Palm Oil: Nutrition and Health Benefits, Revisited.

Introduction

Palm oil, a fruit-oil, since over 5,000 years has been used in food preparations. Today it is consumed worldwide as a cooking oil, margarine and shortening. It is also used as an ingredient in many fat blends and in a vast array of food products. Nature has been generous in endowing palm oil with a balanced fat composition, between its saturated and unsaturated fatty acids. Even while nature programmed such higher level of saturates in the oil, it also optimized its saturated fat content be in the form of palmitic acid (C16:0), the same saturated fatty acid that is most abundant and distributed throughout our body, in human breast milk and in most of nature’s creations. Food manufacturers choose palm oil because it has a distinctive quality, requires little or no hydrogenation, and lengthens the shelf life of products. These advantages are difficult to duplicate at the same cost with unsaturated oils, which often have higher market prices and require additional processing such as hydrogenation for the same characteristics.

Our modern daily diets often fall short of current perceptions of optimum nutrition. We dwell on highly processed foods enriched by sugary carbohydrates that are emerging as the real threat to human health and well-being. Under such an umbrella, palm oil functions to provide much needed calories for the needy billions around the world who may otherwise fall on borders of malnutrition. The palm oil calories are provided in a nutritionally safe and quality assured environment, that most do not even take a moment to reflect. Given this functional scenario, palm oil's overall rating could have been much higher among the nutrition gurus of this world. Unfortunately, the “fat-world” is overwhelmed by a predominance of opinions on how unhealthy saturated fats are and how saturates are implicated in a number of degenerative diseases. Over the past five decades, dietary recommendations have thus targeted lower levels of saturated fat intake in order to help reduce total and LDL-cholesterol, which is suggested or associated with increased coronary heart disease (CHD) risk. Such typical stereotyping aimed at discrediting palm oil was recently highlighted in the Singapore Straits Times (http://www.straitstimes.com/singapore/health/the-oily-truth) based on a publication from the National University of Singapore (NUS); (http://jn.nutrition.org/content/145/7/1549).

How much of this is real? To start, within this decade the science associating saturated fats and risk for heart disease has taken an about turn. Several major publications from leading biomedical research institutions have begun to displace more than 75 years of science that assumed a detrimental role for saturated fat consumption and CHD risk in the population. These studies used the “Meta-Analysis” concept, the same methodology as the NUS study, in bringing associated scientific evidence into a single analytical platform that allowed better conclusions to be drawn. Iconic research centers including Harvard and Cambridge universities were involved in many of these studies. Their painstaking research of most saturated fat data revealed that fats including saturated fats were generally benign towards risk for CHD. Because of these new findings, the most recent US Dietary Guidelines no longer place emphasis on total or saturated fats.
What about palm oil

The nutritional scientific data on palm oil today comes from more than 300 plus publications in animals, cell cultures and human dietary intervention studies. Of most relevant are the human studies and there are at least 41 of such studies. To be precise, these studies conducted by some of the leading biomedical research laboratories around the world have a spread of data relating to palm oil consumption and its effects on blood cholesterol and CHD risk. The NUS study is not the most authoritative “Meta-Analysis” study on palm oil. This distinction rests with an Italian group led by Prof. Elena Fattore. In their publication in the prestigious American Journal of Clinical Nutrition (AJCN), http://ajcn.nutrition.org/content/99/6/133, they carefully document all the relevant and qualifying palm oil human studies. They concluded that there is no worrisome disadvantage from the consumption of palm oil as far as effects on blood lipids and CHD risk were concerned. The NUS study came much after the Fattore AJCN study, had fewer studies in their dataset and many scientists agree that the NUS authors had cherry picked their arguments to make palm oil the bad fat.

Some positive highlights about palm oil:

- In several human studies liquid palm oil, the most common cooking oil used throughout Asia, was comparable to the much touted gold standard olive oil for its effects on blood cholesterol. For consumers, this is very promising, since the consumer has the right of choice to pay a hefty price for olive oil or get similar health benefits from the premium liquid palm oil (palm olein).

- The previous 1980s anti-palm oil campaign is now openly acknowledged as a commercial ploy by the competing oils against palm oil so that they could take advantage of the marketplace. The void left by palm oil was flooded by the use of partially hydrogenated oils and fats containing trans fatty acids, that were often touted to be far more heart healthy than the palm oil components that they so effectively replaced. This resulted in the rapid increase of trans fatty acids in our foods and recorded peak levels of consumption in North American and Europe. These trends were often fueled by health messages that sought to position polyunsaturated margarines and related fat formulations as the healthy alternative to saturated “tropical oils” despite higher content of trans fatty acids (TFA). Harvard researchers ascribed nearly 30,000 American cardiac related casualties to the trans-fat switch. In the end trans fats are being banned from our foods and the most suitable and sustainable replacement remains palm oil.

- In the 1990s, America became paranoid at the ever-increasing rate of heart disease in the US. The American Heart Association, made a bold recommendation to switch the US dietary fat composition through its AHA Step 1 recommendation. This prescribed equal distribution of saturates, monounsaturates and polyunsaturates. Having prescribed this, AHA failed to come up with a dietary fat to fit this profile, until a Malaysian research team led by Dr. Kalyana Sundram provided the solution through blended oils that incorporated at least 50% palm oil in its composition. This became a major hit in the US called “Smart Balance”. These findings further paved the way for more than one million tons of palm oil consumption annually in the USA, primarily as a trans-fat replacement.

- In humans, palm oil consumption is relatively neutral to blood total cholesterol and shown to increase the beneficial HDL-cholesterol. Indeed this was similarly highlighted in the NUS study. As a result, the ratio of LDL/HDL cholesterol is maintained or even improved, thereby not contributing to increased CHD risk. This was also the positive
basis of the US patents (No. 5843497 & 5874117) associated with Smart Balance and its palm oil content.

- Palm oil we consume is endowed with natural vitamin E, mainly the tocotrienols. Recently, a major human clinical trial has described the ability of palm tocotrienols to reduce stroke risk through its unique ability to reduce the expansion of white matter lesions (associated with increased stroke risk) in the human brain. http://stroke.ahajournals.org/content/45/5/1422

The Singapore Straits Times report as well as the NUS studies therefore do not do justice to the true palm oil nutritional knowledge and its benefits. Sometime last year, the Singapore Health Promotion Board made public its intentions to subsidize hawkers with palm olein blended with Canola oil. This they suggested would improve the health of Singaporean consumers who frequented hawker foods. There is no proven evidence this move will bring positive benefits to consumers in the Republic through reduced mortality from CHD. However, their move is somewhat contrary to rapidly emerging science that questions the hypothesized association of fat consumption and heart disease incidence.

We however have far more conclusive evidence from another food application perspective. Canola oil, due its higher content of n-3 linolenic acid is prone to rapid oxidation and polymerization when heated at high temperatures. For frying stability, nothing really beats palm oil / palm olein. There is emerging evidence that heated polyunsaturated oils could be far more dangerous to health than natural saturated fats. The heated polyunsaturated oils oxidize rapidly and when consumed regularly are more likely to influence adversely immune functions and possibly constitute higher risk through oxidized fatty acids, which may be carcinogenic as well. Given that most hawker food preparations are fried or foods prepared under high heat, the wisdom of the high polyunsaturated oil blend for hawker foods is yet to be seen.

Thus, a simple health message as portrayed by the Singapore Straits Times needs cautious interpretation against the mountain of evidence sustained through high quality research. Overall, there is no concrete evidence to suggest palm oil is injurious to health. Given the rapidly changing shift in our understanding of diet and its impact on disease risk, we are confident that palm oil will be proven wholesome and nutritious edible oil suitable for a large variety of applications and different culinary habits.

For additional information about palm oil nutrition see:
http://www.mpoc.org.my/What_You_Need_to_Know_About_Palm_Oil.aspx

Article Credit:

Dr. Kalyana Sundram,
Deputy Chief Executive Officer
Malaysian Palm Oil Council (MPOC).

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