



## RD Resources for Consumers:

# Meeting Calcium Recommendations on a Vegan Diet

It is important for everyone, including vegans, to meet calcium recommendations established by the Institute of Medicine.

## Food Sources of Calcium for Vegans

Dairy foods are the best known sources of calcium in American diets, but there are a number of other foods that are good sources of this nutrient. Plant foods that are naturally good sources of calcium include certain leafy green vegetables, broccoli, bok choy, some types of tofu, textured vegetable protein, almonds, black beans, vegetarian baked beans and blackstrap molasses. Vegans can also choose from among the growing number of calcium-fortified foods including fruit juices, breakfast cereals, soymilk, protein bars, rice and almond milk.

Calcium content varies among brands of food and also according to how a food is processed. For example, tofu is an excellent source of calcium only when a calcium salt is used to coagulate or “set” the tofu. Likewise, while blackstrap molasses is a good source of calcium, regular molasses is not.

Compounds in foods can also affect absorption of calcium. Although leafy green vegetables are among the best sources of this nutrient, some are high in compounds called oxalates which inhibit absorption of calcium. Beet greens, Swiss chard, rhubarb and spinach are not good choices for meeting calcium needs because of their oxalate content. The calcium in other leafy greens, such as collards, kale and mustard greens, is absorbed at very high rates making these foods excellent sources of calcium.

The type of compound used to fortify foods can also affect absorption. Calcium-fortified soymilk contains either calcium carbonate or tricalcium phosphate. Of the two, calcium carbonate is better absorbed, but both types of soymilk provide high levels of calcium that is well-absorbed. It is important to shake a container of soymilk well before using it since the calcium often settles at the bottom of the carton.

## Sample Menu Providing 1000 mg of Calcium

### Breakfast

- ½ sesame seed bagel with 2 tbsp almond butter
- 1 cup melon cubes
- 8 oz calcium-fortified orange juice

### Lunch

- 1 6-inch pita pocket
- ½ cup hummus
- Sliced tomato and cucumber
- Apple
- Vanilla wafers

### Snack

- Smoothie: ½ cup fortified soymilk with ½ cup frozen strawberries

### Dinner

- Stir fried vegetables and tofu with ½ cup calcium-set firm tofu, ½ cup bok choy, ½ cup broccoli, onions and carrots
- 1 cup brown rice
- ½ cup frozen non-dairy dessert with sliced peaches

## Calcium Content of Foods

### 300 mg of calcium

Fortified orange juice or V-8, 8 ounces

Fortified soymilk, 8 ounces

Fortified rice milk, 8 ounces

Luna Bar

### 200 mg of calcium

Apple juice, 8 ounces, calcium-fortified

Blackstrap molasses, 1 tablespoon

Collard greens, ½ cup, cooked

Tofu, calcium-set, ½ cup

Calcium-fortified breakfast cereal, 1 ounce

### 100 mg of calcium

Turnip greens, kale or broccoli, ½ cup, cooked

Soybeans, ½ cup, cooked

Soynuts, ½ cup

Instant oatmeal, 1 package

Dried figs, 5

### 75 mg of calcium

Almond butter or tahini, 2 tablespoons

Textured vegetable protein, ½ cup, prepared

Bok choy or mustard greens, ½ cup, cooked

Tempeh, ½ cup

### 50 mg of calcium

Navy beans, Great Northern beans or Black beans, ½ cup, cooked

Vegetarian baked beans, ½ cup

Orange, 1

Almonds, 2 tablespoons

Instant Cream of Wheat, 1 package

See USDA's Nutrient Data Base for Standard Reference <http://www.nal.usda.gov/fnic/foodcomp/> for more information on the calcium content of foods.

## Calcium From Plant Foods: Some Advantages

Plant sources of calcium may have some unique advantages. For example, soyfoods that provide calcium, such as calcium-set tofu and fortified soymilk, are also good sources of isoflavones. These compounds, which are essentially unique to soyfoods, have been linked to improved bone health in some studies. The leafy green vegetables that are good sources of calcium are also rich in vitamin K which may be needed for healthy bones. Recent research suggests that a diet high in fruits and vegetables, partly because they are rich in potassium and acidic compounds, might be important for keeping bones healthy. Calcium-fortified juices may be especially valuable for protecting bone health for this reason.



## Calcium Needs of Vegans

Many factors affect calcium needs and bone health. Across different cultures, variations in lifestyle and genetics play an important role in bone health. The overall composition of the diet can affect calcium needs as well. High sodium intake can cause calcium loss from the bones and it is possible that very high intakes of some proteins—particularly animal protein—can have the same effect. However, adequate protein is necessary for healthy bones and there is no conclusive evidence that the lower protein content of some vegan diets protects bone health or affects calcium requirements.

While there is very little research on the bone health of vegans, studies suggest that vegans who have low calcium intakes are more likely to have poorer bone health and possibly a higher fracture risk. Therefore, it is important for everyone, including vegans, to meet the calcium recommendations established by the Institute of Medicine. Recommended intakes for adults are 1000 mg/day for ages 19 to 50 years and 1200 mg/day for those over the age of 50.

