

# COCONUT INSIGHTS

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## Habitual consumption of coconut oil did not elevate cholesterol level

In order to explore the influence of coconut oil on cardiac health, a study was conducted on 552 patients (25 to 65 yrs) admitted in Sri Chitra Tirunal Institute for Medical Sciences and Technology for coronary angiography. Healthy volunteers (463) from the same age group were recruited as controls. Since diet has been suspected to play a role in the development of coronary artery disease (CAD), nutritional pattern of the subjects was analysed by a week's dietary recall based on a questionnaire designed to ascertain habitual eating pattern with special emphasis on the type of cooking oil, quantity and quality of food items. The data collection also included height, weight and life style characteristics such as tobacco smoking, physical activity, alcohol consumption and other known risk factors including hypertension, diabetes mellitus and family history of CAD (FH/CAD). Blood levels of lipids, antioxidants and fatty acids in cholesteryl esters were quantitated in all these subjects. These

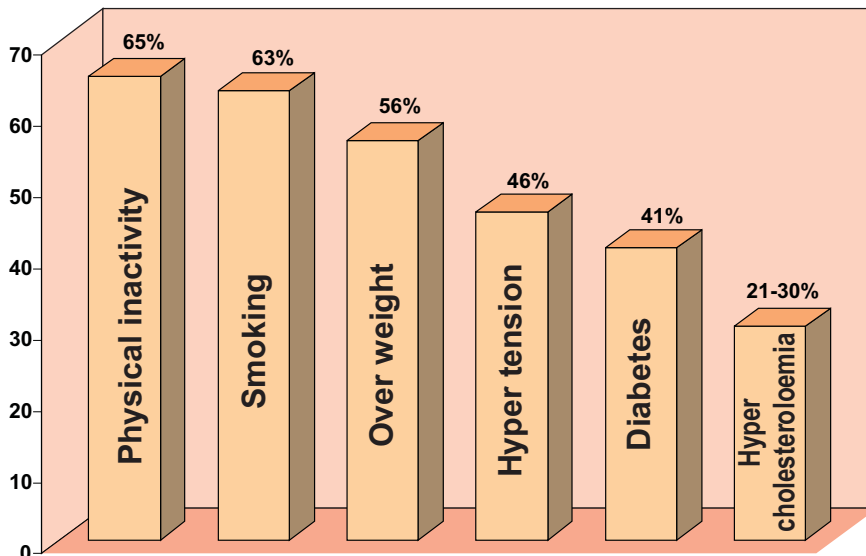
biochemical parameters were initially compared between patients and controls and later in relation to dietary fats and various common risk factors for CAD.

Based on angiographic test, patients were grouped as having confirmed coronary lesion (CAD) and normal coronaries (no lesion). Physical



*Physical inactivity : the highest risk factor*

inactivity and smoking seem to be the major risk factors (65% and 63% respectively) followed by overweight (56%), hypertension (46%) and diabetes (41%) among the CAD group and these percentages seem to be very high when compared to control and "normal



*Major risk factors found in the study*

## Chairman's Message

Dear Readers,

It is my pleasure to bring before you the first of a series of Newsletters that we propose to release on Coconut and Coconut Oil.

Coconut and coconut oil have been the subject of controversy for nearly three decades. Very extreme positions have been taken on the consumption of coconut oil. There has been a tendency to establish a link between coconut and cardio vascular disease without taking a holistic view of the various other factors that contribute to the incidence of coronary artery disease. The purpose of this Newsletter is to bring to public view the various findings available so that the readers can weigh the facts and take a judicious view on this subject which has been agitating the minds of the ordinary consumer as well as the medical fraternity for quite some time.

The *Kalpavriksham* is very dear to all of us and more particularly to the people of Kerala. We are therefore often tempted to romanticize the tall and graceful palm which is an integral part of our daily life. We would however now like the entire issue to be considered in a rational and objective manner sans any sentimentality and emotion.

May I hope that this Newsletter will help the readers to gain a better understanding of the subject. We would also welcome any feedback or suggestions for improvement.

*Minnie Mathew*  
(Minnie Mathew)

Chairman, Coconut Development Board

coronary" groups. Physical inactivity is a common factor found in all patients and controls. At the same time hypercholesterolaemia was noticed only in 20 to 30% of subjects in all the groups.

Nutritional data indicated that nearly 80% of the subjects (control and patients) were daily using coconut oil for cooking whereas 15% were using sunflower/sanola oil and palm oil as the second major cooking oils in each group. Use of groundnut oil and gingelly oil was comparatively less. However 37% in control, 21% in CAD group and 22% in "normal coronary" group were using a minimum of two different oils for preparing variety of dishes. Majority were also consuming nonvegetarian diet regularly.

55% of patients and 80% controls were daily consuming fish as a major non vegetarian dish. Fish fry seems to be the item of choice for controls and to a lesser extent for patients also. Compared to patients the weekly consumption of chicken was higher among controls.

Daily intake of bakery products/snacks was nearly seven times higher in controls compared to the intake by patients. However CAD patients, before diagnosis, were habitually consuming large quantity of starchy and fatty foods with plenty of deep fried fish, chicken, mutton and beef along with bakery products/snacks with no restriction at all. However the intake of vegetables



Smoking : the second major risk factor

Comparison of percentage distribution of subjects in three levels of total cholesterol in study groups

	Cholesterol group (mg%)		
	Low <200	Intermediate 200-239	High ≥ 240
Control (%)	32	38	30
CAD (%)	44	31	25
N.Coronary (%)	52	30	20

P=0.004

(especially green leafy vegetables) and fruits was found insufficient. After the onset of angina CAD patients have modified their dietary pattern by reducing the intake of food as well as deep fried items and bakery products/snacks as advised by their physicians.

The mean level of total cholesterol in blood was similar in patients having angiographically confirmed CAD (208±46 mg%) as well as "normal coronaries" (206±51mg%). Further the mean cholesterol level of CAD patients was lower by about 12 mg% from that of controls (220±40 mg%). The other important observation from the present study was that the CAD patients differed from controls and "normal coronaries" in terms of high triglycerides and low HDL-cholesterol, the other two lipid risk factors. Antioxidants-Vitamin-C and β carotene were lower in CAD patients compared to controls. However CAD patients did not differ from "normal coronaries" with regard to antioxidant vitamins. As far as fatty acids were concerned, cholesteryl linoleate was lower in CAD patients compared to controls. CAD patients differ from "normal coronaries" by having higher percentage of archidonate and lower percentage of oleate and palmitate.

Since smoking, diabetes and hypertension were influencing the serum

lipid profile, the data was further analysed by excluding these risk factors. No perceptible differences were there in cholesterol levels but it was observed that CAD patients have higher triglycerides and lower HDL-C and lower Vitamin-C compared to controls. This implies that the metabolism of both triglycerides and HDL-C is primarily altered in CAD patients and the total antioxidant status is insufficient.

The objective was to find out whether coconut oil is influencing cholesterol level in CAD patients and controls. The patients were sub-grouped as exclusive coconut oil consuming group and the rest as mixed oil consuming group. Among both controls and CAD patients, irrespective of the nature of the oil consumed no difference was observed in the mean levels of total cholesterol or LDL cholesterol. At the same time the mean triglyceride level was lower in exclusive coconut oil users in both the study groups. This indicates that in CAD patients the habitual consumption of coconut oil along with normal diet did not elevate the cholesterol or LDL-cholesterol level as expected.

(The study was undertaken by the Cardiology and Biochemistry Departments of the Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram)

## Polyunsaturated fatty acids (PUFA) - A potent source of free radical generation

Polyunsaturated fatty acids are a potent source of free radical generation and lipid peroxide formation. Most of the PUFA rich edible oils used as cooking media are very rich in ω6 fatty acids and contain low to negligible amounts of ω3 fatty acids, reflected by raised ω6/ω3 ratios. The relationship

between high ω6/ω3 intake and free radical damage and oxidant stress was examined. 30 patients with a ω6/ω3 intake of over 30 were compared to 30 age, sex and glycemc control matched diabetics whose dietary intake ratio of ω6/ ω3 was 20 or below.

The results showed that oxidant

stress is significantly more in patients with raised  $\omega 6/\omega 3$  ratio intakes. Thus, excessive intake of  $\omega 6$  fatty acids reflected by high  $\omega 6/\omega 3$  ratios is associated with increased levels of free radical damage as well as a compromised ability of the body to ward off oxidant stress.

If our aim is to decrease the  $\omega 6$  intake, the use of  $\omega 6$  rich polyunsaturated fats as cooking oils will have to be re-examined. Many of our foods contain  $\omega 6$  fatty acids and therefore the diet already supplies more than necessary levels of  $\omega 6$  fatty acids, without needing any additional input from the  $\omega 6$  rich PUFA oils. The PUFA cooking oils with their high content of  $\omega 6$  fatty acids just add significantly to the problem. It is due to this high content of  $\omega 6$  fatty acids that even a halving of the  $\omega 6$  rich PUFA oils will not allow a decrease in the  $\omega 6$  fatty acid intake to near optimal level.

The diet is deficient in  $\omega 3$  fatty acids as this is found only in the chloroplast of a few plants and in fish, especially fatty fish found in cold water seas. Therefore, although fish intake will help in increasing  $\omega 3$  intake, recourse often needs to be taken to exogenous supplementation with  $\omega 3$  in the form of capsules. But there is an optimal amount of  $\omega 3$  fatty acids which should be taken and this should not be exceeded. One cannot take large numbers of  $\omega 3$  capsules just to try and normalise the  $\omega 6/\omega 3$  ratio. There are questions about the safety of giving too much  $\omega 3$  fatty acids.

In view of this, one needs to lower the  $\omega 6$  intake significantly so that the optimal amount of  $\omega 3$  supplementation will near normalise the  $\omega 6/\omega 3$  ratio. In view of the wide availability of  $\omega 6$  fatty acids in various foods, one manner in which it may be possible to lower the  $\omega 6$  intake is to use edible oils which are poor in  $\omega 6$  fatty acids. A review of the  $\omega 6$ ,  $\omega 3$  and  $\omega 6/\omega 3$  ratios of the cooking oils used would show that the traditional cooking oils such as ghee (clarified butter), coconut oil and mustard oil have a very low to negligible content of  $\omega 6$  fatty acids. Thus, their use would definitely reduce  $\omega 6$  intake. Unfortunately, these traditional cooking oils which allow us to fulfill the aim of decreasing the  $\omega 6$  intake to adequate

## STUDY PROVES BENEFICIAL EFFECTS OF COCONUT OIL AND KERNEL

There is a fear among people that consumption of coconut oil and kernel may elevate blood cholesterol thereby predisposing the user to coronary heart disease. This fear is based on the fact that coconut oil is a saturated fat and all saturated fats elevate blood cholesterol. The Biochemistry Department of the University of Kerala has undertaken a study in human subjects under free living conditions.

The study undertaken by Dr. T. Rajamohan has revealed that consumption of coconut oil in the general population did not elevate total cholesterol, LDL cholesterol or LDL cholesterol/ HDL cholesterol ratio. Nor did it reduce HDL cholesterol, but lowered triglycerides. It reduced the risk factors of coronary artery disease in Kerala namely elevated serum triglycerides. Consumption of coconut kernel with coconut oil had a beneficial effect that it reduced total cholesterol and lowered triglycerides. It also raised HDL cholesterol levels and lowered the LDL cholesterol /HDL cholesterol ratio. The study further indicates that dietary practice of Kerala population consuming fresh coconut kernel and coconut oil reduces the risk of coronary artery disease. The consumption of too much kernel may lead to higher triglycerides. This may be related to the invisible fat present in coconut kernel (polyunsaturated fat). Polyunsaturated fat is known to lead to increased triglycerides level.

The beneficial effects of coconut kernel may be due to two factors present in it namely the coconut protein and the dietary fiber, both of which confer beneficial effects on blood lipid parameters. Consumption of coconut oil

and coconut kernel had only beneficial effects not only in cases with normal cholesterol, but also in those with elevated serum cholesterol. In both vegetarians and non-vegetarians coconut oil and coconut kernel consumption showed positive beneficial effect. The study further found that the beneficial effect for coconut oil and coconut kernel seen in young subjects is also seen in old subjects. Further both male and female subjects had beneficial effects, but the decrease in triglyceride on coconut oil was more in females than in males.

Coconut oil and coconut kernel had beneficial effect in diabetic subjects since there was decrease in LDL cholesterol in diabetic, greater increase in HDL cholesterol, but one disadvantage was the increase in triglyceride in the diabetic subjects. Smokers showed an increase in total cholesterol when on coconut oil and kernel when compared to non smokers. Subjects who consume fish had a disadvantage with coconut oil in that the HDL cholesterol was decreased presumably due to the effect of  $\omega 3$  fatty acids present in fish. Subjects who consume beef predominantly had also an advantage of coconut oil in that total cholesterol was lower as also LDL cholesterol, but the disadvantage with coconut oil in these subjects was a decrease in HDL cholesterol. Coconut oil consumption had also beneficial effect in subjects with elevated triglycerides in that it resulted in decrease in triglycerides and an increase in HDL cholesterol. The subjects with high fat consumption had a disadvantage with coconut oil in that triglycerides increases in this group. Subjects selected for this study were 258 volunteers belonging to 140 families.

amounts and near optimise the  $\omega 6/\omega 3$  ratios (by, both,  $\omega 3$  supplementation as well as reduction in the amount of these fats in the diet) are saturated fats and have fallen into disrepute due to their reported propensity for increasing the

cholesterol levels and atheroma formation.

*Extracts from the paper presented by Dr. S M Sadikot in the Symposium on coconut and coconut oil in human nutrition held at Kochi in March 2004*

**Latest on Trans Fats**

Removing trans fats from the industrial food supply could prevent tens of thousands of heart attacks and cardiac deaths each year in the U.S., according to researchers at the Harvard School of Public Health and Wageningen University.

In a review article published in the *New England Journal of Medicine* on April 13, 2006, (1) the researchers detail evidence linking trans fats consumption to increased risk of coronary heart disease, sudden cardiac death, and diabetes. Trans fats from partially hydrogenated oils have harmful effects on blood lipids, promote inflammation, and cause blood-vessel abnormalities, all of which are risk factors for heart disease.

The effect and magnitude of adverse health effects of trans fatty acids are in fact far stronger on average than those of food contaminants or pesticide residues, which have in some cases received considerable attention, the authors write. Complete or near-complete avoidance of industrially produced trans fats may be necessary to avoid adverse health effects and would be prudent to minimize risks.

The U.S. now requires food manufacturers to list trans fat content on nutrition labels. But foods labeled zero

**SIMILAR TO FATS IN MOTHER'S MILK**

Never before in the history of man it is so important to emphasize the value of lauric oils. The medium-chain fats in coconut oil are similar to fats in mother's milk and have similar nutraceutical effects. In the past four decades misinformation and disinformation provided by certain politically biased agricultural groups and repeated in professional and lay press have led people to believe that all saturated fats are



unhealthy. Little attention is focused on the fact that saturated fatty acids are not a single family of fats but comprise three subgroups; short - (C2-C6), medium- (C8-C12) and long- (C14-C24) chain fatty acids. The medium chain fats are found exclusively in lauric oils.

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University, USA

trans fat may still contain up to 0.5 grams per serving of trans fat from partially hydrogenated oils. Restaurants, bakeries, and other food establishments are not required to have nutrition labels on the foods they sell, and trans fat content of commercially-prepared foods may be substantial. French fries and chicken nuggets from U.S. fast food restaurants have 5 to 10 g of trans fats per serving, according to research published in the same issue of *New England Journal of Medicine*. (2)

In Denmark, where the government has sharply restricted the use of

industrially-produced trans fats, similar foods have negligible amounts of trans fats. The authors conclude that the health risks posed by industrially-produced trans fats can be eliminated without any noticeable effect for the consumer. (2)

**References**

1. Mozaffarian D, Katan MB, Ascherio A, Stampfer MJ, Willett WC. Trans fatty acids and cardiovascular disease. *N Engl J Med*. 2006 Apr 13;354(15):1601-13.
2. Stender S, Dyerberg J, Astrup A. High levels of trans fat in popular fast foods. *N Engl J Med* 2006; 354: 1650-1652.

**N E W S   B R I E F S**

- A simple measurement of cholesterol may not tell the whole story. In the United States, the level is high in winter and low in summer. If patient is measured in January he may appear to be in deep trouble whereas by June he would have suddenly become cured.

-Dr. David Kritchevsky, Wistar Institute, Philadelphia, USA.

- There are conflicting claims made by scientists about coconut oil. Its high content of saturated fat is a cause for concern. It may be taken in limited quantities as part of a well balanced coastal diet which includes plenty of fish. Since oil (fat) is high in calorie (9 calories per gram) it is better to keep the consumption low - no more than 600 grams a month

-Dr. K.S.Reddy, President, Public Health Foundation of India and former Head of Cardiology AIIMS, Delhi, in *Prevention*

- Lower blood pressure determinations were obtained in a polynesian group consuming coconut oil as 89% of fat as against 7% in another group. In addition, the consumption of large amounts of coconut oil

demonstrated a lower serum cholesterol and lower incidence of atherosclerosis (Hunter, TD : *Ted Proc*. 21 (Suppl II) : 36, 1962) Shoreland FS *et al* : *Am J Clin Nutr* 2: 594 1969)

- German scientists have discovered that eating just 4 gms of margarine daily may raise the risk of asthma by 2.5 times - even in previously healthy adults. The connection appears to be a type of transfat that is specific to margarine. Your best bet is stick with liquid oils

- Health & Nutrition

- Society has paid a heavy price in following ill conceived cholesterol hypothesis. It is never too late to correct one's error. It is high time we revert to traditional fats.

-Dr. B.S. Raheja and Dr. A.S. Bhoraskar, All India Institute of Diabetes, Mumbai

- A political hostage who had been very inadequately- not just fat- free diet, practically a food free diet - and kept in fear of his life for weeks showed an abnormally high blood cholesterol (LDL) level after he had been rescued.

- *Wings of Gold*, Inflight Magazine of Malaysian Airlines

## What Ayurveda says about Coconut Oil

A careful perusal of the classical Ayurvedic tests help us to understand that Ayurveda has gained deep insights into the medicinal properties of coconut that is in tune with the scientific findings of today. Modern research has in many ways rediscovered with greater clarity what ancient Ayurvedic physicians had cherished through generations of medical practice. Let us take the issue of the effect of

coconut on the cardiovascular system for instance. Coconut oil was condemned a few decades ago for its high percentage of saturated fats that could damage the blood vessels and cause coronary heart disease. It is only in recent times that it has been discovered that the saturated fat in coconut is the medium chain fatty acid (MCFA) type, which is metabolized quite differently from the way long chain fatty acids are metabolized. By

promoting thyroid activity and providing instant energy, MCFA in coconut actually helps the body to reduce fat and thin down. It maintains cardiovascular health. Ayurvedic texts like the *Kayyadeva Nighantu*, *Bhavaprakasha Nighantu* and *Raja Nighantu* characterize coconut oil as hrdayam or good for the heart and cardiovascular system. The *Bhavaprakasha Nighantu* mentions that coconut oil can reduce *kapha*, which actually helps the body to lose than gain weight.

Fatty acid composition of common fats and oils (g/100g.)

	Saturated	Mono-unsaturated	Linoleic	Alpha linolenic	Predominant fatty acids
Coconut <sup>a</sup>	90	7	2	<0.5	Saturated
Palm kernel	82	15	2	<0.5	Saturated
Ghee <sup>ab</sup>	65	32	2	<1.0	Saturated
Vanaspati <sup>b</sup>	24	19	3	<0.5	Saturated
Red palm oil	50	40	9	<0.5	Saturated (raw) Monounsaturated
Palm oil	45	44	10	<0.5	Saturated + Monounsaturated
Olive	13	76	10	<0.5	Monounsaturated
Groundnut	24	50	25	<0.5	Monounsaturated
Rape/Mustard <sup>cd</sup>	8	70	12	10	Monounsaturated
Sesame	15	42	42	1.0	Mono and poly-unsaturated
Rice bran	22	41	35	1.5	Mono and poly unsaturated
Cotton seed	22	25	52	1.0	Polyunsaturated
Corn	12	32	55	1.0	Polyunsaturated
Sunflower	13	27	60	<0.5	Polyunsaturated
Safflower	13	17	70	<0.5	Polyunsaturated
Soyabean <sup>d</sup>	15	27	53	5.0	Polyunsaturated

a : Mainly short and medium chain fatty acids (Coconut 77%, Ghee 25%).

b : Trans fatty acids (Ghee 2%, Vanaspati 53%).

c : Long chain monounsaturated fatty acids (50% euric acid and 5% eicosenoic acid).

d : Good source of alpha-linoleic acid.

Dr. Mahtab S. Banji (1997)

The beneficial effects of coconut oil on skin were also well known to the ancient physicians. Coconut oil is said to be useful in management of a wide range of skin diseases including the infectious type. It is said to tone the digestive system and enhance the immunity of the individual. Interestingly enough, the *Shaligrama Nighantu* points out that coconut oil is useful for the management of the disease known as *yakshma*, a condition that resembles AIDS in many ways.

Ayurvedic texts describe the medicinal properties of coconut meat, tender coconut water, coconut milk, coconut ghee, coconut oil, coconut sugar, coconut flowers, fleshy top of stem, coconut root as well as toddy. Coconut fruit is classified into the tender, green, ripe dry and sprouted types and their medicinal properties are differentiated and described.

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## Prof. B. M. Hegde on Coconut Oil

Let me quote a recent study in the leading medical journal, *The Lancet* of 22nd April 1989, which showed in a study of French elderly women staying in Nursing Homes that those ladies with the highest cholesterol levels lived the longest. In addition, it also showed that deaths were five times more in those elderly ladies with lowest cholesterol levels

compared to those with high levels.

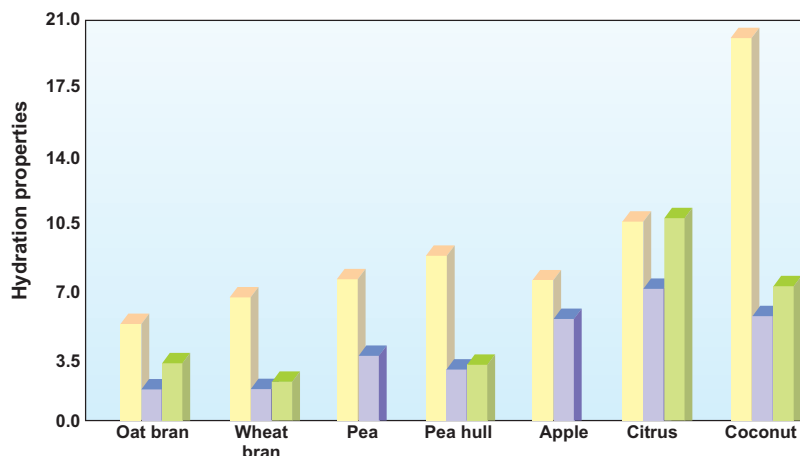
90% of our serum cholesterol is manufactured in our own livers to help keep us alive and only 10% comes from the food, a very small contribution indeed. All drugs that lower cholesterol, by force damage liver functions definitely ! Readers could get more details from my web site where many other scientific papers

of mine in this field are listed - [www.bmhegde.com](http://www.bmhegde.com). I must hasten to add that any fat, even the good ones like coconut oil and ghee should be taken with care. The total fat intake should not form more than 20% of our total calorie requirement per day. Fried food is bad for health. Long live mankind and his friend the coconut tree, *Kalpavriksha*.

## Properties of coconut dietary fiber

Hydration properties of coconut dietary fiber were compared with other commercially available

was also more than that of the other samples. Coconut fiber showed highest swelling capacity (20 ml/g)



dietary fibers by CFTRI, Mysore. Except for apple fiber (5.43 g/g) and citrus fiber (10.66 g/g), the water retention capacity of coconut dietary fiber (5.4 g/g) was higher compared to all other samples. Water holding capacity of coconut fiber (7.1 g/g)

as compared to any other fiber studied. This shows that coconut fiber has maximum capacity to swell when compared to other fibers, which is the most desirable parameter for physical functioning of dietary fiber (Ragavendra *et al.*, 2004).

## Dietary intake and the risk of coronary heart disease among the coconut-consuming Minangkabau in West Sumatra, Indonesia

Several nutrition and non-nutritional pathways are recognized in the development and occurrence of cardiovascular disease. In many populations, high intakes of saturated fat are associated with elevated serum cholesterol concentrations and increased coronary heart disease (CHD) mortality. However, several studies report that hyperlipidaemia and heart diseases are not common among populations who consume coconut, a source of saturated fat. A case-control study was conducted among the Minangkabau known to be high coconut consumers to examine the difference in food patterns and risk of coronary heart disease (CHD) between the coronary cases and their gender-and age-matched apparently healthy counterparts serving as controls. Eligible subjects with CHD were identified

through the co-operation of five participating hospitals located in Padang and Bukittinggi in West Sumatra, Indonesia. A total of 93 eligible cases (62 men and 31 women) in the case group and 189 subjects (113 men and 76 women) in the control group were recruited. Information on the intakes of individual foods and dishes over the preceding 12 months was obtained using a semi-quantitative food frequency questionnaire. The Case group had significantly higher intakes of meats, eggs, sugar, tea, coffee and fruits, but lower intakes of soy products, rice and cereals compared to the controls. Coconut consumption as fresh or milk was not different between cases and controls. The cases had significantly higher intakes of protein and cholesterol, but lower intake of carbohydrate. Similar

intakes of saturated and unsaturated fatty acids between the case and controls indicated that the consumption of total fat or saturated fat, including that from coconut, was not a predictor for CHD in this food culture. However, the intakes of animal foods, total protein, dietary cholesterol and less plant derived carbohydrates were predictors of CHD

Source : *Asia Pacific Journal of Clinical Nutrition* Vol. 13 (4) Dec 2004.

## Advantage of MCT

The molecular weight of medium chain triglycerides (MCTs) is smaller than long chain triglycerides (LCTs). This facilitates the action of enzymes enabling the MCTs to be hydrolyzed faster than the LCTs and more completely. The products of MCT hydrolysis are absorbed faster than those of LCTs. MCFAs follow the portal venous system whereas the LCFAs are transported as chylomicrons via the lymphatic system. Bile salts are not required in MCFAs transport. Since MCFAs are oxidized much faster than LCFAs, fat accumulation is reduced. Animal studies have shown that MCTs can produce a slight reduction in body weight. (Bach, AC and Babayan, VK : *Am J of Clin Nutr.* 36, 950-962 1982).

Under well-controlled conditions, individuals on diet which included MCT in equicaloric diets led to more pronounced weight losses than those in a diet of other fats. (Kaunitz H : *Proc Xth Int. Cong. of Nutr;* 63-64 1975)

Medium chain triglycerides favours the development of relatively small fat deposits. When MCT (having a caloric value of 8.2 against 9.3 for "normal" fats) was included as dietary fat in a normal diet, the weight of the animals was significantly lower than that of controls fed lard. At the same time, the survival rate of the animals fed MCT was excellent. The weight of the testicular fat bodies which is representative of triglyceride deposits in general was significantly lower than that of controls. This is probably related to the fat, that medium chain fatty acids have little tendency to be included in depot fat in contrast to C16 and C18 fatty acids -Dr. Hans Kaunitz, Columbia University, New York

## Dunkin' Donuts, Baskin-Robbins to cut trans fats

Dunkin' Donuts, the world's largest coffee and baked goods chain, and Baskin-Robbins shops will eliminate trans fats from their products because the artificial additives are linked to high cholesterol and health problems.

All 5,300 Dunkin' Donuts locations in the US will make the switch by October 15, following a trial at 400 shops in New York and Philadelphia, Dunkin Brands Inc, the owner of both units, said in a statement.

Baskin-Robbins ice creams will have zero trans fats beginning in January, the company said.

Trans fatty acids increase the shelf life of items and some say make food taste better. Eating the additives raises the so-called bad cholesterol, increasing the risk of coronary heart disease, US health officials have said.

McDonald's Corp and Burger King Holdings Inc are among several food chains to make the switch.

Source : The Hindu Business Line

## The smoking temperature of fats

When fats and oils are heated to a high temperature, decomposition of fats occurs and at a point visible fumes are given off. This temperature is called the smoking temperature of fats. The smoking temperature of fat is low when amounts of free fatty acids are high. Fat absorption is high if foods are cooked in a fat with low smoking points. Smoking temperature of fat varies depending on the surface area of oil exposed while heating. The penetrability of the produce to be fried also determines the fat absorption while frying.

-Dr. Raheena Khader

## Creating a heart psychosis

My uncle and I were due to fly to Singapore. The airline's new safety regulation required a full appraisal of the risk to be conveyed to all passengers. Ten minutes after boarding, the captain stood up front and gave a talk on what could go wrong during a flight, the statistics about plane crashes, the different problems one could encounter, what to do in a crash landing and how to survive a free fall.

He explained that the probability of both engines failing at the same time was minuscule. He went on to describe the various health problems and sickness one could expect during air travel and finally told us not to worry.

He finished his speech : iNow that you know, you will be the safer for it.

No sooner had he resumed his seat than my uncle panicked and wanted to get off. I thought he was being silly but, to my surprise, many others followed and the captain watched, exasperated. He could do nothing. He knew it was not the people but the airline regulation that made iinformation mandatory.

Though others stayed on, throughout the flight, I could feel the tension in the air. On arrival, all the passengers got down and ran out.

This is a good enough example about what is happening in the imedical world. The media is falling over itself

in supplying newer health information to the people. The focus is not on tuberculosis and amoebiasis - for which we are already endemic. It is also not on the huge load of fevers this season or the availability of vaccines to prevent it.

The public thriller is heart disease and diabetes. An overdose of articles has put fear in the minds of the people.

Many are being denied the normal amount of oils and fats that are essential for the normal functioning of the human body. Oils run the brain, skin defences,

### An overdose of articles has created fear in the minds of the people

sexual hormones, nerve conduction and much more. Healing of wounds also depends on oil and fat.

The iinformation overkill has focused attention on the heart. A sudden heart attack is forbidden.

All the medical checkups in the world may not prediagnose gut cancer or an impending brain stroke but that is all right, as long as a person is doing the same medical check up every six months for heart disease and diabetes, which he may never have.

The clinicians can feel this loss of balance in thinking in our daily practice.

Today, we have normal patients who insist on having an ECG test. Simple

acidity at night becomes a heart problem, with ICU admissions and relatives flying down from all over.



The cost of this kind of iheart psychosis is enormous. Influential ihealth advisors go around trumpeting what they understand of the disease and add to the fear.

Even normal and minor findings in the heart for a 20 year old boy becomes i a major to his family, as he has a iheart condition and the internet has to be tapped to add to the chaos. Relatives jump in with half-baked advice.

A well-placed business executive is perpetually scared during his travels because he may not be able to fulfil the i first golden hour rule in case of heart attacks or trauma. The point he is

missing is that he is a completely normal person.

The same applies to diabetes. India has not made any new discoveries in diabetes. But studies and statistics abound. Unlike for other diseases, these statistics on diabetic complications are publishable in the media.

Consequently, for every small scratch on the feet, the patients run to a diabetologist - to prevent a possible leg amputation. For a whiff of high blood sugar that occurs during any stressful

period, a person has to run the entire gamut of diabetic tests. And this is not just once, but periodically - as one may never know if it is a signal for future diabetes.

Stress is associated with early heart attacks. It seems to play a major role in converting hypertension, diabetes and cholesterol into strokes.

But often we walk into a doctor's room, get all the information about our diseases and then walk out totally

psyched. Ever wonder why it is so hard to find heart patients and diabetics in village health camps? So we go looking for them in the city.

The flip side has to be mentioned. My grandfather, ate well, worked hard, slept well and, though educated, didn't care a damn. He had hypertension and diabetes and took his medicines regularly.

He visited his doctor thrice a year and went through life without the power packed health knowledge that we possess. He lived happily till 84. Sometimes ignorance is bliss.

- Dr. R. Jayaprakash in *The Hindu*

## COCONUT OIL AND THE DIET/HEART HYPOTHESIS

For the past several decades you have heard about animal and human studies feeding coconut oil that purportedly showed increased indices for cardiovascular risk. Blackburn *et al* (1988) have reviewed the published literature of "coconut oil's effect on serum cholesterol and atherogenesis" and have concluded that when "...[coconut oil is] fed physiologically with other fats or adequately supplemented with linoleic acid, coconut oil is a neutral fat in terms of atherogenicity."

The question then is, how did coconut oil get such a negative reputation? The answer quite simply is, initially, the significance of those changes that occurred during animal feeding studies were misunderstood. The wrong interpretation was then repeated until ultimately the misinformation and disinformation took on a life of its own.

The problems for coconut oil started four decades ago when researchers fed animals hydrogenated coconut oil that was purposefully altered to make it completely devoid of any essential fatty acids. The hydrogenated coconut oil was selected

instead of hydrogenated cottonseed, corn or soybean oil because it was a soft enough fat for blending into diets due to the presence of the lower melting medium chain saturated fatty acids. The same functionality could not be obtained from the cottonseed, corn or soybean oils if they were made totally saturated, since all their fatty acids were long chain and high melting and could not be easily blended nor were they as readily digestible.



The animals fed the hydrogenated coconut oil (as the only fat source) naturally became essential fatty acid deficient; their serum cholesterol levels increased. Diets that cause an essential fatty acid deficiency

always produce an increase in serum cholesterol levels as well as an increase in the atherosclerotic indices. The same effect has also been seen when other essential fatty acid deficient, highly hydrogenated oils such as cottonseed, soybean or corn oils have been fed; so it is clearly a function of the hydrogenated product, either because the oil is essential fatty acid (EFA) deficient or because of trans fatty acids (TFA)

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## Cause of rapid aging

Excessive amounts of polyunsaturated fat in the diet have been shown to have carcinogenic potential in lab animals. At low tocopherol levels, the polyunsaturated can be a source of uncontrolled free radical formation and believed to be a cause of more rapid ageing. (Carroll, KK : *Lipids* 6:415, 1971) (Gamal, EB : *Cancer Research* 27:1737, 1967) (Tappel, AL : *Pathology of Cell Membranes*, Academic Press, N.Y., 1975).

At a time when our hopes are rising that we have found in the polyunsaturated fats dietary means of combatting atherosclerosis, evidence has also been discovered that these same beneficial fats may well be a primary source of radicals within the cell that cause it to age. (Tappel, AL : *Where Old Age begins*, *Far East Med. J.* 4(5); 152-156 1968)

High levels of polyunsaturated fats induced a marked increase in tumor yields in the pancreas and colon of experimental rats. In contrast to polyunsaturated fatty acids (PUFA) experiments showed that high levels of saturated fats in the diet have little or no effect on mammary tumorigenesis. (Carroll KK *et al.*, *Biochem. Pharmacol* 18:308-353, 1975) (Roebuck *et al.*, : *Cancer Res.* 4(3) 888-893, 1981)