Balancing a Healthy Vegetarian Diet

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What is a vegetarian?

- Vegetarians do not eat meat, fish, or poultry.
- Reasons for being vegetarian include:
  - health
  - ecological
  - religious
  - dislike of meat
  - compassion for animals
  - belief in non-violence
  - economics

Types of vegetarians

- Four main types:
  - lacto-ovo vegetarians: consume plant foods, eggs and dairy, omit meat, fish and poultry
  - lacto-vegetarians: consume plant foods and dairy, omit meat, fish, poultry and eggs
  - ovo-vegetarians: consume plant foods and eggs, omit meat, fish, poultry and dairy
  - vegans: consume only plant foods, omit all animal sources

Are vegetarian diets healthful?

- According to the American Dietetic Association (ADA), appropriately planned vegetarian diets are:
  - healthful
  - nutritionally adequate
  - provide health benefits in the prevention and treatment of certain diseases

Making the Change to a Vegetarian Diet

- Many people become vegetarian instantly. They totally give up meat, fish and poultry overnight.
- Others make the change gradually.
- Do what works best for you.
- Being a vegetarian is as hard or as easy as you choose to make it.

Nutrition Considerations for Vegetarians

- Protein
- Iron
- Vitamin B-12
- Calcium
- Vitamin D
- Zinc

Protein

- Plant sources of protein alone can provide adequate amounts of essential amino acids if a variety of plant foods are consumed and energy needs are met.

- It is no longer deemed necessary to consume complementary proteins at the same time. Consumption of various sources of amino acids over the course of the day should ensure adequate nitrogen retention and use in healthy persons.

How much protein do we need?

- RDA: 0.8 grams protein / kg body weight
- Vegans: 0.8 to 1.0 grams / kg body weight
- 10% of total calories should come from protein
  - example:
    - based on 2000 kcal diet, 200 kcal from protein
    - 200kcal x 1 gram/4 kcal = 50 grams of protein

Sources of Protein

- beans / lentils
- tofu
- low-fat dairy products
- nuts
- seeds
- tempeh
- peas
- peanut butter
- whole grain breads
- oatmeal
- soy milk
- potatoes
- pasta
- corn
- vegetarian baked beans

Iron

- Transports and stores oxygen.
- Plant foods contain only non-heme iron, which is more sensitive than heme iron (found in animal foods) to both inhibitors and enhancers of iron absorption.
- To increase the amount of iron absorbed at a meal, eat a food containing vitamin C, such as citrus fruit or juice, tomato or broccoli.
- Cooking food in iron cookware also adds to iron intake.

How much iron do we need?

- 1 to 10 years: 10 mg
- Females:
  - 11 to 50 years: 15 mg
  - 51+ years: 10 mg
- Males:
  - 11 to 18 years: 12 mg
  - 19-51+ years: 10 mg

Sources of Iron

- dried beans
- spinach
- chard
- beet greens
- blackstrap molasses
- dried fruit
- fortified cereals (raisin bran)
- black beans
- whole wheat bread
- bulgur
- prune juice

Vitamin B-12

- aka cobalamin
- Needed for cell division and blood formation.
- Comes primarily from animal-derived foods.
- A diet containing dairy products or eggs provides adequate vitamin B-12.
- Plant foods do not contain vitamin B-12 except when contaminated by microorganisms, although this is not a reliable source for vegans.

How much vitamin B-12 do we need?

- 1 to 10 years: 0.7-1.4 mcg
- 11+ years: 2.4 mcg

- Because vitamin B-12 requirements are small, and it is both stored and recycled in the body, symptoms of deficiency may be delayed for years.

- Supplementation or use of fortified foods is advised for vegetarians who avoid or limit animal foods.

Sources of Vitamin B-12

- fortified breakfast cereals
- dairy products
- egg products
- fortified soy milk
- fortified meat analogues
- nutritional yeast
- vitamin B-12 supplement
- multivitamin containing B-12

Calcium

- Needed for formation of bones, teeth, and promotes growth and clotting.
- Lacto-ovo-vegetarians have calcium intakes that are comparable to or higher than those of non-vegetarians.
- Calcium intakes of vegans are generally lower than those of both lacto-ovo-vegetarians and omnivores.
- Calcium is well absorbed from many plant foods, and vegan diets can provide adequate calcium if the diet regularly includes foods rich in calcium.

How much calcium do we need?

- 1 to 3 years: 500 mg
- 4 to 8 years: 800 mg
- 9 to 18 years: 1300 mg
- 19 to 50 years: 1000 mg
- 51+ years: 1200 mg

Sources of Calcium

- low fat dairy products
- collard greens
- broccoli
- kale
- turnip greens
- almonds
- tofu prepared with calcium
- fortified soy milk
- fortified juices
- fortified breakfast cereals

Vitamin D

- Functions to maintain normal blood levels of calcium and phosphorus.
- Vitamin D is poorly supplied in all diets unless fortified foods are consumed (fortified cow's milk is most common dietary source).
- Sunlight exposure is a major factor affecting vitamin D status.
- Sun exposure to hands, arms, and face for 5 to 15 minutes per day is believed to be adequate to provide sufficient amounts of vitamin D.

How much vitamin D do we need?

- 19-50 years: 200 IU
- 51-69 years: 400 IU
- 70+ years: 600 IU

Sources of Vitamin D

- fortified dairy products
- fortified breakfast cereals
- fortified margarine
- egg yolks
- fortified soy milk
- SUNLIGHT

Zinc

- Needed for structure and integrity of cells and immune function.
- Due to the low bioavailability of zinc from plant foods, vegetarians should strive to meet or exceed the RDAs for zinc.

How much zinc do we need?

- 1-3 years: 3 mg
- 4-8 years: 5 mg
- 9-13 years: 8 mg
- Males:
  - 14-18 years: 11 mg
  - 19+ years: 9 mg
- Females:
  - 14-18 years: 9 mg
  - 19+ years: 8 mg

Sources of Zinc

- legumes
- soy products
- hard cheeses
- nuts
- fortified breakfast cereals
- yogurt
- vegetarian baked beans

Children and Vegetarianism

- According to the American Dietetic Association (ADA), vegetarian diets can meet all nitrogen needs and amino acid requirements for growth.
- A vegan diet, to be on the safe side, should be well planned, and probably include fortified soy milk.

Pregnancy and Vegetarianism

- Lacto-ovo-vegetarian and vegan diets can meet the nutrient and energy needs of pregnant women.
- Pregnant women should consult with a dietitian to discuss supplementation of vitamins B-12 and D.

Meal Planning for Vegetarian Diets

- Choose a variety of foods, including whole grains, vegetables, fruits, legumes, nuts, seeds and, if desired, dairy products and eggs.
- Choose whole, unrefined foods often and minimize intake of highly sweetened, fatty and heavily refined foods.
- Choose a variety of fruits and vegetables.
- If animal foods such as dairy products and eggs are used, choose lower-fat versions of these foods.

Is Cholesterol Found in Foods Vegetarians Eat?

- Cholesterol is found in foods from animals.
- Eggs and dairy products do have cholesterol.
- Grains, legumes, nuts, fruits, vegetables and vegetable oils do not have cholesterol or only contain insignificant amounts.
- We do not need any cholesterol in our diets since our bodies can make all the cholesterol we need.

Fats in the Vegetarian Diet -- How much do we need?

- Saturated fats and *trans* fatty acids are the kinds of fats most likely to cause heart disease.
- Saturated fats are found mainly in animal products (eggs, butter, cheese, whole milk and whole milk products), and in coconut, palm and palm kernel oil.
- *Trans* fatty acids appear in foods containing *hydrogenated* fats like margarine and crackers.
- Heart healthy diets should aim at having saturated and trans fats providing no more than 8-10% of total calories.

Common Vegetarian Foods

- macaroni and cheese
- spaghetti
- cheese pizza
- eggplant parmesan
- vegetable soup
- pancakes
- oatmeal
- cheese lasagna
- peanut butter & jam
- grilled cheese
- bean tacos & burritos
- vegetable lo mein
- French toast
- vegetable pot pie
- fruit shakes
- bread & cereals
- yogurt
- fruit salad

Other Vegetarian Foods

- tofu
- tempeh
- bulgur
- lentils
- millet
- tahini
- falafel
- nutritional yeast
- wheat germ
- sprouts
- chickpeas
- tamari
- kale
- collards
- barley
- carob
- soy burgers
- nut loaf

Egg Replacers (Binders)

- Any of the following can be used to replace eggs in baking:
  - 1 banana for 1 egg (great for cakes, pancakes, etc)
  - 2 Tbs cornstarch or arrowroot starch for 1 egg
  - Ener-G Egg Replacer (or similar product sold in health food stores)
  - 1/4 cup tofu for 1 egg (blend tofu smooth with the liquid ingredients before they are added to the dry ingredients)

Dairy Substitutes

- The following can be used as dairy substitutes in cooking:
  - soy milk
  - soy margarine
  - soy yogurt
  - nut milks
  - rice milk

Meat Substitutes in Stews/Soups

- The following can be used as meat substitutes in soups and stews:
  - tempeh (cultured soybeans with a chewy texture)
  - tofu (freezing and then thawing gives tofu a meaty texture; the tofu will turn slightly off white in color)
  - wheat gluten or seitan (made from wheat and has the texture of meat; available in health food or Oriental stores)

Vegetarian Resources

- Vegetarian Resource Group
  - www.vrg.org
- American Dietetic Association
  - www.eatright.org
- Vegetarian Way
  - by Virginia Messina, RD, MPH and Mark Messina, PhD
- Simply Vegan
  - by Debra Wasserman. Nutrition section by Reed Mangels Ph.D., R.D.