

# The Effects Of A Palm Oil Enriched Diet On Lipids and Lipoproteins In Healthy Young Men

Heber, D., J. M. Ashley, et al. (1992). "The effects of a palm-oil enriched diet on plasma lipids and lipoproteins in healthy young men." Nutr. Res. 12(Suppl 1): S53-S59.

**ABSTRACT:** In order to compare the effects of feeding a diet enriched in palm oil, coconut oil, or hydrogenated soybean oil on plasma lipids and lipoproteins in normocholesterolemic subjects, 13 healthy males ages 22 to 43 were randomized to receive a diet in which 35% of energy was derived from fat and in which 50% of the fat in the diet was derived from the test oil incorporated into muffins or cookies. Each diet was fed for three 3-week test periods to the same individuals with two week washouts between diets. There were no significant changes following three weeks of eating a palm oil-enriched diet in mean cholesterol, LDL cholesterol, apoprotein A or apoprotein B among 9 individuals who completed all three diet periods based on non-parametric statistical analysis. We conclude that palm oil enrichment of the diet in normal individuals does not lead to an increase in plasma cholesterol or LDL cholesterol when fed for a three week period in over twenty times the relative amounts usually found in the American diet. Studies in larger numbers of individuals over longer periods of time must be done to establish the effects of palm oil on cholesterol metabolism in humans.

# Study Design

- 13 weeks intervention - 3 dietary periods of 3 weeks, washout periods of 2-week
- During each 3 dietary periods, subjects given Muffins and Cookies either from
  - Palm Oil (PO),
  - Coconut Oil (CO) or
  - Hydrogenated Soybean Oil (HSO)
- Each muffin or 2 cookies provided
- 231 kcal, 3.5g protein, 23.7g carbohydrate, 13.7g fat

M P O C

# Calorie and Fat Intake on Test Diets

Diet	Calories*(kcal)		Fatty Acids (g)		
			Saturated	Monounsatur.	Polyunsatur.
PO	2386	256	36	31	13
HSO	2139	175	23	46	9
CO	2372	191	57	15	7

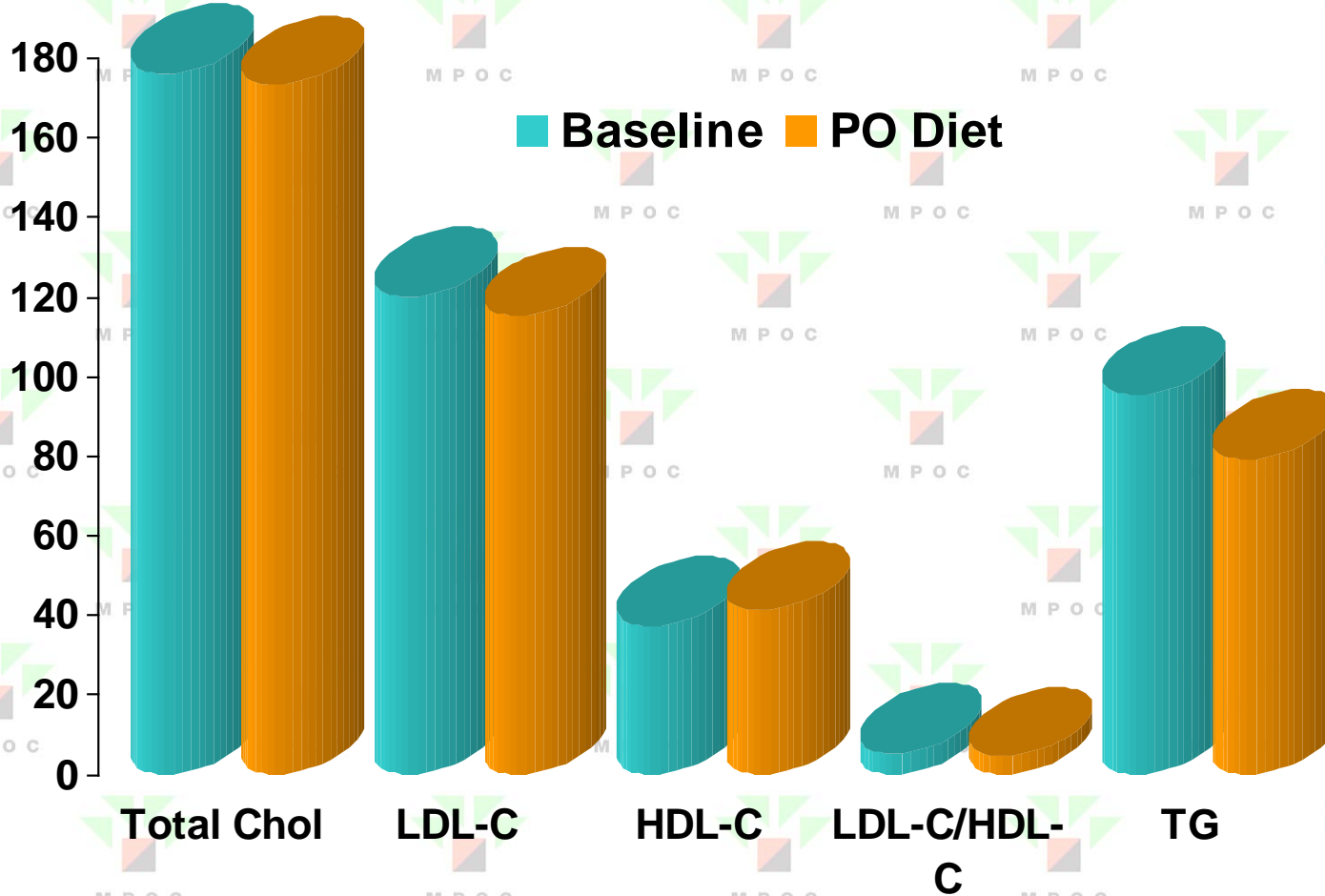
\* Mean SEM

M P O C

# Blood Lipid Changes with Palm Oil Diet

Increasing palm oil in habitual diet of 13 American adults by 20-fold

mg/dL

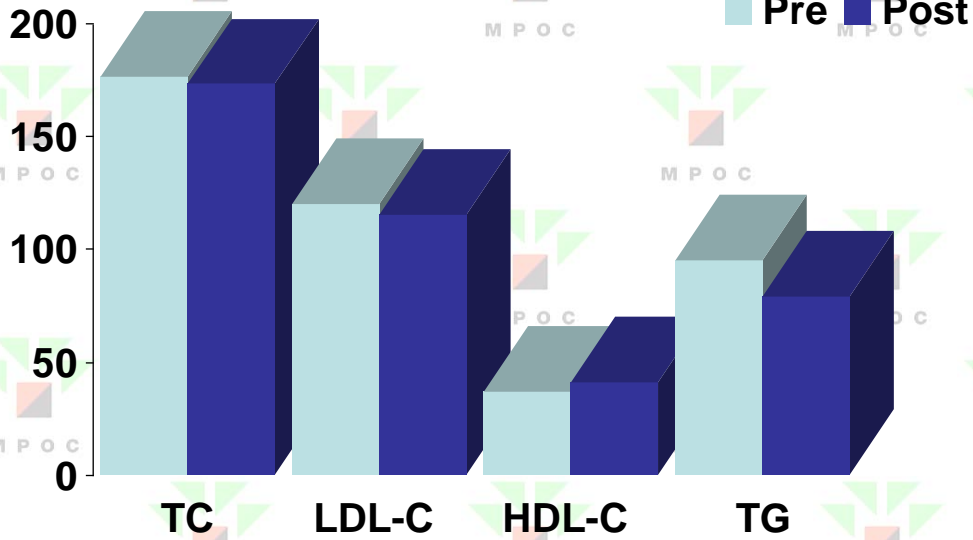


**No change in total Cholesterol and LDL-C but an INCREASE in HDL-C**

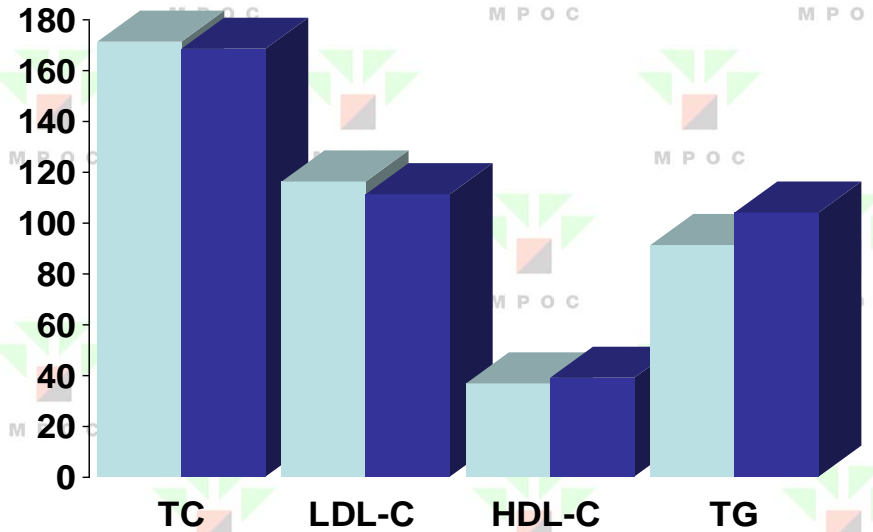
*Credit: Dr. K. Sundram, 2013*

# Lipid Changes with PO, CO and HSO Diets

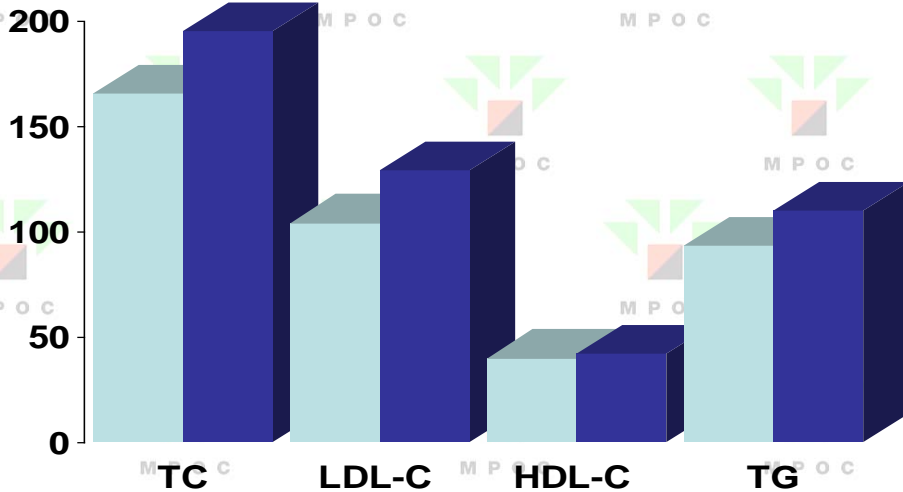
## PO Diet



## HSO Diet

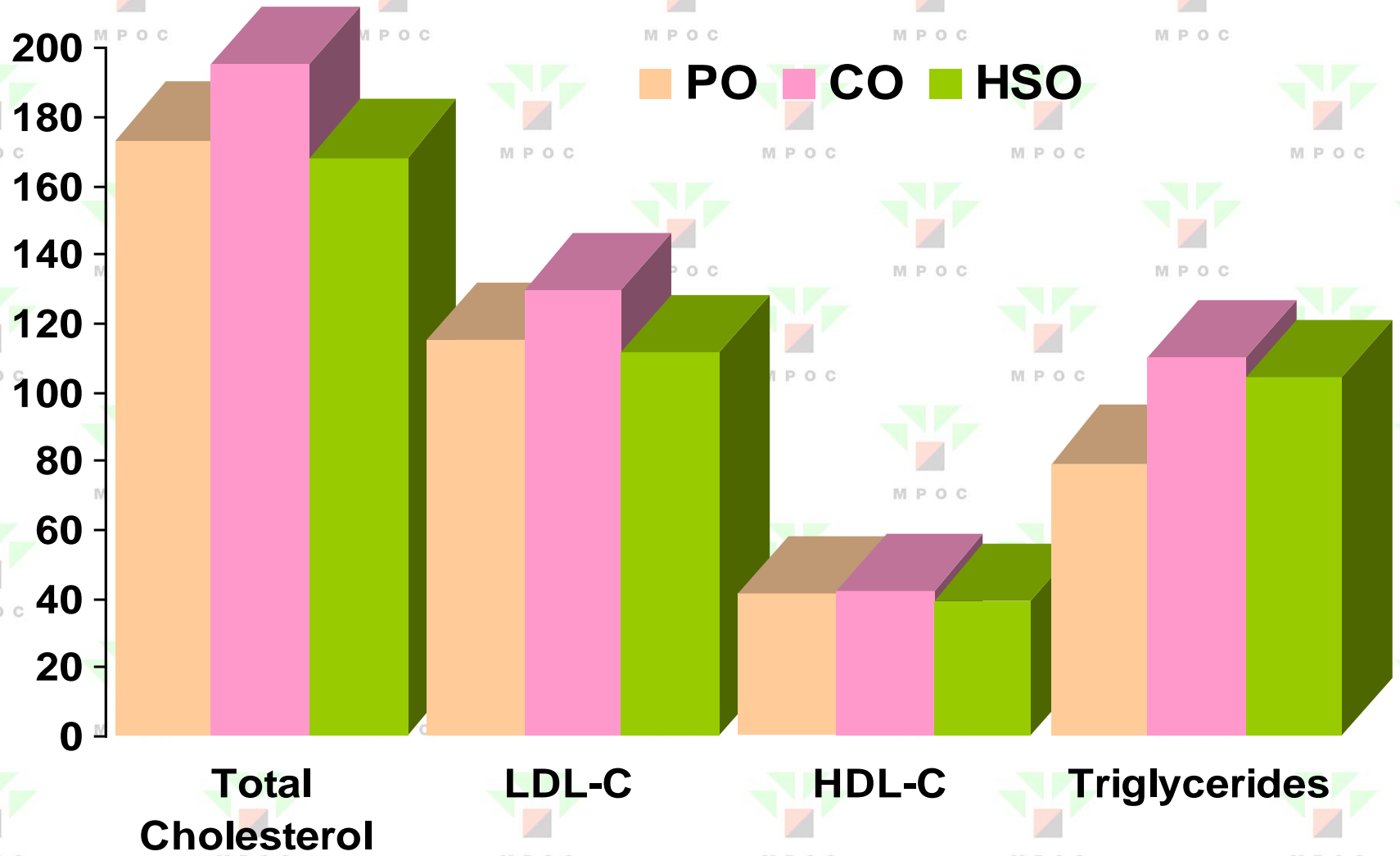


## CO Diet



**NO significant change in PO and HSO diet but LITTLE changes in CO diet**

# Comparison of Post-intervention Lipid Profile Changes



**CO resulted in the HIGHEST total cholesterol (TC) , LDL-C, HDL-C and triglycerides**

# Conclusion

Palm oil enrichment of the diet in normal American individuals does not lead to an increase in plasma or LDL cholesterol

M P O C