

Dietary FAT- The good, the bad and the ugly

Among the many fallacies and misconceptions that surround nutrition, there is probably no other nutrient that generates as many myths within the general public as fat. Fats are constantly being demonized and given a bad wrap by media and government campaigns. But an important question to consider is: should they always be considered off-limits? Hopefully after reading the FAT 411 article in the last Running Room magazine, you will have realized that fat and fat-burning is vital for the endurance athlete. Therefore, getting some fat into your diet is essential, but as with nearly anything, moderation is the key.

Different types of fat = Different health implications

Fat is the most energy dense of the three macronutrients (fat vs. carbohydrate (CHO) vs. protein). For example, one gram of fat gives you nine calories (kcal) of energy, while one gram of either CHO or protein gives you ~ 4 calories of energy. As well, you can get about four times the amount of energy from a fatty acid as compared to a molecule of glucose (sugar). A single glucose molecule will yield about 36 adenosine triphosphates (ATP's- basic unit of energy for the body) through aerobic metabolism¹. But, this is trivial when compared to fat, which can provide more than 130 ATP per single free fatty acid. On the flip side, fat is by far the easiest macronutrient of which you can obtain the recommended daily intake and the easiest to over indulge on, due to its taste and availability in processed foods. Consequently, this ease of availability can result in negative long-term health effects.

Dietary fats can be broken up into three major groups: 1) unsaturated 2) saturated and 3) trans-fatty acids.² In general, the more a type of fat is loaded with hydrogen atoms, the more saturated the fat is. In turn, the more saturated the fat, the more detrimental it potentially is to your overall long-term health.

Fats: The Good, the bad and the ugly

THE GOOD- Unsaturated Fats (including monounsaturated and polyunsaturated): A fatty acid that contains one or more double bonds as part of its structure is a mono or polyunsaturated fat. These types of fat melt at a lower temperature and therefore are much more likely to be an oil at room temperature. Consuming these types of fats, in place of saturated fats, has been shown to reduce the risk for many of the outlined diseases mentioned below that are associated with high saturated fat intakes. Great sources include: olive oil, peanut oil and most nuts such as avocados, almonds and peanuts. Also, vegetable oils such as corn, sunflower and soybean oil are all primarily polyunsaturated. And, two important unsaturated fatty acids, omega-3 and omega-6, are *essential* fatty acids as they cannot be made by the body and are vital in the diet- more on these special fats below.

THE BAD- Saturated Fats: Saturated fats are a much worse fat choice compared to unsaturated fatty acids. Generally, they come from animal sources and tend to be solid at room temperature, such as the fat found on the edges of a steak. Vegetable sources of saturated fat include palm oil, palm kernel oil and coconut oil. It is well known that consuming large amounts of saturated fat is a positive risk factor in the development of hypertension, cancers and cardiovascular disease.

THE UGLY- Trans-Fatty Acids: Trans-fatty acids, or hydrogenated fats, are man-made and are probably more adverse to your health than even saturated animal fats. Trans-fats are put into high fat foods that are required to have a long shelf life, such as snack foods found in convenience stores. Trans-fats are also found in many crackers, cookies, pre-packaged goods and universally in highly processed foods with a high fat content. As well, trans-fatty acids have been associated with decreasing the "good" HDL (high density lipoprotein) cholesterol in your blood.

Amount of fat in the diet

As I mentioned above, fat is the most caloric dense macronutrient; therefore, it is very easy to meet the daily requirements. Table 1 roughly outlines the amount of fat in grams that you should be aiming to achieve for your specific body weight³. I want to reiterate- this is only a rough estimation and not the letter of the law. Some days you may be over this value, other days below. I have mentioned in previous articles that carbohydrate and protein are the two most important macronutrients, as carbs and protein should combine to provide the training athlete with 75-85% of their total caloric intake (carbs about 60-65%, protein about 15-25%). Nevertheless, some fat in your diet is also vital, you just don't need very much of it. It can be very easy to get your daily fat requirement. For example, a single fast food cheeseburger with all of the fixings can contain between 25-40 grams of fat. Unfortunately, much of the fat in this burger would be the adverse saturated type. After reading the differences in types of fat above, you should realize that there are good fat sources and very poor fat sources that you can choose from. Therefore, you should be aiming to meet your fat requirements through primarily mono and polyunsaturated fats, as these fats are much better for your overall health. As a general trend, fats found through plant sources tend to be better for you than compared to fats from animal sources. However, this does not mean one should avoid eating meat, but choose lean cuts of meat and ground beef.

Dispelling myths: margarine vs. butter

This is something I've been asked numerous times: butter or margarine? First and foremost, a stick of butter is 100% animal fat. All animal based fats contain cholesterol and since butter is made from milk fat from an animal, it contains cholesterol while margarine doesn't. But, although margarine is made from vegetable oils, and is therefore cholesterol free, it doesn't mean one should spread margarine on everything. On the flip side, many different types of margarine are made with trans-fatty acids- something you also want to try and avoid. Although a bit more expensive, try purchasing margarine that says "no trans-fatty acids" on the label. Many cooking sprays are made from plant-based oils and are another way to reduce total saturated fat intake, instead of using butter or margarine when cooking.

Dispelling myths: frozen yogurt vs. ice cream

Above all, both of these items should only be eaten sparingly. Both are very tasty, but do not contain a high amount of nutritional value, such as calcium and vitamins. Pure ice cream contains significant amounts of saturated fat, while low-fat frozen yogurt does not contain nearly as much fat, but it does contain a fair amount of sugar. In the end, if you are training and working hard, go ahead and treat yourself to a smaller bowl of fat-filled ice cream, maybe with some fresh fruit in it- but have these treats periodically.

Dispelling myths: omega-3 and omega-6 fatty acids⁴

Omega-3 and omega-6 fatty acids are currently a hot topic in terms of potential cardiovascular benefits in the world of health and nutrition. And, the attention these fats are receiving seems warranted. Considerable evidence exists suggesting that a moderate consumption of omega-3 fatty acids decreases the risk for heart attack⁴. Omega-3 fatty acids tend to keep blood from clotting and, as you may know, blood clots are the primary reason for a stroke or heart attack. Your best source for omega-3 fatty acids comes from finned fish that live in cold water such as salmon, mackerel, sardines and tuna. Omega-6 fatty acids help maintain your immune system and vision. You should also realize that your body needs many different types of fatty acids and can usually synthesize what it needs from other fats you have consumed. But, omega-3 and omega-6 fatty acids are essential fatty acids and must

be obtained from food sources. If you don't eat at least 8 ounces of fish a week (a normal size serving of fish is about 4-5 ounces), you might want to consider getting your omega-3 fatty acids from canola, soybean or flaxseed oils.

In closing, I hope you can now appreciate, as with most things in life, moderation is the key with dietary fat intake. And, in addition to practicing moderation, getting the right types of fat into your diet is vital for your long-term cardiovascular health. Also be aware that even with a diet low in fat most people, especially those over the age of 50, should still have regular physicals, including blood work. Most of these people don't realize that despite consistent endurance training and a well-balanced diet, health parameters such as blood pressure, cholesterol and blood lipids have a distinct genetic factor and should be checked regularly.

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References

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3. Carmichael, C, Rutberg J, Zawadzki, Kathy. Chris Carmichael's Food for Fitness: Eat Right to Train Right. New York : G.P.Putnam's Sons, 2004.
4. Hooper L. *et al.* Omega 3 fatty acids for prevention and treatment of cardiovascular disease. *Cochrane database Syst Rev.* Oct. 18(4), 2004.

Table 1.

Body Weight		Amount of
kg's	pounds	Daily Fat (g)
50	110	50-60
55	120	55-65
62	135	60-70
68	150	70-80
75	165	75-85
82	180	80-95
88	195	85-100
95	210	95-110

* Adapted from Chris Carmichael's Food For Fitness³