


Vegetarian Diets


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What is Vegetarianism?




“Vegetarianism is the practice of following a diet based on plant-based foods including fruits, vegetables, cereal grains, nuts, and seeds, with or without dairy products and eggs”

The Vegetarian Society – Definitions Information Sheet



Definitions

- Lacto-ovo vegetarian
 - ▣ Based on grains, vegetables, fruits, legumes, seeds, nuts, dairy products, and eggs
 - ▣ No meat, fish or fowl
- Lacto vegetarian
 - ▣ May eat dairy
 - ▣ No eggs, meat, fish, or fowl
- Ovo vegetarian
 - ▣ May eat eggs
 - ▣ No dairy, meat, fish, or fowl
- Vegan (strict vegetarians)
 - ▣ No eggs, dairy, meat, fish, or fowl



Vegetarian Population Trends



- According to surveys conducted in 2006, 2.3% of Americans (4.9 million people) consistently ate vegetarian diets
- About 1.4% vegan
- More likely to live on the east or west coasts, live in large cities, and be female
- Higher academic qualifications
- Higher IQ at age 10 correlated with higher vegetarian status at age 30

Journal of the American Dietetic Association 2009;109:1266-1282
British Cohort Study, BMJ 2007

Why do people choose vegetarianism?

- Health Considerations
- Philosophical reasons
 - Concern for animals
 - Concern for the environment
 - World hunger issues
- Religious reasons
 - Islam, Judaism, Hinduism, Buddhism, Rastafari
- Food Safety
- Economic reasons



Position Statement



*"It is the position of the American Dietetic Association that **appropriately planned vegetarian diets, including total vegetarian or vegan diets, are healthful, nutritionally adequate, and may provide health benefits in the prevention and treatment of certain diseases. Well planned vegetarian diets are appropriate for individuals during all stages of the lifecycle, including pregnancy, lactation, infancy, childhood, and adolescence, and for athletes.**"*

Journal of the American Dietetic Assoc. 2009;109:1266-1282



Slide 5

mkm1 I might want to add to the environmental comments in the remarks below to make sure that it doesn't sound like we're saying we believe that the livestock industry is the largest contributors...some people may believe it but we're not reporting it as fact. Know what I mean?

mmauldin, 9/8/2009


Key Nutrient Considerations

- Protein
- Iron
- Zinc
- Calcium
- Vitamin D
- Vitamin B-12
- N-3 Fatty Acids





Protein

- Plant protein alone can meet protein requirements
- The quality of plant proteins varies
- Variety is necessary
- Requirements *may* be higher if main dietary sources are less easily digested (cereals and legumes)
- Plant sources include:
 - Legumes (e.g., beans, lentils, peas)
 - Grains
 - Nuts & Seeds
 - Soy products
 - Vegetables



Complementary Proteins

- Food pairing necessary to make up a complete protein using complementary proteins
- Examples:
 - Beans and rice
 - Peanut butter sandwich
 - Hummus with pita bread
 - Chickpeas and rice
 - Bean soup and wheat roll







Iron

- Recommendations of iron for vegetarians is 1.8 times those of non-vegetarians
 - The type of iron in plants is less easily absorbed than iron from meat sources
- Incidence of iron-deficiency anemia in vegetarians is similar to that of non-vegetarians




Vegetarian Sources of Iron

- Soybeans
- Black beans
- Kidney beans
- Lentils
- Oatmeal
- Fortified cereal
- Cream of wheat
- Whole wheat bread
- Cashews
- Peanuts
- Pumpkin seeds
- Raisins
- Apricots
- Potato w/ skin
- mushrooms



Zinc


- Important for biochemical reactions and the immune system
- Zinc bioavailability lower for vegetarian diets
- Many vegetarians have diets significantly below recommended intakes
- Food sources include legumes, nuts, cereals, dairy products
- Sources include soy products, legumes, grains, wheat germ, cheese, and nuts, pumpkin seeds



nkm3


Calcium

- Calcium intake of vegetarians similar to that of non-vegetarians
- Calcium present in many plant foods and fortified foods
- Oxalates reduce bioavailability
 - ▣ Found in spinach, beet greens, and Swiss chard
- Factors that enhance calcium absorption
 - ▣ Vitamin D
 - ▣ Protein




Vegetarian sources of Calcium

- Bok choy
- Kale
- Collard greens
- Mustard greens
- Fortified foods:
 - ▣ Soy milk
 - ▣ Fruit juices
 - ▣ Tomato juice
 - ▣ Breakfast cereals
- Supplements may be necessary, especially for vegans



Vitamin D

- Vitamin D status depends on sunlight exposure and intake of vit D fortified foods
- Sunlight sufficient during summer months for most people to maintain appropriate status
- Infants, children, the elderly, and people with dark skin less efficient at vitamin D synthesis
- During winter months, vitamin D supplements may be necessary, especially for vegans



Slide 13

mkm3 We'll need to know what an oxalate is if you want to use that term. :)
mmauldin, 9/8/2009

Foods fortified with Vitamin D

- Coy's milk
- Soy milk
- Rice milk
- Some ready-to-eat cereals
- Margarine
- Orange juice



Vitamin B-12

- No plant food contains significant amounts of active vitamin B-12
- A regular source especially important for pregnant and lactating mothers
- Studies show that vegans and other vegetarians do not regularly consume sufficient amounts
- Sources include:
 - Fortified foods (cereal, soy milk, veggie meats)
 - Coy's milk
 - Eggs
 - Supplements as necessary



ω -3 Fatty Acids

- Vegetarian diets marginal in n-3 fatty acids
- This specific type of fat is found in fish and eggs
 - Important for cardiovascular health, and eye and brain development
- Supplements (of DHA) are effective
- Some soy milk and breakfast cereals also fortified with DHA



Slide 18

mkm4 Probably need some background on EPA, ALA and DHA in common terms. Just explain to them what there are...simply specific fats that exist in specific foods or something like that.

mmauldin, 9/8/2009

Possible Health Benefits

- ↓ blood cholesterol levels
- ↓ risk of heart disease
- ↓ blood pressure levels
- ↓ risk of hypertension
- ↓ BMI
- ↓ overall cancer rates



Vegetarian Infants

- The breast milk of vegetarian mothers is similar in composition to that of non-vegetarian mothers and is nutritionally adequate.
- Iron and vitamin D supplement guidelines are the same for vegetarian and non-vegetarian infants.
- Additionally, a vitamin B-12 supplement may be necessary.



Vegetarian children

- Vegetarian diet appropriate
- Average protein intake generally meets or exceeds recommendations
- Frequent meals and snacks which include fortified breakfast cereals, breads, pasta, and food high in unsaturated fat can help meet energy and nutrient needs.
- Good sources of calcium, iron, and zinc should be emphasized.



Vegetarian adolescents

- May actually offer health advantages
- Reported to consume more fiber, iron, folate, Vit A and Vit C
- Also consume more fruits and vegetables, and fewer sweets, fast foods, and salty snacks
- Key nutrients include calcium, Vit D, iron, zinc and Vit B-12



Vegetarian pregnant & lactating women

- Diet should include reliable sources of vit B-12 daily
- Iron supplement may be needed
- Lower DHA levels in breastmilk
 - ▣ Diet should contain regular source of DHA precursor (flaxseed, canola oil, soybean oil)
 - ▣ DHA supplement may be needed



Guidelines for planning vegetarian meals from ADA

- Choose a variety of foods, including whole grains, vegetables, fruits, legumes, nuts, seeds, and, if desired, dairy products, and eggs.
- Minimize intake of foods that are highly sweetened, high in sodium, and high in fat, especially saturated fat and trans-fatty acids.
- Choose a variety of fruits and vegetables
- If animal foods such as dairy products and eggs are used, choose lower-fat dairy products and use both eggs and dairy products in moderation.
- Use a regular source of vitamin B-12 and, if sunlight exposure is limited, of vitamin D.



Resources

- **Vegetarian Nutrition Dietetic Practice Group**
<http://vegetariannutrition.net>
- **Mayo Clinic**
<http://www.mayoclinic.com/health/vegetarian-diet/HQ01596/>
- **Food and Nutrition Information Center**
<http://www.nal.usda.gov/fnic/pubs/bibs/gen/vegetarian.pdf>
- **The Vegetarian Resource Group**
<http://www.vrg.org>

References

- The Vegetarian Society – Definitions Information Sheet
- American Dietetic Association and Dietitians of Canada (2003). "Position of the American Dietetic Association and Dietitians of Canada: Vegetarian diets" *Journal of the American Dietetic Association* 103(6):748-65.
- *Journal of the American Dietetic Assoc.* (2009) "Position of the American Dietetic Association: Vegetarian Diets" 109:1 266-1 282.

Thank You!

If you have questions, you may e-mail Melissa Maulding at mmaulding@purdue.edu
