

302 Resveratrol and ethanol as mediators of changes in plasma lipids and lipoproteins

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Although alcohol consumption in France is less than in N. America, a higher proportion is consumed as red wine which contains phenolic plant constituents absent from white wine and other alcoholic beverages, and which have been shown in vitro to reduce lipid synthesis, LDL-oxidation, and platelet coagulation. The tri-hydroxy stilbene resveratrol is among the most potent of these compounds.

To test the hypothesis that resveratrol is, at least in part, an effector of 'The French Paradox', we enlisted cohorts of healthy white male volunteers aged 21-45. The first such cohort of 8 subjects completed the following schedule: abstinence (2 weeks); commercial grape juice low in resveratrol (4 weeks); the same juice fortified with resveratrol to a concentration of 4 ng/ml (4 weeks); abstinence (2 weeks); white wine low in resveratrol (4 weeks); and red wine with a resveratrol concentration of 4 ng/ml (4 weeks). Juice imbibed was 500 ml and wine 375 ml daily. At the beginning and end of each beverage regimen, the following assays were performed on plasma: TC, HDL-C, LDL-C, apolipoproteins A-I, A-II and B, Lp(a), and triglycerides. Neither grape juice formulation affected the above constituents. HDL-C was increased by white wine ($P = 0.07$, NS) and more so by red wine ($P < 0.01$). At the termination of the resveratrol-enriched grape juice protocol, apo A-I concentrations were significantly lower than upon entry ($P < 0.01$). After white wine, apo A-I concentrations were not significantly greater than upon entry ($P = 0.11$) but were higher than at the start of the white wine schedule ($P < 0.01$). Red wine raised apo A-I further ($P < 0.03$ vs entry and < 0.002 vs start of white wine schedule).

These data confirm the elevation of HDL-C and apo A-I concentrations known to result from moderate alcohol consumption and suggest that red wines are more potent than white. They failed to demonstrate a beneficial effect of grapejuice (with or without resveratrol).