

COCONUT, COCONUT OIL AND HEART DISEASE

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There are various misconceptions regarding coconut, coconut oil and heart disease in Sri Lanka among laymen and doctors as a result of various newspaper articles and other publications on the subject. Sri Lankans who have been using coconut and coconut oil for over 1000 years are in a dilemma regarding the use of coconut in their daily diet.

Everyone of us have cholesterol in our blood and all the organs such as the brain, kidney and liver. Cholesterol is essential for the functioning of all the cells in our body. Only men and animals have the power of manufacturing cholesterol most of which is produced in the liver. Plants do not have the capability of manufacturing cholesterol. So all oils of plant origin have no cholesterol. 70% of our cholesterol is manufactured in the liver and the rest is derived from our diet.

Type of Cholesterol

There are two major types of cholesterol, the LDL cholesterol or bad cholesterol and HDL or good cholesterol. When too much of saturated fats are consumed, the LDL increases making the person prone to heart attack and stroke. On the other hand, if you consume polyunsaturated oils in moderation, the LDL level decreases making the person less prone to heart attack as both high triglycerides and low HDL are risk factors for heart attacks.

Coconut oil although it is saturated oil has medium chain fatty acids unlike fatty acids found in meat, butter, and cheese. Coconut oil is neutral oil i.e. it neither elevates the serum



Different Brands of Coconut Oil in the Market

cholesterol level nor does it reduce the serum cholesterol level.

Coconut oil, unlike other oils such as soya oil or corn oil and other polyunsaturated oils is highly resistant to oxidative rancidity and does not result in the formation of dangerous aldehydes and ketones on deep frying. Polyunsaturated oils on the other hand when used for deep frying results in the production of aldehydes and ketones which are hazardous to health. So if you use corn oil or any other polyunsaturated oil for frying purposes, it is advisable to throw it away after using once.

As far as I am aware, there is no scientific evidence to show that coconut oil used in moderation results in elevating serum cholesterol level or production of atherosclerosis in man. The myth that coconut oil consumption elevates serum cholesterol in man is based on the research done by Ahren in 1957 using a small group of Bantu people in South Africa. These people were

fed with large unphysiological amounts (100g) of hydrogenated coconut fat and their blood was examined after 4 days and he found that serum cholesterol level had gone up.

As you may be aware hydrogenated coconut oil is more saturated than ordinary coconut oil and the essential fatty acids get destroyed by the process of hydrogenation. Other drawbacks in this experiment are:

1. The number of people used was very small.
2. If coconut oil was used for a few months the body would have adapted itself to this large quantity of coconut oil used and cholesterol level may have dropped as human body has vast powers of adaptation to changes in environment.
3. Nobody in any coconut producing country uses such large amounts of coconut as 100g per day. It has been found that majority of people in rural areas of Sri Lanka consume 35g of coconut fat per day.



Various brands of Virgin Coconut Oil in the Market

Animal Research

Majority of research on coconut oil has been done using pigs, rabbits, rats, monkeys, and dogs. In some experiments the cholesterol level has increased whereas in others cholesterol level has decreased. Very small number of animals such as 4 or 5 have been used and in some experiments majority of the animals have died due to essential fatty acid deficiency as hydrogenated coconut oil has been used. These animals were killed in a few days and the research workers did not find any evidence of atherosclerosis in their arteries.

Shanthi Mendis et al fed coconut diet to 32 rats who were killed in 3½ months and found that there was no evidence of atherosclerosis in their coronary arteries. Mayor fed coconut oil to a few rabbits and found thickening of aorta in these animals but the coronary arteries were not affected.

Research in Human Beings

Shanthi Mendis et al fed 22 men with typical Sri Lankan diet containing coconut milk and coconut oil and measured their serum cholesterol level in 6 weeks. The serum cholesterol

level was 178 mg/dl (which is normal). She also used corn oil for the same men and found that the cholesterol level has come down to 146±13.4mg/dl to 25.43 mg/dl thereby causing LDL:HDL ratio to rise from 3.0:1 to 3.9:1 making them more susceptible to heart attacks. Thus substituting polyunsaturated fats for coconut oil carries a risk from the point of view of heart attacks.

In 1994, research work was done by Kurup and Rajmohan using 64 volunteers. They found, after 6 weeks, that there was a cholesterol lowering effect of using coconut kernel and coconut oil. Sindu Ram et al (1993) using 64 human volunteers found that consumption of coconut kernel and coconut oil produced a cholesterol lowering effect.

It has been found that there is no relationship of the occurrence of heart attack and coconut oil in countries where people consume coconut oil. In Sri Lanka according to 1978 UN Demographic Year Book, coconut oil is the predominant dietary fat; the death rate due to ischaemic heart disease (IHD) is only 1 per 100,000 as against 16-18 per 100,000 in other countries with little coconut consumption.

The National Nutrition Survey carried out in the Philippines showed that cardiovascular mortality is not related to coconut consumption. Bicol region which has the highest coconut oil consumption in the Philippines is the lowest in terms of IHD whereas Metro Manila where the consumption of coconut oil is lowest in the Philippines has the highest heart attack mortality.

People in Kerala State, India which had the highest coconut oil consumption in India in 1979 had the lowest incidence of heart attacks (2.3 per 1000). As a result of sustained campaign against coconut oil, coconut oil was substituted by various vegetable oils including palm oil, and coconut oil consumption was reduced and heart attack rate showed a three fold increase during 1993 showing that coconut oil increase could not have been the cause of increased incidence of heart attacks.

In Delhi where the coconut consumption is negligible, 10 out of 1000 people had ischaemic heart disease in 1993. People in Lakshadweep Islands in India have a very low incidence of heart attacks compared to the rest of the world though they consume large amounts of coconut and coconut oil (Eraly, 1993).

The incidence of heart attacks among Nicobar Islanders in India is very low in spite of the fact that their staple food comprised mainly of raw coconut and coconut products (Thampan, 1975). According to Thampan, the incidence of heart attacks could be better linked with excessive consumption of cholesterol and saturated fat rich foods of animal origin, sedentary life and tension.

Coconut and coconut oil is the main fat consumed by majority

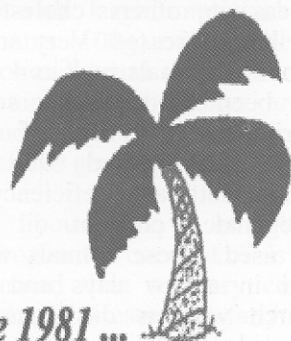
of Sri Lankans. The rural people who comprise 70% of our population derive a significant portion of their calories from coconut fat. It has been shown that rural folks get about 35g of fat from coconut and coconut oil. These people do not consume much animal fat such as beef, mutton, pork, eggs, butter and cheese and their heart attack rate is very low compared to that of people in urban areas.

For absorption of vitamin A, you need fats in your diet. If we advise our rural people to give up coconut and coconut oil, there will be an epidemic of vitamin A deficiency among rural people as they cannot afford to buy corn oil and other

polyunsaturated oils. From our clinical experience we know that the cholesterol level of rural people is low and their incidence of heart attacks is low in spite of coconut and coconut oil consumption. Coconut and coconut oil has been used by Sri Lankans for over 1000 years and our admission rate for heart attacks was 57.3 in 1970 and this has gone up to 213.9 in 1992 in spite of reduction in our consumption of coconuts. Coconut consumption has come down from 132 nuts per person per year in 1952 to 90 nuts per person in 1991 according to central bank statistics. Thus the present epidemic of heart attacks does

not appear to be due to coconut and coconut oil consumption. Then what are the causes of the recent epidemic of heart attacks in Sri Lanka, in spite of reduced consumption of coconut. The important risk factors for the recent increase in incidence of heart attacks in Sri Lanka are heavy smoking, hypertension, diabetes, stress, lack of exercise and consumption of high fat diet consisting of meat, eggs, and dairy products. There does not appear to be any relationship between coconut oil and cholesterol or coconut oil and heart disease.

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