

Supplementation of coconut oil with soya oil to improve the serum lipid status - A study in the guinea pig

Blood lipids, especially cholesterol, vary in response to intake of dietary fat. It is important to maintain serum lipids, mostly cholesterol, within a favorable range, as it directly affects the development of coronary heart disease. This study investigates the effect of coconut oil, soya oil and their mixture (1:1) on serum lipid profile, at 5% and 15% (w/w) fat intake.

Two groups of male guinea pigs were fed ad lib with the diet containing either coconut oil or soya oil at 5% and 15% fat. Both groups were subsequently given a diet containing a 1:1 mixture of coconut oil and soya oil added to the feed at 15% by weight of diet. Test diets were fed for 1 month and blood was collected from the heart by cardiac puncture after a 14-h fast. Serum was analyzed for total cholesterol and triglycerides using the enzyme based Randox kit. There was a two - was a two - week adaptation period prior to changing to the next diet.

Dietary fat (n) n = number of animals	Serum Lipid Level (mg/dl) Mean \pm S.D	
	Total cholesterol	Triglycerides
Soya Oil Group		

5% Soya (10)	38.3±7.4 ^a	75.5±17.1 ^a
15% Soya (9)	57.0±14.5 ^b	106.9±31.3 ^b
15%Soya: Coconut Mixture (1.1)(8)	43.7±6.2 ^a	115.9±19.3 ^b
Coconut Oil Group		
5% Coconut (9)		
15%Coconut (10)	56.3±21.6 ^a	80.7±30.2 ^a
15% Soya: Coconut Mixture (1:1) (10)	92.6±14.2 ^b	104.0±19.7 ^b
	62.6±11.1 ^a	108.6±14.3 ^b

Values in the same column with different superscripts are significantly different (p,0.05) as determined by ANOVA and least significant difference test. The serum cholesterol concentration either coconut oil or soya oil at the 15% was significantly higher than those on oils at 5%. The higher serum cholesterol concentration due to the ingestion of coconut oil and a lower serum cholesterol concentration due to similar quantities of soya oil. These results reiterate the cholesterolgenic properties of coconut oil. However, a mixture of coconut oil: Soya oil (1:1), at the concentration fo 15% caused a significant decrease in the blood serum cholesterol concentration when compared to those produced either by 15% soya oil or 15% coconut oil containing diet. Serum triglycerides increased significantly when the total fat content of the diet increased from 5% to 15% with both oils. There was no marked difference in the mean serum triglyceride levels in the groups fed soya oil and coconut oil, at the same dietary fat level.