

Dietary Cholesterol

Dietary cholesterol is lipid sterol compound found exclusively in foods of animal origin such as dairy products, eggs, beef, pork, lamb, poultry and fish. The most concentrated sources of dietary cholesterol are liver and other organ meats, egg yolk, and shellfish. Plants contain sterol analogues of cholesterol called phytosterols.

Cholesterol is a component of cell membranes and a precursor for synthesis of steroid hormones and vitamin D. The compound is synthesized in the liver under feedback control by dietary cholesterol. Because sufficient amounts of cholesterol can be synthesized endogenously to meet physiological demands, dietary cholesterol is not considered an essential nutrient for adults and children over the age of 2 years. Infants and children younger than 2 years of age may not consume sufficient cholesterol to meet the demand for the developing nervous system.

Deficiency

Because hepatic cholesterol production can provide enough cholesterol to meet demand when dietary intake is inadequate, a deficiency will not develop.

Toxicity

Although toxic levels of dietary cholesterol have not been established, cholesterol intakes above 300 mg/day have been associated with elevated blood cholesterol levels particularly when the ratio of polyunsaturated to saturated fat is less than 1.0. A cholesterol-rich diet may downregulate LDL-receptor synthesis as a consequence of hepatic cholesterol accumulation. This effect is more pronounced with high saturated fat intake because the increased amounts of bile reabsorbed by the enterohepatic circulation when fat intake is high will decrease hepatic demand for cholesterol for utilization in synthesis of bile. High saturated fat intake may also interfere with LDL receptor binding of LDL-cholesterol by effects on membrane fluidity.

Requirements

Data from the American Heart Association (AHA) indicate that men typically consume 337 mg of cholesterol daily while women consume an average of 217 mg. The recommended intake of cholesterol is ≤ 300 milligrams/day for the healthy adult population and ≤ 200 milligrams/day for adults with elevated blood LDL-cholesterol levels. Because cholesterol-rich foods are also usually high in saturated fat, reduction in these foods will usually result in lower saturated fat intake as well.

Dietary Sources

Egg yolk, organ meat, shellfish, whole-fat dairy products, and red meat are rich sources of dietary cholesterol. Mixed dishes containing cheese, butter or fatty meat are also usually high in dietary cholesterol. A detailed listing of the cholesterol content of foods is provided in the table below.

Food Sources of Dietary Cholesterol

Item	Cholesterol (milligrams)	Saturated Fat (grams)
Beef liver, 3 ounces cooked	331	1.6
Beef kidney, 3 ounces cooked	329	1.0
Beef sweetbreads, 3 ounces cooked	250	7.3
Squid, 3 ounces cooked	227	0.4
Egg, whole, large	212	1.6
Shrimp, 3 ounces cooked	166	0.3
Scallops, 3 ounces cooked	27	0
Milk, whole, 1 cup	33.2	5.0
Cheese, regular cheddar, 1 ounce	30	6.0
Cheese, reduced fat, 1 ounce	6	1.2
Ice cream, gourmet, 1 cup	90.3	14.8
Ice cream, light, 1 cup	31.4	6.2
Beef, sirloin, 3 ounces cooked	71.4	1.4
Beef, round, 3 ounces cooked	71	1.4
Beef, rib eye, 3 ounces cooked	65	3.0
Pork chop, 3 ounces cooked	70.6	3.0
Ham, regular, 3 ounces cooked	50.2	2.7
Lamb chop, 3 ounces cooked	75	4.1
Chicken breast, 3 ounces cooked	72.3	1.1
Chicken, dark, 3 ounces cooked	70	2.8
Turkey breast, 3 ounces cooked	73	0
Turkey, dark, 3 ounces cooked	72	2.1