

EFFECT OF WHOLE MILK ON PLASMA
CHOLESTEROL IN HEALTHY MEN

D.C.K. ROBERTS, D.R. SULLIVAN, J. GORRIE, I. DARNTON-HILL and A.S. TRUSWELL

Howard and Marks (1979) reported that whole milk (2.2 l/day) did not raise the plasma cholesterol in healthy adults, as one would expect from its saturated fat and cholesterol content. Skimmed milk lowered the subjects' cholesterols and Howard and Marks suggested that there is a substance in the aqueous phase of milk which neutralises the cholesterol-elevating effect of cream. In their experiments the intake of other components in the diet was not controlled.

We attempted to confirm these results in a controlled 7-week experiment, with the first and last 2 weeks as control periods. In the middle 3 weeks (test period) the subjects took 1 l of whole milk or the equivalent amount of butter. There are several possible approaches to balancing the components of milk or butterfat in the control periods. In the butterfat experiment 38 g of butter (equivalent to the fat of 1 l of milk) was balanced for energy by a mixture of starchy foods (white bread, potatoes and rice). In the milk experiment the 38 g of fat was balanced in the same way, while the lactose and protein were balanced isoenergetically in the control periods by bread and rice, fish and chicken. The same basal diet of mixed foods was used throughout each study; control and test diets were isoenergetic. Thus the control diets contained 35 per cent energy as fat, 47 per cent as carbohydrate and 18 per cent as protein, and both test diets 50 per cent energy as fat, 32 per cent as carbohydrate and 18 per cent as protein. The subjects were normolipidaemic and ate all their weekday meals in our metabolic unit and were given take-home food packs for the week-ends.

Plasma cholesterol concentrations were measured on fasting blood samples taken on the last 3 days of first control, test and second control periods. Mean concentrations rose by 0.8 mM/l (31 mg/dl) on butterfat (n=5) and by 0.6 mM/l (23 mg/dl) on whole milk (n=12). All subjects showed a rise on both milk and butter. Although the mean rise on butter was slightly higher the difference was not statistically significant. We conclude that plasma cholesterol is raised by the fat content of 1 l of milk as much as it is by the equivalent amount of butter. Our negative results are consistent with two recent experiments of different design from Finland (Hussi et al. 1981) and South Africa (Roussouw et al. 1981).

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Human Nutrition Unit, Biochemistry Department, University of Sydney, NSW 2006

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