

# How Vegans Get Calcium, Iron, Protein, A, B12 & D



**VegHealth**

Vegan Nutrition Guide

Introduction by Sarah & VJ Anma

## Welcome to your new level of health!

In recent years, several vegetarians have gone public about adding meat back to their diets. In 2009, Lierre Keith released *The Vegetarian Myth*. In 2011, Susan Schenck published *Beyond Broccoli*. And in 2013, Alexandra Jamieson (author of two vegan books), posted to her blog: “*I’m not vegan anymore.*”



Our hearts sink when we hear stories like this. Staying healthy is entirely possible for most vegans. We believe this so much, we have a whole program designed to teach this to you and other health conscious eaters. But you can’t go about it haphazardly, which is how we did early on. We began enthusiastically attending vegan conferences many years ago. When the speakers touted the benefits of veganism – with little mention of the risks – we became overconfident. After all, our risk of high blood pressure, cholesterol, and heart disease was dramatically lower. So surely we were invincible, right?

With this false confidence, we took our health for granted. We rolled our eyes when relatives worried about us. But eventually, you can suffer health problems. In plant foods, vitamin B12 and D are harder to find. And nutrients like Iron and Vitamin A are harder to absorb. So you need a game plan. First, know which foods are high in these nutrients. Second, eat them in the right combinations to maximize absorption. And third, avoid foods and beverages that keep your body from absorbing them.

Without the right game plan for meeting your nutritional needs, a plant-based diet has pitfalls. Animal rights activists might wish nobody talked about these pitfalls. But understanding them is the key to thriving as a vegan.

We are Sarah and Vj and we are the proud owners of Vegetarian Health Institute. Sarah’s been a coach for 10 years and VJ is a programming wizard. We are very health conscious and passionate about helping people become healthier. VJ has been a vegan for almost 20 years and Sarah has been a vegetarian/vegan for 32 years.

We created this booklet to show you which foods are high in essential nutrients and give you a taste of what’s in our Vegan Mastery Program. In 2009 The Vegetarian Health Institute was founded and with the wisdom and science of respected chefs, Doctors, and Registered Dietitians, The Vegan Mastery Program was first launched. It’s a series of 50 lessons that teach you how to thrive on a plant-based diet. Each lesson contains several written modules and a recorded interview with a guest expert. With our step-by-step program, it’s easy to stay healthy on a vegan diet. As our student, you’ll learn the right way to combine foods so you absorb more nutrition from your meals.

To learn about our Vegan Mastery Program, [click here](#).

Feel free to forward this guide to others. You have our permission!

# CALCIUM

The plant foods highest in calcium are leafy greens like spinach, kale, and turnip greens. However, the food industry fortifies many staple foods with calcium – including orange juice, soy milk, tofu, and breakfast cereals.<sup>1</sup> This helps ensure that we all get enough.

Does this mean you don't have to worry about calcium? Not necessarily. You're not what you eat. You're what you absorb.

So What Interferes With Calcium Absorption?

Here are two factors that impede calcium absorption:



## Select Plant Sources of Calcium

Food	Serving size	Calcium in standard portion (mg)	Calcium per 100 grams (mg)
Tofu, firm, made with calcium sulfate, raw	½ cup	434	350
Orange juice, calcium fortified	6 ounces	375	201
Soybeans, cooked	1 cup	261	145
Blackstrap Molasses	1 Tbsp	200	183
Tempeh	1 cup	184	111
Collard greens, boiled	½ cup	133	140
Tahini	2 Tbsp	128	426
Okra, cooked	1 cup	123	77
Spinach, boiled	½ cup	122	136
Instant breakfast drink, various, with water	8 ounces	105-250	285
Turnip greens, raw	1 cup	104	190
Ready to eat cereal, calcium fortified	1 cup	100-1000	357-3571
Turnip greens, boiled	½ cup	99	137
Kale, cooked	1 cup	94	72
Kale, raw	1 cup	90	135
Almonds	¼ cup	94	264
Almond butter	2 Tbsp	111	347
Soy milk, calcium fortified	8 ounces	340	140
Soy yogurt	6 ounces	300	132
Chinese cabbage, boiled	½ cup	79	93
Chinese cabbage, raw	1 cup	74	105

Sources: Report of the DGAC on the Dietary Guidelines for Americans, The Vegetarian Resource Group.

- 1) **Phytic Acid** occurs naturally in the bran of whole grains, nuts, seeds, soy isolates, and the skins of legumes. It's particularly rich in isolated wheat bran.<sup>2</sup> It binds to minerals like calcium, magnesium, iron, and zinc to form an insoluble complex, interfering with the absorption of these minerals.<sup>3</sup>
- 2) **Oxalic Acid.** Oxalic acid occurs naturally in many plant foods. When oxalic acid and calcium are contained in the same food, it binds to the calcium and forms less soluble salts known as oxalates. This interferes with absorption. It has the same affect on iron, sodium, magnesium, and potassium, when contained in the same food. The more oxalic acid, the more interference.<sup>2</sup>

Some calcium rich foods high in oxalates are almonds, beets, cocoa, miso, mixed nuts, sesame seeds, spinach, and Swiss chard.<sup>4</sup>

In lesson 3 of the [Vegan Mastery Program](#) -- "[How To Absorb More Calcium From Your Meals](#)" – you'll discover:

- Which foods contain high, moderate, and low amounts of oxalic acid
- How to release oxalic acid from your food, so you absorb more calcium from your meals

- Six ways to release phytic acid during food preparation
- Which foods, condiments, and drugs inhibit calcium absorption.
- The latest RDA for men, women, children, and pregnant and breastfeeding mothers
- Quick, delicious recipes high in both calcium and a complimentary nutrient that supercharges calcium absorption, so you absorb more calcium now and for the rest of your life. Forexample:
  - Lemony Lentil and Potato Chowder »
  - Blanched Spinach with Toasted Sesame Dressing »
  - Black-Eyed Peas & Spinach »
  - Bean & Vegetable Soup »

You'll also get a downloadable 1-hour Q&A of Michael Klaper, M.D, answering student questions.

If you worry about getting enough calcium, we offer gluten and dairy-free whole food menu plans.

# IRON

Iron-rich plant foods include raisins, soybeans, lentils, kidney beans, spinach, collards, pumpkin seeds, oat cereal, and quinoa.<sup>1</sup>

Unlike the “heme” iron in flesh foods, only 10% – 20% of the non-heme iron in plant foods gets absorbed by your body.<sup>5</sup> (And neither eggs nor dairy contain iron.) The good news is this. There are three “magic” food combinations that dramatically enhance iron absorption from vegan foods!



## Select Plant Sources of Iron

Food	Serving size	Iron in standard portion (mg)	Iron per 100 grams (mg)
Tempeh	1 cup	4.5	2.7
Soybeans, mature, cooked	½ cup	4.4	5.1
Fortified ready-to-eat cereals (various)	¾ - 1- ½cup (~1 ounce)	4.2-18.1	8.2-62.0
White beans, canned	½ cup	3.9	3.0
Fortified instant cereals (various)	1 packet	3.8-17.2	2.5-6.7
Blackstrap Molasses	1 Tbsp	3.6	2.4
Tofu, raw, firm	½ cup	3.4	2.7
Lentils, cooked	½ cup	3.3	3.3
Potato, baked	1 large	3.2	1.1
Quinoa, cooked	1 cup	2.8	1.6
Tahini	2 Tbsp	2.7	9.0
Chickpeas, cooked	½ cup	2.4	2.9
Pumpkin and squash seed kernels, roasted	1 ounce	2.3	8.1
Soybeans, green, cooked	½ cup	2.3	2.5
Lima beans, cooked	½ cup	2.3	2.4
Navy beans, cooked	½ cup	2.2	2.4
Black-eyed peas, cooked	½ cup	2.2	2.5
Cashews, dry roasted	¼ cup	2.1	6.0
Swiss chard, cooked	½ cup	2.0	2.3
Kidney beans, cooked	½ cup	2.0	2.2

Sources: Report of the DGAC on the Dietary Guidelines for Americans, The Vegetarian Resource Group, and manufacturers' information.

For example, lacto fermented vegetables -- like sauerkraut-- enhance iron absorption when combined with iron rich foods.<sup>6</sup> (The secret is the lactic acid.)

Once you know all three iron-enhancing food groups, you can combine any of them with iron-rich foods and instantly absorb more iron.

In Lesson 7 of the [Vegan Mastery Program](#) -- “**How to Absorb More Iron From Your Meals**” -- you’ll discover:

- Which other food combinations make the iron in your meals more absorbable
- Which food prep methods release iron-blockers from whole grains, nuts, seeds, and legumes.
- Which foods, beverages, and over-the-counter drugs impede iron absorption.
- The latest RDA for men, women, children, and pregnant and breastfeeding mothers
- Delicious recipes that employ the food combinations referenced above, so you absorb more iron now and for the rest of your life. Here are a few of the mouth-watering recipes you’ll receive:

- Greens Sushi »
- Lemon-Rosemary Tempeh »
- Spicy Thai Wraps »
- Spinach Salad With Orange-Tahini Dressing»
- Nomi’s Smoothie »
- Spinach Puree »
- Orange-Cashew Crème »
- Greens Braised with Tomatoes and Thyme»
- Kale and Potato Smash »
- Spinach with Warm Lentils »

You’ll also get a downloadable 1-hour Q&A of Michael Klaper, M.D, answering student questions.

You’ll enjoy our delicious recipes that employ all three iron-enhancing food combinations!

# PROTEIN

Protein is made up of 22 amino acids. However, you only need nine of them from food. These are called the essential amino acids (EAAs). Your body can create the others.<sup>7</sup>

Most plant foods have all of the essential amino acids, but the amounts of one or two amino acids are low. For example, while grains are low in lysine, legumes are low in methionine.<sup>7</sup> That's why omnivores make such a "hub bub" about protein.

Decades ago, the book *Diet For A Small Planet* led us to believe that beans and grains had to be combined in the same meal. But the book's author later retracted that statement!

When you eat a well rounded diet of whole foods, you're almost certain to get all nine EAAs in the course of a day. For example, you can eat beans with lunch and grains with dinner.

That said, many vegans still find it comforting to include whole proteins in their diets. Well here's great news. Soybeans, soy "meats", tofu, quinoa, and spinach are high in all 9 essential amino acids.<sup>7</sup>

## How much protein do you need?

The RDA recommends consuming 0.8 grams of protein for every kilogram you weigh (or 0.36 grams of protein per pound you weigh).<sup>8</sup>

If you primarily eat whole foods, however, we recommend increasing that to 1 gram of protein per kilogram of body weight (or 0.45 grams of protein per pound that you weigh). Why?

The protein in whole, unprocessed plant foods is not entirely digestible.

For example, the protein in whole soybeans has a digestibility score of 78%, whereas the protein from isolated soy protein, soy "meats", tofu, and other soy foods is in the 90-98% range. Likewise, refined wheat protein is more digestible than the protein in whole wheat berries.<sup>9</sup>

This is ironic, since we normally recommend whole foods, *not* their processed counterparts (which are stripped of vitamins and minerals)! But the solution is simple: if you eat mostly whole foods, increase your protein intake to 1 gram per kilogram of body weight.



We've just scratched the surface here. In lesson 14 of the [Vegan Mastery Program](#) -- "*Six Ways to Get Plenty of Protein*" -- you'll discover:

- The dangers of eating too much protein
- How to "transform" beans so they never cause gas, bloating, or indigestion.
- Which protein sources we discourage eating and why
- The six vegan food groups highest in protein
- The latest RDA for men, women, children, and pregnant and breastfeeding mothers
- Delicious high protein recipes like these, most of which are soy-free:
  - Tuscan White Bean Soup »
  - Curried Lentils and Rice »
  - Black Bean Quinoa Burgers »
  - Hearty Cabbage Casserole »
  - Heirloom Bean & Vegetable Soup »
  - Faux Salmon (almond-based) »
  - Sun Garden Burgers »
  - Blanched Spinach with Toasted Sesame Dressing »
  - Kale with Orange-Tahini Dressing »

You'll also get a downloadable 1-hour Q&A of Vesanto Melina, R.D., answering student questions. Vesanto is a Registered Dietitian and author or co-author of six nutrition books, including *Becoming Vegetarian*, *Becoming Vegan*, and *Becoming Raw*.



Note that athletes need more calories and protein than other people, especially when working out causes micro-tears in their muscles.

That's why we enlisted Robert Cheeke to write Lesson 19 of *The Vegetarian Mastery Program*, "Building Muscle". Robert also answered student questions on the related Q&A call. Robert is a champion bodybuilder, and he's hailed as "one of the 15 most influential vegan athletes" by VegNews Magazine.

## Select Plant Sources of Protein

(*Italicized foods are high in all 9 essential amino acids.*<sup>7)</sup>)

Food	Serving size	Protein in standard portion (mg)	Protein per 100 grams (mg)
<i>Soybeans, mature, cooked</i>	1 cup	28.6	16.6
<i>Soybeans, immature, cooked (edamame)</i>	1 cup	22.2	12.4
Vegetarian burger crumbles	1 cup	22.2	20.1
Couscous, dry	1 cup	22.1	12.8
<i>Tofu, raw, regular, prepared w/calcium sulfate</i>	1 cup	20	8.1
Barley, pearled, raw	1 cup	19.8	9.9
White beans, canned	1 cup	19.0	7.3
Lentils, cooked	1 cup	17.9	9.0
Bulgur, dry	1 cup	17.2	12.3
Split peas, cooked	1 cup	16.4	8.3
Oat bran, raw	1 cup	16.3	17.3
Pinto beans, cooked	1 cup	15.4	9.0
Kidney beans cooked	1 cup	15.4	8.7
Black beans, cooked	1 cup	15.2	8.9
<i>Quinoa, cooked</i>	1 cup	8.1	4.4
Pumpkin and squash seed kernels, roasted, with salt added	1 oz (142 seeds)	9.4	33.0
Peanuts, all types, dry-roasted, with salt	1 oz (28 nuts)	6.7	23.7
Sunflower seed kernels, dry roasted, with salt added	¼ cup	6.2	21.8
Pistachio nuts, dry roasted, with salt added	1 oz (47 nuts)	6.0	21.3
Almonds	1 oz (24 nuts)	6.0	21.3
<i>Spinach, boiled</i>	1 cup	5.4	3.0
<i>Spinach, raw</i>	1 cup	0.9	2.9

Source: USDA National Nutrient Database for Standard Reference, Release 23.

## VITAMIN A

Plant foods don't contain active Vitamin A. They contain its pre-cursor, beta-Carotene. Beta-Carotene is 1/12 as potent as retinol, the active Vitamin A in animal foods.<sup>10</sup>

Foods rich in beta-Carotene include broccoli, dark leafy greens like spinach, collards, and kale, carrots, yams, pumpkin, sweet potatoes, cantaloupe, apricots, papaya, mango, and peaches.<sup>1</sup>



## Select Plant Sources of beta-Carotene (Pro Vitamin A)

Food	Serving size	Vitamin A in standard portion (mcg RAE)	Vitamin A per 100 grams (mcg RAE)
Carrot juice	1 cup	2256	956
Sweet potato, baked	1 medium	1096	961
Pumpkin, cooked from fresh or canned	½ cup	306-953	250-778
Carrots, cooked from fresh, frozen, or canned	½ cup	407-665	558-852
Spinach, cooked from fresh, frozen, or canned	½ cup	472-573	490-603
Kale, raw	1 cup	515	769
Carrot, raw	½ cup	509	835
Collards, cooked from fresh or frozen	½ cup	386-489	406-575
Kale, cooked from fresh or frozen	½ cup	443-478	681-735
Mixed vegetables, cooked from frozen or canned	½ cup	195-475	214-583
Turnip greens, cooked from fresh or frozen	½ cup	274-441	381-538
Turnip greens, raw	1 cup	318	579
Fortified instant cereals (various)	1 packet	318-376	186-265
Fortified ready-to-eat cereals (various)	¾ - 1 ¼ cup (~1ounce)	177-307	442-991
Mustard greens, raw		294	525
Dandelion greens, raw	1 cup	279	508
Beet greens, cooked from fresh	½ cup	276	383
Winter squash, cooked	½ cup	268	261
Mustard greens, cooked from fresh	½ cup	221	316
Romaine lettuce	1 cup	205	436

Source: Report of the DGAC on the Dietary Guidelines for Americans

Since beta-Carotene is the precursor to Vitamin A, it might seem like you could get enough Vitamin A just by eating beta-Carotene foods. But the rate of conversion to Vitamin A isn't guaranteed. Although your body is designed to turn beta-Carotene into Vitamin A, two things can affect this conversion process:

- 1) The beta-Carotene in vegetables is hard to absorb, especially those with tough cellwalls.<sup>11</sup>
- 2) Few people eat beta-Carotene together with the nutrients that supercharge Vitamin A production (when combined with beta-Carotene foods).

Here's the good news. There are three food prep techniques that break down the cell walls in vegetables, making beta-Carotene easier to absorb. Cooking is one of them.<sup>11</sup> The other two will be a Godsend if you eat lots of raw vegetables.

In lesson 13 of the [Vegan Mastery Program](#) -- "[How to Convert More Beta-Carotene Into Active Vitamin A](#)" -- you'll discover:

- > Which three food prep techniques break open the cell walls in vegetables, making their beta-Carotene easier to absorb
- > Which two nutrients supercharge the conversion of beta-carotene into Vitamin A, when you eat them at the same time

> The latest RDA for men, women, children, and pregnant and breastfeeding mothers

> Delicious recipes that employ the food combinations referenced above, so you convert far more beta-Carotene into Vitamin A now and for the rest of your life. For example:

- Basil-Red Pepper Sauce »
- Zucchini Chedda Soup »
- Curried Cashew Crème Sauce »
- Sesame Ginger Kale »
- Sweet Potato and Cashew Korma with Rice »

You'll also get a downloadable 1-hour Q&A of Michael Klaper, M.D, answering student questions.

Recipes in cookbooks are only designed to taste great. But what about nutrients -- like iron and Vitamin A -- that are harder to absorb from plant foods? Our recipes aren't just delicious. They follow the life-saving food combinations we teach. So you absorb far more vitamins and minerals.

You'll love our delicious recipes that use optimal food combinations to ensure that your body converts more beta-Carotene to active Vitamin A.

## VITAMIN B12

The medical literature brims with case studies of vegans -- infants, children, adults, and the elderly -- who've incurred bodily damage from B12 deficiency.<sup>12</sup>

The most reliable plant sources of B12 are supplements and B12-fortified foods. These include cereals, non-dairy milks, Red Star nutritional yeast, and "meats" made from wheat gluten or soybeans).<sup>13</sup>

We recommend you take a B12 supplement in methylcobalamin form (not the synthetic cyanocobalamin). A safe dose is 1,000 mcg a day, since less than 1% of B12 is absorbed.



### Select Plant Sources of Vitamin B12

Food	Standard portion size	Vitamin B12 in standard portion (mcg)	Vitamin B12 per 100 grams (mcg)
Gentle Care Formula	2 capsules	30	n/a
Red Star nutritional yeast	1 Tbsp	5.2	48.8
Vegetarian burger crumbles, frozen	1 cup	4.5-9.13	8.3-12.9
Fortified breakfast cereals (various)	¾ - 1½ cup (~1 ounce)	1.5-20.7	2.7-6.0
Fortified soy milk, fortified	1 cup	3.0	1.1
Fortified rice milk, unsweetened	1 cup	1.51	0.63

Sources: Report of the DGAC on the Dietary Guidelines for Americans, manufacturers' information.

In Lesson 9 of the [Vegan Mastery Program](#) -- "[The Truth About Vitamin B12](#)" -- you'll discover:

- > When nutritional yeast has less B12 than it claims to
- > How much B12 is in fermented soy products, amesake rice, umeboshi prunes, and the soil on unwashed veggies
- > Which foods are purported to be good B12 sources, but actually block the absorption of active B12... causing B12 deficiency
- > How to know if you're deficient in B12
- > The latest RDA for men, women, children, and pregnant and breastfeeding mothers
- > A mouth watering recipe for a Nutritional Yeast Gravy

You'll also get a downloadable 1-hour Q&A of Michael Klaper, M.D, answering student questions.



“I’ve been a vegan/macrobiotic cookbook author, food coach and speaker for 37 years. Yet I continue refining my understanding of nutrition, thanks to the broad range of experts Trevor brings to the Q&A calls. My interest in sprouting and juicing has been renewed, and the insights shared on bone health and Vitamins D and B12 have been revelatory.”

– Meredith McCarty, Mill Valley, CA

## VITAMIN D

Not long ago, we believed most people could get adequate vitamin D from sunlight. On this basis, the USDA recommended the following daily intake for both men and women:

Birth to 50 years: 5 mcg (200 IU)  
 51-70 years: 10mcg(400IU)  
 71+ years: 15mcg(600IU)

In recent years, however, we’ve realized the limited power of the sun to produce adequate vitamin D levels. While the “official” dosage recommendations have yet to be revised upward by the U.S. government, here’s what we are recommending now:

For infants/children: 400 IU daily.<sup>14</sup>

For men and women: 1000 – 2000 IU daily.<sup>15</sup>

In their natural form, only a few plant foods contain vitamin D, notably algae, lichen, and UV-irradiated mushrooms. But the amounts are small.

The problem isn’t limited to vegetarians. Even many omnivores are at risk for Vitamin D deficiency. This is a huge concern because your body needs vitamin D to absorb calcium, and build and maintain strong bones.

### Fortification To The Rescue

For these reasons, it’s become common practice to “fortify” orange juice, breakfast cereals, and other staple foods with vitamin D3.

For omnivores, this is no problem. But if you’re a vegan, you may be alarmed to know that Vitamin D3 can come from sheep wool lanolin, pig skin, or cow skin.<sup>16</sup> And here’s the clincher...

There’s no law requiring food manufacturers to indicate the source of the D3 in their foods. There couldn’t be. That’s



because after D3 is extracted, purified, and crystallized, it’s impossible to determine the original source.<sup>16</sup> But there are two pieces of good news:

- 1) Most non-dairy milks are fortified with plant-based Vitamin D2. 1 cup of fortified soy / rice / almond / oat milk typically contains 100 IU.<sup>1</sup>
- 2) When Portobello mushrooms and white “button” mushrooms are briefly exposed to intense ultraviolet light, their naturally-occurring ergosterol is activated to vitamin D2 (ergocalciferol) in quite significant amounts.<sup>17</sup> 3 ounces of UV-exposed mushrooms contain 1520 IU!<sup>18</sup> You can find these at most health food stores.

So how can adults get 1000 IU daily? You can make UV-exposed mushrooms a staple in your daily diet. Or you can take a D2 supplement, or a D3 supplement derived from lichen. The majority opinion in research papers is that Vitamin D3 is more effective than D2.

### Select Plant Sources of Vitamin D

Food	Standard portion size	Vitamin D in standard portion (mcg)	Vitamin D per 100 grams (mcg)
Gentle Care Formula	2 capsules	25	n/a
UV-exposed Portobello mushrooms	1 cup	9.6	11.2
Soy milk, fortified with plant based D2	1 cup	2.7	1.1
Fortified ready-to-eat cereals, typically fortified with animal based D3	¼ - 1 ¼ cup (~1 ounce)	0.9-2.5	2.9-8.3
Rice milk, fortified with plant based D2	1 cup	2.4	1.0
Orange juice, fortified with animal based D3	½ cup	1.7	1.4
Shiitake mushrooms (not UV exposed)	½ cup	0.6	0.8

Source: Report of the DGAC on the Dietary Guidelines for Americans.

In lesson 11 of the [Vegan Mastery Program](#) -- “*The Truth About Vitamin D*” – you’ll discover:

- > Which other foods are fortified with plant-based Vitamin D
- > How Vitamin D partners with calcium to keep your bones strong
- > Why you probably get less Vitamin D from the sun than once believed
- > How to know if you’re deficient in Vitamin D

> The latest RDA for men, women, children, and pregnant and breastfeeding mothers

> Delicious ways to prepare UV-exposed mushrooms including:

- Hungarian Mushroom Soup
- Marinated Mushrooms
- Portobello Mushroom Burgers

You’ll also get a downloadable 1-hour Q&A of Michael Klaper, M.D, answering student questions.

## OMEGA 3s

Flax seeds, hemp seeds, walnuts, and their respective oils are the best sources of alpha-linolenic acid (ALA), a short chain Omega-3 fatty acid.

But your body also needs two long chain Omega-3 fatty acids: EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid). So how do you get those?

Unfortunately, EPA and DHA are almost non-existent in plant foods. No wonder studies have found that blood levels of EPA and DHA are lower in vegetarians than in meat-eaters.<sup>19 20</sup>

There’s one exception: algae. In fact, if you want to take DHA in supplement form, Dr. Joel Fuhrman makes the case that algae based DHA is superior to fish oil. Why?

Most fatty fish contain potentially harmful pollutants, such as dioxin and mercury. People also experience burping and indigestion from these oils because of the fishy taste and foul odor.



### Select Plant Sources of Alpha Linolenic Acid

Food	Standard portion size	ALA in standard portion (mg)	ALA per 100 grams (g)
Walnuts	¼ cup	2,270-2,700	9.1-10.8
Flaxseed oil	1 tsp	2,400	53.3
Peanut butter containing flaxseed oil	2 Tbsp	1,000	1.0
Kashi Go Lean Crunch!, Honey Almond Flax	1 cup	122	0.2
Whole Flaxseeds	1 tsp	900	26.5
Soy nuts	¼ cup	620	1.4
Chia seeds	1 tsp	800	17.6
Flaxseed, ground	1 tsp	570	22.8
Soybeans, cooked	½ cup	514	0.6
Walnut oil	1 tsp	470	10.4
Canola oil	1 tsp	400	8.9
Unshelled hemp seeds	1 tsp	333	10
Broccoli, raw	1 cup	300	0.3
Soybean oil	1 tsp	300	6.7
Pecans	¼ cup	240	0.9
Tofu	½ cup	228	0.2
Soymilk	1 cup	210	0.1
Collards, raw	1 cup	200	0.6
Broccoli, cooked	1 cup	190	0.1
Cabbage, cooked	1 cup	165	0.1

Source: Report of the DGAC on the Dietary Guidelines for Americans, the Vegetarian Resource Group, manufacturers’ information.

But what if you don't take DHA supplements? Can your body convert ALA to EPA and DHA?

It's *possible*. However — and this is a BIG “however” — the rate of conversion is low in women and very low in men.<sup>21</sup>

Why?

The modern American diet is loaded with oils that are high in Omega 6 fatty acids.

Sure, you need Omega 6's in your diet. But the optimal ratio of Omega 6 to Omega 3 is about 1:1 (an equal amount of both).<sup>22</sup> Many oils have terrible ratios. For example, corn oil has a 57:1 ratio and safflower oil has a 76:1 ratio (in favor of Omega 6)!<sup>23</sup>

If you eat processed foods, packaged foods, or restaurant foods made with the wrong oils, this Omega 6:3 imbalance can interfere with DHA and EPA production in your body... even if you eat plenty of flax seeds and walnuts.<sup>24</sup>

In lesson 5 of the [Vegan Mastery Program](#) -- “*How to Convert ALA (the Plant-Based Omega 3) into EPA and DHA*”

– you'll discover:

- > Which foods and oils interfere with your body's ability to make DHA and EPA.
- > How to maximize DHA and EPA production.
- > The latest RDA for men, women, children, and pregnant and breastfeeding mothers
- > A chart showing the Omega 6:3 ratios of 18 different oils.
- > A delicious recipe for a Lemon-Flax Oil Vinaigrette that you can use in place of commercial salad dressings... and skyrocket your daily intake of ALAs.

You'll also get a downloadable 1-hour Q&A of Michael Klaper, M.D, answering student questions.

You'll enjoy our delicious recipes that include chia seeds, flax oil, and vegetables with excellent Omega 6:3 ratios... and exclude fats and oils with poor Omega 6:3 ratios.

## Discover More

Did you find this information valuable? This is a very small extract from the 50 lessons in our [Vegan / Vegetarian Mastery Program](#).

To learn more about this life-changing program, [click here](#) now.

## References

1. USDA Report of the Dietary Guidelines Advisory Committee (DGAC). Dietary Guidelines for Americans, 2010, Part D, Section 2: Nutrient Adequacy.
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