

Fats

WINTER 2000



FATS are important.

Lipids are stored in the body and serve as a source of energy as well as essential fatty acids. These fatty acids are important to strengthen cell walls and tissues and influence certain chronic disorders including heart disease.

Dietary fats are lipids represented mostly by “triglycerides” which contain different types of fatty acids as the predominant constituents. Over 95% of triglyceride is fatty acid by weight with the remainder being glycerol. North American adults consume approximately 36% of their daily energy as fatty acids with total intakes ranging from 65 to 100 gm per day. Dietary fats are represented as:

- Saturated
- Monounsaturated
- Polyunsaturated – omega-6 and omega-3
- Trans

It is recommended that no more than 30% of daily nutrient intakes be of fat, with most of that sourced from the polyunsaturated fatty acids, omega-3 and omega-6 as well as the monounsaturated, omega-9.

Table 1 provides a summary of a variety of foods available in the North American diet and the fatty acid profile of these foods.

Table 1: The different types of fats found in a variety of foods.

Food	Typical Serving	Amount of fat or unsaturated fatty acid per typical serving					
		Total (g)	Omega 3 (mg)	Omega 6 (mg)	Mono (g)	Saturated (g)	Trans (g)
Omega Pro liquid eggs	100 g	5	800	600	2	1.6	0
Simply Egg Whites liquid eggs	100 g	0	0	0	0	0	0
Break Free liquid eggs	100 g	2	20	320	.8	.6	0
Omega 3 shell eggs	100 g	9.8	800	1400	3.2	2.4	0
Regular eggs	100 g	10	100	1600	3.8	3.2	0
Chicken	100 g	14.8	10.0	3,200	6.1	4.2	0
Salmon	100 g	10.2	1,570	520	4.4	3.7	0
Potato chips	28 g	10.9	<50	750	5.3	1.5	3.3
Hamburger	100 g	13.1	<50	100	7.9	4.6	0.5
French fries	100 g	18	<50	1,000	4.8	5.3	6.9
Hydrogenated margarine	15 g	12	200	3,130	2.6	2.5	3.6
Butter	15 g	12	160	270	3.5	7.5	0.5
Non-hydrogenated margarine	15 g	12	1,200	3,600	5.6	1.65	0

Note:

1. All plant food omega-3 is as alpha linolenic acid (LNA)
2. For processed food, these are only typical values. There is considerable variability across different processed foods depending on the ingredients used and processing method.
3. Egg related values are based on sample averages, which accounts for the fact that the different types of fat do not add up to the total.

The difference between “good” FATS and “bad” FATS.

Bad FATS

High intakes of saturated fats and trans fatty acids, which are common in the typical North American diet, are considered undesirable for optimum health. Saturated fats are naturally occurring and found in meats, dairy foods, and certain plants including coconut and palm oils.

“Trans” fatty acids are produced commercially by the industrial process known as “hydrogenation” such that cholesterol-free vegetable oils (e.g., canola and soy), which are low in saturates but rich in monounsaturates and polyunsaturates, are transformed into fats which are now high in trans fatty acids. This transformation also converts the liquid trans-free vegetable oil into a high-trans fat which is now solid. The hydrogenated fat (high trans), since it is solid, works well in processed foods such as margarines, potato chips, biscuits, snack foods and most fast foods. Food companies often label these products as cholesterol-free and do not have to label for trans fat content, so they are more difficult to identify.

Good FATS

In contrast, the replacement of a portion of saturated fats and trans fatty acids with naturally occurring monounsaturated and polyunsaturated – the omega-6 and omega-3 fatty acids - is considered desirable for optimizing health and reducing the risks of developing certain chronic disorders. In fact, these fatty acids are considered essential nutrients, which means that they must be consumed from food as our bodies do not produce them.

Research shows that increasing the omega-3 fatty acids in the diet is a particularly healthy choice.

The downside of consuming too much “bad” FAT.

Epidemiological (population) studies have indicated that diets high in saturated and trans fatty acids are associated with a significantly increased risk of cardiovascular disease. Both of these types of fats increase the LDL-cholesterol levels in the blood while trans fatty acids also lower the HDL-cholesterol. This combined process further increases the risk of heart disease.

Benefits of consuming “good” FATS in the right amount.

The natural monounsaturated fatty acids and the polyunsaturated fatty acids appear effective for preventing coronary heart disease when replacing the 'bad' fats in the diet. These benefits are considered to be somewhat indirectly related by their potential to lower LDL-cholesterol levels in the circulation.

Some specific benefits are;

- preventing coronary heart disease,
- modifying risk factors for heart disease,
- reducing sudden cardiac death in those at risk,
- potential lowering of LDL-cholesterol,
- essential for skin functioning,
- essential for reproductive functioning,
- physiologically essential for optimal brain functioning and,
- physiologically essential for visual acuity.

The rather high consumption of omega-6 polyunsaturated fatty acid as linoleic acid in the diet is considered to supply ample amounts for essential functioning in the skin and in reproductive processes.

The omega-3 polyunsaturated fatty acids include alpha-linolenic acid (LNA) as well as docosahexaenoic (DHA) plus eicosapentaenoic acids (EPA). Increasing intakes of these omega-3 fatty acids have been associated with a reduced incidence of and mortality from heart disease in epidemiological studies. Controlled intervention and clinical trials have indicated that increased intakes of docosahexaenoic plus eicosapentaenoic acids can both favourably modify several risk factors for heart disease as well as reduce sudden cardiac death in individuals at risk. Further, docosahexaenoic acid is enriched in the brain and retina where it serves as a “physiologically-essential” nutrient for optimal brain functioning and visual performance, respectively.

Foods abundant in essential fatty acids.

Table 2: Essential fatty acids.

Omega-3 (DHA + EPA)	Omega-3 (LNA)	Omega-6	Omega-9
Mackerel	Omega-3 shell eggs	Safflower oil	Olive oil
Herring	Flaxseed	Sunflower oil	Canola oil
Salmon	Canola oil	Corn oil	
Omega Pro liquid eggs	Walnuts	Regular eggs	
Trout		Chicken	

It is important that consumers understand which foods are a source of essential fatty acids as they are important in the maintenance of their overall health.



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References:

1. Hu, FB. et al. Dietary fat intake and the risk of coronary heart disease in women. *New Engl. J. Med.* 337:1491-1499 (1997)
2. Howell, WH. et al. Plasma lipid and lipoprotein responses to dietary fat and cholesterol: a meta-analysis. *Am.J. Clin. Nutr.* 65:1747-1764 (1997)
3. Ascherio A, Katan MB, Zock PL, Stampfer MJ, Willett WC. Trans fatty acids and coronary heart disease. *N.Engl.J. Med.* 340:1994-1998 (1999)
4. Connor, WE. Importance of n-3 fatty acids in health and disease. *Am. J. Clin. Nutr.* 71:1715-1755 (2000)
5. Koletzko, B., Trans fatty acids may impair biosynthesis of long-chain polyunsaturated and growth in man. *Acta Paediatr.* April;81(4):302-6 (1992)

