



Lecithin & Lipotropics

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Lecithin is naturally produced in our livers, and functions as an emulsifier of fats. Commercially, lecithin is available as fat emulsifying agent for certain prepared foods. For example, lecithin is often used in ice cream to break down and disperse the fat, thereby giving the ice cream a creamier texture. Lecithin is also available as a soy-derived dietary supplement which offers its own health benefits

Cholesterol

Research indicates that lecithin successfully increased HDL cholesterol and lowered LDL cholesterol in both human and animal subjects.^{1,2} The mechanism by which lecithin exerts this effect is in debate. One review indicated that this effect of lecithin was likely due to its polyunsaturated fat content.³ Other research, however, has stated that lecithin's cholesterol-lowering effect is independent of polyunsaturate content.⁴ In either case, lecithin may have value to help modify cholesterol levels.

Weight Loss

Some people think that lecithin's capacity to emulsify fats means that it can enter the body's fat cells (i.e., adipose tissue), and breakdown the fat therein. This is not the case. Lecithin cannot enter the fat cells. Lecithin may, however, be used as part of a weight loss program by way of a different mechanism. Specifically, lecithin may assist in the breakdown of both dietary and blood fats into smaller molecules. This is beneficial since the ultimate goal is to break dietary and blood fats into fatty acids. When this happens, it is more likely that the body will use the fatty acids as an energy fuel rather than store the fats in adipose tissue.

Gallstones

Bile is a digestive substance secreted by the gallbladder, which helps to emulsify dietary fats. Bile is composed of various components, including cholesterol, bile acids and lecithin.⁵ Lecithin is also a natural fat emulsifier, and provides protection against the otherwise devastating effects of bile salts.⁶ Research has shown that bile from patients with gallstones contain less lecithin.^{7,8} The significance of

this may be that the reduced lecithin levels may be a causative factor in the development of gallstones.⁹ Consequently, supplementation with lecithin may be advisable.

Lipotropic Formula

Since the primary active ingredient in lecithin is choline, many dietary supplement companies offer "lipotropic formulas" which provide this natural substance in combination with other ingredients. The concept here is that the lipotropic formula will help the liver to create its own lecithin. Furthermore, choline itself has many valuable contributions to make to human health.

Choline and the liver

This B complex related, lipotropic substance acts on fat metabolism by hastening the removal or decreasing the deposit of fat in the liver.¹⁰ This effect is most profound in cirrhosis of the liver.

Cirrhosis of the liver associated with chronic alcoholism is often a secondary effect of nutritional deficiency. Best, et al confirmed that a dietary deficiency rather than a specific toxic effect of alcohol is responsible for the liver damage. He found that rats, on a choline-deficient diet consuming 15% alcohol in place of water, developed fatty livers with about half showing hepatic fibrosis. Rats receiving choline added to the same diet did not develop fatty or fibrotic livers nor any abnormality detectable by gross, microscopic or chemical examination.¹¹

Choline and serum lipids

In addition to the lipotropic effect in the liver, choline also influences serum lipid levels and blood pressure. Animal studies indicate that serum lipid levels increase and hypertension results from a deficiency of choline.¹² There is direct experimental evidence that a choline deficient diet can result in arterial damage. Best and his group found that a considerable percentage of young rats maintained on low choline diets developed pathological changes in the major arterial trunks and in the coronary arteries. The earliest of these changes in coronary arteries

consisted of the deposition of fatty droplets on and inside the lining cells of the largest branches. These are changes similar to those observed in early stages of arteriosclerosis of the aorta and large arteries in man.¹³

A three year study described coronary thrombosis patients who had survived an acute episode of occlusion and had been discharged from the hospital six weeks after admission. Of these patients, 115 were supplemented with choline for one to three years. 115 others served as controls. At the end of three years, 35 of the control patients had died as against 14 of the choline treated patients. There were indications of a significant reduction in blood cholesterol in atheromatous patients administered this lipotropic.¹⁴

Inositol, methionine and betaine hydrochloride

The other ingredients included in lipotropic formulas are inositol, methionine and betaine hydrochloride. Inositol's physiologic role is related to the function of various lipids. Like choline, it is considered to have lipotropic activity.^{15 16} The amino acid methionine is involved in modifying the pathology (the abnormal structure and function) and biochemistry of choline deficiency.¹⁷ Betaine hydrochloride is classified as both a lipotropic agent and a stomach acidifier.¹⁸

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