

Compensating For Common Nutritional Deficiencies In **Vegan And Vegetarian Diets**



Nutrition Facts

Serving Size 1

Servings Per Package 3

Amount	% Daily Value
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Fat	
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Saturated Fat	
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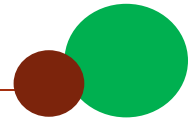
Trans Fat	
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Carbohydrate	
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Protein	
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Fiber	
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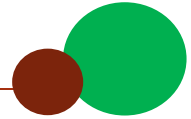
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Disclaimer: This publication is not intended to be medical advice; it is for informational purposes only. You should always consult a licensed physician for any medical issues, concerns, or conditions.

The Vegetarian Lifestyle



Many health experts agree that those who follow a plant based diet that eliminates meat and includes a variety of fruits, vegetables, legumes and whole grains live longer and healthier lives than meat eaters. Several studies have shown vegetarians to enjoy heart health, better insulin resistance, healthier weight, longer life spans, and reduced risks of cancer.

Different Types Of Vegetarianism

There are different types of vegetarians depending on the type of animal or animal byproduct foods they do or do not consume.

Vegan – Veganism is the strictest type of vegetarianism. A vegan diet excludes any type of meat, pork, fish, seafood, and poultry. It also excludes all dairy or any food products derived from animals, including butter and animal fats. Vegans never use any non-food products made from animals, like fur or leather coats or honey or beeswax. Generally, all animal byproducts are avoided by vegans whose diet consists of fruits, vegetables, grains, beans and legumes.

Lacto Vegetarianism – Lacto vegetarians are people who never eat red meat, white meat, poultry, fish seafood, or eggs. They do eat dairy products, like milk, cheese, and yogurt.

Ovo Vegetarianism – Ovo vegetarians never eat red meat, white meat, poultry, fish seafood, or dairy. They do eat eggs.

Lacto Ovo Vegetarianism - Lacto Ovo vegetarians never eat red meat, white meat, poultry, seafood, or fish. They do eat eggs and all dairy, like cheese, yogurt, and milk.

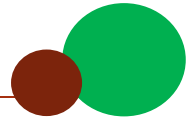


Pescatarian – Pescatarians never eat red meat, white meat, or poultry. They do eat fish and seafood. Some Pescatarians consume dairy and some do not.

Pollotarian – Pollotarians never eat red meat, white meat, fish or seafood. They do eat poultry. Like other vegetarians, some pescatarians consume dairy and some do not.

Flexitarian Vegetarian – Flexitarians eat meat, fish, and poultry only on occasion, while following a plant diet most of the time.

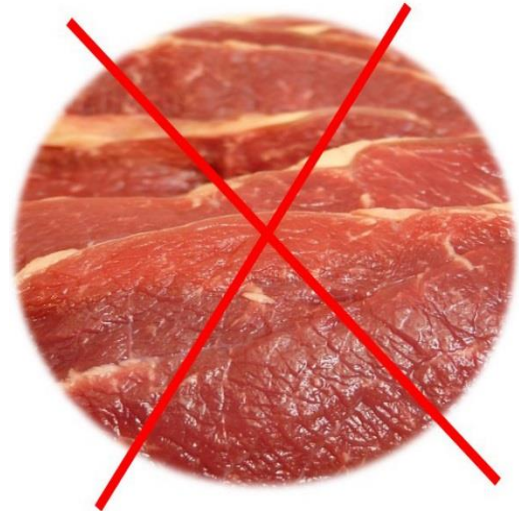
Nutrient Deficiency In Vegetarian Diets



Whenever any food groups are excluded from a diet, the risk for nutrient deficiency increases, one example is the vegan diet, which is considered the most restrictive of all vegetarian eating plans because it eliminates any and all meats and dairy products that are good sources of calcium.

Like any other diet, it is important to eat a variety of foods as a vegan or vegetarian to ensure you get all the nutrients the body needs. It is a well-known fact that no single food can provide all the nutrients required for energy, good health, and disease prevention.

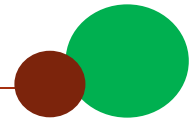
In fact, the more restrictive a diet, the more nutrition suffers. The vegetarian/vegan diet is a healthy alternative to eating meat, but it is important to maintain balance and be sure that proper substitutions for meat and dairy nutrient sources are made.



This is not difficult when you know alternative plant sources of nutrients such as protein, iron, zinc, B12 and others. A balanced diet ensures that the plant diet that is intended to promote good health, well-being and prevent disease does not instead do the opposite.

With a little planning and education, it is possible to get all the vital nutrients the body needs without eating meat and dairy.

Protein



What Is Protein?

Protein is often referred to as the building block of life. Your skin, hair, bones, and muscles all need this vital nutrient to do their jobs. Once in your body proteins are broken down into amino acids, which assist with cell growth and cell repair. Some amino acids can't be made in the body. These are known as essential amino acids and you can only get them from the food you eat.

Recommended Dietary Allowance

- School age kids – 19 to 34 grams daily
- Teenage boys - up to 52 grams daily
- Teenage girls up to 46 grams daily
- Adult men - 56 grams a daily
- Adult women - about 46 grams a day (71 grams, if pregnant or breastfeeding)

The Institute of Medicine recommends that at least 10% of daily calories, but no more than 35% come from protein.

Vegan Protein Sources

Vegans and vegetarians need to take great care to replace animal protein with plant-based varieties in order to avoid risk of deficiency.

Complete proteins are those foods that contain all nine essential amino acids, and are typically found in meat, eggs and fish, but there are vegan sources and they are discussed below. Combining certain foods in one meal can create a complete protein; one example is rice and beans.

The good news is studies have shown both vegans and vegetarians are able to meet their protein requirements without the need for consuming animal products. Here are the best plant-based protein sources for vegans and vegetarians.

For vegetarians who eat dairy, milk, Greek yogurt, eggs, and cheese are great sources of protein.

Complete Vegan Proteins

- Quinoa: 8 grams per 1 cup serving, cooked
- Buckwheat: 6 grams per 1 cup serving, cooked
- Soybeans: 68 grams per cup
- Mycoprotein (Quorn): 13 grams per ½ cup serving
- Ezekiel Bread (sprouted grain bread): 8 grams per 2 slice serving
- Seitan: 21 grams per 1/3 cup serving
- Hempseed: 10 grams per 2 tablespoon serving
- Chia: 4 grams per 2 tablespoon serving
- Soy: 10 grams per ½ cup serving (the firmer the tofu the higher the protein content), 15 grams per ½ cup serving (tempeh), 15 grams per ½ cup serving (natto)



Combinations To Yield Complete Vegan Proteins

- Hummus and Pita: 7 grams per 1 whole-wheat pita with 2 tablespoons of hummus
- Spirulina with Grains or Nuts: 4 grams per 1 tablespoon
- Peanut Butter Sandwich: 15 grams per 2-slice sandwich with 2 tablespoons of peanut butter
- Rice and Beans: 7 grams per 1 cup serving

Other Protein Sources

- **Beans:** navy beans, pinto beans, winged beans, black beans, and others are great protein sources. Chickpeas, lentils, black-eyed peas, and garbanzo beans are too.
- **Nuts And Nut Butters**
- **Seeds:** chia seeds, sunflower seeds, sesame seeds, poppy seeds, pumpkin/squash seeds, hemp, and flaxseeds.
- **Vegetables:** soybean sprouts, lentil sprouts, green peas, corn, sun-dried tomatoes, spinach, kale, bok choy, broccoli, cowpeas, lima beans, Brussel sprouts, mushrooms, artichokes and potatoes.
- **Fruits:** dried apricots, peaches, avocados, guava, prunes, dried Zante currants, dried figs, raisins, dates, and passion fruit.
- **Whole grains:** cereals, bread, whole grain pasta, quinoa, oat bran, wheat, buckwheat, couscous, brown rice, and many others.
- **Unsweetened cocoa powder**
- **Veggie burgers**
- **Soy protein prepared foods, such as veggie hot dogs**

Examples Of Vegan Protein Substitutes

- Swap bacon and sausage at breakfast for Tofurkey, and soy sausages.

- Swap burgers for veggie burgers, there are many to choose from including those made from soybeans, vegetables, and/or rice.
- Use tofu, tempeh, and seitan in soups, and stews to boost protein.
- Make burgers and meatballs for pasta out of beans, tempeh, lentils, and chickpeas.

Legumes And Peas

Any food in the legume family, including peas and beans is a great source of protein for vegans and vegetarians.

- **1 cup of peas provides 7.9 grams of protein**

If you are not a fan of peas try spicing things up a bit by turning them into a pesto. Try this recipe: blend frozen peas, olive oil, fresh mint, parmesan cheese, and toasted pine nuts in a blender and serve it over a plate of linguine.



Beans

Beans such as, navy beans, pinto beans, winged beans, black beans, chickpeas, and garbanzo beans are perfect plant protein sources that are naturally low in fat and without cholesterol, unlike beef and chicken. Lentils of all colors are also great vegan protein sources.



- **1 cup of lentils has 17.6 grams of protein**
- **1 cup of black beans has 16 grams of protein (all other beans have similar values)**

Both have only 1 gram of fat per 1 cup serving. Black beans can serve as meat substitutes in many dishes, including tacos and chili. Lentils are very versatile and can be used in vegan salads, stews, soups and many side dishes.



Quinoa

Quinoa is a plant grain that has become extremely popular over the last few years in large part because it has more protein than other grains.

- **1 cup of quinoa has 8 grams of protein per cup**

The best part is it contains all nine essential amino acids. This is why you often hear it being referred to as the “perfect protein.” Quinoa is a very versatile food that can be used in salads and side dishes. Vegans use it to make baked burger patties. It goes great with a variety of vegetables and sauces.

Nuts

Nuts are great for vegans and vegetarians as they contain healthy fats and healthy proteins.

- **1 cup of almonds has 20 grams of protein**

Nuts are high in calories so that should be a consideration; most experts recommend a handful per day. Choose either raw or dry roasted nuts instead of flavored or coated varieties that have a lot more calories.



Nut butters, like almond and peanut butter are also excellent sources of protein and other essential nutrients. When looking for nuts look for brands that have the fewest ingredients. Avoid any nut butters or nuts with added sugar or hydrogenated oils.

Tofu

Tofu is a plant protein that is made from soybeans, and it can replace meat in virtually any recipe.

- **1 cup of tofu has 20 grams of protein**

1 cup has only 188 calories, much lower than beef, pork, or chicken. Tofu is so very versatile and can be used in salads, stir-fry, stews, curries, desserts, lasagna, burgers, homemade sausage, and many other great dishes to get all the benefits of this high quality plant protein food.



Tempeh

Tempeh is another plant protein made from soybeans, but as opposed to Tofu, Tempeh is much firmer in texture.

- **1 cup of Tempeh has 31 grams of protein**

Tempeh is higher in calories and has 320 per 1 cup serving. Tempeh's firm texture makes it perfect for creating vegan steaks, and sandwiches like the Rueben or pulled pork. Tempeh also has a flaky texture and makes a great crab substitute for vegan fish sticks or crab cakes.



The great thing about Tempeh and Tofu is their ability to absorb many different flavors.

Leafy Greens

Vegetables do not contain as much protein as other vegan foods, but they do have a decent amount and since you can and should eat them liberally, they can serve you in this regard.

Vegetables also provide essential antioxidants that help prevent disease and cell damage. Spinach, sprouts, and broccoli are good protein sources, along with green peas, corn, sun-dried tomatoes, kale, bok choy, cowpeas, lima beans, Brussel sprouts, mushrooms, artichokes, and potatoes.



Hemp

Hemp seeds are the edible part of the hemp plant (*cannabis sativa* L). Hemp seeds are a complete high quality protein that is also easy to digest. Hemp promotes muscle repair and facilitates the development of lean body mass.

- **2 tablespoons of hulled hemp seeds have 10 grams of protein**

Hemp contains essential Omega-3 and Omega-6 fatty acids that support brain health, nervous system function, heart health, immunity, and energy production. Since vegetarians and vegans are often at risk for deficiency of omega-3 fatty acids, hemp seeds make for a great source of these essential nutrients.

Some people mistakenly think they will be eating marijuana if they eat hemp. What they fail to realize is hemp can be found in a variety of different cereals and trail mixes. It is a non-dairy vegan nutrient dense plant food.

Almost 2/3 of the nutrients it supplies are deemed essential, including, iron, magnesium, potassium, and fiber. Hemp seeds also provide essential phytonutrients and



antioxidants like vitamin E. It has no known allergens and is as eco-friendly as it is sustainable and naturally organic because it is grown without pesticides.

Recipe And Eating Ideas

Use hemp oils and non-dairy hemp products in both cooking and baking in your favorite recipes for an organic, nutrient dense and lower fat and cholesterol alternative. Add hemp seeds to your morning smoothie, cereal, or yogurt. Add them to your salads at lunch and dinner. Hemp milk is another great way to get your daily protein.

Seitan

Seitan is a meat substitute made from wheat gluten that is very popular among vegans and vegetarians.

- **1 cup of seitan has close to 80 grams of protein**

This is more than both tempeh and tofu can provide. The great thing about Seitan is that it can be made to taste like beef, pork, or chicken. It can therefore be used as a substitute for meat in many different recipes.



Non-Dairy Milk

Those who are lactose intolerant aren't the only ones who have access to milk alternatives. No matter what type of diet you are on, nondairy milk can prove to be a great addition. The key is to stay away from flavored varieties and those with added sugar.

- **Almond milk, soymilk, rice milk, and hemp milk all contain decent amounts of protein.**



Cocoa Powder (unsweetened)

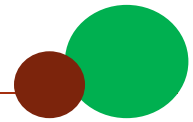
Most people don't know this, but you can get a decent amount of protein from cocoa powder.

- **1 tablespoon of unsweetened Cocoa powder has 1 gram of protein**

The powder alone is quite bitter, which is why people add sugar into recipes that include it. Opt for no calorie or all natural stevia sweeteners when making cocoa. To spice things up a bit, add cocoa to air popped popcorn for a healthy sweet treat.



Calcium And Vitamin D



What Is Calcium?

Calcium is a mineral that is found in a variety of different foods, though primarily it is obtained from dairy. Your body needs it in order to build and maintain strong bones. Calcium promotes muscle movement, and supports the nerve's carrying messages to the brain and other parts of the body, along with various other important internal functions.



Prolonged deficiency can result in Osteoporosis, a progressive bone disease that results in decreased levels of bone mass and density that leads to an increased risk of fracture, especially in older women.

Recommended Dietary Allowance

Several different factors can come into play when discussing calcium needs and bone strength. Lifestyle, genetics, and culture all play a very important role in the overall health of your bones. Your diet will also affect your calcium needs. Avoid smoking, alcohol, and high sodium foods as they can lead to issues with your bones.

Vegans and vegetarians need the same amount of calcium as meat eaters.

- Men and women age 19 to 50 - 1000mg a day
- Men and women 50 and over - 1200mg a day

According to some research, vegetarians who consume a diet high in protein rich foods tend to have better bone health than those who don't.

Vegan Calcium Sources

Whenever you consume calcium, it gets stored in your bones and in your teeth. Those who don't follow a vegetarian diet are able to get their calcium from milk and cheese products. However, since some vegetarians and all vegans do not consume these foods, they are at risk for calcium deficiency.

The good news for vegans is there are plenty of plant foods that can provide you with adequate amounts of calcium. Some of them include:

- Almonds
- Broccoli
- Edamame
- Green vegetables such as kale, artichoke, broccoli, bok choy, okra, mustard greens, and collard greens provide calcium that gets absorbed at a high rate. This makes them excellent sources of calcium.
- Tofu
- Blackberries
- Beans
- Soy beans
- Vegans also have the option to eat foods that have been fortified with calcium. Such foods include protein bars, fruit juices, and plant milks such as almond milk, rice milk, and soymilk. Always shake plant milks well before drinking to bring up any calcium that has settled on the bottom of the container.



Each brand processes their food differently which means the calcium content will be different from brand to brand. Consider tofu for example, it can be an excellent source of calcium depending on how it is coagulated. The same goes for blackstrap molasses.

Other vegetables that contain an abundant amount of calcium include:

- Spinach
- Rhubarb
- Swiss chard

However, be very careful, as these vegetables are also high in oxalates. Oxalates are compounds that can inhibit calcium absorption. Because of this, these particular vegetables are not good sources of calcium for vegetarians.

Unique Benefits Of Getting Calcium From Plant Foods

Getting calcium from plant sources has some very unique benefits. Leafy green vegetables that are rich in calcium are also rich in vitamin K. Vitamin K is another mineral that is vital to overall bone health.

Vitamin C and potassium are also important for maintaining healthy bones. Both can be found in a variety of fruits and vegetables.



If you want your bones to stay healthy, make sure you consume a diet high in fruits and vegetables and always choose calcium fortified juices.

Calcium Content For Foods

Below is a short list of foods high in calcium as well as the amount of calcium they contain per serving. This will give you some guidance when planning your meals.

50 mg of calcium

- ½ cup of navy beans, black beans or chickpeas
- 1 orange
- 2 tablespoons of almonds
- ½ cup of vegetarian baked beans
- 75 mg of calcium
- ½ cup of Tempeh
- ½ cup cooked Bok choy
- 2 tablespoons of almond butter

100 mg of calcium

- ½ cup of soy nuts
- 1 package of instant oatmeal
- 5 dried figs

200 mg of calcium

- 8 ounces of calcium fortified apple juice
- ½ cup of cooked collard greens
- 1 ounce of calcium fortified breakfast cereal

300 mg of calcium

- 8 ounces of calcium fortified orange juice
- 8 ounces of calcium fortified plant milk

Vitamin D

What is Vitamin D?

Vitamin D is also important for bone health and works together with calcium to prevent Osteoporosis. Vitamin D also supports absorption of calcium in the body and helps with cardiovascular health.

Recommended Dietary Allowance

- Males and females age 4 to 70 years - 600 UI of vitamin D daily
- Males and females age 71 years and older - 800 UI daily

Vegan Vitamin D Sources

- Fortified orange juice
- Maitake mushrooms, chanterelle mushrooms (raw) and portabella mushrooms
- Soymilk fortified with vitamin D



- Almond milk fortified with vitamin D
- Fortified soy yogurt
- Fortified ready-to-eat cereals

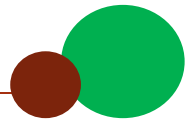
Lacto-Vegetarian Dairy Vitamin D Sources:

- Milk
- Yogurt
- Eggs
- Swiss cheese



Calcium and Vitamin D supplements are available, ask your doctor.

Choline



What Is Choline?

Choline is an essential nutrient that helps with both brain and liver health. In order for the neurotransmitter acetylcholine to be synthesized, this nutrient is vital. Choline can be found in both plant foods and animal foods.

How Does Choline Function In The Body

Choline is responsible for a variety of different functions in your body. Most of the choline you consume will be used to synthesize phosphatidylcholine. Phosphatidylcholine is found in cell membranes and is considered the main phospholipid. Choline works by being a methyl donor and keeping your homocysteine levels low. Without choline acetylcholine, one of the most powerful neurotransmitters in the body will not be synthesized. Eating foods rich in choline can also help enhance your memory.

Recommended Dietary Allowance

According to the Dietary Reference Intake or DRI, men should get 500mg of choline a day and women should get 425mg a day. The recommended amounts come from a study that was done on individuals who consumed only 50mg of choline a day. During the study there were no intermediary amounts considered.

The study showed that individuals who consumed less than 50mg a day were at risk of developing liver damage. The good news however is it is very unlikely the average person would consume such a low amount of choline.

Every person is different and some will need a different amount of choline. For example, some individuals have a genetic mutation, which causes them to need more choline than the average person. Generally speaking, the DRI recommendations are sufficient for most individuals. If you have issues with your liver, speak to your doctor about boosting your choline intake. This can be done through the foods you eat or through supplementation.

Vegan Sources Of Choline

To get a sufficient amount of choline you should focus on eating a well-balanced diet. Animal foods provide a great source of choline, which is why vegans and vegetarians are at risk for deficiency when it comes to this particular nutrient.

Again, the key to ensuring you get enough choline is to eat a well-balanced diet. While meat and eggs can provide you with the highest sources of choline, it can also be found in a variety of different plant foods in smaller amounts.

- **Tofu And Tempeh** - 3 oz. of tofu nets 100mg of choline. According to the Linus Pauling Institute, using soy products like tofu and tempeh as meat substitutes is a great way to add choline to a vegetarian or vegan diet.
- **Soy Flour** - 3oz of soy flour provides 190mg of choline to your diet.
- **Flaxseeds** - If you want to get even more choline in your diet consider flaxseeds. One serving of flaxseed contains up to 80mg of choline.
- **Peanut Butter** - Peanut butter is another great source of choline. It contains 10mg per tablespoon.
- **Vegetables** - Vegetables such as Brussels sprouts and broccoli contain about 60mg of choline. To add a little flavor as well as choline to your dishes, add in some herbs and spices such as garlic, chili powder, celery flakes and mustard seed.



Other foods that contain choline include:

- Edamame
- Pinto beans
- Green beans
- Whole wheat bread
- Quinoa
- Oats
- Walnuts
- Pistachios
- Asparagus
- Carrots
- Potatoes
- Salsa
- Bananas
- Oranges
- Apples
- Yogurt
- Swiss cheese



Important Considerations

If you are a vegetarian and wish to become pregnant, be sure to consult with a registered dietitian. They will be able to provide you with an individualized eating plan that will help you meet all of your nutritional needs.

As a vegetarian or vegan, you must be willing to try a variety of different foods. Doing so will increase the likelihood you will reach the recommended amount of choline on a daily basis.

People with a severe choline deficiency need to consult with a trained medical professional. Always speak with your doctor before you start taking a supplement. Not all supplements are created equal so you want to make sure you take the best one for your health.

To help you get a better idea of how and what you can eat, here is an example of a choline rich vegetarian diet from the Academy of Nutrition and Dietetics.

Breakfast

- 1 cup of instant oats
- 1/4 cup of almonds
- 1 cup of soymilk
- 1 medium orange

Snack

- 1/4 cup of pistachios
- 1 cup soymilk

Lunch

- 1 cup of quinoa with 1/2 cup of edamame in a tossed salad
- 1 cup of grilled asparagus

Dinner

- 1 cup of soymilk
- 1 cup of refried pinto beans
- 1/2 avocado, sliced
- 1/4 cup of salsa
- 2 yellow corn tortillas

Snack

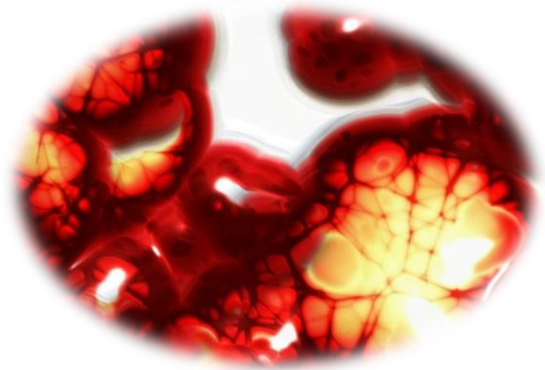
- 5 pieces of Medjool dates

Iron

What Is Iron?

Iron is a very important mineral that is responsible for helping your red blood cells transport oxygen throughout the rest of your body. Iron is also part of the myoglobin, which is responsible for supplying all of your muscle cells with oxygen. Overall, iron plays a huge role in almost every function of your body.

Vegetarians and vegans tend to have lower amounts of iron stored in their body than those who eat red meat. While vegetarian men rarely suffer from anemia, it is very common in vegetarian women. This deficiency can lead to fatigue, shortness of breath and fast heartbeat.



Recommended Dietary Allowance

- Men and non-menstruating women - 10mg daily
- Menstruating or nursing women - 15mg daily
- Pregnant women - 30 mg daily

Currently there is no recommended daily allowance of iron geared towards vegetarians. However, the Food and Nutrition Board does recommend vegetarians get up to 1.8 times the RDA for iron. This is just a precautionary measure to ensure that enough is taken on a daily basis.

Dietary Iron

Heme and non-heme are the two types of iron you will find in food. Most meats contain heme iron. This type of iron is absorbed a lot easier by the body than non-heme iron that is found in plant foods. In addition, while plant foods can be high in iron, they are usually attached to compounds called Phytates that reduce the amount that gets absorbed by the body.

Three Simple Ways To Increase Iron Absorption

- 1) Eat foods rich in vitamin C with every meal

2) Have a cup of coffee or glass of tea in between meals versus with meals

3) Take calcium supplements between certain meals

Excellent Sources of Vitamin C

- Grapefruits
- Oranges
- Bell peppers
- Strawberries
- Cauliflower
- Broccoli

Vegan Sources Of Iron

Vegetables

- Potatoes
- Sun dried tomatoes
- Arugula
- Tomato paste
- Cooked spinach
- Peas
- Turnip greens
- Collard greens
- Beet greens
- Swiss chard
- Broccoli



Beans And Legumes

- Black beans
- Black-eyed peas
- Chickpeas
- Kidney beans
- Lentils
- Lima beans
- Pinto beans
- Tahini
- White beans



Soy

- Tofu
- Spirulina
- Soybeans
- Tempeh



Grains

- Brown rice
- Quinoa
- Oatmeal
- Enriched bagel
- Whole wheat pasta



Seeds

- Pumpkin Seeds

Fruits

- Dried apricots
- Dried peaches
- Prune juice
- Strawberries



Miscellaneous

- Dark chocolate
- Blackstrap molasses
- Dried thyme

Athletes and Iron Deficiency

If you consider yourself an athlete, having an iron deficiency can greatly reduce your athletic performance. If you have a low iron status but don't have anemia, taking iron supplements may be the best option for you. Doing so can help you improve your overall athletic performance.

Anytime you take part in regular physical activity, especially something as intense as running, you will need more iron. This is because during intense exercise you lose iron from your intestinal tract. If you are a vegetarian athlete, it is recommended you consume more iron than the RDA. You should also have your

iron levels tested on a regular basis, ask your doctor. Always monitor your iron stores and know the signs of iron deficiency.

Even though vegetarians tend to have lower iron stores, vegetarian men are able to maintain an adequate iron status. Women on the other hand have to be more careful. Women should make every conscious effort to consume more foods that are rich in vitamin C and iron. If you have trouble getting iron from food or you suspect a deficiency, speak with your doctor about a blood test for deficiency and possibly taking an iron supplement.

Symptoms Of Iron Deficiency

- Fatigue, irritability, weakness, and inability to focus which is a side effect of the body not receiving enough oxygen
- Headaches as a result of arterial swelling in the brain due to lack of oxygen
- Cravings for ice by women
- Lack of oxygen to the nervous system can cause anxiety
- Loss of hair is seen in extreme anemia, since the body is now reserving oxygen for more important functions.
- Low oxygen levels can cause shortness of breath that is felt during exercise or even during the lightest exertion.

Too Much Iron In Your Diet

In some rare cases, you may get too much iron in your vegetarian diet. Too much iron can lead to health issues such as diabetes, colon cancer, and in some cases, early death.

There is also a genetic disease known as hemochromatosis, which causes the body to absorb iron too quickly and too easily. Due to the buildup of excess iron, your liver may be damaged as a result. Because of this, it is extremely important both men and women have their iron levels tested. This way if you are absorbing too much your doctor can recognize it and treat it accordingly.

Avoid taking high doses of iron supplements as doing so can increase your risk for disease. If you must take iron pills, take no more than 20 milligrams per day unless your doctor recommends otherwise. Too much iron can also lead to constipation.

If you feel you have an iron deficiency, speak with your doctor about being tested. Generally speaking, an iron deficiency can be treated with iron supplements. The key is to follow your doctor's orders. Never take more iron than your doctor prescribes.

B12



What Is Vitamin B12?

Vitamin B12 is a very important nutrient that is needed for blood cell health and development of the nervous system. The body needs B12 to make red blood cells that's job is to carry oxygen through the body. B12 deficiency can lead to anemia or a lack of red blood cells that can result in general weakness and fatigue.

Deficiency can also cause damage to nerves and can negatively affect memory and cognition. Plant foods with all their wonderful health benefits do not naturally contain B12. Unless you choose to take a B12 supplement, or consume foods that have been B12 fortified, you are at greater risk of a vitamin B12 deficiency.

Recommended Dietary Allowance

- Kids age 1 to 3 - 0.9 mcg daily
- Kids age 4 to 8 - 1.2 mcg daily
- Kids age 9 to 13 - 1.8 mcg daily
- Those 14 and older - 2.4 mcg daily
- Pregnant women - 2.6 mcg daily
- Breast-feeding women - 2.8 mcg daily

How Do You Know If You Have A B12 Deficiency?

Your liver actually stores extra B12 and your body goes through a process that recycles it. Because of this, it can take up to 10 years for some adults to develop a deficiency. If your past intake of vitamin B12 was somewhat low, you may develop a deficiency much sooner.

Symptoms of Deficiency

- If you have extremely low levels of B12 in your system, the result is anemia.
- In some cases, you may also experience problems with cognitive function.
- Other symptoms of B12 deficiency include excessive fatigue, numbness and tingling in your legs and arms, irritability, dementia, depression and memory loss just to name a few.
- Some people will also have difficulty balancing while walking. These symptoms aren't always due to a deficiency in B12.

See your doctor if you are experiencing any of these symptoms.

Vegan/Vegetarian Sources Of B12

- One cup of rice milk contains anywhere between 1 to 3 micrograms of B12.
- You can also get 1.5 micrograms from commercial cereal that has been B12 fortified.
- Cheese, eggs, yogurt, and milk naturally contain vitamin B12.
- Any B12 fortified food, including, breakfast cereals, soy beverages, nutritional yeast and meat analogs derived from plants.



Please be sure to read all labels no matter what the brand. Not all brands have the same amount of fortification. Some don't have B12 fortification at all. That's why it is vital you read the labels.

Vegetarian meat analogs that have been fortified can have as much as 6 micrograms of B12 per serving. While more and more foods are being fortified with B12, it's very important you still take the time to read all labels.

Vitamin B12 Supplements

Vitamin B12 supplements are available, especially for those who have a hard time getting the recommended daily allowance through food alone. However, it's important to know that not all supplements are created equal.

Your body can only absorb so much B12 at a time. If you opt to take a supplement, do not take more than 10 to 50 micrograms per day. Taking larger amounts will only lead to poor absorption and a wasted supplement.

In order for effective absorption to take place, a B12 tablet must either be chewed or dissolved under the tongue. B12 capsules are readily absorbed as they are dissolved in the gastrointestinal tract. There are also sub-lingual B12 sprays. They can be a great source of B12 for those who don't like taking pills. Always ask your doctor before using B12 supplements.



Vitamin B12 and Newborn Babies

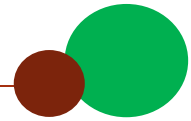
Babies who are born to strict vegetarian mothers have an increased risk of B12 deficiency. Vitamin B12 is essential to babies in the womb. If the mother is already deficient, there is a good chance the child will be as well. Children who suffer from a vitamin B12 deficiency may be lethargic, apathetic and had a difficult time thriving in everyday situations. If you think your child has a B12 deficiency have them checked out immediately.

Final Thoughts

It is not uncommon for vegans and vegetarians to suffer from a vitamin B12 deficiency. That's why it is very important you make an effort to get adequate amounts on a daily basis. If you are not consuming B12 fortified plant foods on a regular basis, taking a B12 supplement may be necessary.

Study all food labels very carefully as some can be quite deceiving. Always check to see how much B12 is supplied per serving. Doing so will help you reach your daily vitamin B12 goals. Again, check with your doctor, especially if you are a pregnant vegan or vegetarian.

Zinc



What Is Zinc?

Most people completely overlook zinc but it is a very important mineral. It is responsible for things such as helping wounds heal properly, keeping your immune system strong, mental alertness, and supporting child development and growth. Unlike many other minerals, zinc is not stored in the body; its only source is food.

This is where vegans and vegetarians usually run into trouble. Most vegetarians, especially if they are strict vegetarians, do not get nearly enough zinc in their diets. This of course can lead to a zinc deficiency.

Doctors must look at several different factors including your diet and symptoms of a deficiency before they can determine if there is a problem.

Symptoms Of Deficiency

- Wounds low to heal
- Weakened immune system
- Weight loss
- Abnormalities in taste
- Mental fatigue
- Loss of appetite

Recommended Dietary Allowance

- Children and babies from birth to 3 years of age - 2 mg daily
- Children ages 4 to 8 years - 5 mg daily
- Children ages 9 to 13 years - 8 mg daily
- Teen boys ages 14 to 19 - 11 mg daily
- Teen girls ages 14 to 18 - 9 mg daily
- Adult men - 11 mg daily
- Adult women - 8 mg daily
- Pregnant teens - 12 mg daily
- Pregnant women - 11 mg daily
- Breastfeeding teens - 13 mg daily
- Breastfeeding women - 12 mg daily

Vegetarians And Zinc Intake

Most plant foods contain phytic acid, which can interfere with the amount of zinc that gets absorbed in your body. Since vegetarians eat many plant foods, this can present a serious problem. If your diet is high in phytic acid foods, you may be required to get 50% more zinc than the general population.

To reduce the amount of phytic acid in your diet:

Soak grains, seeds, and beans for several hour until they sprout.

Increase intake of leavened grains that allow for better absorption of zinc, like whole grain bread instead of unleavened varieties like crackers. Whole wheat bread has a higher amount of zinc, which ultimately results in more zinc being absorbed in the body.

Vegan Sources Of Zinc

When it comes to zinc there is a wide variety of foods that can provide it. The best sources will have anywhere between 1 to 2 mg per serving. The good news is there are quite a few foods that fall into this category.

Soy Foods

- Tofurky Italian Sausage 1 sausage has 9mg
- Tofu (raw and firm)
- Tempeh
- Edamame

Legumes And Beans

- Garbanzo beans
- Pinto beans
- Kidney beans
- Lentils
- Hummus and Chickpeas (cooked)

Vegetables

- Mushrooms
- Spinach
- Broccoli



- Kale
- Corn
- Green peas

Grains

- Wheaties
- Wheat germ cereal
- Rice Chex
- Oatmeal
- Whole-wheat bread

Nuts & Seeds

- Almonds
- Cashews
- Chia seeds
- Peanut butter
- Peanuts
- Pecans
- Pistachios
- Pumpkin seeds
- Sunflower seeds
- Walnuts

Miscellaneous

- Miso
- Nutritional Yeast

Pregnancy, Children and Zinc Deficiency

When it comes to vegetarian children, a zinc deficiency is not very common, especially in industrialized countries. Soy formulas have a significantly lower level of zinc bioavailability than milk based formulas. If you are feeding your infant soy formula, make sure they get 150% of the Dietary Reference Intake for infants.

For the first 4 to 6 months of life, breast milk will provide an adequate amount of zinc. However, once the infant hits 7 months breast milk will no longer provide what's needed. You should therefore introduce foods with zinc; these can be natural or fortified.

If you have a child that is a vegetarian, keep a close eye on how they grow. If they are growing slowly, you should have their zinc status assessed. Children between the ages of 6 months and 3 years old should get 5 mg of zinc a day. For older children the number goes up to 10 mg a day.

All vegetarians should make a conscious effort to include high zinc foods in their daily diets. If you start to experience signs of a zinc deficiency, increase your zinc intake so that it equals 150% of the recommended daily allowance. You can reach this amount by taking a modest zinc supplement.

Zinc Supplements

Most vegetarians, especially those living in developed countries, should have no problem getting adequate amounts of zinc in their diets. However, if you feel you are showing signs of a zinc deficiency, have your diet evaluated by a registered dietitian. They will be able to help you tweak your diet to ensure you get all the zinc, as well as other important minerals, you need.

Be sure to do research before taking any zinc supplement and get the approval and advice of your doctor.

In some cases, you may need to increase your zinc intake to 150% of the recommended daily allowance. If you aren't able to reach this amount with food, alone you may need to use a supplement.

The two most reliable zinc supplements are zinc gluconate and zinc citrate. The upper tolerable intake of zinc is 40 mg a day. Taking a supplement that offers more than this amount can lead to copper not being properly absorbed by the body.

Iodine



What Is Iodine?

Iodine is an important molecule used in your body all the time. We need iodine in order to make T4 (thyroxine) and T3 (triiodothyronine). These molecules are synthesized in the thyroid gland and are responsible for maximizing our cellular metabolism. When we eat foods high in iodine, much of the iodine goes immediately to the thyroid gland, which makes both T4 and T3.

Iodine has many uses in the body besides its function in the thyroid gland. Iodine is used for the following health-related conditions:

- **To sterilize wounds** - Products you buy for antibacterial agents usually contain iodine as its active ingredient.
- **To counteract radiation exposure** - Iodine displaces radioactive iodine taken up by the thyroid gland after a radiation exposure. This helps to salvage the thyroid gland from radiation damage.
- **To prevent goiter** - Goiter is a condition where the thyroid gland has become enlarged because of a lack of iodine intake. Providing iodine will correct this deficiency and the thyroid size will normalize.
- **Boost metabolism** - When the thyroid gland can no longer keep up by making enough T3 and T4, the metabolism of the cells drop. You may feel cold all the time; have dry skin, and an irregular heart rate. Giving exogenous iodine will help the thyroid gland work better, thus improving metabolism.
- **As a tonic for sore throat** - Some people use a nascent iodine solution in order to kill off bacteria in the throat, such as when you have strep throat. In such cases, the nascent iodine is gargled and spit out without drinking it.
- **As a benefit to breastfeeding** - Iodine is passed through breast milk and is important in the infant's own metabolism. Iodine has been found to improve the overall health of the female breast.
- **As an expectorant** - Iodine can loosen phlegm in the throat, nose, and respiratory tract so that you can get the thick phlegm out more easily.
- **For ovarian health** - There is evidence to suggest that iodine is necessary for proper ovarian function, including its role in fertility. You need enough iodine to help the ovaries do their natural job.
- **To improve mental health** - This is a problem primarily of children, who can suffer from mental disorders when in the face of iodine deficiency.
- **Eye health** - Iodine is protective against those who are exposed to sunlight and UVB rays. In this case, the eyes are primarily helped by having sufficient iodine.

- **Iodine as an antioxidant** - Iodine can scavenge for oxygen free radicals, which prevents the radicals from causing cellular damage.
- **For good skin and hair** - Iodine deficiency can lead to acne and hair loss. You need normal iodine levels for teeth, nails, bone, and skin to develop normally.

Recommended Dietary Allowance

Intake recommendations are provided in the Dietary Reference Intakes (DRIs) as developed by the Food and Nutrition Board (FNB) at the Institute of Medicine of the National Academies.

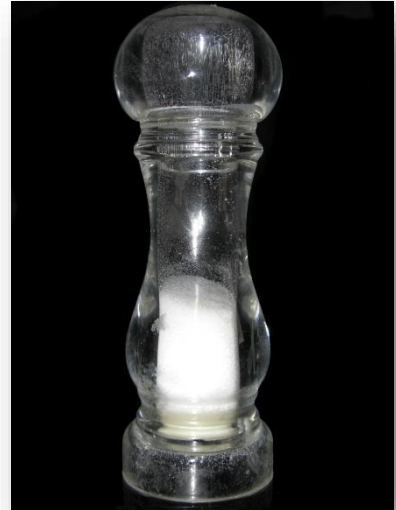
- Boys and girls ages birth to 6 months - 110 mcg daily
- Boys and girls ages 7–12 months - 130 mcg daily
- Boys and girls ages 1–3 years - 90 mcg daily
- Boys and girls ages 4–8 years - 90 mcg daily
- Boys and girls ages 9–13 years - 120 mcg daily
- Boys and girls ages 14–18 years - 150 mcg daily
- 14–18 year old pregnant females - 220 mcg daily
- 14–18 year old females during lactation - 290 mcg daily
- Women and Men 19+ years old - 150 mcg daily
- 19+ year old pregnant female - 220 mcg daily
- 19+ year old females during lactation - 290 mcg daily

Vegetarian And Vegan Sources Of Iodine

Most of the iodine we take in comes in the form of sodium iodide. Some health food experts, however, believe that nascent iodine is more effectively absorbed by the GI tract and therefore is more potent. Iodine comes in iodized salt, which can be used in vegetarian or vegan diets for cooking. This may be enough to prevent goiter. Other sources of iodine you may choose as a vegetarian or vegan include the following healthy foods.

Vegan Sources

- Sea vegetables: sea kelp, nori, kombu, wakame and arame. Any sea vegetable will have a great deal of iodine in them because of their oceanic origins.
- Iodized salt
- Himalayan crystal salt
- Navy Beans
- Enriched bread
- Enriched macaroni
- Corn
- Prunes
- Raisin Bran
- Lima beans (boiled)
- Apple Juice
- Green Peas
- Banana
- Strawberries
- Cranberries are rich in iodine and are good antioxidants
- Green Beans



Vegetarian With Dairy

- Eggs
- Milk
- Yogurt
- Cheddar Cheese

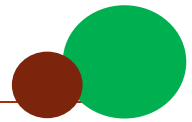


Vegetarian With Seafood

- Shrimp
- Canned Tuna
- Baked Cod
- Lobster

With these great food sources for iodine, you likely will not need supplements when following a vegan or vegetarian diet.

Essential Fatty Acids



What Are Fatty Acids?

Essential fatty acids are those that are not naturally made by the body but can only be obtained from food. We need a complement of all types of fatty acids in order to make cell membranes and organelles within the cells of our body.

While fat has gotten a bad rap in modern times, the body actually needs healthy forms of fat to perform various internal functions and for good health and they should be a part of any healthy diet, including the vegan and vegetarian varieties.

Types of Essential Fatty Acids

Two main essential fatty acids are omega-3 and omega-6 fatty acids, which are parts of polyunsaturated fats.

Recommended Dietary Allowance

It is recommended that adults receive 2% of their calories from omega-6 fatty acids and 0.5% percent of their calories from omega-3 fatty acids. This translates to approximately 6 grams per day of Omega-6 and 1 gram per day of omega-3 essential fatty acids.

Omega-6 and omega-3 fatty acids are both important; however, a healthy vegetarian or vegan diet needs to have these fatty acid nutrients in the proper ratio. Ideally, you should have a 1:1 to 4:1 ratio of omega-6 to omega-3 fatty acids in the diet. Unfortunately, the ratios found in typical Western diets have up to a 25:1 ratio of omega-6 to omega-3 fatty acids, which means we don't have the opportunity to use our omega-3 fatty acids to the proper extent.

The typical diet looks to fatty fish, shrimp, beef, dairy milk, cheese, and enriched eggs for Omega-3 fatty acids; fortunately, there are plant-based sources of these essential nutrients for those who choose to eliminate animal and seafood products as part of a vegetarian or vegan diet. It is important to pay attention to a proper intake as deficiency can cause medical complications.

Complications Of Deficiency

The names of healthy essential fatty acids we need to thrive include linolenic acid and linoleic acid, found in plant-based oils. When we don't get these fatty acids in our diet, we can develop a decrease in growth rate (among children), liver and kidney damage, poor immune function, skin dryness and depression.

Polyunsaturated fats made from essential fatty acids prevent plaque buildup on arterial walls, which ultimately can lead to heart attacks and strokes.

Without essential fatty acids, we are more prone to menstrual difficulties, ulcerative colitis, and an increase in joint discomfort. Omega-3 fatty acid intake is associated with a decreased risk for breast cancer.

Vegan Sources Of Omega-6 Fatty Acids

Omega-6 fatty acids that include linoleic acid can be found in the following foods:

- Seeds: pumpkin and sunflower
- Walnuts, almonds and pecans
- Vegetable oils: safflower oil, corn oil, sesame oil, sunflower oil and soybean oil
- Cereals, durum wheat and whole-grain breads



Gamma-linolenic acid is another form of omega-6 fatty acid, which is found in:

- Hemp oil
- Borage oil
- Black currant oil

Vegan Sources Of Omega-3 Fatty Acids

Omega-3 fatty acids are harder to come by in a vegetarian diet. We need between 1.1 and 1.6 grams of omega-3 fatty acids each day.

One type of omega-3 fatty acid is called alpha-linolenic acid or ALA; good vegan sources include:

- Flaxseeds
- Soy products

- Nuts
- Soybeans, navy beans, and kidney beans
- Leafy greens: romaine, arugula, spinach and purslane (an edible weed)

Foods Rich In Omega-3 fatty Acids:

- Walnuts and pecans
- Mung beans
- Wild rice
- Soybeans
- Edamame
- Tofu
- Vegetable oils: corn oil and sunflower oil
- Plant oils: flaxseed oil, linseed oil, canola oil, soybean oil, wheat germ oil and walnut oil
- All cabbages
- Cauliflower, broccoli, bok choy and Brussels sprouts
- Winter squash

As previously mentioned, the typical American diet has an imbalance of the proper ratios of omega-6 to omega-3 fatty acids. Walnuts and flaxseeds make it easy to add this nutrient into your everyday diet. They can be added to salads, into smoothies and on yogurt in a vegan diet.

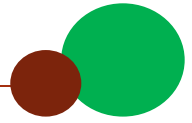
Nut butters are also a good option, especially when eaten with whole grain bread. Ground flaxseed also adds a nice nutty flavor to steamed vegetables, like winter squash and Brussels sprouts, both of which contain omega-3 as well.

Edamame makes a great snack or side dish. Wild rice is easy to prepare, and can be blended with crispy steamed vegetables for a delicious side dish that also offers essential fiber and other whole grain goodness. Making a stir-fry with tofu, cauliflower, broccoli, and bok choy gives you four great sources of omega-3 fatty acids and when you make it with an omega-6 oil, like sunflower or soybean oil; you have a nice ratio of omega-6 to omega-3.

Vegetarian and vegan diets do not have to be nutrient-poor when it comes to getting enough essential fatty acids like omega-6 and omega-3 fatty acids. There are healthy sources of these fatty acids in plant sources as listed above and a carefully planned vegan or vegetarian diet should pay attention to fat sources as well as protein and carbohydrate sources.

Fish oil supplements are generally recommended for those who are lacking in these nutrients, ask your doctor.

Conclusion



Sound nutrition is an important consideration for good health for vegans, vegetarians, and meat eaters. Of course, those choose to eliminate food groups need to take care with proper substitutions. In order to reap all the health benefits of a vegetarian or vegan lifestyle it is important to never ignore the important nutrients that animal foods provide.

Thankfully, there are plenty of choices and no vegan or vegetarian need ever suffer from any type of nutrient deficiency.