

The Coconut Oil Debate

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The coagulated, translucent, and grainy-yet- smooth texture thankfully welcomed me with a fragrance that sent me to a white sand beach, with a golden tan, and a piña colada in my hand. I was told that this would work, get the job done, and “keep it off;” my weight that is. A friend, after all, reported to me that it regulated her thyroid after just 6 months, and that the miracle benefits of the tablespoon I was about to love and despise in one bite would change my life. It was imperative that the coconut oil be organic, extra virgin, and cold pressed. With blind faith, I decided to take on the task day after day, after every other day, and then every once in awhile. I wasn’t the best test subject. My discipline, or lack thereof, was short on commitment to see any positive

weight loss results. Since then, I seem to hear more about the health benefits of the very saturated fat I was raised to fear and avoid at all costs. By looks alone, one could assume that this room temperature hardened fat was not good for anyone to consume. That is, until now. Can this saturated fat, whose by cultural definition is critically taboo, actually be healthy for you?

The purpose of this paper is to understand the makeup, origins, and controversies surrounding the saturated fat, coconut oil. Coconut oil is dispelled as both a modern day miracle by some, and a saturated disease promoting fat by others. This paper looks at some possible reasons why coconut oil may be polarized and, perhaps, misinterpreted in the medical community; while airing caution and respect to the significant research done on behalf of saturated fats. The ample and confusing body of study surrounding such extreme claims creates a relevant reason to examine the debate. In an attempt to decipher the perplexing arguments around this tropical oil, I looked at different studies, claims, reports, and research by a spectrum of

supposed experts in the form of PhD's, MD's, nutritionists, and alternative health practitioners.

What is coconut oil?

What is coconut oil? Coconut oil is made from extracting the oil from the meat of the coconut. A few processes can be utilized to return different coconut oil products. Coconut oil in its purest form is called virgin coconut oil (VCO). This is often cold pressed by hand or machine, and minimally heated so that the structure and integrity of the fatty acids are not altered. The process creates an unrefined saturated oil that is extracted directly from the fresh coconut meat without the use of high heat and chemicals.¹ The meat can be quick dried or wet milled. To this day, this process is utilized traditionally amongst cultures where coconuts are grown indigenously and for manufacture looking to create the highest quality coconut oil.² Today's health conscious food consumers and tropical

¹ John Cretney & Adimaimalaga Tafuna'i, "Tradition, Trade, Technology: Virgin Coconut Oil." *Chains of Fortune: Linking Women Producers and workers with global markets*. Commonwealth Secretariat, UK, (2004) pg 45-73

² Asian and Pacific Coconut Communities. APCC Standards for Virgin Coconut Oil. (2003) <http://www.apccsec.org/standards.htm>. & John Cretney & Adimaimalaga Tafuna'i, "Tradition, Trade, Technology: Virgin Coconut Oil." *Chains of Fortune: Linking Women Producers and workers with global markets*. Commonwealth Secretariat, UK, (2004) pg 45-73

native alike seek out VCO for both cooking and medicinal purposes.

The other form of processing that is more conventional and used in commercial grade food and cosmetics is referred to as RBD. RBD stands for the refined, bleached and deodorized oil extracted from the *copra*. *Copra*, the dried coconut meat, is produced by high-heating the meat in kilns, smoke-drying, or sun-drying. This process often invites mould and insects, and creates a yellow-brown oil extract called *copra* oil. It is not suitable for human consumption until the RBD process takes place.³ RBD and VCO have the same melting point at 76 degrees Fahrenheit, unlike hydrogenated coconut oil, which has a melting point of 96-104 degrees Fahrenheit.

Hydrogenated coconut oil is another product in processing chain. Although coconut oil is 92% saturated (6% mono-unsaturated and 2% poly-unsaturated), RBD is often hydrogenated further for processed foods manufacturers who require the greatest stability for the shelf life of their food products due to its higher melting point.⁴ It stays solid under higher heat and tends to prolong potential rancidity. However, according to *Environmental Nutrition*, "that

³ John Cretney & Adimaimalaga Tafuna'i, "Tradition, Trade, Technology: Virgin Coconut Oil." *Chains of Fortune: Linking Women Producers and workers with global markets*. Commonwealth Secretariat, UK, (2004) pg 45-73

⁴ http://www.coconutdiet.com/what_is_virgin_coconut_oil.htm

means it surely contains trans fats, trans fats are artificially created by bombarding unsaturated fatty acids with hydrogen. Trans-fats raise your bad (LDL) cholesterol levels and lower your good (HDL) cholesterol levels. Eating trans fats increases risk of developing heart disease and stroke.⁶

Coconut oil is unique for a few reasons. Coconut oil is one of the few plant-based sources of saturated fat. On packaged labels, it is claimed to have “100% less cholesterol than butter.”⁷ Coconut oil is the highest natural source of lauric acid, a medium chain fatty acid that is directly used in the body to produce energy. Unlike most long chain fatty acids, they are absorbed in tact in the small intestines. VCO is also known to contain poly-phenolic antioxidants.⁸ As a result of the abundance of lauric acid in coconut oil, claims have been made that coconut oil may exert antiviral, antimicrobial, and antibacterial effects as well.⁹ Coconut oil, therefore, is a confusing

saturated fat to investigate due to its different forms of oil produced, along with its touted benefits and declared harms.

According to the USDA the daily recommended intake of saturated fats (in which they list coconut oil) should be minimized and are not recommended in the daily diet because of researched adverse effect in raising cholesterol and clogging arteries.¹⁰ The American Heart Association recommends “limiting the amount of saturated fats you eat to less than 7 percent of total daily calories.”¹¹ This includes coconut oil.

In the body, “Dietary fats are essential for energy and to support cell growth. They also help protect your organs and help keep your body warm. Fats help your body absorb some nutrients and produce important hormones, too.”¹² While, essential fatty acids help maintain a properly functioning immune system, they have approximately twice the calories of carbohydrates and proteins (4kcal/gram in carbohydrate/protein compared to 9kcal/gram) and if consumed in excess, especially in the form of saturated or trans

⁵ Sharon Palmer, R.D. “Ask EN Coconut Oil Confuses: Is It an Artery Clogger or an Artery Cleanser?” *Environmental Nutrition* Apr2008, Vol. 31 Issue 4, pg7-71. <http://www.environmentalnutrition.com/>

⁶ American Heart Association, “Trans Fats,” http://www.americanheart.org/presenter.jhtml?identifier=3045792#def_trans_fat (2010)

⁷ *ibid.* Nutiva brand coconut oil. <http://www.nutiva.com/products.php>

⁸ WADL Amarasiri, & AS Dissanayake, “Coconut Fats,” *The Ceylon Medical Journal*, Volume 51, No. 2, (2006), <http://www.sljol.info/index.php/CMJ>

⁹ Shari Lieberman et al. “A Review of Monolaurin and Lauric Acid, Natural Virucidal and Bactericidal Agents,” *Alternative & Complementary Therapies* (2006).

¹⁰United States Department of Agriculture, Nat. Agricultural Library, “Dietary Reference Intakes: Macronutrients,” http://fnic.nal.usda.gov/nal_display/index.php?info_center=4&tax_level=3&tax_subject=256&topic_id=1342&level3_id=5140

¹¹ American Heart Association, “Saturated Fats,” http://www.americanheart.org/presenter.jhtml?identifier=3045790#foods_sat_fat

¹² American Heart Association, “Fats 101,” <http://www.americanheart.org/presenter.jhtml?identifier=3045789>

ats, research reports it can increase your blood cholesterol levels and risk of coronary heart disease.¹³ Additionally, because fats are so high in calories, they can also lead to weight gain and obesity if not moderately consumed.

Although the body, in fact, requires essential fatty acids, it appears that not all fats are not created equal. Fats are different and have harmful and beneficial effects on health depending on the type. For example, virtually all medical and health practitioners understand that trans-fats are critically harmful to the body and heart health. Yet, monounsaturated fats, like olive oil, and omega -3 fats, like fish oil, are deemed heart healthy in moderation. Hence the paradox and much marketed battle of “good fat” vs. “bad fat” begins. But what does this mean and how does it relate to coconut oil? VCO appears to fall right in the controversial center of good and bad.

Coconut Oil: Background

Coconut oil is classified as a tropical oil. It is native to tropical regions like South and Central America, Africa, Asia, The Philippines, Malaysia, Thailand, and parts of India. For populations in such tropical

regions, coconut oil is often a staple commodity. Exceptions exist where palm oil may be more present or where western imported edible oils like vegetable, corn, and soy oil have become introduced into indigenous diets as a result of modern globalization. Coconut fat is found not only in its extracted oil form, but also within the butter, cream, and milk of the coconut; and its most raw state, the coconut meat. Among these populations, these varied dietary uses have long made coconut a nutrient rich part of these indigenous diets. In these populations, coconut oil also is known to serve as a functional food. A functional food means that in addition to its it nutritional value, in has been observed to “enhance normal physiological or cognitive functions, or prevent abnormal function that underlies disease.”¹⁴ In India coconut has been used in Ayurvedic medicine. In Panama, people will drink the oil to overcome sickness, and in Jamaica, it is a heart healthy part of the diet.¹⁵ The notion that coconut oil could assist the heart is contrary to almost all western science since coconut oil is a part of the saturated fat groups that have been linked to coronary heart disease. However, it appears that some groups of people who use

¹³ Mayo Clinic staff, “Healthy diet: End the guesswork with these nutrition guidelines,” MayoClinic.com <http://www.mayoclinic.com/health/healthy-diet/nu00200>

¹⁴ Benjamin Caballero., Lindsay Allen, Andrew Prentice, *Encyclopedia of Human Nutrition*. (UK: Academic press, Elsevier Ltd, 2005), 361.

¹⁵ Bruce Fife, *Coconut Oil Miracle* (NY: Penguin Group 2004). 6-7

are often as a staple, like those in Polynesia, have proven to be healthy populations.¹⁶

The oil controversy

The debate whether coconut oil is good, bad, a miracle remedy, or a death sentence is a dialogue that is currently played out over the blogo-sphere, health, and medical communities, and one that has been controversial for decades. As mentioned, the USDA takes a position that coconut oil is harmful. It is also a view taken by the American Heart Association (AHA), and even by popular and more progressive physicians like Dr. Andrew Weil and Dr. Mehmet Oz.¹⁷

Dr. Andrew Weil, a U.S. alternative health guru, reported coconut oil can “raise cholesterol levels and therefore should play only a very limited role...I do not recommend using it.”¹⁸ Dr. Oz, posted a highly visible article that was published online titled, “Don’t Monkey around with Coconut Oil.”¹⁹ In referring to a study

¹⁶ IA Prior et al., “Cholesterol, coconuts, and diet on Polynesian atolls: a natural experiment: the Pukapuka and Tokelau island studies,” *American Journal of Clinical Nutrition*, Vol 34, 1552-1561, 1981

¹⁷ Dr. Oz and Dr. Weil are two of the nations most progressively clinical popular physicians. Their public opinion has not only cultural capital but respected by the greater medical community. Their typically progressives slant only adds to the debate and confusion.

¹⁸ Andrew Weil MD, (2010) “Topic: Dr. Weil Answers Questions,” footnote <http://www.drweil.com/drw/ecs/forums/thread.html?docid=THR52732&contribid=294398&catid=582>

¹⁹ Mehmet Oz, MD., (2008) “You: Don’t Monkey with Coconut Oil,” *OregonLive.com*,

carried out at the University of South Carolina, which compared rats fed hydrogenated coconut oil and soybean oil, he claimed coconut oil can cause dementia in humans.²⁰ For the most part, coconut oil is classified within popular and conventional health circles as a saturated fat on the taboo list.

Medical claims, recommendations, and guidelines about fat intake and health have been upheld by the American medical communities for decades. This position can be traced back to one of the first major case studies in 1956 when Dr. Ancel Keys reported the correlation between coronary heart disease and diet. Funded in part by the American Heart Association (AHA), this research set the foundation for critical science that has since played a major role in the explanation and reasoning why saturated fat should be avoided, and set the precedence for related research since. Additionally, Keys findings and conclusion helped shape the first AHA dietary guidelines in 1961, setting the official medical tone for the conservative role fats should play in the American diet to this day.²¹ Keys reported,

http://www.oregonlive.com/health/index.ssf/2008/11/you_dont_monkey_with_coco.html

²⁰ Ann-Charlotte Granholm et al., (2008) “Effects of a Saturated Fat and High Cholesterol Diet on Memory and Hippocampal Morphology in the Middle-Aged Rat” *J Alzheimers Dis.* 2008,14(2): 133–145.

Ann-Charlotte Granholm,*, Heather A. Bimonte-Nelson, Alfred B. Moorea, Matthew

²¹ American Heart Association Report, (1961), *The Journal of Nutrition*, <http://jn.nutrition.org/cgi/content/full/128/2/449S/T2>

practical conclusion from the present evidence might be to propose for American adults a sharp reduction in the total dietary fat from their current average intake in which fats account for some 40 per cent or more of the total dietary calories. In this dietary adjustment, emphasis might be placed on reducing the consumption of margarine, hydrogenated shortenings, butterfat, and meat fats.²²

Since this report, more conclusive studies have verified the harmful role of saturated fats in diet. However, it is important to recognize that this report that laid the foundation for heart health and dietary intake of fats did not include tropical oils in the fats to be avoided.²³ But because coconut oil is a saturated fat, it became a part of the classification of bad fats to this day.²⁴ As a result, The American medical and health community rendered coconut oil harmful in the human diet. By default, all types of coconut oil have since been lumped

²² Ancel Keys, (1956) "Diet and Development of Coronary Heart Disease," J. Chron Dis. 4 (4) 364-380.

²³ Teya Skae, "The Great Fat Debate." *Nova Magazine*, (2007), <http://www.novamagazine.com.au/articles2007.htm>

²⁴ American Heart Association <http://www.americanheart.org/presenter.jhtml?identifier=4582>

with tropical oils within the heart unhealthy saturated bracket. Today, this raises controversial issues and questions amongst researchers, dieticians, and alternative health experts who proclaim that coconut oil, specifically VCO, does not belong in the saturated fat family of "bad fats," but rather should be promoted for the opposite effects it has as a healthy alternative "good fat."

But how does this make sense, especially in lieu of credibly backed science? It appears that researchers argue that much of the confusion rests in studies conducted with the wrong types of coconut oil. That is, the methods used often include hydrogenated coconut oils, or *copra* oil, as opposed to VCO, which often shows positive or neutral results when reviewed.²⁵ Such studies that use hydrogenated oil may rightfully point blame on coconut oil for raising LDL (bad cholesterol levels) and lowering the good, HDL, because of the hydrogenated form of the coconut oil used, as reports show hydrogenated oil causes heart disease.²⁶ This discussion clearly raises questions in regards to the quality of the coconut oil used in research and the outcome of such studies.

²⁵ PD Kumar, The role of coconut and coconut oil in coronary heart disease in Kerala, south India. <http://td.rsmjournals.com> (1997) Oct;27(4):215-7. & K.G Nevin, T. Rajamohan, "Beneficial effects of virgin coconut oil on lipid parameters and in vitro LDL oxidation," The Canadian Society of Clinical Chemists. (2004)

²⁶ American Heart Association, "Fat Recommendations," <http://www.americanheart.org/presenter.jhtml?identifier=4582>

Guilty by Association?

For proponents of VCO who claim the unique properties of saturated VCO more helpful than harmful, the debate reaches further back beyond the science as well. In 1988 congressional hearings were conducted on the health implications of tropical oils. Dr George Blackburn, a Harvard Medical School researcher who studied the effects of fats and cholesterol, including coconut oil, testified, “Coconut oil has a neutral effect on blood cholesterol, even in situations where coconut oil is the sole source of fat.”²⁷ Dr, David Klurfeld, chairman of the Department of Nutrition and Food Science at Wayne University said,

The countries with the highest palm oil [a long chain saturated fatty acid] intakes in the world are Costa Rica and Malaysia. Their heart increase rates and serum cholesterol level are much lower than in western nations. This [tropical oil scare] never was a real health issue.²⁸

²⁷ Bruce Fife, *Coconut Oil Miracle* (NY: Penguin Group 2004). pg 12-13. & Blackburn et al., A re-evaluation of coconut oil's effect on serum cholesterol and atherogenesis. *The Journal of the Philippine Medical Association* 65:144-152, (1989).

²⁸ Ibid. Note: it appears research that Dr. Klurfeld could be citing the following studies: Marzuld A, Arshad F, Razak TA, Jaarim K. Influence of dietary fat on plasma lipid profiles of Malaysian adolescents & Am J Clin Nutr 1991; 53:1010S-1014S. & Ng TKW, Hassan K, Lim IB, Lye MS, Ishak R. Nonhypercholesterolemic effects of a palm-oil diet

These testimonies clearly challenge and create more questions around the notion that saturated fat, especially coconut oil, should be avoided. As mentioned, whole societies have eaten VCO in their daily lives as their staple commodity with no observable harm, and no signs of coronary heart disease.²⁹ Dr Mary Enig, a leading proponent for the possible benefits of VCO, is an expert in the field of lipid biochemistry.³⁰ She has explained that studies with coconut oil often get negative results because fully hydrogenated oil is often instead of RBD or VCO.³¹ In fact, the study Dr. Oz. referred to in his article used hydrogenated coconut oil. In response to his statements mentioned earlier, Dr. Enig said,

Researchers began using fully hydrogenated coconut oil to study the effects of essential fatty acid deficiency—they used coconut oil because it is the only fat that can be fully hydrogenated and still be soft enough for rats to

in Malaysian volunteers. *Am J Clin Nutr* 1991; 53:1015S-1020S)

²⁹ IA Prior et al., “Cholesterol, coconuts, and diet on Polynesian atolls: a natural experiment: the Pukapuka and Tokelau island studies” *American Journal of Clinical Nutrition*, Vol 34, 1552-1561, (1981)

³⁰ It is relevant to not Mary Enig’s affiliation with Weston Price and wise Traditions. These are schools of thoughts that research the possible *positive* effects of saturated fat.

³¹ Mary Enig, “In the Land of Oz: The Latest Attack on Coconut Oil,” (2009) Weston A. Price Foundation Online. <http://www.westonaprice.org/In-the-Land-of-Oz-The-Latest-Attack-on-Coconut-Oil.html>

results obtained in these studies—such as the mental impairment cited by Oz—are due to essential fatty acid (EFA) deficiency and not the fault of the saturated fats in coconut oil. It is extremely deceitful for commentators to blame coconut oil in studies such as these—as they often do.³²

Although Dr. Enig is a critic of the anti-saturated theory, she does point out the value of the type of coconut oil used in research, making a case that not all coconut oils are alike.

That said, in 2004, a clinical trial was conducted in India titled, “Beneficial effects of virgin coconut oil on lipid parameters and in vitro LDL oxidation.” The primary objective was to determine the influence of VCO versus *copra* extracted coconut oil. The authors reported, “The results demonstrated the potential effect of virgin coconut oil in lowering lipid level in serums and tissues and LDL oxidation by physiological oxidants.”³³ This report seems to completely contradict conventional studies on coconut oils and their effects on serum cholesterol. Could it be the difference in

quality of the oils? Bruce Fife, C.N.C., author of *The Coconut Oil Miracle* and researcher of VCO, thinks so. He reasons that medium-chain fatty acids are broken down and used mainly for energy and seldom end up as body fat or deposits in the arteries, and do not affect blood cholesterol levels.³⁴ In fact, there has been an ample amount of research on this effect of coconut oil.³⁵ But because it is a saturated fat, one of the highest no less, it is within reason to understand why the jury is still out in our American society when it comes to accepting VCO, at the very least, a less harmful saturated fat.

Search the internet for coconut oil, and a web of miracles will unfold. The coconut oil claim to fame seems to include benefits to weight loss, Alzheimer disease, cancer, antimicrobial benefits, and of course lowering bad cholesterol and raising the good, to name a few. Perhaps whether or not it is neutral or beneficial will not be fully understood until studies that showed the ill effect of coconut oil, where hydrogenated and *copra* coconut oil are used, are repeated and re-verified using VCO.

Coconut oil has historically been lumped into a “bad” saturated fat category that early science may not have intended to

³² Ibid.

³³ K.G Nevin, T. Rajamohan, “Beneficial effects of virgin coconut oil on lipid parameters and in vitro LDL oxidation,” The Canadian Society of Clinical Chemists. (2004)

³⁴ Bruce Fife, *Coconut Oil Miracle* (NY: Penguin Group 2004). pg 24

³⁵ See attached appendix.

include, or did, without significant understanding like we have today. This groundwork only adds to the perplexing scientific debate. While it is clear that not all fats are created equal, it seems that coconut oil itself is not processed equally, and as a result, may have adverse and different outcomes in studies reported.

As for my friend and her thyroid, the Mayo Clinic insists “there is no evidence that coconut oil stimulates thyroid function. In fact, some research suggests that coconut oil may have a negative impact on the thyroid.”³⁶ Whether the clinical results that her thyroid had completely regulated to normal was due to the VCO she took every day for six months, a placebo affect, or something in my friend’s lifestyle that, unknowingly, accounted for the change, will be hard, if not impossible, to discern.

What we do know is that coconut oil is a highly controversial topic of debate within health and medical communities. Virgin coconut oil seems to borderline a nutrient rich functional food and fat with implication that have serious cause for concern. In the meantime, credible research is being conducted to untangle the confusion brought on by both pedestrian claims, like the cure for thyroid conditions; and more

³⁶ Todd B. Nippoldt, “Is it really true that coconut oil can cure hypothyroidism?” *MayoClinic.com*, <http://www.mayoclinic.com/health/coconut-oil-thyroid/AN01367> (date unknown)

relevant discoveries, like the effects of different types of coconut oil on clinical trial outcomes.

As for my experience, I wavered back and forth on the possible benefits of coconut oil during this research. At times, I clearly decided it may in fact do serious harm to my health, yet I also had moments of understanding where I was convinced otherwise. Ultimately, I think I have landed somewhere in the middle, if not neutral, and still unsure. That said, when it comes to the coconut oil debate, true to its form, I am personally left optimistically uncertain and cautiously optimistic.

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