Abstract

Several human clinical trials have now evaluated palm oil's effects on blood lipids and lipoproteins. This concept resulted from the classical saturated fat-lipid hypothesis and its role in lipoprotein regulation.

Introduction

Dietary fats (and fatty acids) are known to modulate plasma lipids and lipoproteins. This concept resulted from the classical saturated fat-lipid hypothesis and its role in lipoprotein regulation. Consequently, there has been a tremendous effort to educate the consumer about the effects of dietary cholesterol on plasma cholesterol besides the fatty acids.

Historical studies evaluating palm oil effects

One of the earliest clinical trials evaluating palm oil was pioneered by Arhens et al. (12) who fed 12 volunteers diets containing 35% saturated fat contributed by two parts stearic acid and one part palmitic acid. This earlier observation that stearic acid lacked a cholesterol raising effect.

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Mattson and Grundy (6) fed 20 male volunteers a liquid formula diet containing 40% calories from fat. Those on the high oleic safflower oil diet resulted in significantly lower TC and LDL-C levels than all the other test diets. Whereas milk fat resulted in significantly higher TC and LDL-C levels than the liquid formula diets.

In a follow-up study, Grundy and Vega (7) fed 11 patients liquid formula diets containing 40% fat, 11% cholesterol and 40% calories from fat. The high linoleic safflower oil diet resulted in significantly lower HDL-C values than the coconut oil diets and the habitual diets of these patients.

Bonahome and Grundy (8) evaluated the impact of palm oil, high oleic safflower oil and an intermediate oleic safflower oil on cholesterol and lipoprotein levels in humans. The stearic acid had a neutral impact on cholesterol and lipoprotein levels in humans.

Laine et al. (14) compared the effect of palm oil, corn oil, soybean oil and lightly hydrogenated soybean oil and lightly hydrogenated soybean oil and lightly hydrogenated soybean oil and lightly hydrogenated soybean oil and lightly hydrogenated soybean oil and lightly hydrogenated soybean oil. These studies are often cited as examples of the cholesterol raising properties of palm oil. These studies are often cited as examples of the cholesterol raising properties of palm oil. These studies are often cited as examples of the cholesterol raising properties of palm oil.
Palm oil versus polyunsaturated oils


Palm oil (16:0-rich) versus other saturates


Palm oil versus hydrogenated fats (trans fatty acids)

The higher TC and LDL-C induced by the LM diets are inconsistent with the values expected based on the lower cholesterol raising ability of 12:0 in relation to 16:0. The lower cholesterol raising ability of 12:0 in relation to 16:0 is however, less clearly defined.

These studies compared the effects of 12:0+14:0 occurring naturally in coconut oil and palm kernel oil with 16:0-rich palm olein. Plasma levels of cholesterol and the lipoproteins were not altered in this population.

Palm olein versus the monounsaturated oils

Marzuki et al. (15) using young volunteers evaluated the effect of consuming foods containing a 16:0-rich blend (16:0 contributed more than 50% of total fatty acids) compared to changes in the diet. IV I Jr. Lightly hydrogenated oil on serum lipids and lipoproteins of healthy volunteers. The effects of a palm olein diet on plasma lipids and lipoproteins in man. J Lipid Res 1985; 26: 194-202.

REFERENCES


