

Effects of olive oil and tomato lycopene combination on heart disease risk factors

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Background: There remains debate about the relative benefits of high monounsaturated fat diets or high carbohydrate diets in reducing the risk of coronary heart disease. Intake of lycopene from tomatoes and tomato products has been suggested as inversely related to the risk of coronary heart disease and some forms of cancer. However little is known about the effects of combination of olive oil and lycopene on the risk factors of heart disease.

Objective: To compare the effect of two diets (a monounsaturated fat enriched olive oil diet and high carbohydrate low olive oil diet), with controlled carotenoid content on serum lycopene, lipids and susceptibility of serum to *in vitro* oxidation.

Design: A randomised crossover dietary intervention study, in human subjects (20-70 years), of two dietary periods (olive oil enriched, and high carbohydrate low olive oil) of 10 days duration. Both the diets were matched for basic foods and were controlled for carotenoid content, which was high in lycopene.

Results: Both diets similarly increased serum lycopene levels. Serum high density lipoprotein cholesterol levels were higher; and triglycerides and low density lipoprotein to high density lipoprotein ratio were lower at the end of the high olive oil diet compared to the high carbohydrate low olive oil diet. No difference was seen in susceptibility of serum to *in vitro* oxidation between the two diets.

Conclusion: A high olive oil diet with high lycopene content may reduce the risk of coronary heart disease by increasing serum lycopene levels and improving serum lipid profile.

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