

SOY

& HEALTH

Healthful Options for Fat in the Diet



Profile of Soybean Oil

Soybean oil is low in saturated fat, rich in the essential fatty acids and is an excellent source of vitamin E. Like all plant fats, soybean oil has no cholesterol.

The soybean is the world's leading source of edible oil.¹ It is low in saturated fat, with a content of about 15%,² high in unsaturated fat, with 61% polyunsaturated and 24% monounsaturated fat.² Soybean oil is a good source of both linoleic and linolenic acids, which are essential for humans. More than 50% of the fat in soy is linoleic acid, while about 7% of the total fat is linolenic.² When soybean oil is hydrogenated, the percentages of these polyunsaturated fats decrease.

Before processing, soybeans are very high in the fat soluble vitamin E, as both alpha and gamma tocopherols. Processing removes over 30% of the vitamin E,¹ which then becomes a valuable byproduct used to make vitamin E supplements.³ The processed oil is still considered a good source of vitamin E because one serving (1 teaspoon) provides more than 10% of the minimum daily requirement.^{1,2} Because soybean oil is a part of so many food products, it is one of the major sources of vitamin E in the current U.S. diet.¹

Soy lecithin is another valuable byproduct of soybean oil processing.³ Lecithin acts as an emulsifier, making it possible to produce stable blends of fats and water in foods.

Health authorities agree that excessive fat consumption increases risk for certain chronic diseases, including heart disease, some forms of cancer, and diabetes.^{4,5} Every five years the U.S. government publishes an update of the Dietary Guidelines for Americans. Both this document and the National Cholesterol Education Program recommend that no more than 30% of calories in the diet should come from fat, and no more than 10% of calories from saturated fat.^{4,5}

Consumption of saturated fat beyond the recommended level tends to increase blood cholesterol levels and the risk of atherosclerosis.^{6,7} Research investigating the physiological effects of fats is beginning to reveal a much more complicated picture, in which individual types of fatty acids have different effects.^{8,9,10,11,12,13,14}

A great deal of research has been done over the past 40 years on the effects of dietary fats on serum lipids and lipoproteins. A study involving seven countries looked at the association between intake of individual dietary fatty acids and mortality from coronary heart disease.⁷ This study found a significant association between intake of saturated fatty acids and mortality from heart disease.⁷ Further, a meta-analysis of 27 studies concluded that replacing dietary saturated fat with unsaturated fat lowers total cholesterol levels, and also improves the ratio of HDL to LDL cholesterol.⁶ This was found to be true even with no change in total fat consumption, as long as obesity was not present.⁶

Some researchers have found that alpha-linolenic acid, one of the essential unsaturated fats, may help lower risk of stroke as well.^{13,14} Alpha-linolenic acid comprises about 7% of the fats in soybean oil, making the oil a fairly good source of this fatty acid.²

Some of the products made from soybean oil go through a hydrogenation process, which forms *trans* fatty acids. Hydrogenation is done to promote stability of the products, or to create a more solid form of fat, such as shortening or margarine. Small amounts of *trans* fats are also found naturally in meat and dairy products.¹⁵

Dietary Guidelines for Fat Consumption

Soybean Oil and Health



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