

# **Vegetarian Eating for teens and adults**

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This handout will help you to plan a balanced vegetarian diet.

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## What is the Vegetarian Food Guide Rainbow?

The **Vegetarian Food Guide Rainbow** lists the serving sizes from each food group that are needed for a healthy vegetarian diet. It is a variation of Canada's Food Guide to healthy eating with vegetarian food options. See the copy in this handout.

Note the types of foods you can choose within each food group and what a serving size looks like. For example, 1/2 cup of cooked brown rice counts as one serving from the Grains food group.

The guide also shows you which foods are rich in calcium. They are listed on the left side of the rainbow. For example, 1/2 cup of fortified soymilk counts as 1 serving from the Calcium-rich foods group **and** 1 serving from the Legumes, Nuts and other Protein-rich foods group.

## How many servings do I need?

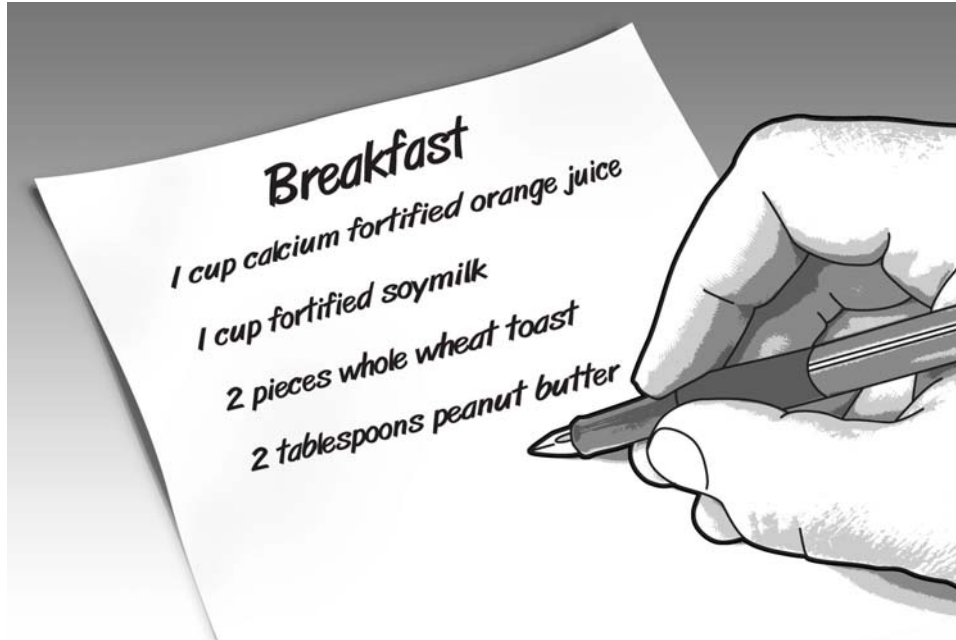
The number of servings you will need from each food group depends on your age, body size, activity level, whether you are male or female and if you are pregnant or breastfeeding.



This chart lists the least number of servings needed daily by each age group. Your dietitian will discuss the number of servings you will need each day.

	Grains	Legumes, Nuts, other Protein rich foods	Vegetables	Fruit	Fats	Calcium rich foods
Teens - 13 to 18 years	6	6	4	2	2	10
Adults - 19 years and older	6	5	4	2	2	8
Pregnancy	6	7	4	2	2	8
Breastfeeding	6	8	4	2	2	8

## How do these servings fit into the Vegetarian Food Guide Rainbow?



Here is an example of how a breakfast meal fits into the Vegetarian Food Guide Rainbow. Check your answers on page 13.

- 1 cup calcium fortified orange juice counts as \_\_\_\_ servings Fruits **and** \_\_\_\_ servings Calcium-rich foods
  - 1 cup of fortified soymilk counts as \_\_\_\_ servings Legumes, Nuts and other Protein-rich foods **and** \_\_\_\_ servings Calcium-rich foods
  - 2 pieces whole wheat toast counts as \_\_\_\_ servings Grains
  - 2 tablespoons peanut butter counts as \_\_\_\_ serving Legumes, Nuts and other Protein-rich foods
-

## **What about other foods and beverages that do not fit into the rainbow?**

Limit foods and beverages that are high in calories, fat, sugar or salt, such as desserts, fried snack foods, alcohol and sugar sweetened beverages.

Your dietitian will discuss how you can include these foods and beverages in your diet.

## **What do I need to pay special attention to?**



You will need to pay special attention to these nutrients when planning a vegetarian diet:

- protein
- iron
- vitamin B-12
- calcium and vitamin D
- omega-3 fats
- zinc

Learn more about how to get these nutrients on the next pages.

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## Protein

### What is protein?

Protein plays an important role in the growth and repair of tissues in the body.

Protein is made up of small units called amino acids. Amino acids are the building blocks of your skin, muscle and organs.

Our bodies can make some of the amino acids that are needed to build protein, but others must come from the food we eat. These amino acids are called essential amino acids. Most plant sources of protein do not contain all the essential amino acids the body needs.

**Eating a variety of vegetarian sources of protein throughout the day helps you to meet your protein needs.**

### What do I need to eat to get enough protein?

#### 1. Legumes

Legumes are rich in protein and are also excellent sources of fibre, B vitamins and iron. Examples of legumes include kidney beans, soybeans, peas, lentils, black-eyed peas, chickpeas, and lima beans.

To eat on their own or as a side dish, try soaking and cooking dried peas and beans before meal times or use canned legumes.

Other ideas include trying legumes in recipes such as chili, baked beans, soup and rice dishes.



## 2. Soy

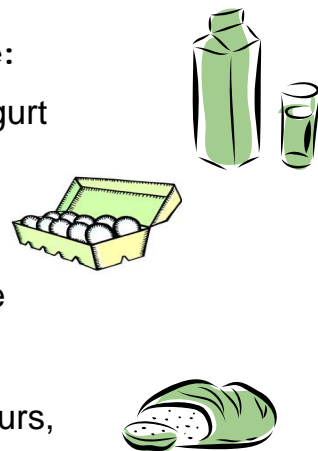
Soy products are a good source of protein and can be a great alternative for meat. They can boost the protein, calcium, and iron content of many dishes. Soy products can be used in just about any recipe.

Here are some sources of soy you can try:

- **Tofu or tempeh** can be used in place of meat in many recipes. Tofu and tempeh are two different types of products made from soybeans. They can be crumbled, cubed, grilled, stir-fried, or baked. Try marinating tofu or tempeh before cooking as they absorb flavours well.
- **Soy-based meat analogs** (substitutes) such as veggie burgers, hot dogs and deli slices can be used in place of meat-based ones. Look for those that are fortified with extra minerals and vitamins such as vitamin B-12.
- **Fortified soy milk** can be substituted for cow's milk in most recipes, or enjoyed on its own.
- **Textured Vegetable Protein (TVP)** is processed soybean protein that can look and taste like meat. TVP can be used in place of meat in recipes such as chili, tacos, sloppy joes, casseroles, or spaghetti sauce.
- **Soy flour** will increase the protein content of baked products. A 1/2 cup supplies 22 grams of protein. Replace up to one half of the regular flour called for in your favourite recipes with soy flour.

## 3. Other vegetarian sources of protein include:

- Milk and milk products, such as cheese and yogurt
- Eggs
- Nuts such as peanuts, almonds and cashews
- Seeds such as sunflower, pumpkin and sesame
- Nut and seed butters
- Grain products such as quinoa, rice, breads, flours, pastas and cereals



## Iron

### What is iron?

Iron is a mineral that your body needs. Iron helps carry oxygen to all parts of your body and it helps form red blood cells. Women, especially who are vegetarians, are at a greater risk of having low iron levels. Iron needs are increased for women aged 19 to 50 and during pregnancy. If the iron level in your body is low, you may feel weak, tired and look pale.



### What vegetarian foods are sources of iron?

Iron that does not come from animal products is called non-heme iron. Non-heme iron is found in vegetarian products such as:

- Fortified breakfast cereals
- Tofu
- Pumpkin seeds
- Blackstrap molasses
- Legumes, such as beans, peas and lentils
- Baked potato with skin
- Almonds and cashews
- Almond and cashew butter
- Dried fruits such as apricots, currants, figs, prunes, raisins
- Greens such as broccoli, kale, bok choy
- Soy-based meat analogs such as vegetarian burgers, hot dogs and deli slices

### What do I need to eat to get enough iron?

Because non-heme iron is not absorbed as well as heme-iron from animal products, it is important to:

- Include a food source of vitamin C with your meals. Vitamin C helps your body absorb iron. Some sources of vitamin C include broccoli, green and red peppers, citrus fruit or juice, strawberries, tomatoes, and potatoes. 
- If you drink tea or coffee, have it at least one hour before or after your meals. Tea and coffee contain compounds that can decrease your iron absorption. 
- Calcium supplements can interfere with iron absorption. If you take calcium supplements, talk to your doctor or dietitian about calcium and iron.



## Vitamin B-12

### What is vitamin B-12?

Vitamin B-12 plays a key role in maintaining the health of nerve cells and red blood cells.

Vitamin B-12 needs vary with stage of life:

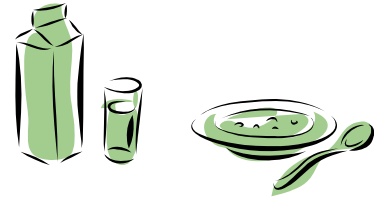
	<b>Number of Vitamin B-12 rich foods servings needed each day</b>
Teens - 13 years	2
Teens - 14 to 18 years	3
Adults	4
Pregnancy or Breastfeeding	4

### What do I need to eat to get enough vitamin B-12?

Vitamin B-12 is mainly found in animal products. However, there are a few plant-based foods that have been fortified with vitamin B-12.

You will need to include 2 to 4 servings of vitamin B-12 rich foods in your diet everyday. Examples of one serving of vitamin B-12 rich foods as found in the Vegetarian Food Guide Rainbow include:

- Fortified soy, rice or almond milk (1/2 cup)
- Cow's milk (1/2 cup)
- Fortified breakfast cereals (1 oz or 28 grams)
- Soy based meat analogs such as veggie burgers, hot dogs or deli slices (1 oz or 28 grams) - you will need to check labels as not all brands contain vitamin B-12
- Eggs (1 large)
- Red Star Vegetarian Support Formula™ nutritional yeast (1 tbsp or 3 grams) - other brands are not reliable sources of vitamin B-12



If you do not eat at least your recommended number of servings a day of vitamin-B12 rich foods, you will need to take a vitamin B-12 supplement of 5 to 10 mcg a day or 2,000 mcg a week. Talk to your doctor or a dietitian about a vitamin B-12 supplement.

## Calcium

### What is calcium?

Calcium is a mineral that is important at all ages. Along with vitamin D, calcium helps to maintain healthy bones and to prevent osteoporosis.

### What do I need to eat to get enough calcium?

Here is a list of foods that are sources of calcium. Go to page 4 to see how many servings of calcium-rich foods you need to have each day. Examples of one serving include:

- Tofu processed with calcium (check label) (1/2 cup)
- Kale, broccoli, bok choy (1 cup cooked or 2 cups raw)
- Cow's milk or yogurt (1/2 cup)
- Cheese (3/4 oz or 21 grams)
- Orange juice fortified with calcium\*\* (1/2 cup)
- Calcium fortified soy, rice or almond milk\*\* (1/2 cup)
- Calcium fortified breakfast cereal (1 oz or 28 grams)
- Almonds (1/4 cup)
- Soybeans, cooked (1/2 cup)
- Dried figs (5)



\*\*Always read the label to be sure that these products are fortified with calcium.

## Vitamin D

### What is vitamin D?

Vitamin D works with calcium to help build strong bones and teeth. Your needs for vitamin D can be met by eating fortified foods, taking a vitamin D supplement, or from sunlight on your skin. However, the amount of vitamin D produced from sun on your skin depends on many factors including the strength of the sun where you live, time of year and your skin colour. Just a few minutes of sunlight on unprotected skin will increase your vitamin D, but for some people it may also increase the risk of sun damage. Experts suggest that more research is needed in this area before specific recommendations about sunlight and vitamin D can be made.

### What do I need to eat to get enough vitamin D?

- Cow's milk
- Breakfast cereal (check labels)
- Fortified soymilk and rice milk
- Margarine



## Omega-3 fats

### What are omega-3 fats?



Omega-3 fats are a type of fat that our bodies need. Omega-3 fats are important because of the role they play in normal growth and development. They are also important because they may play a role in preventing heart disease, high blood pressure, arthritis and cancer.

### What do I need to eat to get enough omega-3 fats?

For non-vegetarians, fish is one of the best sources of omega-3 fats. However, there are other sources of omega-3 fats that can help to meet a vegetarian's needs.

**Include 2 servings of omega-3 rich foods everyday.** Pregnant and lactating women, as well as people with certain medical conditions, may need more omega-3 fats in their diet.

#### Examples of one serving include:

- Ground flaxseeds (1 tbsp) and flaxseed oil (1 tsp)
- Canola or soybean oil, or margarines made with these oils (1 tbsp)
- Hemp seed oil (1 tbsp), and shelled hemp seeds (1/4 cup)
- Walnuts (1/4 cup) 
- Soybeans, cooked (1/2 cup) and tofu (1/2 cup)
- Omega-3 eggs (1 each) 

## Zinc

### What is zinc?

Zinc is a nutrient that:

- helps your immune system protect your body against disease
- helps heal wounds
- is important for growth and development

Getting enough zinc is important for vegetarians and non-vegetarians. Our bodies absorb less zinc from plant sources than from animal sources. Meeting your recommended number of daily servings from Grains and Legumes, Nuts and other Protein-rich foods will help you meet your daily zinc needs.

## Metric and imperial size conversion chart

This chart may help you with serving sizes:

Metric and Imperial Sizes	
250 ml	= 1 cup
175 ml	= 3/4 cup
125 ml	= 1/2 cup
60 ml	= 1/4 cup
15 ml	= 1 tablespoon (tbsp)
5 ml	= 1 teaspoon (tsp)

## Checklist for healthy eating ...

### Make sure you include:

- ✓ A variety of foods from each of the food groups.
- ✓ At least the minimum number of servings from each of the food groups.
- ✓ 8 or more servings from the Calcium-rich food group.
- ✓ 2 servings of foods that supply omega-3 fats. Look for sources of foods rich in omega-3 fats in the Fats group and Legumes, Nuts and other Protein-rich foods.
- ✓ 2 to 4 servings of vitamin B-12 rich foods.
- ✓ Other foods like alcohol and sweets less often.

### Answers to Page 4 questions:

- 1 cup calcium fortified orange juice counts as **2** servings Fruits.
- 1 cup of fortified soymilk counts as **2** servings Legumes, Nuts and other Protein-rich foods **and 2** servings Calcium-rich foods.
- 2 pieces whole wheat toast counts as **2** servings Grains.
- 2 tablespoons peanut butter counts as **1** serving Legumes, Nuts and other Protein-rich foods.

## Vegetarian cookbooks

### **The New Becoming Vegetarian: The Essential Guide to a Healthy Vegetarian Diet**

By Vesanto Melina, RD and Brenda Davis, RD. Healthy Living Publications, 2003.

### **Cooking Vegetarian**

By Vesanto Melina, RD, and Joseph Forest  
MacMillan Canada, 1996

### **Rose Reisman's Light Vegetarian Cooking**

By Rose Reisman  
Robert Rose Inc, 1998

### **How it all Vegan! Irresistible Recipes for an Animal Free Diet**

By Tanya Barnard and Sarah Kramer  
Arsenal Pulp Press, 1999

### **Tofu Mania**

By Brita Housez  
Centax Books, 1999

### **Lean Bean Cuisine**

By Jay Solomon  
Prima Publishing USA, 1995

### **Moosewood Restaurant Low Fat Favourites**

By The Moosewood Collective  
Clarkson N. Potter Inc  
USA, 1996.

### **Vegetarian Times Complete Cookbook**

By the editors of Vegetarian Times  
and L. Moll.  
Macmillan USA, 1995

### **Vegetarian Times Low-fat and Fast**

By the editors of Vegetarian Times  
Macmillan USA, 1996.

## Useful websites

Vegetarian Resource Group  
[www.vrg.org](http://www.vrg.org)

Vegetarian Pages  
[www.veg.org/veg/](http://www.veg.org/veg/)

Toronto Vegetarian Association  
[www.veg.ca](http://www.veg.ca)

Vegetarian Society  
[www.vegsoc.org](http://www.vegsoc.org)

Dietitians of Canada  
[www.dietitians.ca](http://www.dietitians.ca)

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## Sample vegetarian menu

<b>Breakfast</b>	1 cup oatmeal or 2 scrambled omega-3 eggs 1 slice whole grain toast 1 to 2 tsp margarine 1 cup skim or 1% milk, or calcium fortified soy milk 1 banana
<b>Lunch</b>	1 cup vegetarian chili or baked beans 5 to 6 whole grain crackers 4 celery sticks 1 apple 1 cup skim or 1% milk, or calcium fortified soy milk
<b>Snack</b>	1 cup low fat yogurt with 1 tsp ground flax seed 1/4 cup trail mix
<b>Evening meal</b>	2 cups vegetarian stir fry with tofu 1 cup brown rice 1 cup fresh cantaloupe 1 cup calcium fortified orange juice
<b>Night snack</b>	1/4 cup hummus 1/2 pita bread



Patient Education



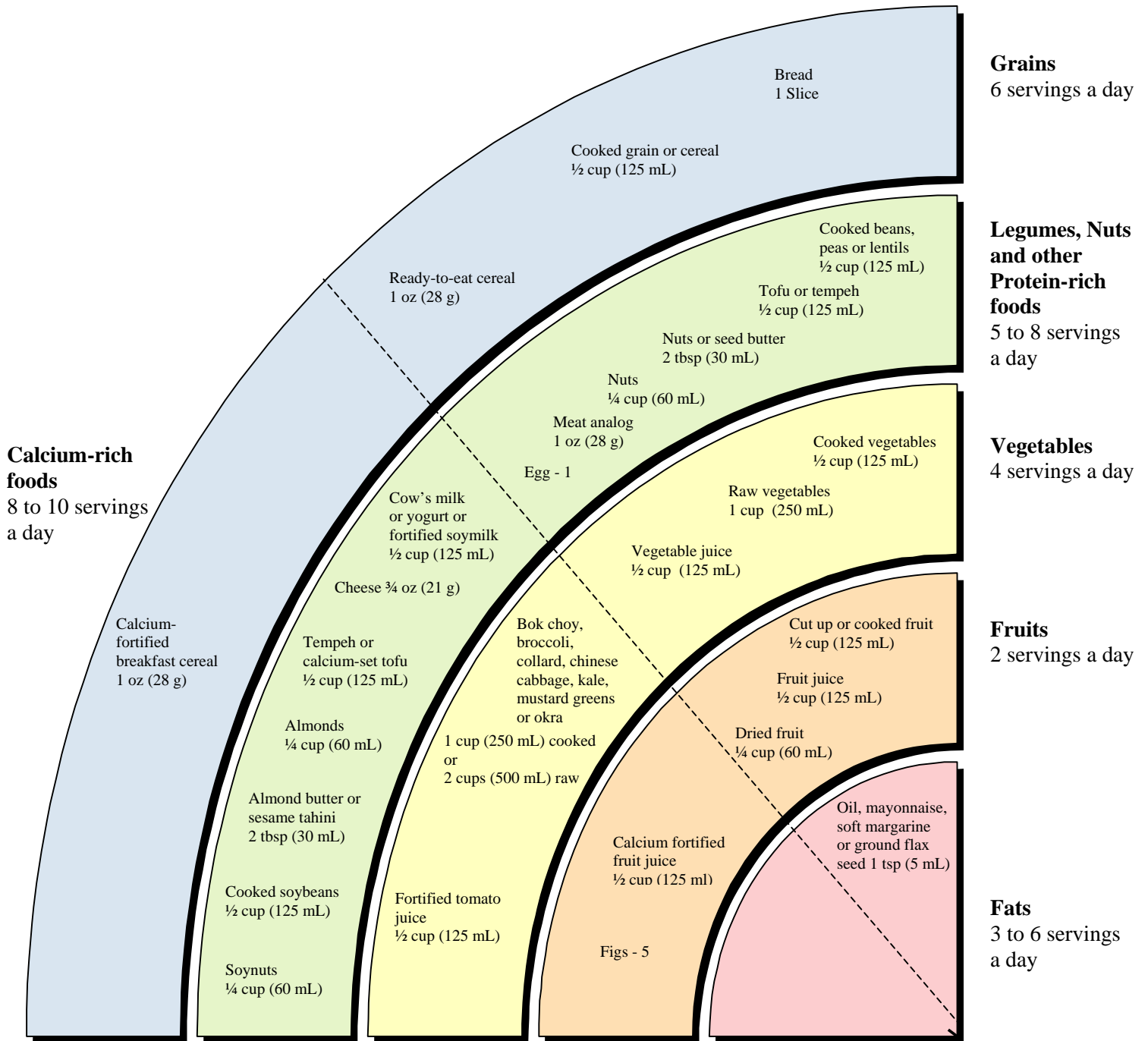
St. Joseph's  
Healthcare  Hamilton



Hamilton Family Health Team



# Vegetarian Food Guide Rainbow



The Vegetarian Food Guide Rainbow is adapted with permission from Dietitians of Canada\*.

\*A new food guide for North American vegetarians. Messina V, Melina V, Mangels AR. Can J Diet Prac Res. 2003; 64(2):82.