

## Dietary Fats

Fats and oils may well be the most important part of your daily diet. Over the past twenty years, there has been an explosion of research on the significance of fats in health and disease. There is considerable evidence which links 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, 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 such as cholesterol and butterfat. All lipids are insoluble in water and contain one or more fatty acids in their structure. Fatty acids are the basic units of all fats; a fat's physical characteristics and nutritional activity depend on the kind of fatty acids it contains. A fat is classified as saturated, monounsaturated, or polyunsaturated according to the type of fatty acids that occur 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. Saturated fats are *bad* because they are sticky and tend to clump together, causing problems for cell health. Trans fatty acids are *bad* because their altered shape, as a result of processing (see below), changes their function, causing irregularities in the cell structure and changing the permeability of the cell membrane. Those fats derived from unprocessed, polyunsaturated food sources are *good* fats. They are more fluid and allow easier and healthier function. In fact, 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 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 3s, 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, therefore, very important, but are, unfortunately, fragile and easily “deactivated.” The main processes that alter them are heat, oxygenation, and hydrogenation. Oils are 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 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.

EFAs go through two detrimental changes when they undergo the above processes:

*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, 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:

- ♣ Saturated fat
- ♣ Cholesterol
- ♣ Trans fatty acids
- ♣ Alcohol
- ♣ Refined sugar and flour
- ♣ 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 (saturated, trans, and hydrogenated) fats. Consuming the wrong types of fats, consuming altered good fats, or just not *enough* of the good fats can result in myriad health problems including vascular damage, eczema, immune dysfunction, and slow wound healing. The consumption of good quality essential fatty acids is **crucial** for optimal cellular function and health. To rephrase an old adage, your cells are what you eat.

### Recommendations

- ♣ **Total fat consumption should be low for most people – about 20% of total calories.** A 1500 calorie diet should include no more than 35 grams of fat; a 2000 calorie diet should include no more than 45 grams of fat a day; and a 2500 calorie diet should include up to 55 grams from fat.
- ♣ **Eat at least half of your fat intake a day as essential unprocessed fats, seen in Table 1.**
- ♣ **Cook with monounsaturated oils.** 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, however, monounsaturated are more stable and don't have the health risks associated with saturated fats. The best to use is cold-pressed extra-virgin olive oil.
- ♣ **Keep processed fats to a minimum.** This means margarine, processed baked goods and chips – anything with “hydrogenated” or “partially hydrogenated” on the label. These are unnatural fats and there is absolutely nothing good about them. If you have to choose between butter and margarine, choose butter (and use it sparingly).
- ♣ **Keep saturated fat consumption to a minimum.** Avoid fatty cuts of meat, items cooked in or with butter or lard, and full-fat dairy products.
- ♣ **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.”

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

1 Tablespoon flax seed oil  
 1 Tablespoon cold-pressed extra-virgin olive oil  
 6 Tablespoons rice vinegar (or other)  
 1 teaspoon mustard  
 1 clove garlic, minced or pressed  
 1 teaspoon tamari soy sauce

Shake well before using. Make in quantity desired, in the same ratio.

**TABLE 1**

**Dietary Food Sources of ‘Good’ Essential Fats**

**Omega 3**

Flax  
 Soybean  
 Walnut  
 Canola  
 Dark green leafy vegetables  
 Cold water fish (cod, salmon, tuna)

**Omega 6**

Flax  
 Soybean  
 Walnut  
 Safflower  
 Sunflower  
 Pumpkin  
 Sesame

**Dietary Food Sources of ‘Good’ Monounsaturated Fats**

Olive Oil      Canola Oil  
 Sesame Oil      Soybean Oil  
 Peanuts or Peanut Butter  
 Almond or Soy Butter  
 Avocado  
 Brazil Nut      Walnut  
 Hazelnut      Cashew

**Dietary Food Sources of ‘Bad’ Trans Fats**

Margarine  
 Pastries & Doughnuts  
 Shortening  
 Fried Foods  
 Chips  
 Chocolate Candy  
 Hydrogenated Peanut Butter  
 Commercially prepared cookies and crackers

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

**Dietary Food Sources of ‘Bad’ Saturated Fats**

Butter    Lard  
 Cheese    Dairy products  
 Red meat  
 Poultry (especially skin)  
 Shortening

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 and learning ability
  - ♣ Lack of motor coordination
  - ♣ Tingling sensation in arms and legs
  - ♣ Behavioral changes
  - ♣ High triglycerides
  - ♣ Increased blood pressure
  - ♣ Sticky platelets
  - ♣ Edema
  - ♣ Dry skin
  - ♣ Immune dysfunction
-