

Cholesterol & Fats in Our Diet: Part 2

The latest on lifestyle change

As much as most of us cringe at the words “lifestyle change,” most of us could make some improvements to reduce our cholesterol levels and/or keep them healthy, thus reducing our risk for disease. Losing weight, getting active, and eating right are still keys to health, but there are new findings that shed more light on how best to make changes.

If you are overweight, “losing just 10 pounds can reduce LDL cholesterol 5 to 8 percent,”¹ and “even moderate exercise can help improve your cholesterol, as well as triglycerides, and blood pressure.”¹ In fact, physical activity cannot only increase levels of HDL (healthy) cholesterol, but it can also help control other risk factors for heart disease, including managing weight and controlling high blood pressure and diabetes.²



The latest in making lifestyle changes, however, is the focus on reducing fats and knowing which fats to avoid. While choosing a low-fat, low cholesterol diet is still a good idea, the focus has shifted to replacing *bad* fats with *good* fats.

The message to simply eat a “low-fat” diet is somewhat out of date. The *total* amount of fat in the diet, whether high or low, isn’t really the issue when it comes to disease risk. New results from a large and long clinical trial showed that eating a low-fat diet for eight years did not prevent heart disease, breast cancer, or colon cancer, and it didn’t do much for weight loss, either.³ “The biggest influence on blood cholesterol level is the mix of fats in the diet,”³ rather than *total* fat in the diet or just the high cholesterol foods we eat. (See *Is Dietary Cholesterol the Villain?* on the next page.) So, “what really matters is the *type of fat* in the diet.”³

What we’re beginning to understand is that there are *good* fats and *bad* fats. The *bad* fats – saturated and trans fats – increase the risk for certain diseases. The *good* fats – monounsaturated and polyunsaturated fats – lower the risk. So the goal is not necessarily to reduce *total* fat, but rather to **substitute** *good* fats for *bad* fats.³

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Fats

Substituting the good for the bad

How do we substitute good fats for bad ones? First, we need to remember to *substitute* or *replace* good fats for bad fats or other foods – NOT add calories to what we are already eating. We don’t want to increase our calorie intake. Rather, we want to replace some of the risk-increasing foods with risk-reducing ones. Second, we need to know which fats are good and which are bad.

The Bad Fats

The bad fats are those that increase blood cholesterol levels, which then increase the risk for developing certain diseases. The two culprits are:

- **Saturated fats** – Saturated fats are mainly found in animal-based foods like meat, seafood, whole-milk dairy products (yogurt, cheese, milk, ice cream), poultry skin, and egg

Is Dietary Cholesterol the Villain?

“While it is well known that high blood cholesterol levels are associated with an increased risk for heart disease, scientific studies have shown that there is only a weak relationship between the amount of cholesterol a person consumes and their blood cholesterol levels or risk for heart disease. For some people with high cholesterol, reducing the amount of cholesterol in the diet has a small but helpful impact on blood cholesterol levels. For others, the amount of cholesterol eaten has little impact on the amount of cholesterol circulating in the blood.”³ In other words, “different people have different susceptibilities.”¹

So, “although it is still important to limit the amount of cholesterol you eat [e.g., egg yolks, shellfish, liver, and other organ meats],¹ especially if you have diabetes [see [Treating High Cholesterol in People with Diabetes](#)], dietary cholesterol isn’t nearly the villain it’s been portrayed to be. Cholesterol in the bloodstream is what’s most important. High blood cholesterol levels greatly increase the risk for heart disease. But the average person makes about 75 percent of blood cholesterol in his or her liver, while only about 25 percent is absorbed from food.”³

yolks, but they are also in some high-fat plant sources, including coconut, coconut oil, palm oil, and palm kernel oil.^{1,3} “Saturated fats raise total blood cholesterol levels more than dietary cholesterol because they tend to boost both good HDL and bad LDL cholesterol. The net effect is negative, meaning it’s important to limit saturated fats.”³

- **Trans fats** – Also called trans fatty acids, trans fats were developed in a laboratory to improve the shelf life of processed foods (which they do successfully) by heating liquid vegetable oil in the presence of hydrogen (a process known as *hydrogenation*). This process makes the fat more solid at room temperature and less likely to spoil. Knowing this information helps us to distinguish some products that have more trans fat. For example, spreadable tub margarine typically has fewer trans fats than stick margarine

because spreadable margarine is less solid than stick margarine.

Most trans fats come from commercially prepared and packaged baked goods (e.g., cookies and cakes), snack foods (e.g., potato chips and crackers), processed foods, shortenings and some margarines, fried foods, and fast foods (e.g., donuts and French fries) that use or create hydrogenated oils.^{1,3,4} “Trans fats are even worse for cholesterol levels than saturated fats because they raise bad LDL and lower good HDL.... While you should limit your intake of saturated fats, it is important to **eliminate** trans fats from *partially hydrogenated oils* from your diet.”³ (Manufacturers must now list trans fats on the food label, right beneath saturated fats. “In the United States, however, the labeling requirement has a caveat. Trans

fat that amounts to less than 0.5 grams per serving can be listed as 0 grams of trans fat. Though that’s a small amount of trans fat, if you eat multiple servings of food with less than 0.5 grams of trans fat, you could exceed recommended limits.”⁵ So, when selecting foods, keep in mind that there can be almost ½ gram of trans fat in products labeled zero trans fat, which can add up. Read the label, and check for the words *hydrogenated oil*.

The Good Fats

The good fats are those that tend to cause blood cholesterol levels to decrease, which helps lower the risk for developing disease. The good fats are unsaturated fats and are found in products derived from plant sources. The two good types of fat are:

- **Monounsaturated fats** – found in high concentrations in canola, peanut, and olive oils.³
- **Polyunsaturated fats** – found in high concentrations in sunflower, corn, and soybean oils. **Note:** Another important source of polyunsaturated fat, known as omega-3 fatty acid, is found in fish and fish oil. There is strong scientific evidence that the consumption of fish and/or fish oil reduces the risk of heart disease.³ “Omega-3s seem to reduce inflammation, reduce high blood pressure, decrease



triglycerides, help to make blood thinner and less sticky so it is less likely to clot ... PLUS raise HDL cholesterol!"¹ The best sources of omega-3 rich fish are the dark meat fishes – wild salmon, herring, mackerel (not king), sardines, and anchovies. Omega-3s are also found in omega-3 fortified eggs, walnuts, soybeans, ground flax, and can be purchased in fish oil capsules.¹



Making the Switch

“Ounce for ounce, trans fats are far worse than saturated fats when it comes to heart disease. The Nurses’ Health Study found that replacing only 30 calories (7 grams) of carbohydrates every day with 30 calories (4 grams) of trans fats nearly doubled the risk for heart disease. Saturated fats increased risk as well, but not nearly as much.”³ “Replacing 80 calories of carbohydrates with 80 calories of either polyunsaturated or monounsaturated fats lowered the risk for heart disease by about 30 to 40 percent.”³ “In studies in which polyunsaturated and monounsaturated fats were eaten in place of carbohydrates, these good fats decreased LDL levels and increased HDL levels.”³ There is consistent evidence that high intake of either monounsaturated

or polyunsaturated fat lowers the risk for heart disease. You can substitute olive oil or vegetable oil for trans fats.

Trying to make a healthy fat substitution in just 2 percent (40 calories in a 2,000 calorie diet) of your daily calories could reduce your risk of heart disease by 53 percent.¹ Think of it this way – an average serving of French fries contains about 5 grams of trans fats, or about 45 calories worth of trans fats.¹ If you eat fast food at lunch most days, avoiding one serving of French fries a day could help reduce your risk for heart disease.

To help you make the switch, try the mono- and poly-unsaturated fats instead of the saturated- and trans fats listed in this [table](#) from the Harvard School of Public Health.

Other dietary recommendations for gaining or maintaining healthy cholesterol levels include the following:

- Eat less red meat and more fish and chicken (skinless).
- Eat fewer refined carbohydrates (e.g., white flour and concentrated sweeteners) and more whole, unrefined foods that are high in fiber (whole wheat, grains, etc.).
- Eat more fruits and vegetables.⁶

For help in creating a plan for your diet, refer to these helpful [resources](#), or see the December issue of [HealthHints](#) for more help in substituting good fats for bad.

When You Need Medication

Your cholesterol, your body, & your medicine

If cholesterol is not controllable by diet and exercise alone, medication may be needed. Your

body doesn’t need cholesterol from food sources because your liver and other cells in the body⁷ produce all the cholesterol your body needs.⁸ Sometimes, however, your body produces more cholesterol than is needed. Other times, your body doesn’t absorb enough cholesterol. (See [How the Body Produces & Uses Cholesterol.](#)) So, along with suggesting that you change the way you eat and exercise regularly, your doctor may prescribe medicines to help lower your cholesterol. Even if you begin drug treatment, you will need to continue following the recommendations for diet and exercise. “Drug treatment controls but does not ‘cure’ high blood



cholesterol. Therefore, you must continue taking your medicine to keep your cholesterol level in the recommended range.

The five major types of cholesterol-lowering medicines are:

- Statins
 - Very effective in lowering LDL (bad) cholesterol levels
 - Safe for most people
 - Rare side effects to watch for are liver and muscle problems

When Your Medicines Have Side Effects

If, after taking your cholesterol-controlling medications (or any prescribed medication, for that matter) you experience negative side effects, talk with your doctor immediately. There are 5+ classes of cholesterol-controlling medication and individual types of drugs within each class. What that means is that there are a lot of options. Your doctor can help you switch medicines, find the right combination of medicines, or adjust the dosage of a medicine to minimize or eliminate negative side effects. Don't quit. Work with your doctor until you find the right medication that works for you.

- Bile Acid Sequestrants (seh-KWES-trants)
 - Help lower LDL cholesterol levels
 - Sometimes prescribed with statins
 - Not usually prescribed as the only medicine to lower cholesterol
- Nicotinic (Nick-o-TIN-ick) Acid
 - Lowers LDL cholesterol and triglycerides, and raises HDL (good) cholesterol
 - Should only be used under a doctor's supervision
- Fibrates
 - Lower triglycerides
 - May increase HDL (good) cholesterol levels
 - When used with a statin, may increase the chance of muscle problems

- Ezetimibe
 - Lowers LDL cholesterol
 - May be used with statins or alone
 - Acts within the intestine to block cholesterol absorption

When you are under treatment, you will be checked regularly to make sure your cholesterol level is controlled and check for other health problems.

You may take medicines for other health problems. It is important that you take ALL medicines as your doctor prescribes. The combination of medicines may lower your risk for heart disease or heart attack.

When trying to lower your cholesterol or keep it low, it is important to remember to follow your treatments for other conditions you may have, such as high blood pressure. Get help with quitting smoking and losing weight if they are risk factors for you."⁹

Take the Next Step

...Toward healthy cholesterol levels

If you haven't already done so, it's time to take action. Have a blood test (lipid profile) to check your cholesterol level. Talk with your doctor about lifestyle changes and medications, depending on your individual case and any other health problems you have. Make small changes beginning with adding exercise to your day and substituting *good* fats for *bad* fats or other less desirable food choices. Read food labels, and ask about foods prepared using trans fats when you eat out. Make substitutions in your selections. If you have trouble making the switch, refer to the [resources here](#), or ask your doctor to refer you to a dietitian who can help you make a healthy eating plan. Also see part 3 (December issue) of our [HealthHints](#) series on cholesterol.



To view the references used in this newsletter, go to:
<http://fcs.tamu.edu/health/healthhints/2007nov/ref.php>

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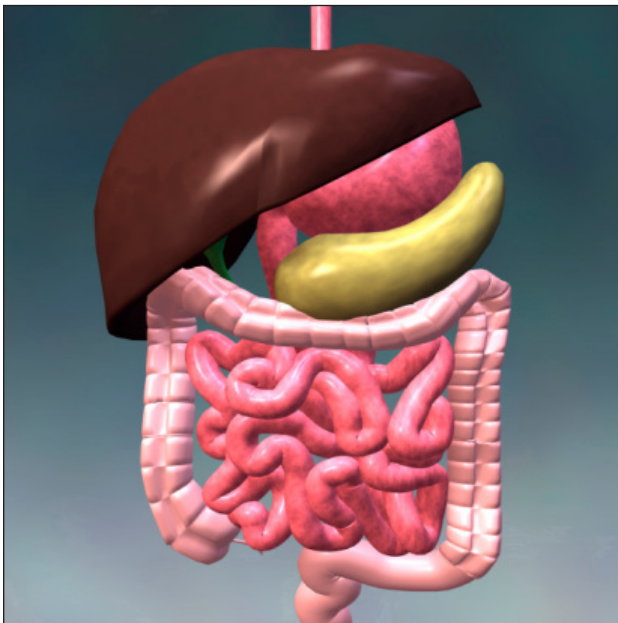
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How the Body Produces & Uses Cholesterol

Cholesterol in the blood is controlled in two important places:

- Liver – where cholesterol is produced
- Intestines – where cholesterol is absorbed.



Dietary lipids (cholesterol and triglycerides) are absorbed through the **intestines** and then are delivered through the bloodstream to the **liver**, where they are processed.¹

The **liver** produces cholesterol (using it to make digestive acids, which are also called bile) and also removes cholesterol from the blood. The **intestines** absorb cholesterol, which comes from food and from bile.²

“One of the main jobs of the **liver** is to make sure all the tissues of the body receive the cholesterol and triglycerides they need to function.

Whenever possible (i.e., for about 8 hours after a meal), the liver takes up dietary cholesterol and triglycerides from the bloodstream. During times when dietary lipids are not available, the liver produces cholesterol and triglycerides itself.”¹ The liver then packages the cholesterol and triglycerides, along with special proteins, into tiny spheres called **lipoproteins** (HDL and LDL). “Cholesterol can’t dissolve in the blood. It has to be transported to and from the cells by carriers called lipoproteins.”³ “The lipoproteins are released into the circulation and are delivered to the cells of the body. The cells remove the needed cholesterol and triglycerides from the lipoproteins as they are needed.”⁴

If the **liver** produces more cholesterol than the **intestines** absorb, there will be excess cholesterol in the blood.²

Sources:

1. Fogoros, R.N. (2003). Cholesterol and triglycerides [on-line]. Retrieved August 16, 2007. From <http://heartdisease.about.com/cs/cholesterol/a/choltri.htm>.
2. American Heart Association (2007). Common misconceptions about cholesterol [on-line]. Retrieved June 21, 2007. From <http://www.americanheart.org/presenter.jhtml?identifier=3006030>.
3. American Heart Association (2007). LDL and HDL cholesterol: What’s bad and what’s good? [on-line]. Retrieved August 20, 2007. From <http://www.americanheart.org/presenter.jhtml?identifier=180>.

Resources...

for changing your diet to lower cholesterol & reduce risk for heart disease

Create-A-Diet

<http://nhlbisupport.com/chd1/create.htm>

Introduction to TLC (Therapeutic Lifestyle Changes) Diet

<http://www.nhlbi.nih.gov/cgi-bin/chd/step2intro.cgi>

Eat a Heart Healthy Diet

<http://www.americanheart.org/presenter.jhtml?identifier=1510>

Cholesterol: The Best Foods to Lower your Cholesterol and Protect Your Heart <http://mayoclinic.com/health/cholesterol/CL00002>

Lowering Cholesterol: Could Your Diet Use Some TLC? <http://mayoclinic.com/health/lowering-cholesterol/CL00014>

Dietary Fats: Know which Types to Choose

<http://mayoclinic.com/health/fat/NU00262>

Trans Fat: Avoid this Cholesterol Double Whammy

<http://mayoclinic.com/health/trans-fat/CL00032>

Nuts and Your Heart: Eating Nuts for Heart Health

<http://mayoclinic.com/health/nuts/HB00085>

Butter vs. Margarine: Which Is Better for My Heart?

<http://mayoclinic.com/health/butter-vs-margarine/AN00835>

Eggs: Are They Good or Bad for My Cholesterol?

<http://mayoclinic.com/health/cholesterol/HQ00608>