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Patient education: Diet and health (Beyond the Basics)

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HEALTHY DIET OVERVIEW — The food choices we make can have an important impact on our health. However, expert opinions continue to change about which and how much of these foods are optimal.

This topic summarizes the relationships between various foods or supplements and specific health conditions and concludes with general recommendations for following a healthy diet. A separate topic review is available about diets for weight loss. (See "Patient education: Losing weight (Beyond the Basics)", section on 'Choosing a diet or new eating plan'.)

FRUITS AND VEGETABLES — A number of studies have demonstrated important health benefits of eating fruits and vegetables.

- Increased intake of fruits and vegetables is linked to a lower risk of premature death.

- Fruits and vegetables decrease the risk of cardiovascular diseases including coronary heart disease (CHD), stroke, and death from CHD [1,2].

- High intake of fruits and vegetables may reduce the risk of developing cancer. Tomato and tomato-based foods may be beneficial at lowering the risk of prostate cancer.

- Recommended intake is at least five servings of fruits and/or vegetables every day.

FIBER — Eating a diet that is high in fiber can decrease the risk of coronary heart disease (CHD), colon cancer, and death [3,4]. Eating fiber also protects against type 2 diabetes, and eating soluble fiber (such as that found in vegetables, fruits, and especially legumes) may help control blood sugar in people who already have diabetes. (See "Patient education: High-fiber diet (Beyond the Basics)".)

The recommended amount of dietary fiber is 25 grams per day for women and 38 grams per day for men. Many breakfast cereals, fruits, and vegetables are excellent sources of dietary fiber. By reading the product information panel on the side of the package, it is possible to determine the number of grams of fiber per serving (figure 1). A list of the fiber content of a number of foods can be found in the table (table 1).

GRAINS AND SUGAR — Whole grain foods (like 100 percent whole wheat bread, steel cut oats, and wild/brown rice) should be chosen over foods made with refined grains (like white bread and white rice). Regularly eating whole grains has been shown to help weight loss and lower the risk of diabetes. Regularly consuming refined grains and added sugars has been associated with weight gain and increased risk of diabetes.

FAT — Eating foods higher in healthy fats and lower in unhealthy fats may reduce the risk of coronary heart disease (CHD).

The type of fat consumed appears to be more important than the amount of total fat. Trans fats should be avoided in favor of polyunsaturated fats, particularly those polyunsaturated fats found in fish (omega 3). Other sources of polyunsaturated fats that may be beneficial include certain oils, nuts, and seeds (like corn oil, flax seeds, and walnuts).

Trans fats appear on food labels as "partially hydrogenated oils" and are solid at room temperature. They are found in many margarines and commercial baked goods as well as in oils kept at high temperatures for a long period, such as frying vats in fast food restaurants.

Although saturated fats (found in animal products such as cheese, butter, and red meat) have typically been viewed as unhealthy, and monounsaturated fats (found in combination with other fats in many oils, such as olive oil) as healthy, newer evidence suggests that saturated and monounsaturated fats do not significantly increase or decrease the risk of CHD, although saturated fats raise cholesterol levels.

If cutting back on certain fats, it is important not to replace them with refined carbohydrates (eg, white bread, white rice, most sweets). Increases in refined carbohydrate intake may lower levels of high-density lipoprotein (HDL) cholesterol (good cholesterol), which actually increases the risk of CHD.

RED MEAT — It is now well-established that regularly eating red meat, particularly processed meats (like salami, pepperoni, and ham), is detrimental to health. It increases the risk of numerous diseases such as cancer, cardiovascular disease, and diabetes.

FOLATE — Folate is a type of B vitamin that is important in the production of red blood cells. Low levels of folate in pregnant women have been linked to a group of birth defects called neural tube defects, which includes spina bifida and anencephaly. Vitamins containing folate and breakfast cereal fortified with folate are recommended as the best ways to ensure adequate folate intake.

ANTIOXIDANTS — The antioxidant vitamins include vitamins A, C, E, and beta-carotene. Many foods, especially fruits and vegetables, contain these vitamins as well as have additional antioxidant properties. Studies have not clearly shown that antioxidant vitamins help prevent disease, specifically cancer, and some studies show they may actually cause harm. There is no evidence to support taking antioxidant vitamin supplements, except for individuals who have specific vitamin deficiencies.

CALCIUM AND VITAMIN D — Adequate calcium and vitamin D intake are important, particularly in women, to reduce the risk of osteoporosis. A health care provider can help to decide if supplements are needed, depending upon a person's dietary intake of calcium and vitamin D (table 2). Although the optimal level has not been clearly established, experts recommend that premenopausal women and men consume at least 1000 mg of calcium per day and postmenopausal women should consume 1200 mg per day. No more than 2000 mg of calcium should be consumed per day. (See "Patient education: Calcium and vitamin D for bone health (Beyond the Basics)".)

For vitamin D, 800 international units per day is recommended for adults over 70 years old and postmenopausal women. For other adults, the optimal intake is not clearly established, but 600 international units per day is generally recommended.

ALCOHOL — Moderate alcohol intake may reduce the risk of heart disease. However, drinking is also associated with many adverse events. Regularly drinking alcohol increases the risk of breast cancer in women; cancers of the mouth, esophagus, throat, larynx, and liver; other illnesses such as cirrhosis and alcoholism; and injuries and other trauma-related problems, particularly in men.

Based on the trade-off between these risks and benefits, the United States Dietary Guidelines recommend alcohol intake in moderation, if at all. This means no more than one drink per day for women and up to two drinks per day for men. Those who do not drink alcohol do not need to start.

Drinking is discouraged for those under 40 years who are at low risk of cardiovascular disease because the risks are likely to outweigh the benefits in this group.

CALORIC INTAKE — Of all aspects of diet, calories are possibly the most important when it comes to good health and preventing disease. Too many calories lead to weight gain and obesity. Excess weight is linked to premature death as well as an increased risk of cardiovascular disease, diabetes, hypertension, numerous cancers, and other important diseases [5-9].

The total number of calories a person needs depends upon the following factors:

- Weight

- Age

- Gender

- Height

- Activity level

GENERAL RECOMMENDATIONS FOR A HEALTHY DIET — Eat lots of vegetables, fruits, and whole grains and a limited amount of red meat. Get at least five servings of fruits and vegetables every day. Tips for achieving this goal include:

- Make fruits and vegetables part of every meal. Eat a variety of fruits and vegetables. Frozen or canned can be used when fresh isn't convenient.

- Eat vegetables as snacks.

- Have a bowl of fruit out all the time for kids to take snacks from.

- Put fruit on your cereal.

- Consume at least half of all grains as whole grains (like 100 percent whole wheat bread, brown rice, whole grain cereal), replacing refined grains (like white bread, white rice, refined or sweetened cereals).

- Choose smaller portions and eat more slowly.

Cut down on unhealthy fats (trans fats and saturated fats) and consume more healthy fats (polyunsaturated and monounsaturated fat). Tips for achieving this goal include:

- Choose chicken, fish, and beans instead of red meat and cheese.

- Cook with oils that contain polyunsaturated and monounsaturated fats, like corn, olive, and peanut oil.

- Choose margarines that do not have partially hydrogenated oils. Soft margarines (especially squeeze margarines) have less trans fatty acids than stick margarines.

- Eat fewer baked goods that are store-made and contain partially hydrogenated fats (like many types of crackers, cookies, and cupcakes).

- When eating at fast food restaurants, choose healthy items for yourself as well as your family, like broiled chicken or salad.

- If choosing prepared or processed foods, choose those labeled "zero trans fat." They may still have some trans fat but likely less than similar choices not labeled "zero."

Avoid sugary drinks and excessive alcohol intake. Tips for achieving this goal include:

- Choose non-sweetened and non-alcoholic beverages, like water, at meals and parties.

- Avoid occasions centered around alcohol.

- Avoid making sugary drinks and alcohol an essential part of family gatherings.

Keep calorie intake balanced with needs and activity level. (See "Patient education: Exercise (Beyond the Basics)".)

WHERE TO GET MORE INFORMATION — Your healthcare provider is the best source of information for questions and concerns related to your medical problem.

This article will be updated as needed on our web site (www.uptodate.com/patients). Related topics for patients, as well as selected articles written for healthcare professionals, are also available. Some of the most relevant are listed below.

Patient level information — UpToDate offers two types of patient education materials.

The Basics — The Basics patient education pieces answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials.

Patient education: Diet and health (The Basics)
Patient education: High-fiber diet (The Basics)
Patient education: Coronary artery bypass graft surgery (The Basics)
Patient education: Vitamin B12 deficiency and folate (folic acid) deficiency (The Basics)
Patient education: Coronary heart disease in women (The Basics)
Patient education: Vitamin supplements (The Basics)
Patient education: Can foods or supplements lower cholesterol? (The Basics)

Beyond the Basics — Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are best for patients who want in-depth information and are comfortable with some medical jargon.

Patient education: Losing weight (Beyond the Basics)
Patient education: High-fiber diet (Beyond the Basics)
Patient education: High cholesterol and lipids (hyperlipidemia) (Beyond the Basics)
Patient education: Calcium and vitamin D for bone health (Beyond the Basics)
Patient education: Starting solid foods during infancy (Beyond the Basics)
Patient education: Risks and benefits of alcohol (Beyond the Basics)

Professional level information — Professional level articles are designed to keep doctors and other health professionals up-to-date on the latest medical findings. These articles are thorough, long, and complex, and they contain multiple references to the research on which they are based. Professional level articles are best for people who are comfortable with a lot of medical terminology and who want to read the same materials their doctors are reading.

Diet in the treatment and prevention of hypertension
Dietary assessment in adults
Dietary carbohydrates
Dietary fat
Fish oil and marine omega-3 fatty acids
Lipid lowering with diet or dietary supplements
Nutrition in pregnancy
Healthy diet in adults

The following organizations also provide reliable health information.

- National Library of Medicine

  (www.nlm.nih.gov/medlineplus/healthtopics.html)

- Your Disease Risk at Washington University in St. Louis

(www.yourdiseaserisk.wustl.edu)

- The Nutrition Source at Harvard School of Public Health

  (www.hsph.harvard.edu/nutritionsource/)

- The Hormone Foundation

  (www.hormone.org)

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Topic 1990 Version 29.0

GRAPHICS

Nutrition label

Nutrition Facts

1 serving per container
Serving Size   1 cup (148g/5.3oz)

Amount Per Serving

Calories   **100**

	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Potassium 720mg	21%
Total Carbohydrate 26g	9%
Dietary Fiber 3g	12%
Total Sugars 3g	
Protein 3g	

Vitamin A	0%	Vitamin C	45%
Calcium	2%	Iron	6%
Thiamin	8%	Riboflavin	2%
Niacin	8%	Vitamin B$_6$	10%
Folate	6%	Phosphorous	6%
Zinc	2%	Magnesium	6%

* The % Daily Value (DV) tells you how much a nutrient
  in a serving of food contributes to a daily diet. 2,000
  calories a day is used for general nutrition advice.

Dietary fiber content = 3 grams

This is an example of a nutrition label. To know how much fiber is in a food, look at the line that reads "dietary fiber." This product has 3 grams of fiber in each serving.

%: percent.

Graphic 51585 Version 6.0

Amount of fiber in different foods

Food	Serving	Grams of fiber
Fruits		
Apple (with skin)	1 medium apple	4.4
Banana	1 medium banana	3.1
Oranges	1 orange	3.1
Prunes	1 cup, pitted	12.4
Juices		
Apple, unsweetened, with added ascorbic acid	1 cup	0.5
Grapefruit, white, canned, sweetened	1 cup	0.2
Grape, unsweetened, with added ascorbic acid	1 cup	0.5
Orange	1 cup	0.7
Vegetables		
Cooked		
Green beans	1 cup	4.0
Carrots	1/2 cup sliced	2.3
Peas	1 cup	8.8
Potato (baked, with skin)	1 medium potato	3.8
Raw		
Cucumber (with peel)	1 cucumber	1.5
Lettuce	1 cup shredded	0.5
Tomato	1 medium tomato	1.5
Spinach	1 cup	0.7
Legumes		
Baked beans, canned, no salt added	1 cup	13.9
Kidney beans, canned	1 cup	13.6
Lima beans, canned	1 cup	11.6
Lentils, boiled	1 cup	15.6
Breads, pastas, flours		
Bran muffins	1 medium muffin	5.2
Oatmeal, cooked	1 cup	4.0
White bread	1 slice	0.6
Whole-wheat bread	1 slice	1.9
Pasta and rice, cooked		
Macaroni	1 cup	2.5

Rice, brown	1 cup	3.5
Rice, white	1 cup	0.6
Spaghetti (regular)	1 cup	2.5
Nuts		
Almonds	1/2 cup	8.7
Peanuts	1/2 cup	7.9

To learn how much fiber and other nutrients are in different foods, visit the United States Department of Agriculture (USDA) National Nutrient Database at: http://www.nal.usda.gov/fnic/foodcomp/search/.

Created using data from the USDA National Nutrient Database for Standard Reference. Available at http://www.nal.usda.gov/fnic/foodcomp/search/.

Graphic 52349 Version 4.0

Foods and drinks with calcium

Food	Calcium, milligrams
Milk (skim, 2 percent, or whole, 8 oz [240 mL])	300
Yogurt (6 oz [168 g])	250
Orange juice (with calcium, 8 oz [240 mL])	300
Tofu with calcium (1/2 cup [113 g])	435
Cheese (1 oz [28 g])	195 to 335 (hard cheese = higher calcium)
Cottage cheese (1/2 cup [113 g])	130
Ice cream or frozen yogurt (1/2 cup [113 g])	100
Soy milk (8 oz [240 mL])	300
Beans (1/2 cup cooked [113 g])	60 to 80
Dark, leafy green vegetables (1/2 cup cooked [113 g])	50 to 135
Almonds (24 whole)	70
Orange (1 medium)	60

Graphic 67824 Version 5.0

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