Facts About Fats: The Good, The Bad, and the Essential

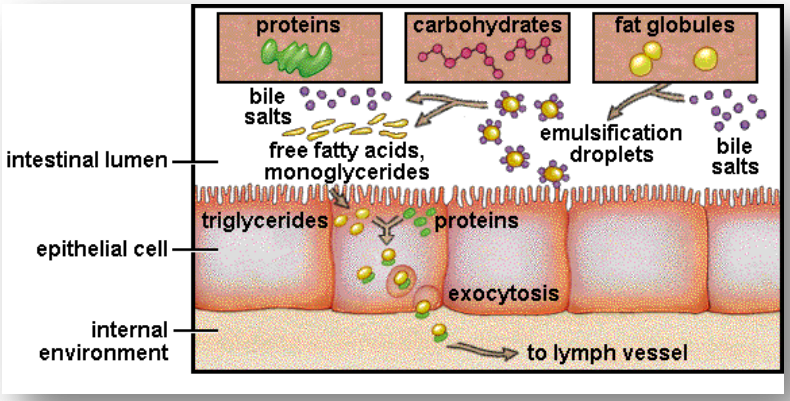
By: Saurin Gandhi September 4, 2011

[This is in response to **Sonia Mehta's** Question: Importance of omega-3s and the difference between the different types. Thank You.]

Ever wonder why cookies melt in your mouth, apple pies have a flaky crust, and French fries are crispy? The reasons are fats. The prevailing attitude toward the word "fat" is distasteful, disgusting, and quite frankly something most people wish to avoid. Unfortunately, the tale of fats in our society is extremely one-sided, and the fact that there is a large amount of good fats available for you may take some time to sink in. The typical reasons why most medical professionals say that fat is bad has to do with the fact that certain fats that can lead to heart disease, obesity, diabetes, and even cancer. Most of the time however, these negative repercussions are the result of bad eating habits in which the **WRONG** types of fat are selected. Contrary to these bad fats, there are plenty of sources of good fats which provide the body a number of beneficial services. In addition to fats that are able to produce essential fatty acids (EFAs) that the body cannot synthesize on its own, fat plays an important role in facilitating the transport and absorption of fat-soluble vitamins around the blood. On top of these benefits, fats play a role in the protection of your organs, provide you with a rich source of energy, and help to maintain your body heat. In this article I will discuss the way in which fats are digested, the differences between a number of different types of fats, the sources of these fats, and other worries associated with high **BAD** fat intake.

How Fats Are Digested (Developed from the Princeton Review):

The story of fats begins at your mouth. Fats melt in your mouth and when it reaches the stomach, it is mixed with acid & mucus. The mixture is sent to the small intestine and this "filling" stimulates cholecystokinin (CCK) release. CKK stimulates the gallbladder to send bile into the duodenum (small intestine) and bile emulsifies (surrounds) the lipids forming micelles. Lipase (an enzyme) hydrolyzes the triglycerides to monoglycerides (cutting down the fat into smaller pieces) & moves into epithelial cells via diffusion. They are then converted back into triglycerides, which are packaged into chylomicrons, which enter lymphatic capillaries, lacteals. These merge to form the larger lymphatic vessels which then empty into the thoracic duct.



The Best to Worst in Fats and What You Need to Know About Them

In most cases, the fats we eat we tend to think are bad, but which types of fats are really the bad ones? Fats from plants and seafood are the healthiest. Fats from animal sources are healthy in moderation and unhealthy when in excess. Hydrogenated products are the worst for you.

Omega-3 Fatty Acids > Unsaturated Fats > Saturated Fats > Trans-Fats

Omega-3 Fatty Acids: As a building block of fats, fatty acids are necessary for the body to function. Although most of them can be synthesized by your body, there are a few that are essential for your body, but can only be derived from your diet. These "essential" fatty acids include linolenic (omega-3) and linoleic (omega-6) fatty acids. Studies have shown that omega-3 fatty acids reduce the risk of heart disease, decrease bad cholesterol, decrease total fats, fight inflammation, and induce the formation of healthy brain development/function. Both the omega-3 and omega-6 families are vital for the components of cell membranes and the production of highly active eicosanoids. Although much more present in the standard American Diet, omega-6 fatty acids are not as good as they sound. Anthropological research has shown that our ancestors used to have a diet that was 1:1 in the ratio of omega-3 to omega-6 fatty acids, but the ratio in the present day is closer to 1:16 favoring omega-6. Since omega-6 is found all over the place in the American diet, it is best to attempt to reduce our intake of omega-6 containing foods and focus on eating more omega-3 fatty acids, According to numerous experts in the present day, the ratio should be right around 2:1 favoring omega-6 fatty acids but keep in mind that you probably get way too much omega-6 currently anyway.

Omega-3 Fatty Acids Are Found In:

Ground flaxseeds, flaxseed oils, cold-water fish (salmon/tuna), canola oil, soybeans, walnuts, pumpkin seeds, wheat germ, omega-3 enriched eggs, fish oil, soy products (males beware), grass-fed beef, and grass-fed lamb.

Omega-6 Fatty Acids Are Found In:

Safflower oil, sunflower oil, corn oil, sesame oil, cottonseed oil, soybean, egg yolks, animal meats, processed foods, and soy products (males beware).

Unsaturated Fats: Monounsaturated fats are good for you as they decrease total fats and decrease LDL (bad) cholesterol with no effect on good cholesterol. Polyunsaturated fats are not as good for you as monounsaturated fats because it decreases HDL. It is still good for you however because it helps to decrease total cholesterol and decrease LDL.

Monounsaturated Fats Are Found In:

Olive Oil, Nuts, Peanut Butter (un-hydrogenated), hummus, wheat germ, canola oil, flaxseed oil, peanut oil, olives, cashews, peanuts, almonds, and avocadoes.

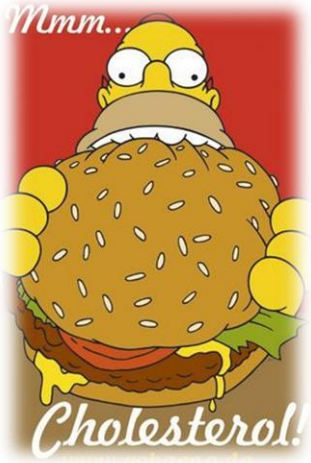
Polyunsaturated Fats Are Found In:

Safflower oil, soybean oil, corn oil, sesame seeds, sesame oil, and walnuts.

Saturated Fats: Saturated fats increase total cholesterol and increase LDL. They are solid at room temperature.

Saturated Fats Are Found In:

Dairy products (whole milk, butter, cheese, 2% milk, cream cheese, sour cream), beef, turkey, veal, cocoa-butter, chicken, cookies, crackers, lard, palm-kernel oil, coconut oil



Trans-Fats: The fats you need to be worried about. Hydrogenating unsaturated oil can cause it to become saturated and thus enter into the foods you shouldn't put in your body. The advantage to hydrogenation is that the products can remain on the shelf in stores for a longer period of time while the cost of making the product is much cheaper. Trans-fats increase total fats, increase cholesterol, increase LDL, and decrease HDL. Trans fats have been shown to decrease the body's ability to produce natural anti-inflammatory prostaglandins and also may hinder the body's ability to metabolize the fats that you actually want in your body.

Tran-Fats Are Found In:

Hydrogenated or partially hydrogenated products, fried foods, donuts, pretzels, burgers, pies, muffins, chips, cakes, candy bars, margarine, shortening, and cottonseed oil.

Fat-Modified Foods

Be wary about foods that have very few calories or are low in fat. Many companies tend to replace the fat with substitutes that pass right through your body (olestra) so that you get the satisfaction of the taste without the consequences of the fat. As amazing as this sounds, there are a lot of side effects seen through use of foods with these modified ingredients and long-term studies have not been performed.

The Benefits of Fats in General:

1. Ferries vitamins A, D, E, and K, the fat-soluble vitamins into and around the body.
2. Fats provide energy. Gram-for-gram they are twice as calorie-filled as carbohydrates or proteins.
3. Fats are a vital component of the membrane of cells.
4. Fats provide components of nerve endings and the myelin-sheath that allows for faster jumping of signals from node to node.
5. Fats make hormones and quite often girls who are two lean without fats experience delayed puberty.
6. Fats provide healthier skin and help to insulate/regulate body temperature.
7. Fats hold your organs into place and provide a cushion so that large impacts can be sustained.

Closing Remarks:

As an interesting energy source, fats carry twice as many calories as carbohydrates or protein. As recent research suggests, this high-energy source is avoided by many athletes and this has shown to have detrimental effects to brain development. Remaining lean and thin should be done using the right types of fats, not by avoiding fats in general. Our body uses fats for a number of beneficial reasons but anything over-consumed can result in negative repercussions. Try balancing out your lifestyle by decreasing omega-6 containing foods and increasing omega-3 containing foods. Increase your metabolism by strength training and avoid foods that contain high amounts of saturated or trans-fats. Work hard to keep your body healthy and you're the one who will reap the long-term health rewards.

References:

1. http://healthvermont.gov/prevent/diabetes/documents/DIA_TheFactsaboutFats_2pg.pdf
2. http://www.webmd.com/food-recipes/features/good-fats-bad-fats

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