayonnaise |
| 1-2 tsp oil-based salad dressing | 1 tsp trans-fat free margarine |



SPECIAL GUIDELINES FOR VEGANS

Use the above guide with the following changes:

- Increase legumes/beans to 4 or more servings each day.
- Increase nuts and seeds to 2 or more servings each day.
- Add one more serving of whole grains each day.
- Be sure to include good sources of vitamin B-12, calcium, iron, and zinc.

Resources for vegetarian meal planning

BOOKS

- *1001 Low-Fat Vegetarian Recipes: Delicious, Easy-to-Make Healthy Meals for Everyone.* Sue Spitler and Linda R. Yoakam, Surrey Books, 2006.
- *Greens Cookbook.* D. Madison, Bantam Books, 2001.
- *Hope's Edge: The Next Diet for a Small Planet.* Frances M. Lappe and Anna Lappe, Tarcher / Putnam, 2003.
- *Lorna Sass' Complete Vegetarian Kitchen: Where Good Flavors and Good Health Meet.* Lorna J. Sass, Harper Collins Publishers, 2002.
- *Mollie Katzen's Vegetable Heaven: Over 200 recipes for Uncommon Soups, Tasty Bites, Side-by-Side Dishes & Too Many Desserts.* Mollie Katzen, Hyperion, 2000.
- *New Becoming Vegetarian: The Essential Guide to a Healthy Vegetarian Diet.* Vesanto Melina and Brenda Davis, 2003.
- *New Enchanted Broccoli Forest.* Mollie Katzen, Ten Speed Press, 2000.
- *Simply Vegan: Quick Vegetarian Meals.* Debra Wasserman and Reed Mangels, the Vegetarian Resource Group, 2006.
- *The Essential Vegetarian Cook.* Diana Shaw and Kathy Warriner, Crown Publishing Group, 1997.
- *The New Laurel's Kitchen: A Handbook for Vegetarian Cookery and Nutrition.* Laurel Robertson, Carol Flinders and Brian Ruppenthal, Ten Speed Press, 1986.
- *The New Moosewood Cookbook.* Mollie Katzen, Ten Speed Press, 2000.
- *Veganomicon: The Ultimate Vegan Cookbook.* Isa Chandra Moskowitz and Terry Hope Romero, Da Capo Press, 2007.

WEB SITES

- ***National Nutrient Database for Standard Reference.*** United States Department of Agriculture (USDA), Agricultural Research Service. nal.usda.gov/fnic/foodcomp/search
- ***Protein in the Vegan Diet.*** The Vegetarian Resource Group, 2006. vrg.org/nutrition/protein
- ***Recipes for Vegetarian Meals*** recipelink.com/rcpveg1.html
- ***The Vegetarian Nutrition Resource List.*** Food and Nutrition Information Center (FNIC), 2008. nal.usda.gov/fnic/pubs/bibs/gen/vegetarian.pdf
- ***The Veggie Queen: Vegetables get the royal treatment.*** Jill Nussinow, MS, RD. Vegetarian Connection Press, 2005. theveggiequeen.com
- ***Veggie Life Magazine*** veggielife.com
- ***Vegetarian Times*** vegetariantimes.com

OTHER RESOURCES

- Connect to our Web site at kp.org to access health and drug encyclopedias, interactive programs, Healthy Living classes, and much more.
- Check your *Kaiser Permanente Healthwise Handbook*.
- Contact your Kaiser Permanente Health Education Center or Department for health information, Healthy Living programs, and other resources.



This information is not intended to diagnose health problems or to take the place of medical advice or care you receive from your physician or other health care professional. If you have persistent health problems, or if you have additional questions, please consult with your doctor.