

SPECIAL FEATURE

KNOW THE TRUTH ABOUT
COCONUT COOKING OIL

DOES COCONUT COOKING OIL HAVE CHOLESTEROL



All the worldwide publicity about cholesterol has made many people ask the following questions: "Is there cholesterol in coconut oil? What is cholesterol? Why are people so afraid of cholesterol? Can it really cause heart disorders? Why do people think coconut oil has cholesterol?"

WHAT IS CHOLESTEROL?

Cholesterol is a steroid alcohol present in animal cells and body fluids, important in physiological processes.

IS THERE CHOLESTEROL IN COCONUT OIL?

The fact is: there is no cholesterol in coconut oil. In a recent research conducted by the Philippine Coconut Research and Development Foundation, it was proven that coconut oil has no cholesterol just like other vegetable oils: palm oil, soybean oil and corn oil.



WHY ARE PEOPLE AFRAID OF CHOLESTEROL?

People have become afraid of cholesterol because it is implicated experimentally as a factor in heart disease. Yet, two major US studies show there is no full evidence that lowering blood cholesterol levels reduce the risk of heart disease. In fact, a lack of it can cause growth problems on children. And for those over the age of 55, cholesterol is not something to worry about since there is no evidence that reducing cholesterol will extend life. Older people need nourishment and shouldn't be on totally cholesterol-free diets. But like anything taken in excess, too much cholesterol can be bad for the health.

WHY DO PEOPLE THINK THAT COCONUT OIL HAS CHOLESTEROL?

The misconception that coconut oil has cholesterol came about from the fact that coconut oil is made up mostly of saturated fats. America's past 10 year information campaign to reduce strokes caused by high

serum cholesterol has identified "saturated fats" as primary cause of elevated serum cholesterol; hence, the false belief on coconut oil as a source of cholesterol.

Coconut oil is 92% saturated fatty acids, but it does not mean it is harmful to the body. Saturated fats are not all the same. They differ and must be further classified according to their chain lengths: short, medium and long chain.

Short chain fatty acids are less than 10 carbons long and are usually found in coconut and palm kernel oils. They are used by the body for energy but do not produce as many calories.

Medium chain fatty acids are 10-14 carbons long and are also found in palm kernel oils and coconut oil. Like the short chain fatty acids, they are not deposited to any extent in the adipose tissue because they burn quickly as fuel and energy in the body.

The long chain fatty acids are usually 18, 20 and 22 carbons long and are found in animal fats from steaks, chops, hamburgers, dairy fats, hydrogenated oils and salad oils. They can elongate, desaturate and enter into the prostaglandin cascade, thereby producing many calories.

The saturated fatty acids in coconut oil are of the medium chain variety. Recent scientific researches indicate that medium chain fatty acids like coconut oil are not associated with raised serum cholesterol levels and with increased risk of heart disease. The truth is medium chain triglycerides tend to decrease serum cholesterol levels.

And because coconut oil has medium chain triglycerides, it is easily absorbed, digested and utilized by the body as a preferred energy source. It does not produce as many calories as the longer chain fatty acids like corn and soybean oils, pork fat and other animal fats. And because coconut oil has a low tendency to deposit body fat, it greatly reduces the fat accumulation in the body.

RESIST RANCIDITY

The saturated character of the fatty acids in coconut oil has even accounted for its

amazing benefits. It allows coconut oil to resist rancidity due to oxidation and other forms of degradation. Food processors, aware of this good quality in coconut oil, have given it a high preference in their formulations, specially in products requiring long shelf lives like crackers, cookies, cereals and cooking oil.

RETARDS PREMATURE AGEING

Coconut oil is also known to retard premature ageing. Scientists in Europe and United States have demonstrated that high percentage substitution of coconut oil to polyunsaturated fats in the diet hinders the rapid ageing process and lowers the carcinogenic potentials of the polyunsaturated fats.



GREAT NUTRITIONAL, MEDICINAL AND THERAPEUTIC VALUE

Coconut oil also supplies a lot of nutritional value. It is found to contain protein amino acids and carbohydrates. It is the source of abundant and rapidly available energy. Because of its nutritional benefits, researches have also been made to determine whether coconut oil can be used in human therapy and treatment of major diseases. It was discovered that coconut oil, indeed, has therapeutic effects. In fact products under the brand name of Captex produced from coconut oil are now being marketed for intravenous feeding of severely injured persons. They are prescribed for ailments such as hyperlipidemias, abnormal protein metabolism and fat malabsorption. These products are also used as base for controlled release tablets, due to the coconut's seemingly low allergenicity. In addition, they are used for people who need energy from fat but cannot absorb the long chain fatty acids duplicate those found in human milk. Furthermore, coconut oil, with its pure and pristine physical characteristics, bring out the flavour and nutritive elements of food.

(Reprinted from publicity brochure, a project of the Philippine Coconut Industry)

MISCONCEPTION

COCONUT OIL IS LIKE OTHER VEGETABLE OILS.

VEGETABLE OILS (COCONUT, CORN, PALM) ARE RICH IN CHOLESTEROL JUST LIKE ANIMAL FATS AND DAIRY PRODUCTS.

ALL SATURATED FATS ARE THE SAME.

COCONUT OIL IS BAD; IT RAISES SERUM CHOLESTEROL.

PEOPLE WHO TAKE PLENTY OF SATURATED FATS AND CHOLESTEROL WILL DEVELOP HIGH SERUM CHOLESTEROL.

SINCE POLYUNSATURATES SUCH AS CORN, PEANUT AND SOYBEAN OILS LOWER SERUM CHOLESTEROL, WE SHOULD USE THESE OILS EXCLUSIVELY FOR COOKING OUR FOODS.

HYDROGENATED CORN OR SOYBEAN OILS ARE POLYUNSATURATED OILS AND ARE SAFE.

HIGH SERUM CHOLESTEROL MUST BE PREVENTED AT ALL COST BECAUSE OF RISK OF CORONARY HEART DISEASE.

FACT

NO, COCONUT OIL IS MADE UP MOSTLY OF MEDIUM CHAIN FATTY ACIDS. CORN AND SOYBEAN OILS CONTAIN MOSTLY LONG CHAIN POLYUNSATURATED FATTY ACIDS; WHILE PALM OIL HAS ABOUT EQUAL AMOUNTS OF LONG CHAIN SATURATED AND POLYUNSATURATED FATTY ACIDS.

ANIMAL FATS (LARD, BUTTER AND EGG PRODUCTS) ARE VERY RICH IN CHOLESTEROL. VEGETABLE OILS CONTAIN INSIGNIFICANT AMOUNTS OF CHOLESTEROL-COCONUT OIL HAVING THE LEAST.

	COCONUT OIL	PALM OIL	SOYBEAN OIL	CORN OIL	BUTTER	LARD
CHOLESTEROL (P P M)	0-14	18	28	50	3150	3500

SATURATED FATS DIFFER. SOME MAY CONTAIN MOSTLY LONG CHAIN TRIGLYCERIDES OR LCTS (e.g. PORK FAT); OTHERS MOSTLY MEDIUM CHAIN TRIGLYCERIDES OR MCTS (e.g. COCONUT OIL). LCTS AND MCTS DIFFER IN ABSORPTION, TRANSPORT, AS WELL AS IN METABOLISM AND END-PRODUCT.

COCONUT-EATING PEOPLE LIKE THE POLYNESIANS AND THE BICOLANOS OF THE PHILIPPINES HAVE LOW SERUM CHOLESTEROL AND FEW CORONARY HEART DISEASE.

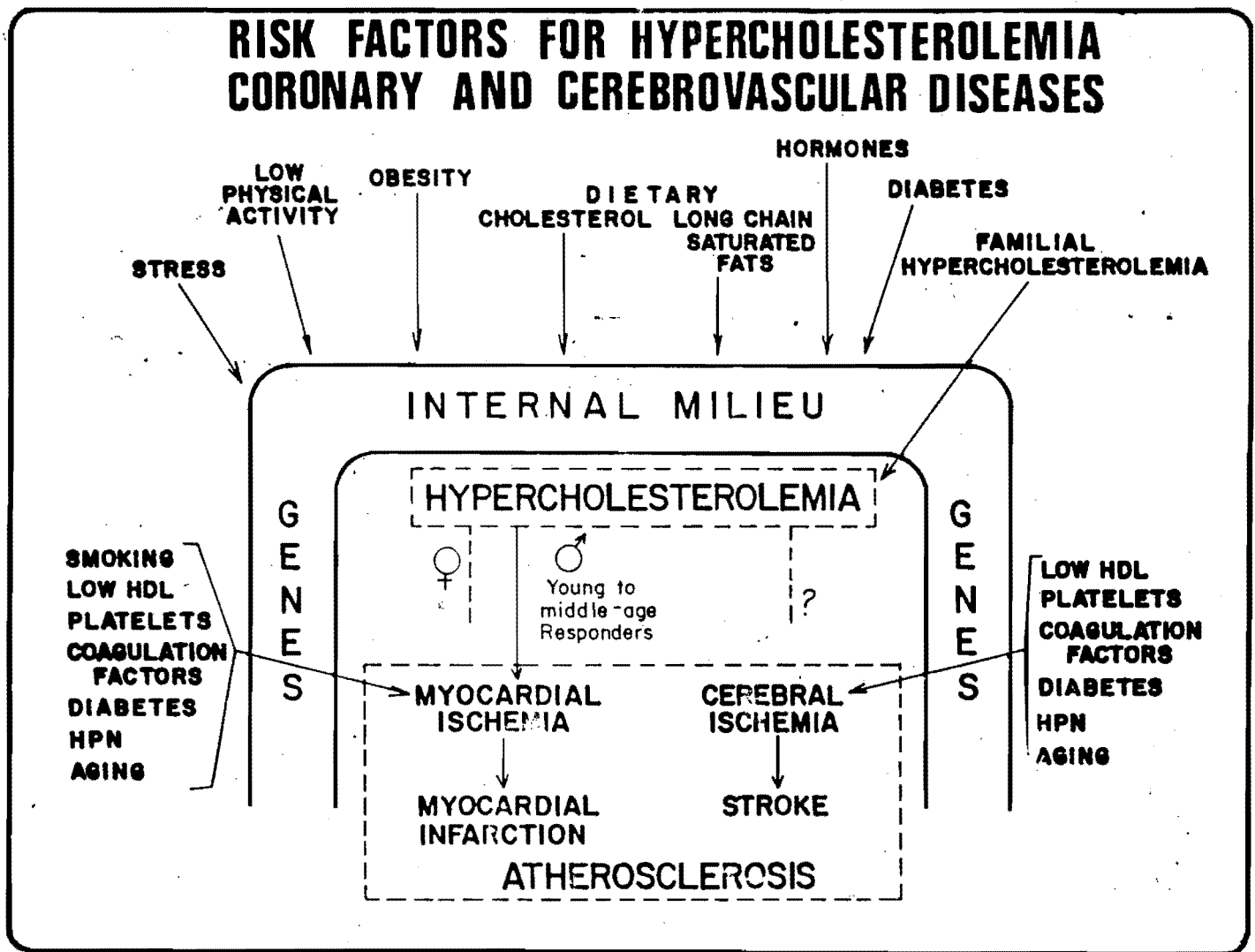
INDIVIDUALS WHO TAKE PLENTY OF SATURATED LCTS AND CHOLESTEROL AND WHO ARE "DIET RESPONDERS" MAY DEVELOP HIGH SERUM CHOLESTEROL; "NON RESPONDERS" ARE NOT AFFECTED BY DIET. RESPONSIVENESS IS GENE-RELATED (i.e. HEREDITARY).

POLYUNSATURATES IN LARGE AMOUNTS MAY INCREASE CANCER RISK.

HYDROGENATION CONVERTS POLYUNSATURATED TO SATURATED LONG CHAIN FATTY ACIDS OR TO ISOMERIC TRANS-FORMS. BOTH OF THESE TEND TO RAISE SERUM CHOLESTEROL JUST LIKE SATURATED LCTS.

- A) HIGH SERUM CHOLESTEROL IS A DEFINITE RISK FOR CORONARY HEART DISEASE AMONG YOUNG TO MIDDLE-AGE MALES (FRAMINGHAM). HIGH SERUM CHOLESTEROL SHOULD BE LOWERED IN THESE PERSONS.
- B) NO RELATIONSHIP HAS SO FAR BEEN ESTABLISHED BETWEEN HYPERCHOLESTEROLEMIA AND (1) CEREBROVASCULAR DISEASE; (2) FEMALES; AND (3) ELDERLY MALES. LOWERING OF HIGH SERUM CHOLESTEROL IN THE ELDERLY IS PRUDENT BUT MUST BE BALANCED AGAINST DRUG TOXICITY IF DRUGS ARE USED.

RISK FACTORS FOR HYPERCHOLESTEROLEMIA CORONARY AND CEREBROVASCULAR DISEASES



The following breakthroughs were brought to you
through the joint efforts of:

United Coconut Association of the Philippines, Inc.
New England Deaconess Hospital (A Harvard-Affiliate)
Coconut Oil R&D PROJECT

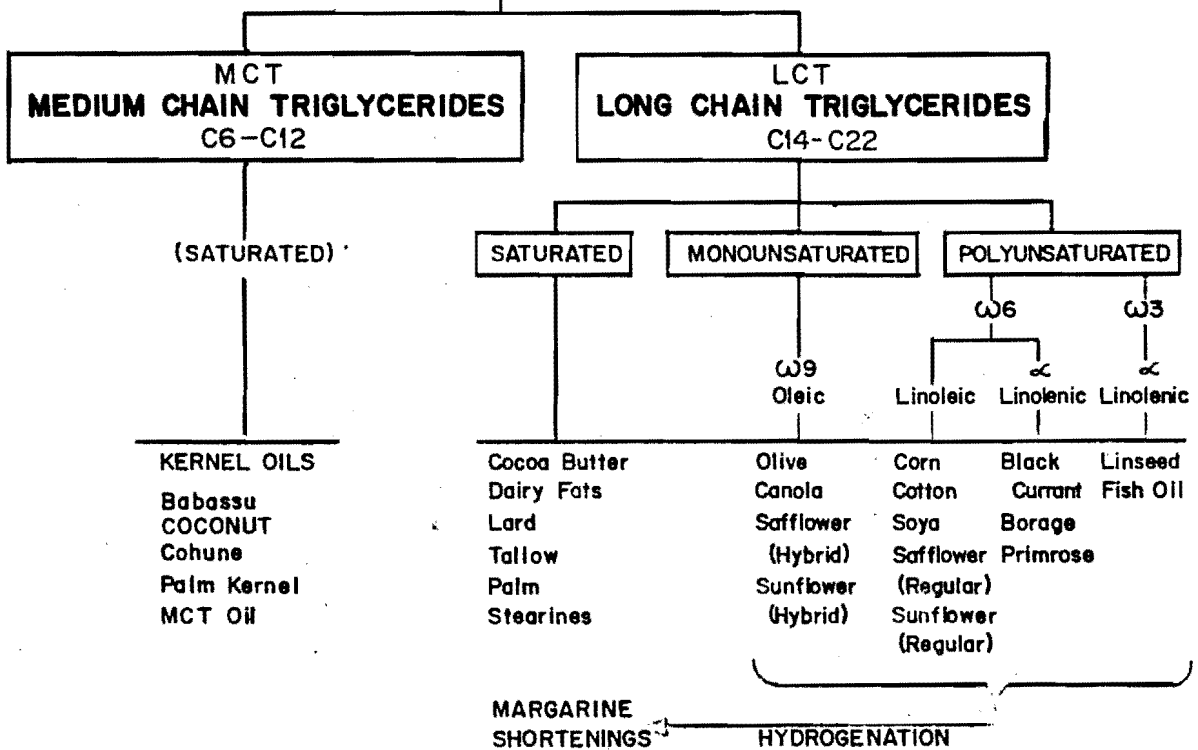
Philippine Parallel Research Group

Philippine Coconut Research and Development Foundation

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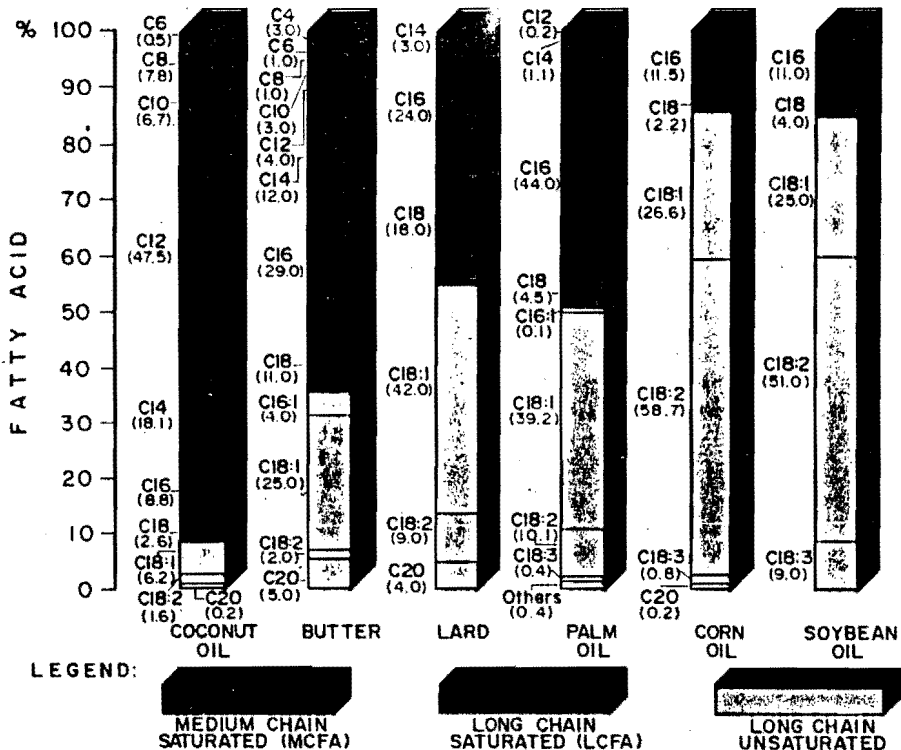
CLASSIFICATION OF FATS AND OIL

LIPIDS FATS & OILS



FATTY ACID COMPOSITION OF COMMON FATS/OILS

(g FA/100g total FA)



Source: W. G. Padolina et al., Chemical & Physical Properties of Coconut Oil
The Phil. Journal of Coconut Studies, Vol. 12, No 2, December 1987

COCONUT OIL

The Coconut is a fruit of the tropics. It yields a variety of products of which the most extensively commercialized is the oil, a triglyceride.

COCONUT OIL consists of (nine) different types of fatty acids, the average contents of which are as follows:

Saturated		
C6	Caproic	0.5%
C8	Caprylic	8.0
C10	Capric	7.0
C12	Lauric	48.0
C14	Myristic	17.0
C16	Palmitic	9.0
C18	Stearic	2.0
Unsaturated		
C16:1	Palmitoleic	0.2
C18:1	Oleic	6.0
C18:2	Linoleic	2.3

Among the triglycerides, COCONUT OIL is the most versatile. In industry it is used as ingredient of lubricating oil and brake fluid; the primary fat in soap making; its derivative is a component of toothpastes, shampoos and hair oils; it is also a substitute for automotive diesel fuel.

As an ingredient of food, COCONUT OIL is found in cooking oil, shortening, margarine, filled milk. In baked goods and "rich foods" including whipped toppings, it provides flavor, lubrication, mouth feel and other eating qualities.

A new frontier is the field of medicine where COCONUT OIL has become the source, if not the single richest source, of medium chain triglycerides (MCT).

MEDIUM CHAIN TRIGLYCERIDE (MCT)

COCONUT OIL is uniquely rich (48.0%) in the twelve carbon fatty acid (lauric acid) which is generally classified as "medium chain." Intestinal absorption and body transport of medium chain fatty acids differ from those of the longer chain. They are also more readily converted to energy. Body turn-over rate of lauric acid is thus likely to be faster and storage in body fat is minimal.

Fatty acids of twelve carbons or less do not require carnitine to enter mitochondria (Blackburn *et al*, 1989). Because of their rapid utilization for energy, the shorter chain fatty acids do not provide a large substrate pool for VLDL incorporation by the liver (Bach and Babayan, 1982).

The use of MCT has been suggested in the treatment of weight reduction of humans (Bach and Babayan 1982). In lieu of the longer chain triglycerides (LCT), as those derived from soybean oil, corn oil, butterfat and other animal fats, the ingestion of a meal containing MCT results in a higher resting metabolic rate (RMR) for the individual, indicating a greater consumption of energy in calories, thus preventing the deposition of fat (Mascioli *et al*, 1989).

Studies on MCT have led to the development of the following products now available in the market:

CERES MCT Diet Margarine and CERES MCT Diet Salad Oil for fat absorption disorders (UNION Deutsche Lebensmittelwerke GmbH, Hamburg)

CAPTEX Oils for pharmaceutical and cosmetic applications (Capital City Products, Columbus, Ohio)

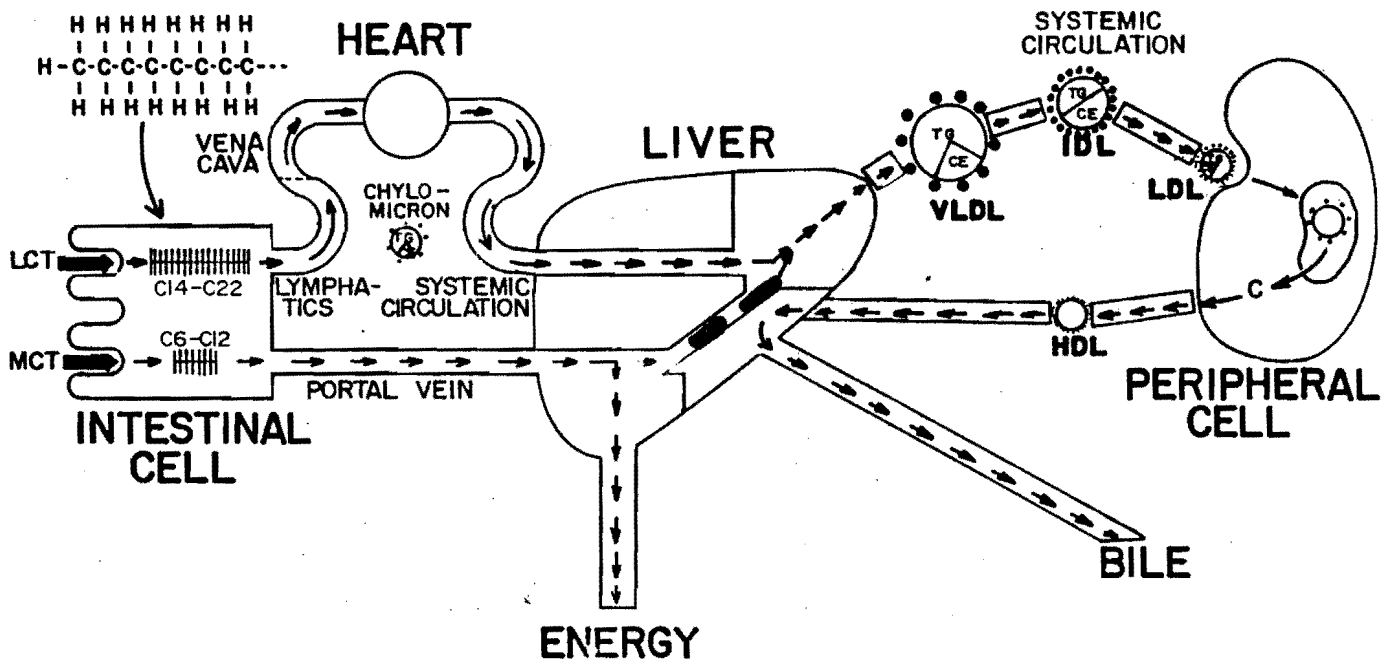
LIPOFUNDIN MCT/LCT, a fat emulsion for parenteral nutrition (B. Braun Mesungen AG, Federal Republic of Germany)

IMPACT, a ready-to-use enteral formula (Sandoz Nutrition, Minneapolis, Minnesota)

References:

- Bach, A.C. and V.K. Babayan, Medium-Chain Triglycerides: An Update, *American Journal of Chemical Nutrition*, The , 36: November (1982).
- Blackburn, G.L. *et al*, A Re-evaluation of Coconut Oil's Effect on Serum Cholesterol and Atherogenesis, *Journal of the Philippine Medical Association*, The , 65, No. 1: July-September (1989).
- Kaunitz, H., Biological and Therapeutic Effects of "MCT" (Medium Chain Triglyceride) from Coconut Oil, *Coconuts Today*, I, No. 2, (1983).
- Mascioli, E.A. *et al*, Serum Fatty Acid After Intravenous Medium Chain Triglyceride Administration, *Lipids*, XXIV, No. 9, (1989).

MCT IS METABOLIZED DIFFERENTLY FROM LCT



LCT - LONG CHAIN TRIGLYCERIDES
MCT - MEDIUM CHAIN TRIGLYCERIDES

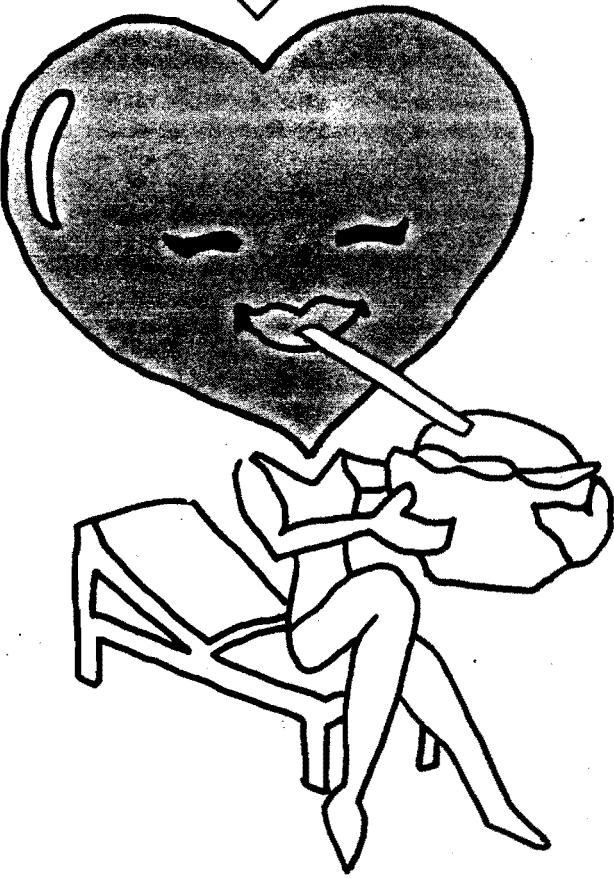
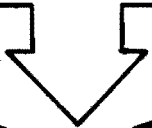
TG - TRIGLYCERIDES
CE - CHOLESTEROL ESTERS

SATURATED FATTY ACIDS

	MEDIUM CHAIN C6-C12	LONG CHAIN C14-C22
DIGESTION	EASIER; DIGESTED BY VARIOUS LIPASES; PANCREATIC LIPASE NOT ESSENTIAL.	PANCREATIC LIPASE ESSENTIAL.
ABSORPTION	FASTER.	SLOWER; REQUIRES INCORPORATION INTO CHYLOMICRON BY INTESTINAL MUCOSAL CELL.
TRANSPORT	VIA PORTAL CIRCULATION DIRECT TO LIVER.	VIA LYMPHATICS AND SYSTEMIC CIRCULATION BEFORE FINALLY ENDING UP IN THE LIVER.
METABOLISM	RAPID ENTRY INTO MITOCHONDRIA WITHOUT CARNITINE. OXIDIZED FASTER TO CARBON DIOXIDE WITH ENERGY LIBERATION. LESS ADIPOSE TISSUE DEPOSITION. DOES NOT FORM ESTERS WITH CHOLESTEROL. DECREASES PROTEIN CATABOLISM IN HYPER-CATABOLIC STATES. NEUTRAL; POLYUNSATURATED FATTY ACID DEFICIENCY MAY LEAD TO INCREASED SERUM CHOLESTEROL.	CARNITINE REQUIRED FOR ENTRY INTO MITOCHONDRIA. OXIDIZED SLOWLY. MAJOR PORTION INCORPORATED INTO VLDL WHICH IS SLOWLY BROKEN DOWN TO LDL AND TAKEN UP BY LDL RECEPTORS OR PERIPHERAL TISSUES. ADIPOSE TISSUE DEPOSITION. FORMS CHOLESTEROL ESTER. NO KNOWN BENEFIT IN HYPERMETABOLIC STATES. INCREASED SERUM CHOLESTEROL MAY BE A DIRECT EFFECT IN "RESPONDERS".

15.2.91

**People
who say
coconut oil is
bad for the
heart
must be**
Nuts



Meet the real
Health Nut
and discover
some hearty
truths about
Coconut Oil

