

Dietary Fats

Fats and oils may well be the most important part of your daily diet. Over the past 20-30 years, there has been an explosion of research on the significance of fats in health and disease. There is considerable evidence which links certain fats with many of the most common forms of degenerative diseases afflicting society today, including cancer and heart disease. But it is fundamental to realize that not all fats are created equal. Simply put, there are actually good fats and bad fats, that is, fats that support beneficial body processes and fats that have detrimental effects. Becoming familiar with different types of fats and oils will help you make informed, health-enhancing decisions.

In order to understand the subject, we need to start with some basic definitions. All fats are known as lipids, and the two words are often used interchangeably. Lipids include fats and oils, (the difference between them is that fats are solid at room temperature, whereas oils are liquid) and fat-like substances that are greasy and waxy such as cholesterol. Fatty acids are the basic units of all fats. The physical characteristics and nutritional activity of a fat depends on the kind of fatty acids it contains. A fat is classified as saturated, monounsaturated, or polyunsaturated according to the type of fatty acids it contains in the greatest quantity.

Dietary fats are available primarily from two basic sources: animal and vegetable. Animal fats (butter and lard) are saturated and tend to be solid. Vegetable fats like olive oil (monounsaturated) and sesame oil (polyunsaturated) tend to be liquid.

Dietary fats serve many functions in the body. Perhaps the most important is structural -- they are the major constituent of every cell membrane in the body. The membrane, or outer lining of a cell, determines what goes into and out of that cell -- like a gatekeeper. As such, they are critical in the proper functioning of the cell.

As mentioned, there are “good” and “bad” fats. **Those fats derived from unprocessed food sources are generally good fats.** The polyunsaturated and monounsaturated oils are more fluid and allow easier and healthier function. There are also some natural unprocessed saturated fats that participate in many functions such as repair of gut cells and formation of healthy brain and nerve cells. These saturated fats are short and medium chain saturated fats like coconut oil. There are two families of fats that are not only good, they are termed *essential* - meaning that the body cannot make them and they must be obtained from the diet. They are the **Omega-3** and **Omega-6** essential fatty acids (EFAs). **These essential fats perform a crucial function in the body by producing messengers called prostaglandins.** Prostaglandins are hormone-like substances that can be thought of as "master switches" that regulate and control almost all cellular activity. Examples of their work include controlling inflammation, blood pressure, and immune system activity. Omega-3 fats, for example, affect the balance of certain prostaglandins. The regulation of this balance is crucial for proper function. Under ideal circumstances, the diet supplies the appropriate ratio and amount of essential fats resulting in a balance of prostaglandins.

EFAs are very important, but unfortunately they are fragile and easily “deactivated.” The main processes that deactivate EFA’s are heat, oxygenation, and hydrogenation.

- Oils can be exposed to high heat during processing and cooking.
- Oxygenation, a more subtle process, occurs when the oil is exposed to air and light, such as when oils sit on grocery shelves.
- Hydrogenation occurs when hydrogen is bubbled through oils, as is done in the making of margarine. This process, which results in fats that are labeled as “hydrogenated” or “partially-hydrogenated,” extends the shelf life of the oil, and, as in the case of margarine, turns a liquid vegetable oil into one that is solid at room temperature.

Two things that can happen to EFAs when they undergo any of the above processes are:

First, they can release what are called free radicals. Think of free radicals as particles zipping around cells looking to attach or "link" with just about anything. In so doing, they damage the other molecules in the cell and set off chain reactions producing other free radicals. Premature aging, heart disease, cancer, and other degenerative processes are the result of unbridled free radical activity.

Second, the beneficial natural oils actually change their molecular configuration or shape when they are "partially hydrogenated," forming what are termed trans fatty acids (TFAs). These TFAs are biochemically different and are not able to fulfill the same function as the original oil. Unfortunately, they can still take the place of the biochemically active essential fats in cell membranes, acting to slow production of the beneficial prostaglandins. There is also some evidence to suggest that they may act like free radicals and promote tissue destruction.

A variety of dietary and lifestyle factors are known to interfere with proper EFA function. These include:

- ♣ Trans fatty acids (found in starchy foods: crisps, chips, and bread)
- ♣ Alcohol
- ♣ Refined sugar and white flour
- ♣ Pesticides and environmental pollutants such as lead and cadmium
- ♣ Aspirin, acetaminophen and other anti-inflammatory drugs
- ♣ Cortisone found in topical creams, nasal sprays, and inhalers
- ♣ X-rays

The following table lists food sources of various good and bad fats. The American diet, full of processed foods, supplies a substantial amount of bad (trans and saturated) fats. Consuming the wrong types of fats, consuming altered good fats, or just not *enough* of the good fats can result in a myriad of health problems, including vascular damage, eczema, immune dysfunction, and slow wound healing. The consumption of good quality essential fatty acids and natural fats is **crucial** for optimal cellular function and health. To rephrase an old adage, your cells are what you eat.

Recommendations

- ♣ **For most people, total fat consumption should be about 20-30% of total calories.** A 1500 calorie diet should include no more than 35-50 grams of fat; a 2000 calorie diet should include no more than 45-66 grams of fat a day; and a 2500 calorie diet should include up to 55-83 grams from fat.
- ♣ **Eat at least half of your fat intake a day as essential unprocessed fats, seen in Table 1.**
- ♣ **For medium-heat cooking, use olive oil or short or medium chain natural saturated fats, like coconut oil.** These oils are more stable and don't have the health risks associated with hydrogenated processed saturated fats. It is best to keep high heat or deep frying to a minimum since EFAs are destroyed with cooking. When you *do* cook with oils over higher heat, it is best to use a high oleic safflower oil as this is most stable under higher heat conditions. Add **healthy monounsaturated and polyunsaturated fats to your foods.** The best to use is cold-pressed extra-virgin olive oil, along with sesame (tahini), flax, walnut, almond, grapeseed, and avocado oils.

- ♣ **Avoid ALL processed fats.** This means margarine, processed baked goods and chips – anything labeled “hydrogenated” or “partially hydrogenated.” These are unnatural damaged fats and there is absolutely nothing good about them. If you have to choose between butter and margarine, choose butter (and use it sparingly). Smart Balance and Earth Balance are two newer margarines that contain healthier oils with no trans-fats.

- ♣ **Keep consumption of animal-derived saturated fat to a minimum.** Avoid fatty cuts of meat, items cooked or prepared with high amounts of saturated fats. Small amounts of the short or medium chain saturated fats, such as coconut oil are acceptable.

- ♣ **Purchase good quality oils.** It is important that they be labeled “cold-pressed” so they are not exposed to high heat and chemical alteration. These oils should be kept in tinted, glass bottles with a tight lid, refrigerated and not used for high heat frying. Additionally, olive oil should be labeled “extra-virgin” or “first-pressing.” Coconut oil should be labeled both “organic” and “virgin.”

You may make your own healthy dressing for salads, cooked whole grains, and beans by following the recipe below.

Salad Dressing

- 2 Tablespoons flax seed oil
- 2 Tablespoons cold-pressed extra-virgin olive oil
- 2 Tablespoons balsamic, rice or other vinegar of your choice, or fresh lemon juice

- 1 Tablespoon water
- 1 teaspoon Dijon or dry mustard
- 1 clove garlic, minced or pressed
- 1 teaspoon tamari soy sauce (optional)
- Fresh or dried herbs of your choice

Shake in a jar or whisk together all ingredients except for oils. Then add oils and mix well. Store in the refrigerator. When ready to serve, allow to sit out for several minutes before shaking well as it will harden when chilled. Make in quantity desired, using the same ratio.

Food Sources of 'Good' Essential Fats

Omega-3

Flax
Soybean
Walnuts
Canola
Algae (DHA)
Dark green leafy vegetables
Cold water fish (cod, salmon, tuna)
Pumpkin

Omega-6

Flax, cold pressed
Walnuts
Grapeseed oil
Safflower, high oleic, cold pressed
Sunflower, cold pressed
Sesame oil or Tahini

Food Sources of 'Good' Monounsaturated Fats

Olive Oil, extra virgin cold pressed
Sesame Oil
Brazil Nut
Hazelnut/Filberts
Avocado
Peanuts or Peanut Butter (non-hydrogenated) *
Cashews

Almonds or Almond Butter
Macadamia nuts or Oil
Walnut
Cashew
Pine Nuts
Canola Oil
Soybean oil

*be aware of aflatoxin mold, a potential carcinogen in peanuts

Food Sources of "Good" Saturated Fats (Use in small amounts)

Ghee (clarified butter)
Poultry (chicken and turkey)
Coconut and Palm Oils

Food Sources of 'Bad' Trans Fats *

Margarine	Commercially prepared cookies, crackers and chips
Shortening, chops, and other fried foods	Chocolate candy
Hydrogenated Peanut Butter (Microwaved food can form bad fats)	Pastry and Doughnuts

**Most processed foods contain hydrogenated or partially hydrogenated oils*

Food Sources of 'Bad' Saturated and processed Fats

Shortening (Crisco)	All "hydrogenated oils"
All "partially hydrogenated oils"	High temperature deep fried foods
Rancid Oils* (exposed to oxygen – smell "sharp")	Red meat (beef, pork, and lamb)
Poultry skin	Cheese

*All oils left exposed to oxygen can go "rancid" which can be toxic to human tissue)

The following symptoms have been found to be common indicators of an insufficient intake of essential fatty acids. It is important to remember that when consuming saturated and *altered* fats, we not only experience the negative effects of consuming these fats, but we are also missing out on an opportunity to consume our essential fatty acids.

Health Conditions That May be Connected with Omega 6 Deficiencies

- ♣ Eczema-like skin eruptions
- ♣ Loss of hair
- ♣ Behavioral disturbances
- ♣ Excessive water loss through skin and increased thirst
- ♣ Susceptibility to infections
- ♣ Failure of wound healing
- ♣ Sterility in males, miscarriage in females
- ♣ Arthritis-like conditions
- ♣ Heart and circulatory problems

Health Conditions That May be Connected with Omega-3 Deficiencies

- ♣ Growth retardation
- ♣ Impairment of vision - Eye/Optic Nerve degeneration
- ♣ Impairment of learning ability
- ♣ Lack of motor coordination
- ♣ Tingling sensation in arms and legs
- ♣ Behavioral changes
- ♣ High triglycerides
- ♣ Increased blood pressure
- ♣ Sticky platelets
- ♣ Edema
- ♣ Dry skin