

Vegan Nutrition

Designing an Optimal Diet



Ginny Messina, MPH, RD

Madison Vegan Fest
Sept 8, 2018

Veganism is...

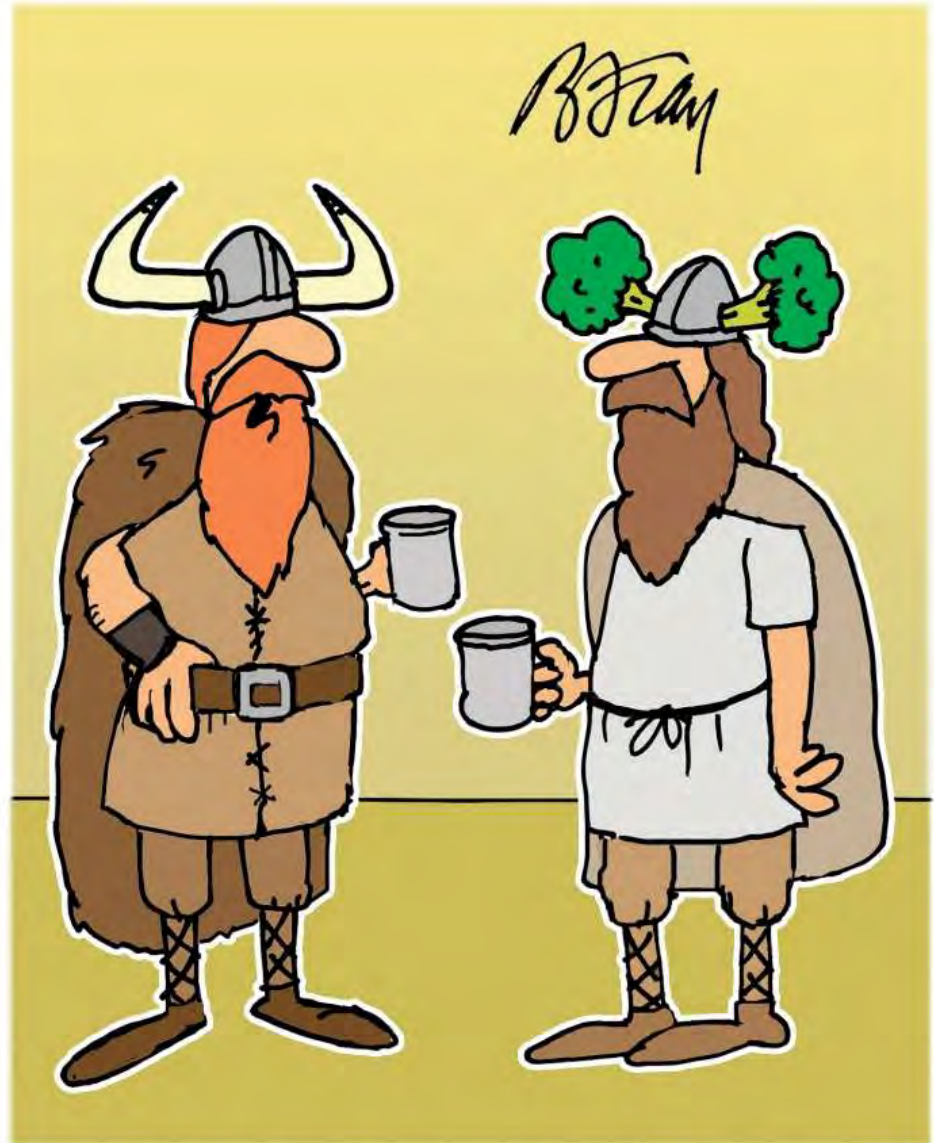
A way of living that seeks to exclude, as far as possible and practical, all forms of exploitation of, and cruelty to, animals for food, clothing and any other purpose



The Vegan Society, 1944



Vegan Diets: No Cultural or Historical Patterns



"SO, BJORN, I HEAR YOU'VE GONE VEGAN!"



- ✓ **Eating for strong bones**
- ✓ **Healthy fats**
- ✓ **Meeting mineral needs**
- ✓ **Vitamin B12**

Latest Article

Cow's Milk, Plant Milks and Growth in Children

by [Ginny Messina](#) | June 8, 2017 | [23 Comments](#)

New research from Canada found that kids who don't drink cow's milk are shorter than those who do. It's a finding that makes for some [sensational headlines](#) but the study itself is not all that exciting.

This was a cross-sectional study of 5,034 children between the ages of two and six years (average age was about three years). Of the study population, 246 kids, or about 5% of the subjects, drank only non-cow's milk, which included plant milks and goat's milk. For each daily cup of non-cow's milk consumed, children were 0.16 inch shorter. By age three, those who drank three cups of non-cow's milk per day were about 0.6 inches shorter than children who drank an equivalent amount of cow's milk, but this finding _

[Read More >](#)

Recent

[Everything You Need to Know about Vegan Nutrition \(Plus a Few Words about Vitamin B12\)](#)

[Even Vegans Die: A Book for Animal Advocates](#)

[Science Matters - for Vegans and Everyone Else](#)



[7 Tips for Sticking With Your New Vegan Diet](#)

For Strong Bones



Protein

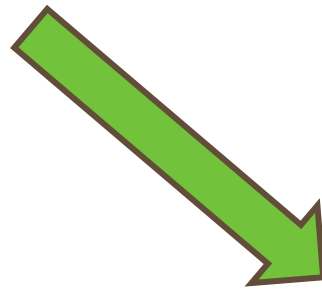
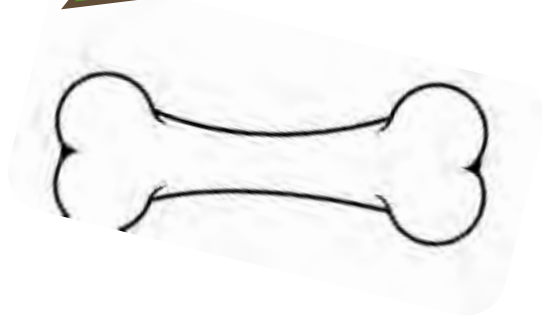


Calcium



Vitamin D

Protein



Protein protects bone health

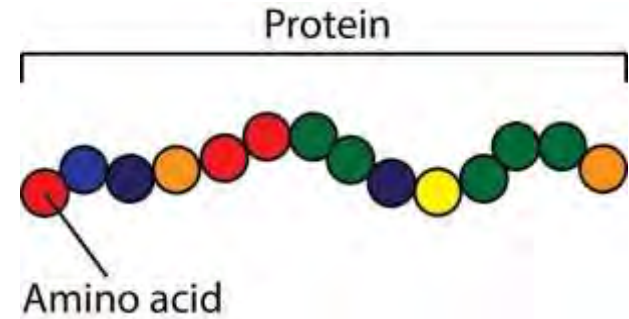
- Improves calcium absorption
- Contributes to bone structure
- Promotes muscle strength



Adventist Health Study



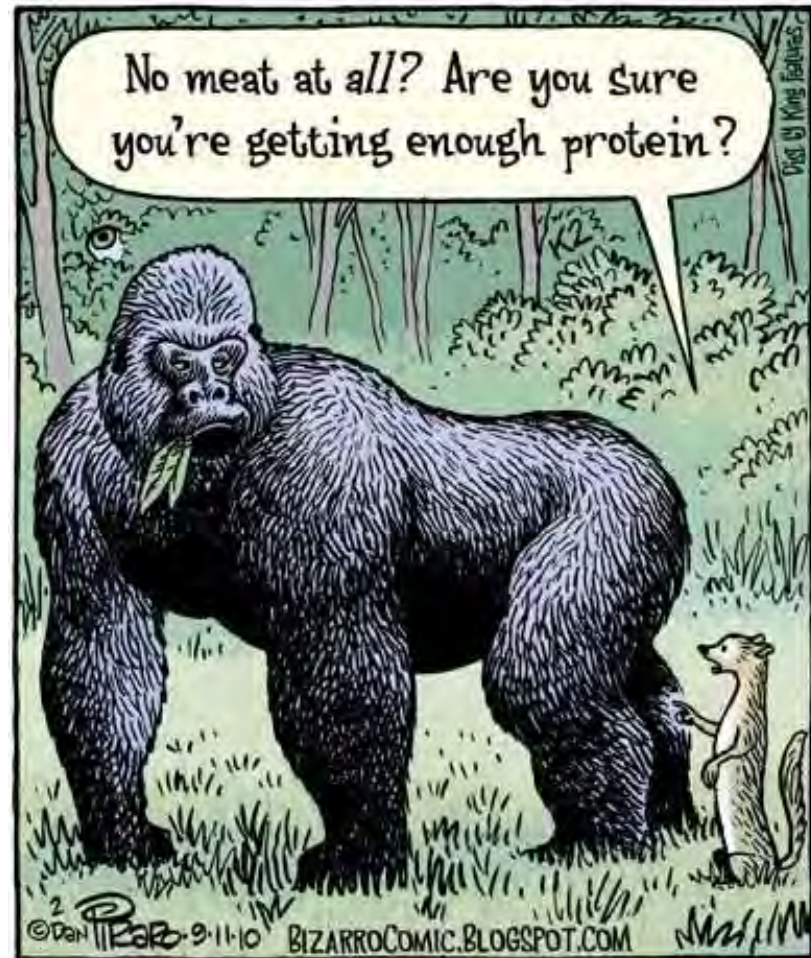
Amino acids



- **Building blocks of protein**
- **Used to build new proteins in the body**
- **9 are “essential,” must come from food**

Where do you get your protein?

Grains
Vegetables
Nuts
Seeds
Legumes



All plant proteins are “complete” (contain all of the essential amino acids)

No need to combine foods



Vegan protein: Importance of legumes

Only good plant sources of the
essential amino acid **lysine**



Soyfoods



**Beans,
Peas,
Lentils**



Peanuts

3 Daily Servings of Legumes

- **½ cup cooked beans, tofu, tempeh**
- **¼ cup soy nuts, peanuts**
- **2 tbsp peanut butter**
- **1 cup soymilk**
- **3 oz veggie meat**



Pistachios and Quinoa (honorary legumes)

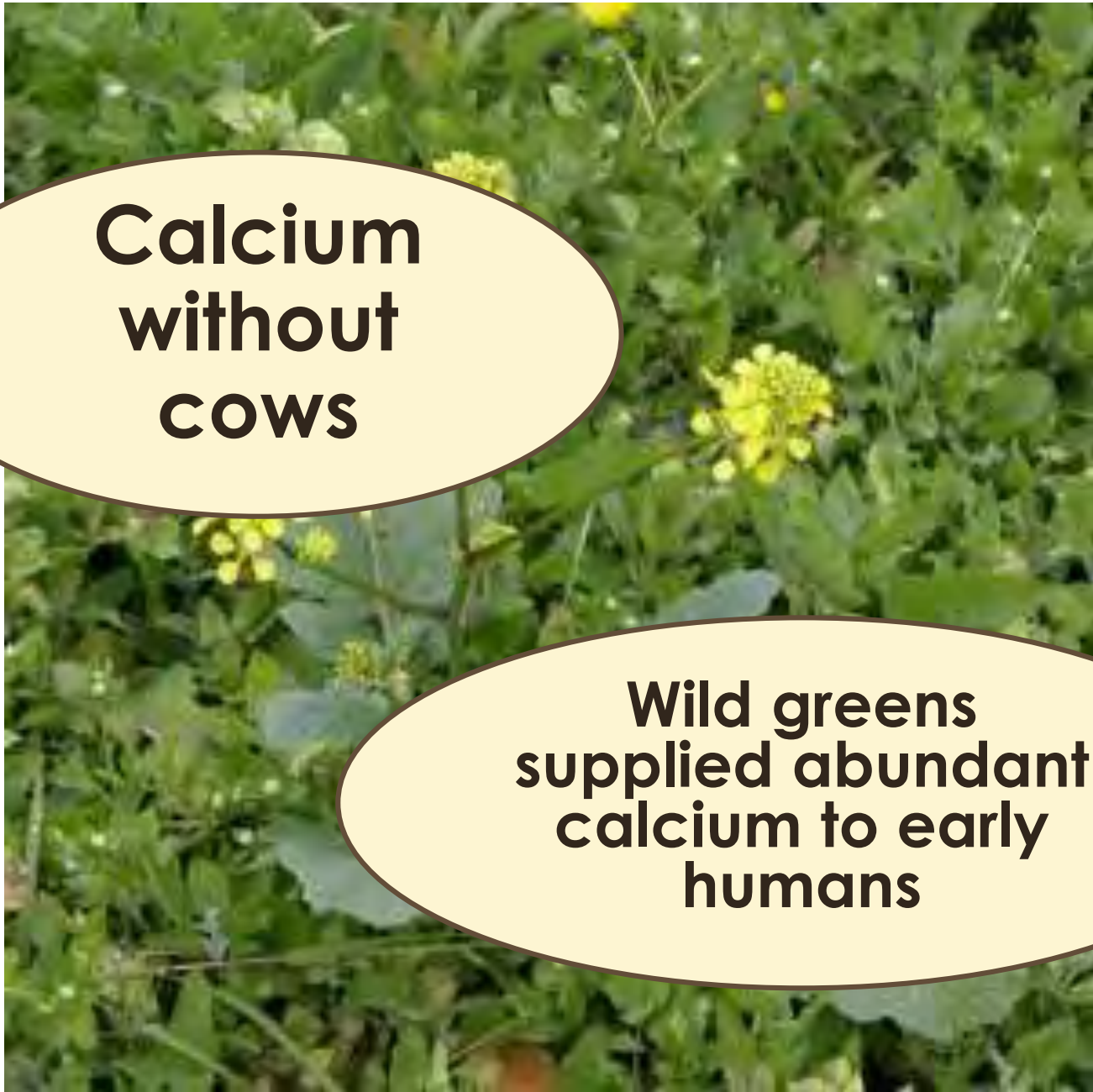


Legume Serving Sizes

- **½ cup cooked beans, tofu, tempeh**
- **¼ cup soy nuts, peanuts**
- **2 tbsp peanut butter**
- **1 cup soymilk**
- **3 oz veggie meat**
- **¼ cup pistachios**
- **1 cup quinoa**

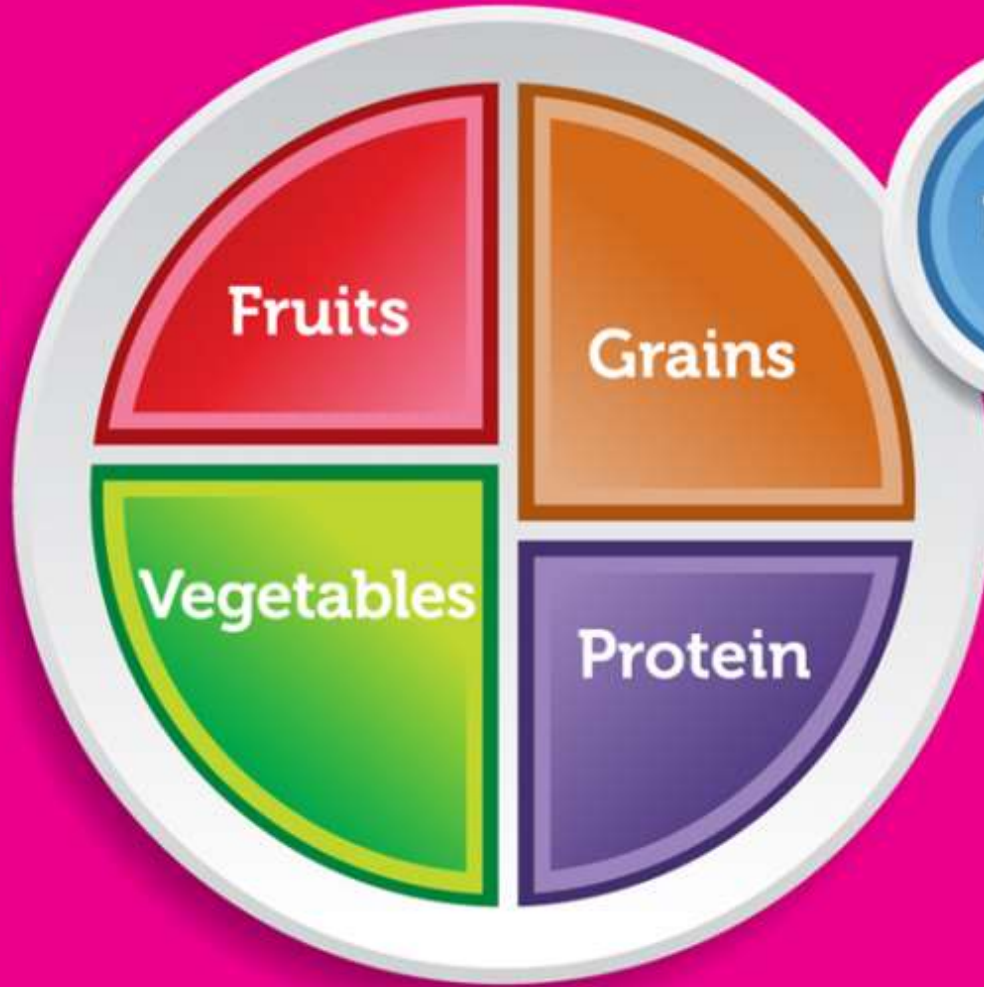
CALCIUM





**Calcium
without
cows**

**Wild greens
supplied abundant
calcium to early
humans**



Choose **MyPlate**.gov

The Plant Plate



Virginia Messina, MPH, RD
TheVeganRD.com

All vegan food groups provide calcium

Best Plant Sources of Calcium



Legumes
Tofu
Soybeans

Fruits

Figs
Fortified juices



Nuts/Seeds

Almonds
Almond butter
Tahini



Milks

Any fortified
plant milk



Vegetables

Leafy greens

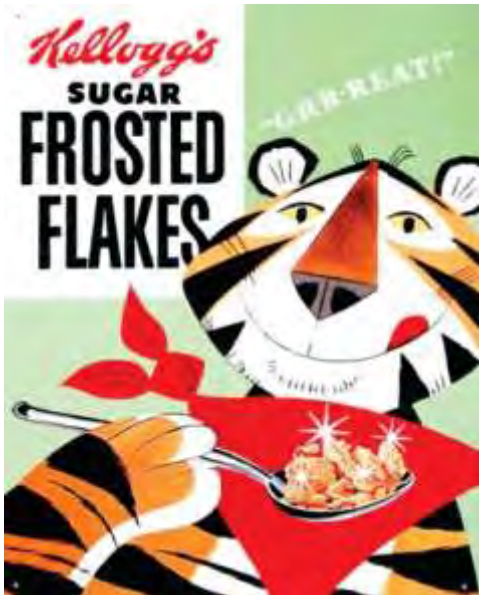
Calcium from Leafy Greens

Good sources: Bok choy, collards,
kale, turnip greens

Poor sources: Spinach, Swiss chard,
beet greens



Food Sources of Vitamin D



Factors that reduce vitamin D synthesis

- Smog, clouds
- Sunscreen
- Darker skin
- Age
- Weak sunlight



Two Forms of Vitamin D

Vitamin D3

Cholecalciferol
(animal derived,
fish, sheep's wool)



Vitamin D2

Ergocalciferol
(vegan, yeast)

D2 vs D3?

To Maintain Adequate Vitamin D Status	D2 or D3
To Reverse Deficiency	D3

Vitashine Brand Vegan Vitamin D3

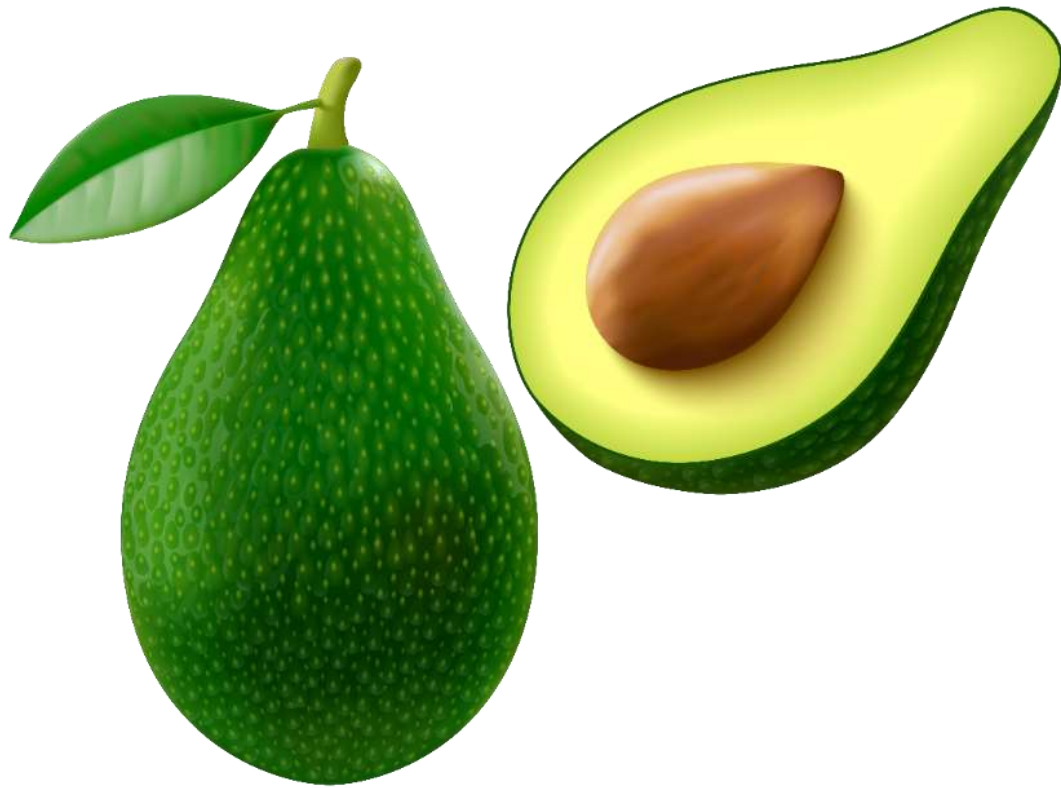


Vitamin D RDA
600 IU per day

Expert
Recommendations
600 to 1000 IU
per day



Choosing Healthy Fats



Alpha-linolenic acid (ALA)

Essential Omega-3 Fat

Nuts & Seeds

1 Tbsp chia seeds

1 Tbsp ground
flaxseeds

2 Tbsp hempseeds

8 walnut halves 

Oils

1 tsp flaxseed oil

2 tsp hempseed oil

1 Tbsp walnut oil

1 Tbsp canola oil

2 Tbsp soybean oil

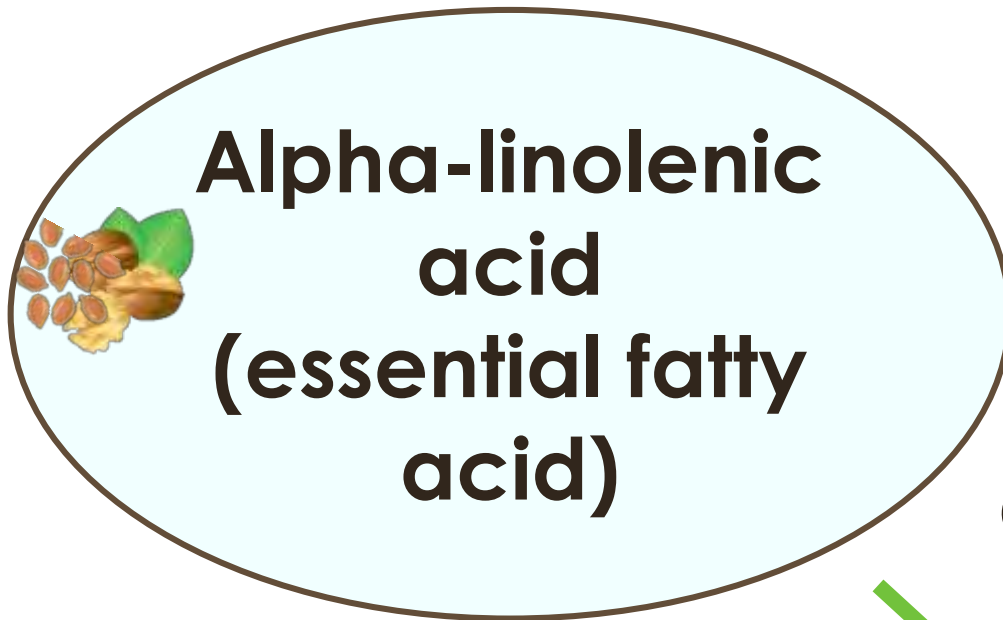
To meet adult male requirements. Women need slightly less.

DHA and EPA

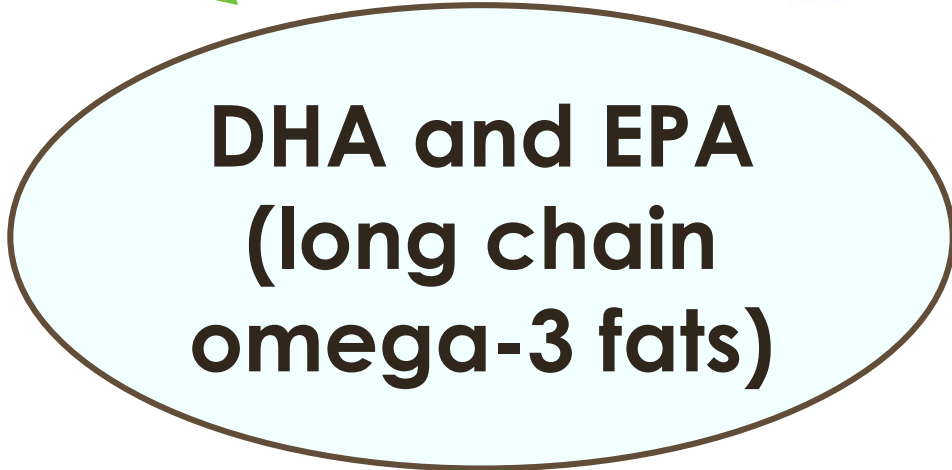
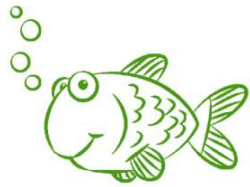
Long Chain Omega-3 Fatty Acids

- Found in fatty fish
- May reduce risk for heart disease, dementia and depression





Conversion is relatively poor



Vegans often have low blood and tissue levels of DHA and EPA

Vegan DHA and EPA Straight from the Source



**Vegan
Omega-3 Fats
from Microalgae**

**~300 mg
DHA + EPA
3-4 times per
week**



Benefits of High-Fat Plant Foods



- Nuts and seeds provide zinc
- Nuts reduce risk for heart disease



- Replacing saturated fat with plant fats improves cholesterol levels and reduces heart disease risk

Vegetable Oils and Health

**Single meals
excessively high
in fat can
damage arteries**



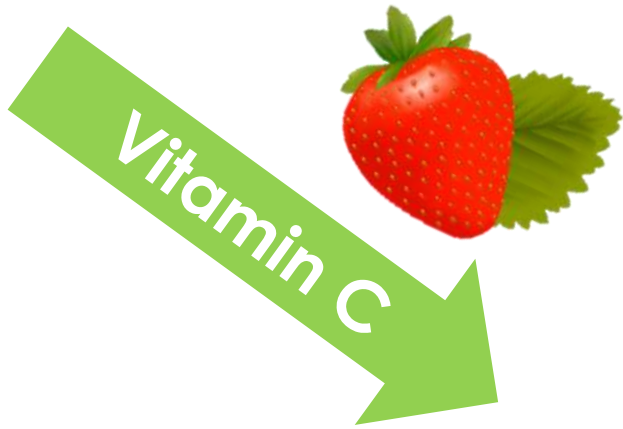
**Vegetable oils as part
of plant-based diets
associated with
improved artery health**

Dietary Iron Content

Food, serving size	milligrams
Salmon, 3 oz	0.6
Chicken, ½ breast	0.6
Beef, 3 oz	1.3
Soymilk, 1 C	1.6
Black-eyed peas, ½ C	2.2
Tofu, 3 oz	3.0
Lentils, ½ C cooked	3.3

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Vitamin C and Iron Absorption

**$\frac{1}{2}$ cup cauliflower
increased absorption
by factor of $2\frac{1}{2}$**

**5 ounces orange juice
increased absorption
by factor of 4**



Eat Iron-Rich Foods

Legumes

Whole or enriched grains

Nuts and seeds

Leafy green vegetables

Dried fruits

Blackstrap molasses



Avoid tea
and coffee
with meals

Eat Vitamin C- Rich Foods

Citrus fruits

Strawberries

Green leafy vegetables

Peppers

Cauliflower

Cabbage

Iron + Vitamin C

- **Oatmeal with strawberries**
- **Brown rice topped with steamed broccoli**
- **Bean soup with leafy greens**



Milk

- Displaces iron-rich foods
- Lowers iron absorption



**Iodine in vegetables
depends on iodine in soil**



Iodine Sources

- **Iodized salt**
- **Dairy**
- **Fish**
- **Vegetables**



**Iodine
from Sea
Vegetables?**



Iodine Sources for Vegans



- **Iodized salt**
($\frac{1}{4}$ teaspoon per day)
- **90-150 micrograms**
iodine from supplement
3-4 times per week

Vitamin B12

Made by bacteria

Does not occur naturally in plants



Vitamin B12 Analogues

Similar structure to B12, but **no vitamin activity**



- ❖ Fermented soyfoods
- ❖ Sourdough bread
- ❖ Sea vegetables
- ❖ Chlorella, spirulina
- ❖ Shiitake mushrooms



Vitamin B12 Storage

- In liver and muscle
- Size of B12 stores determined by pre-vegan diet



Vitamin B12-Fortified Foods





Nutritional Yeast

Red Star Vegetarian Support Formula (VSF)

Recommendations for B12 Supplements (Cyanocobalamin)

- 2 fortified foods per day; at least 1.5 micrograms each *or*
- 25-100 micrograms daily *or*
- 1,000 micrograms 2-3x per week

Supplemental Vitamin B12: Not Just for Vegans



**Health
conscious
omnivores**



**Everyone
over the
age of 50**

Characteristics of an Optimal Diet

- Meets nutrient needs
- Reduces risk for chronic disease
- **Environmentally sustainable**
- **Promotes justice for humans and non-human animals**
- Practical, affordable, appealing

**Diets that Include Meat
vs
Vegetarian or Vegan Diets:**

Require 3x more water and
13x more fertilizer

Emit twice the greenhouse
gases

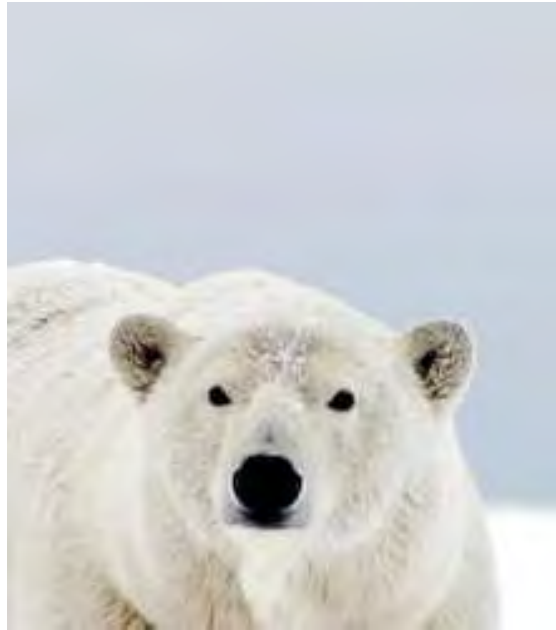




Climate Change is a
Human Rights Issue



Climate Change and Mental Well-Being

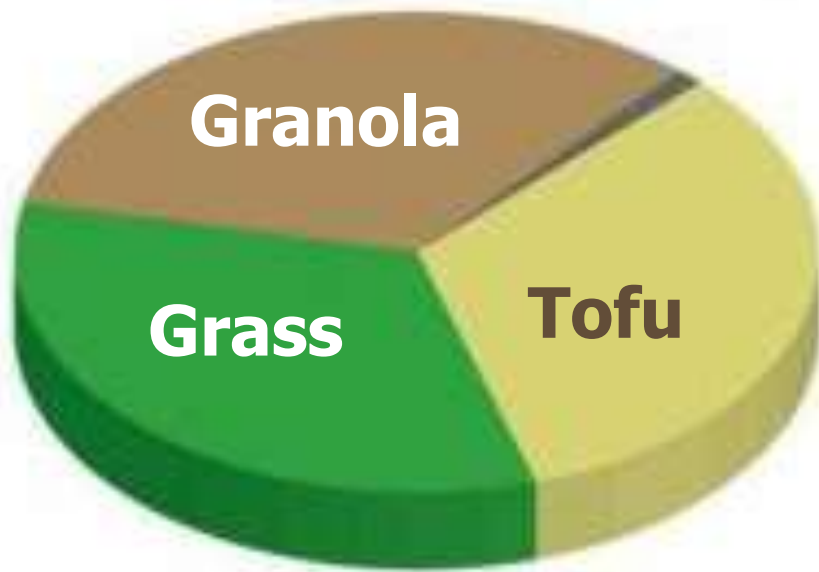


Vegan Diets Have
Far-Reaching Impacts

Characteristics of an Optimal Diet

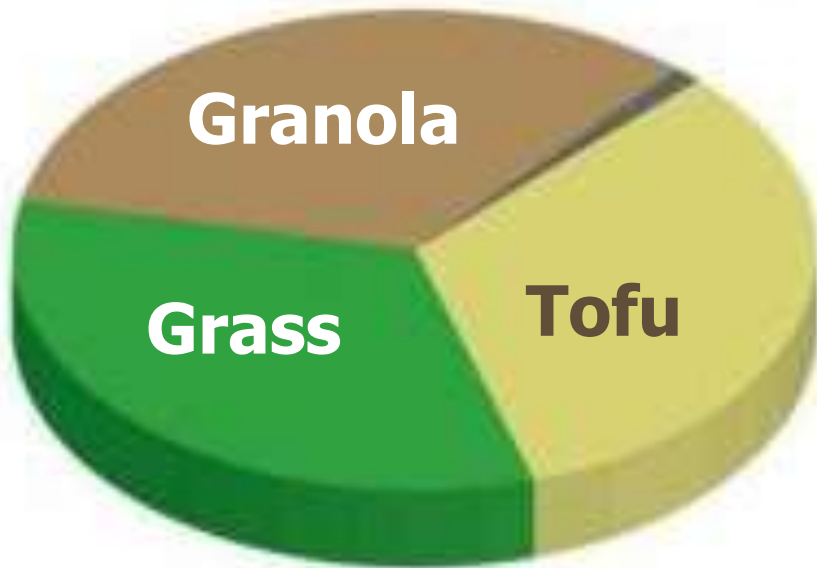
- Meets nutrient needs
- Reduces risk for chronic disease
- Environmentally sustainable
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- **Practical, affordable, appealing**

What people think vegans eat



What vegans really eat

What people think vegans eat



- | | | | |
|-------------------------|------------------|--------------------|------------------|
| artichokes | cookies* | kale | coconut |
| asparagus | kiwi | raspberries | coconut curry |
| avocado | lavender | rice | coconut milk |
| bacon* | lettuce wraps | salsa | cookies* |
| bagels | mac 'n' cheese* | semosas | kiwi |
| bananas | mandarin oranges | sandwiches | lasagne* |
| beans | mangos | seitan | lettuce wraps |
| beef* | marshmallows* | soul food* | mac 'n' cheese* |
| beets | mashed potatoes | soup | mandarin oranges |
| blancets* | melons | soy milk | mangos |
| bread | Mexican food* | spring rolls* | marshmallows* |
| broccoli | nachos* | stir-fry* | mashed potatoes |
| brownies* | noodles | strawberries | melons |
| Brussels sprouts | onion rings | sushi* | Mexican food* |
| buffalo wings* | orange | sweet potato fries | nachos* |
| burgers* | paella* | tabouli | noodles |
| burritos* | peas | tacos* | onion rings |
| cake* | peaches | tempah | oranges |
| carrots | peanut butter | Thai food* | paella* |
| celery | peas | tofurky | pasta |
| cheese steak sandwiches | peppers | tofu scramble | peaches |
| cheese* | pies | tomatoes | peanut butter |
| cheesecake* | pineapple | torrilita chips | peas |
| cherries | pizza* | veggie tempura | peppers |
| chili cheese fries* | potato skins* | veggie wraps | pies* |
| chili | potatoes | everything else* | pineapple |
| Chinese food* | pumpkin | *vegan version | pizza* |
| | quinoa | | potato skins* |
| | | | potatoes |
| | | | pumpkin |

I Can't Believe It's Vegan!



Vegan Junk Food?

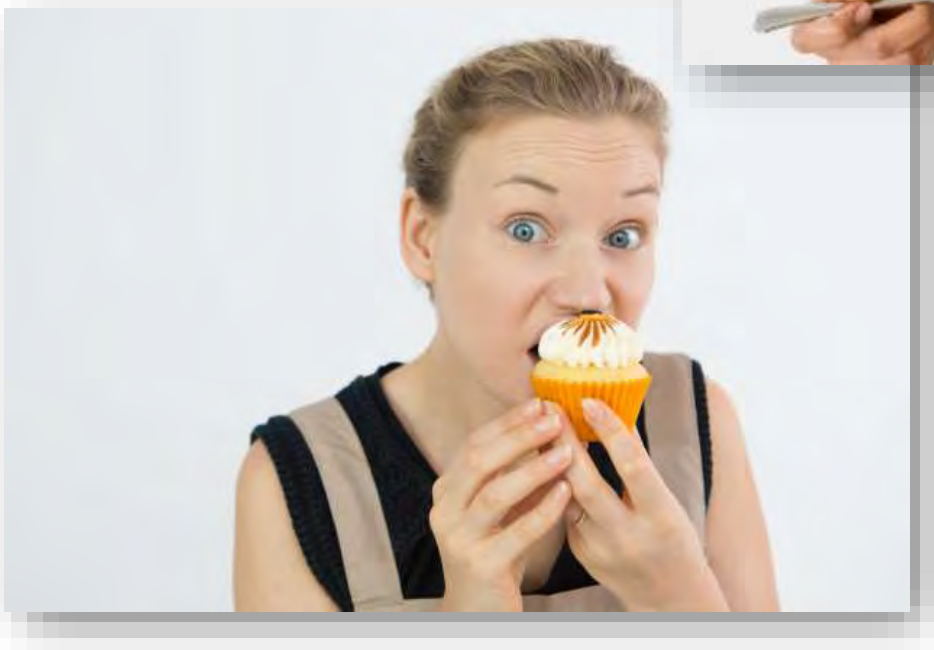


A False Dichotomy

**Junk-Food
Vegan**



**Whole Foods
Plant-Based**



Processed Foods in Traditional Healthy Plant-Based Diets



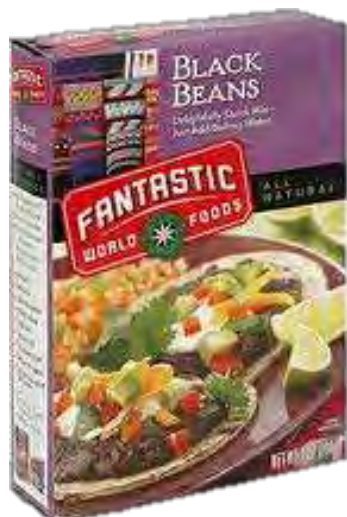
Healthy Foods Come in Jars, Cans and Freezer Packages





All Natural Ingredients

Tomato Puree (Water, Tomato Paste, Citric Acid), Diced Tomatoes, Green and Red Bell Peppers, Mushrooms, Cane Sugar, Salt, Onions*, Extra Virgin Olive Oil, Spices, Garlic*



1. **No Alcohol**

2. **No Fried Foods**

3. **No Fast Food**

4. **Drink 1/2 your body weight in ounces of water**

5. **Keep a Daily Food Journal of Everything**

6. **Commit to Eating Clean and Plan Your Meals**

7. **Share the Challenge and Your Photos on Instagram, Facebook, Twitter and G+**

RULES





Body Shaming Weight Stigma Disease Shaming



7 Habits of Happy, Healthy Vegans



Eat Legumes

3 Servings



Choose Calcium-Rich Foods



Choose Healthy Fats

Meet needs for ALA

Take a DHA/EPA supplement

Eat nuts/seeds

Don't fear high fat foods



Supplement Appropriately

- 600 to 1,000 IUs of **vitamin D**
(if sun exposure isn't adequate)

- 25-100 micrograms of **vitamin B12**



- 90 ug **iodine** or $\frac{1}{4}$ tsp iodized salt

Eat Plenty of Fruits and Vegetables

- Vitamin A
- Iron Absorption
- Bone Health
- Phytochemicals



Choose Whole Grains



Emphasize Whole Plant Foods



**Make Room for
Convenience
Flavors & Textures
Treats**

