COCONUT OIL IN A HEALTHY DIET?

Coconut oil has a fantastic reputation in the traditional societies which thrive on it, but it is rejected by health advisers in the West. My aim is to report that, beyond doubt, these advisers have got it wrong, and that coconut oil should be endorsed by them as a valuable food.

I grew up in the Murray Mallee, and discovered in the 1950s that a degree in Agricultural Science opened up an exciting world of job choices. So I finished up forsaking the 300 mm rainfall on dad's sandy farm for a Unilever coconut plantation in the Solomon Islands with 3000 mm rainfall. The war had reduced local abandoned plantations to an overgrown mess, but Levers Pacific Plantations was determined to get this once lucrative enterprise back on its feet. My research mandate was to arrest falling productivity with appropriate fertilizers, replanting, weed control and hybrid testing – rewarding work – so I stayed on for nine stimulating years before undertaking local crop research with CSIRO in Queensland.

Back in the coconut world I had left behind, by the 1970s profits were collapsing. The oil-palm was much more profitable and captured the investors, while soy had taken over coconut's once lucrative market. Decades later it has emerged that this great tropical food and oil had been grievously maligned. It became the victim of hostile nutritional research, devised to support other food oils competing for official endorsement.

Now, our doctors offer remedies for many ills, but chronic conditions involving diet bother them. Few seem confident to advise patients on a healthy diet. Presently the "elephant" in the super-market is expanding obesity – excuse the pun. Competitive food marketing is upsetting to the consumer, as we tend to be drawn to the latest "wonder food", and confused by frequent media reports of new research findings. Meanwhile there are published Dietary Guidelines, but doctors, caught in the middle, have little hope of giving advice that would guarantee a healthy heart, a lean body, and general well-being. Just look at the number currently losing the over-weight battle – many being victims of junk-food formulation tactics.

Dietary fat is involved but details are almost unreadable on tiny food labels, while induced fear of fat is everywhere. There are milk and dairy products with high fat, low fat or practically no fat. There are animal fats and vegetable fats, good oils and bad oils, butter versus margarine. It's hard to choose confidently. I'll be making the case for coconut oil being able to cut through as a standout performer, and in the process I hope to reduce present confusion about dietary fats.

Many advisors dismiss coconut oil in spite of its high traditional standing in the tropics. They are affected by the fierce competition for market-share between different edible fats. This competition has caused an aversion to dietary fat in general, while a significant intake of fat is essential.

Let's see what's behind this growing fat problem.

Two hundred years ago many folk in The West had a semi-subsistence way of life. Diets were rich in animal fat, both meat and dairy. But the industrial revolution drew millions into large cities, where candle and soap making competed for fat, so animal fats in the diet became scarce. The gap was filled with vegetable oils, from oil seeds, particularly cotton-seed, sunflower, soy, and then coconut, at a high price. In the early 20^{th} century coconut oil, being solid and convenient to use in a cool environment, became very popular. Throughout the colonized tropics huge investments were made in coconut plantations to meet the growing demand from Europe, the Americas and Australia.

Coincidentally, the early twentieth century saw very little heart disease or obesity, while epidemics of both these conditions are serious now. It is crucial to discover why. Diets lately have evolved from high fat to low fat, and from low carb to high carb. The newish low fat and high carb diet is promoted fiercely by marketers following the simplistic notion that eating fat always makes one fat. And the emphasis on low fat particularly mentions low *saturated* fat. So, what exactly is the problem with saturated fat? I have explored this, as coconut oil is rich in saturated fat.

During World War 2, the supply of then very popular coconut oil was cut off. This triggered a rapid expansion of non-traditional soy oil, especially in the USA. Later the soy industry set about protecting its newly gained market-share against renewed coconut oil imports.

Dietary trials were conducted. Laboratory rats fed coconut oil, a saturated fat, became sickly, with higher total cholesterol than rats fed soy oil, an unsaturated fat. This result created alarm, as high cholesterol in humans had been linked to heart disease. The trial with coconut oil appeared to confirm a suspected link between saturated fat and rising cholesterol, so the die was cast. Coconut oil was declared "an artery-clogging tropical oil". More about this trial later.

The US Food and Drug Administration concluded that saturation was the danger and recommended against coconut, and for good measure, all animal fats. That position remains unchanged both there and in Australia. However, the scientific basis for the FDA position has been persistently challenged by the lipid chemist Mary Enig of the University of Maryland and in recent years by a plethora of published science. Professor Enig's book "Know Your Fats" explains that every edible fat contains a cocktail of fatty acids, saturated and unsaturated. We need a brief look at the chemistry to help understand these differences.

A fatty acid molecule is like a chain of spherical beads. Each bead represents a carbon atom and when each has two hydrogen wings linked to it the chain is straight and called saturated. Carbon neighbours with one hydrogen missing have two vacant links that are bonded together so those carbons are double bonded. A kink forms there

in the carbon chain, that is now called unsaturated. A molecule with one such kink is mono-unsaturated, while multiple kinks indicate polyunsaturated. Saturated molecules when cool, form a solid fat. The unsaturated chains on the other hand form runny oils. When such oils are hydrogenated, a process which restores the missing hydrogen, this removes the double bonds, straightening the kinks. The resulting solid fat is margarine. This false fat was invented to compete with the naturally firm saturated fats, mainly butter and coconut oil. Unfortunately hydrogenation can produce trans molecules with toxic side-effects. Happily Australian margarine is not hydrogenated.

In the food market, unsaturated fats were embraced by processors, marketers and diet advisors. The logic was to lower heart risk by reducing consumption of natural saturated fats. But among fats size really does matter!

The size varies as the number of carbon atoms in the chain ranges from four to twenty four. Most animal and oil seed fats are large, with sixteen and eighteen carbon atoms. Coconut oil has mostly shorter fatty acids, with eight ten and twelve carbon atoms. These form natural small fats which show many very distinct favourable health effects, evidently related to their biochemistry. For example: they alleviate type 2 diabetes in laboratory animals; they relieve digestive system ailments; they have a potent antibiotic action against most pathogens, both internal and external; and many case histories of alleviation of dementia symptoms have been reported.

Regarding health policy, the US Food and Drug Administration urges limiting to 30% the dietary energy from all fats, with no more than one third to be saturated. Tragically some success with promotion of that low fat policy has not halted the obesity epidemic – quite the reverse. This counter-intuitive outcome involves the liver, which which fabricates fat for storage from surplus carbohydrate. Those gaining excess weight are over-compensating for the fat energy given up, by consuming excess carbohydrate.

As well as the over-weight epidemic, the other great public health issue of heart disease remains a major threat, again in spite of the lower intake of saturated fat. How is it that the National Heart Foundation of Australia continues to support a low fat diet with special mention against all saturated fats when heart disease abounds and obesity is rising? It must urge research into other possible causes. How is it that the National Heart Foundation maintains its stand against the small fats of coconut oil in spite of its rising popularity among health-conscious consumers.

The Foundation evidently attaches no importance to the staple food status of coconut in healthy traditional diets. And why has it failed to notice the serious flaws in the early laboratory trials comparing coconut and soy oils. Not only was the coconut oil compared to soy oil hydrogenated, destroying the 8% fraction of unsaturated fat it actually contains, but its lack of an omega 3 component was overlooked. The rats fed coconut oil were deficient in omega 3 while the soy rats were not. What if the

essentials had been added, just as they are in traditional coconut-consuming societies where fish and chicken are common fare?

Heart disease is linked to many risk factors including high cholesterol. But cholesterol is important for its First Aid role in the circulatory system. An inflamed artery wall, due to high blood pressure, diabetes, stress, smoking, or other factors, is patched up by cholesterol. Unfortunately, a surplus of cholesterol, leads to excessive patching forming blockages.

Cholesterol is essential in the body with its concentration in the bloodstream controlled by two entities. These counteractive lipo-proteins are LDL, protecting and sustaining the concentration of cholesterol, and HDL, mopping up excess for elimination. A blood test shows numerical values for the cholesterol associated with each. If the ratio of HDL to LDL cholesterol is sufficiently high, the risk of cholesterol damage remains low.

Now, here is the really good news about coconut oil, rich in small, saturated fats. A 2010 review of dietery fat and heart risk by Harvard scientists appeared in the prestigious journal Lipids. It concluded that lauric acid, (incidentally dominant in coconut fat), generates significantly more HDL than LDL. It seems that HDL rules, for coconut. At last we have an indication why the traditional coconut diet in tropical countries has never been directly linked to heart disease.

Apart from producing healthy oil, the coconut crop itself provides great benefits to the environment and peoples of the coastal tropical world. It is an ideal companion crop to food gardens, and cash crops like cocoa, corn, kava and pasture. And it is resilient against cyclones and sea surge, protecting coastal land.

In concluding, I reiterate that the small fats of coconut are distinct among saturated fats and remarkably beneficial. Our diet guardians must surely reassess the evidence and acknowledge this distinction. There are two positive outcomes to expect from consuming more coconut oil. We gain a great health benefit; and many thousands of impoverished small-holder coconut producers gain a boost to their livelihood.

Mike Foale – 17th April 2013

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