

HOME & GARDEN INFORMATION CENTER

HGIC 4050

1-888-656-9988 http://hgic.clemson.edu

Fat in Your Diet

Fats and oils are part of a healthful diet. Your body needs some dietary fat to function properly.

Fat:

- is a source of energy.
- is a carrier of fat-soluble vitamins (A, D, E, and K) from food into the body.
- is used in the production of cell membranes.
- helps regulate blood pressure, heart rate, blood vessel constriction, blood clotting and the nervous system.
- helps maintain healthy hair and skin.
- protects vital organs and insulates the body.
- provides taste, consistency, and stability to food and helps us feel full after meals.

The type of fat makes a difference to heart health. The 2005 Dietary Guidelines for Americans recommends that most dietary fat come from fish, nuts, and vegetable oils, sources of the more healthful polyunsaturated and monounsaturated fatty acids. You should limit unhealthy fats that are solid at room temperature like stick margarine, butter, shortening and lard.

Eat less of all fats and oils, and choose those with less saturated fat. Consume less than 10% of calories from saturated fats. Keep consumption of trans fats as low as possible, and limit dietary cholesterol to less than 300 milligrams a day.

Your overall fat intake is also important. Most American diets are too high-fat, especially in the unhealthy saturated fats and trans fats. Total fat intake for different age levels should be:

- adults—20 to 35% of calories.
- children and adolescents 4 to 18 years of age—25 to 35% of calories.
- children two to three years of age—30 to 35% of calories.

 infants and toddlers up to age two—no recommendation. They need the calories and nutrients from fats due to their high energy needs per unit of body weight.

Getting more than 35% of calories from fat usually increases saturated fat intake and results in eating too many calories, which may lead to obesity. Very few people consume diets with less than 20% of calories from fat, however. Consuming less than the recommended amount of fats and oils increases risk of getting too little vitamin E and essential fatty acids. Low intake of fats and oils also may contribute to unfavorable changes in HDL (good) blood cholesterol and triglycerides.



OILS ARE IN!

Because oils contain essential fatty acids, there is an allowance for oils in MyPyramid, USDA's latest food guide. Represented by the narrow yellow band on the pyramid, oils are fats that are liquid at room temperature, such as vegetable cooking oils. Most Americans consume enough oil in foods. Oils come from many different plants and from some fish.

ACCEPTABLE OILS

- common oils—canola, corn, cottonseed, olive, peanut, safflower, soybean, sunflower.
- some oils used mainly as flavorings—walnut oil and sesame oil.
- foods naturally high in oils—some fish, nuts, olives and avocados.
- foods that are mainly oil—certain salad dressings, mayonnaise, and soft (tub or squeeze) margarine with no trans fats.

WHY CONSUME OILS?

In addition to eating foods from the five food groups in MyPyramid, you need some oil in your diet. In the typical American diet, oil is the major source of vitamin E and essential fatty acids (EFAs), which come from polyunsaturated fats and are necessary for health. Using oils and soft margarines with zero trans fat instead of hard fats will help keep your saturated fat intake low.

Although consuming some oil is necessary for health, remember that oils still contain calories. In fact, all fats contain nine calories per gram, which is more than double the four calories per gram in proteins and carbohydrates. Therefore, limit the amount of oil you consume so that you stay within your calorie needs.

HOW MUCH IS NEEDED?

Most Americans get enough oil in the foods they eat. Recommended intakes range from 3 to 7 teaspoons daily, based on age, sex, and level of physical activity. The following chart shows daily allowances for oils.

Daily Allowances for Oils*		
	Age	Teaspoons**
Children	2-3 years	3
	4-8 years	4
Girls	9-18 years	5
Boys	9-13 years	5
	14-18 years	6
Women	19-30 years	6
	31+ years	5
Men	19-30 years	7
	31+ years	6

^{*} For people who get less than 30 minutes of moderate physical activity every day, beyond normal daily activities. If you are more physically active, you may consume more, while staying within calorie needs.

SOLID FATS

Solid fats, which are solid at room temperature, come from animal foods. They also can be made from vegetable oils through a process called hydrogenation. This is the method used to make margarine and shortening.

Common solid fats include:

- butter
- beef fat (tallow, suet)
- chicken fat

- pork fat (lard)
- stick margarine
- shortening

Foods high in solid fats include: many cheeses, creams, ice creams, well-marbled cuts of meats, regular ground beef, bacon, sausages, and poultry skin. In addition, many baked goods are high in solid fats, including cookies, crackers, pastries, donuts and croissants. Often the solid fat in food is invisible, such as in whole milk and regular cheese.

COMPARING OILS TO SOLID FATS

Both oils and solid fats have about 120 calories per tablespoon and are a mixture of saturated fats and unsaturated fats. A few plant oils, including coconut oil and palm kernel oil, are high in saturated fats. Therefore, they should be considered solid fats for nutritional purposes.

Oils are the major source of monounsaturated (MUFA) and polyunsaturated (PUFA) fats, the two healthy fats that should be most prevalent in your diet. Most oils are low in harmful saturated fats. Solid fats, on the other hand, contain more of the harmful saturated and/or trans fats but less of the healthy monounsaturated and polyunsaturated fats.

The monounsaturated fats and polyunsaturated fats found in fish, nuts, and vegetable oils do not raise LDL (bad) cholesterol levels in the blood. They may even help lower LDL cholesterol slightly when a low-saturated-fat diet is followed.

Knowing which fats raise LDL (bad) cholesterol and which ones do not is the first step in lowering your risk of heart disease. Look for foods that are low in saturated fats and trans fats. These fats, as well as dietary cholesterol, tend to raise LDL (bad) cholesterol levels in the blood, which increases your risk for heart disease.

MyPyramid, USDA's latest food guide, includes healthy oils. However, solid fats are considered "extras," or part of your discretionary calorie allowance. Think of it this way. Every person has a total calorie "budget," divided into essentials and extras. The essential calories are the certain number of calories that your body needs to function and to provide energy for physical activities. The extras are the discretionary calories you can use on eating luxuries like more food from any food group, solid fats, added sugars or alcohol.

^{**1} teaspoon oil = 5 grams of fat

HEALTHY FATS

The healthy fats are monounsaturated and polyunsaturated fats, which are both unsaturated fats. These raise HDL (good) cholesterol or may help lower LDL (bad) cholesterol in the blood when used in place of saturated fats in the diet.

Monounsaturated Fats: oils that are liquid at room temperature and start to solidify when refrigerated. Examples are canola, peanut and olive oils, as well as avocados, olives, peanuts and other nuts. They lower blood cholesterol and trigger the production of more HDL (good) cholesterol.

Omega-9: a monounsaturated fat that comes from flax, olive, evening primrose, and borage oil. It may reduce heart disease and breast cancer risks.

Polyunsaturated Fats: oils which remain liquid at room temperature and in the refrigerator. They can lower total blood cholesterol and may lower HDL (good) cholesterol and LDL (bad) cholesterol. Polyunsaturated fats are found mainly in plant oils—safflower, sunflower, corn, soybean, sesame and cottonseed—as well as nuts and some fish.

The following two polyunsaturated fats are essential in the diet, since the body cannot make them:

Omega-3: a fat that is highly polyunsaturated. Omega-3 fat lowers blood pressure, reduces the risk of a heart attack or stroke by making the blood less likely to form clots, and protects against sudden death caused by irregular heartbeats. It may help lower levels of LDL (bad) cholesterol and triglycerides and reduce the risk of heart disease.

Since 2000, the American Heart Association's dietary guidelines recommend that healthy adults eat at least two servings of fish per week, especially fish that contain two of the omega-3 fats, EPA and DHA. These are found primarily in higher-fat, coldwater fish, such as salmon, albacore tuna, sardines, mackerel, herring, and lake trout.

The most common omega-3 fat, alpha-linolenic acid (ALA), is less potent than EPA and DHA. It is available in nuts, tofu and other soyfoods, and oils—flaxseed, safflower, sunflower, corn and walnut. It is also available in smaller amounts in soybean and canola oils.

Most people do not consume enough omega-3 fats. Researchers recommend that we get at least 3 grams of omega-3 fats every day. Eating fish, preferably baked, broiled or grilled, four times a week will provide that amount.

<u>Fish oil supplements:</u> The benefits and risks of fish oil supplements are still being researched. They contain more omega-3 fat than would be found in fish, making it easier to consume more than the recommended amount. Over consumption can lead to inadequate blood clotting, hemorrhage, oxidative cell damage and other unknown effects. Long-term effects of taking fish oil supplements are unknown.

Omega-6: a polyunsaturated fat found in vegetable oils. The most common one is linoleic acid. Omega-6 fat may reduce the risk of heart disease by lowering total and LDL (bad) cholesterol, but it may lower HDL (good) cholesterol as well. Omega-6 fat also reduces the effects of insulin and the immune system. Most vegetable oils, especially soybean, corn and safflower, are high in omega-6 fats. Other sources include borage, evening primrose, and black currant oils.

Most North Americans consume enough omega-6 fats. However, deficiencies in omega-3 and omega-6 fats can result in these symptoms: flaky and itchy skin, diarrhea, infections, inadequate growth and poor wound healing.

HARMFUL FATS

Most Americans need to decrease their intakes of saturated fats and trans fats, and many need to decrease their dietary intake of cholesterol. The harmful fats—saturated fats, trans fats, and cholesterol—tend to raise LDL (bad) cholesterol levels in the blood, which increases your risk for heart disease and stroke. To lower your risk, choose fresh produce and unprocessed food rather than foods containing the harmful fats.

Saturated Fats: fats which remain solid or firm at room temperature and refrigerator temperatures. Exposure to air does not turn them rancid easily. Saturated fats are found in largest amounts in animal products, such as meats and dairy products. They are also found in some tropical plant oils—coconut, palm and palm kernel oils—hydrogenated vegetable oil, and cocoa butter (in chocolate).

Saturated fats can raise blood cholesterol more than anything else in the diet by triggering the liver to make more total and LDL (bad) cholesterol. Here is a guide for keeping saturated fat below the recommended 10% of total calorie intake daily:

Keeping Saturated Fats Below 10% of Calories*		
Total Calorie Intake	Saturated Fat Intake	
1,600	18g or less	
2,000**	20g or less	
2,200	24g or less	
2,500	25g or less	
2,800	31g or less	

^{*} Adults with elevated LDL blood cholesterol should consume less than 7% of calories from saturated fat and less than 200 mg/day of cholesterol, as well as be under the care of a healthcare provider.

For examples of the differences in the saturated fat content of different forms of commonly eaten foods, go to Chapter 6 of the *Dietary Guidelines for Americans 2005* at

http://www.health.gov/dietaryguidelines/dga2005/document/html/chapter6.htm

Trans Fats: are formed when liquid fat, such as healthful polyunsaturated oil, is heated in the presence of hydrogen to turn it into a harmful solid fat, like shortening and stick margarine. This is called hydrogenation, which means to add hydrogen. This process allows fat to be shelf stable for longer periods of time and increases flavor stability of foods.

Trans fat is solid at room temperature. It converts unsaturated fats to saturated fats. Trans fats are usually found in foods containing partially-hydrogenated vegetable oils, which provide about three-fourths of the trans fat in the American diet.

Keep trans fat intake as low as possible, because it acts similar to saturated fat in the body, causing your blood cholesterol levels to increase. Saturated fats and trans fats raise the risk of heart disease by raising both total blood cholesterol levels and LDL (bad) cholesterol levels and by lowering HDL (good) cholesterol levels.

Sources of Trans Fat: Approximately 40% of foods in the grocery store contain trans fat, which helps it stay fresh on the shelf or forms a solid fat product (e. g., margarine) by adding hydrogen to polyunsaturated oils. It will probably appear as "partially hydrogenated" vegetable fat on an ingredient label.

Processed foods and oils provide about 80% of trans fats in the diet, compared to 20% that naturally occur in small amounts in some meat and dairy products. The trans fat content of certain processed foods has changed and is likely to continue to change as the industry reformulates products.

Foods that contain trans fats include:

- snack crackers
- cakes, cookies, and doughnuts
- pastries and pies
- butter, margarines*, vegetable shortenings
- icings
- French fries and other foods fried in partially hydrogenated oil, including restaurant and fast food cooking
- potato chips, corn chips, popcorn (including microwave popcorn)
- beef, lamb, cheese, and some milk products *Tub or liquid forms of margarine contain less trans fats.

Beginning in January 2006 the FDA requires that trans fat be listed on the nutrition label. However, there are no labeling regulations for restaurant foods and fast foods, which frequently contain high levels of trans fats. These foods can even be advertised as "cholesterol-free" and "cooked in vegetable oil."

The lack of regulations for labeling restaurant and fast foods may be harmful to your health. A doughnut (3.2g of trans fat) at breakfast and a large order of French fries (6.8g of trans fat) at lunch add 10g of trans fat to your diet. FDA estimates that the average American's intake of trans fat is about 5.8 grams per day for a person 20 years old or older.

Dietary Cholesterol: is found in animal products, such as meat, poultry, eggs, dairy products, lard and butter but is not present in any plant foods, including vegetable and nut oils. The body naturally makes all it needs. Dietary cholesterol can raise blood cholesterol but generally is not as important as saturated fat, trans fat, and total fat in the diet.

^{**}Percent Daily Values on the Nutrition Facts Panel of food labels are based on a 2,000-calorie diet. Values for 2,000 and 2,500 calories are rounded to the nearest 5 grams to be consistent with the Nutrition Facts Panel.

WAYS TO CUT DOWN ON FAT

Fat contains nine calories per gram, compared to four calories per gram for carbohydrates and protein. A low-fat diet helps you maintain a healthy weight and reduces your chances of getting certain diseases, such as heart disease, diabetes, cancer, gallstones, sleep apnea and osteoarthritis.

Here are a few ways to limit consumption of harmful saturated fat, trans fat, and cholesterol while eating a nutritionally adequate diet:

- Learn the food labeling terms that describe products to help you reduce fat intake: fat-free = less than 0.5 gram per serving low-fat = 3 grams or less per serving reduced or less fat = at least 25% less fat per serving than traditional food light = ½ fewer calories or 50% less fat per serving
 - **low-fat meal** = 3 grams or less fat per 100 grams, and 30% or less calories from fat **low saturated fat** = 1 gram or less per serving and no more than 15% of calories from saturated fat
 - *low cholesterol* = 20 milligrams or less cholesterol and 2 grams or less saturated fat per serving
- Choose lower fat foods from the food groups most often. Vegetables, fruits, and grain products are naturally low in fat.
- Go for lean, low-fat or fat-free when choosing meat, poultry and milk products.
- Eat fish, such as salmon, tuna, mackerel and sardines two times a week.
- Use herbs and spices to flavor foods.
- Use unsaturated vegetable oils (e.g., canola and olive) when possible. Sauté with olive oil instead of butter. Use olive oil in salad dressings and marinades. Use canola oil when baking.
- Go easy on fat added to foods in cooking or at the table (e.g., butter, margarine, gravy and salad dressing). A plain baked potato has 120 calories and a trace of fat, but 14 French fries have 225 calories and 11 grams of fat.
- Use margarine as a substitute for butter.
- Choose soft margarines over stick forms. The first ingredient on the label should be liquid vegetable oil.

- Chill soups and stews, then skim the layer of solid fat off the top.
- Increase the ratio of vegetables to meat in your meals and in combination dishes.
- Replace chips or processed crackers with a healthy snack, like a handful of nuts.
- Enjoy slices of avocado on your sandwich instead of cheese.
- Seldom eat fried fast food, commercially fried foods, or commercial baked goods, which are high in saturated fats and trans fats. (e. g., French fries, fried chicken, cookies, crackers, cakes, pie crusts, donuts.)
- Limit use of nondairy creamers.
- Know the kinds and amounts of fat in foods by reading nutrition and ingredient labels on food packages. Select processed foods that are made with unhydrogenated oil, not hydrogenated or saturated fat.

THE NUTRITION FACTS LABEL

The Nutrition Facts label provides information to help you make smart choices. Use nutrition labels on packaged foods to find out the grams of fat they contain. FDA has required that amounts of saturated fat and cholesterol be listed on nutrition facts labels since 1993. As of January 1, 2006 the amount of trans fat is required, also. Note: Trans fat content of less than 0.5 grams per serving is listed as 0 grams.

Identifying saturated fat, trans fat, and cholesterol on the food label gives you information to make heart-healthy food choices to help you reduce your risk of coronary heart disease. To choose foods low in saturated fat and cholesterol, use the Quick Guide to % Daily Value on the Nutrition Facts. The general rule of thumb is: 5%DV or less is low and 20% DV or more is high. A %DV for trans fat has not been established.

Always check the Nutrition Facts label to compare similar foods. The following labels show the total fat, saturated fat, trans fat, and cholesterol content per serving for selected food products. Look for the lowest combined amount of saturated fat and trans fat, then look for the lowest percent (%) Daily Value for cholesterol. Check all three nutrients to make the best choice for a healthful diet, keeping your intake as low as possible while eating a nutritionally adequate diet.

Compare Spreads!*

Keep an eye on Saturated Fat, *Trans* Fat **and** Cholesterol!

Butter ** Margarine, stick † Margarine, tub † Nutrition Facts Nutrition Facts Nutrition Facts Serving Size 1 Tbsp (14g) Serving Size 1 Tbsp (14g) Serving Size 1 Tbsp (14g) Servings Per Container 32 Servings Per Container 32 Servings Per Container 32 Amount Per Serving Amount Per Serving Amount Per Serving Calories 100 Calories 100 Calories 60 Calories from Fat100 Calories from Fat100 Calories from Fat 60 % Daily Value* % Daily Value* % Daily Value* Total Fat 11g Total Fat 11g Total Fat 7g 11% Saturated Fat 1g 🖛 Saturated Fat 7g 🖛 35% Saturated Fat 2g 🖛 10% Trans Fat Og -Trans Fat 3g -Trans Fat 0.5g -Cholesterol 30mg ■ 10% Cholesterol Omg ■ 0% Cholesterol Omg ■ 0% Saturated Fat: 7q Saturated Fat: 2q Saturated Fat: 1 q + Trans Fat : 0g + Trans Fat : 3g + Trans Fat Combined Amt.: 7a Combined Amt.: 5a Combined Amt.: 1.5a Cholesterol: 10 % DV Cholesterol: 0 % DV Cholesterol: 0 % DV

Select margarines with 0 grams of trans fat and no more than 2 grams of saturated fat per tablespoon. Choose soft or liquid margarines over stick forms. The first ingredient should be liquid vegetable oil. Avoid hydrogenated fats with more than 2 grams of saturated fat per tablespoon.

Compare Desserts!*

Keep an eye on Saturated Fat, Trans Fat and Cholesterol!

Granola Bar ± Sandwich Cookies ± Cake, Iced and Filled ± Nutrition Facts Nutrition Facts Nutrition Facts Serving Size 2 cookies (28g) Serving Size 2 cakes (66g) Serving Size 1 bar (33g) Servings Per Container 10 Servings Per Container 19 Servings Per Container 6 Amount Per Serving Calories 140 Amount Per Serving Amount Per Serving Calories 130 Calories from Fat 45 Calories from Fat 45 Calories 280 Calories from Fat 140 % Daily Value* % Daily Value* % Daily Value* 8% 8% 25% Total Fat 5g Total Fat 5g Total Fat 16g Saturated Fat 1g 5% Saturated Fat 1g 5% Saturated Fat 3.5g -18% Trans Fat 4.5g -Trans Fat Og Trans Fat 1.5g 🛶 Cholesterol Omg 0% Cholesterol Omg 0% Cholesterol 10mg 3% Saturated Fat: 1 g Saturated Fat: 1 g Saturated Fat: 3.5g + Trans Fat: 0 g + *Trans* Fat : 1.5g + *Trans* Fat : 4.5g Combined Amt.: 1 g Combined Amt.: 2.5g Combined Amt.: 8 g

Cholesterol: 0 % DV

Cholesterol: 0 % DV

Cholesterol: 3 % DV

^{*}Nutrient values rounded based on FDA's nutrition labeling regulations. Calorie and cholesterol content estimated. **Butter values from FDA Table of *Trans* Values, 1/30/95.

[†] Values derived from 2002 USDA National Nutrient Database for Standard Reference, Release 15.

^{*}Nutrient values rounded based on FDA's nutrition labeling regulations.

[±] Values for total fat, saturated fat, and *trans* fat were based on the means of analytical data for several food samples from Subramaniam, S., et al., "*Trans*, Saturated, and Unsaturated Fat in Foods in the United States Prior to Mandatory *trans*-Fat Labeling," *Lipids* 39, 11-18, 2004. Other information and values were derived from food labels in the marketplace.

Compare Snacks!*

Keep an eye on Saturated Fat, Trans Fat and Cholesterol!

Frozen Potatoes ± (e.g., French Fries)

Potato Chips ±

Mini-Sandwich Crackers ±



^{*}Nutrient values rounded based on FDA's nutrition labeling regulations.

For more information on fats and cholesterol, triglycerides, and blood cholesterol levels, refer to HGIC 4051, *Cholesterol*.

For other related information, refer to the following:

- HGIC 4000, 2005 Dietary Guidelines for Americans;
- HGIC 4010, MyPyramid
- HGIC 4011, MyPyramid for Kids
- HGIC 4016, Focus on Fruits
- HGIC 4017, Vary Your Veggies
- HGIC 4018, Get Your Calcium-Rich Foods
- HGIC 4019, Whole Grains
- HGIC 4020, Go Lean With Protein
- HGIC 4052, *Fiber*

Sources:

1. United States Department of Agriculture. *MyPyramid*. 2005. www.mypyramid.gov/pyramid/

- 2. United States Department of Agriculture. *MyPyramid for Kids*. 2005. www.mypyramid.gov/kids/
- 3. U.S. Department of Health and Human Services and U.S. Department of Agriculture. *Dietary Guidelines for Americans* 2005. http://www.health.gov/dietaryguidelines/dga2005/document/html/chapter6.htm
- 4. American Heart Association. *Know Your Fats*. www.americanheart.org/presenter.jhtml?identifier=532
- 5. American Heart Association. New Guidelines Focus on Fish, Fish Oil, Omega-3 Fatty Acids.

www.americanheart.org/presenter.jhtml?identifier=3006624

- 6. *Omega-3 Fatty Acids*. Nourishing News (April 2001), Clemson University Department of Food Science and Human Nutrition and EFNEP. http://virtual.clemson.edu/groups/NIRC//archives.php
- 7. U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition. *Trans Fat Now Listed With Saturated Fat and Cholesterol on the Nutrition Facts Label*. January 1, 2006. http://www.cfsan.fda.gov/~dms/transfat.html
- 8. Mayo Clinic. *Dietary Fats: Know Which Types To Choose*. January 17, 2006. www.mayoclinic.com/health/fat/NU00262
- 9. Duyff, Roberta Larson. American Dietetic Association *Complete Food and Nutrition Guide*, 2nd Edition. 2002.

This information has been reviewed and adapted for use in South Carolina by J. G. Hunter, HGIC Information Specialist, and K. L. Cason, Professor, State EFNEP Coordinator, Clemson University.

This information is supplied with the understanding that no discrimination is intended and no endorsement by the Clemson University Cooperative Extension Service is implied. (New 04/06).

[±] Values for total fat, saturated fat, and *trans* fat were based on the means of analytical data for several food samples from Subramaniam, S., et al., "*Trans*, Saturated, and Unsaturated Fat in Foods in the United States Prior to Mandatory *trans*-Fat Labeling," *Lipids* 39, 11-18, 2004. Other information and values were derived from food labels in the marketplace.