

THE EFFECT OF α TOCOPHEROL AND OTHER DIETARY ANTIOXIDANTS ON
PLASMA HIGH DENSITY LIPOPROTEIN LEVELS

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A recent report has suggested that pharmacological doses of α tocopherol (Vitamin E) can elevate plasma levels of high density lipoprotein (HDL) in man, (Hermann 1979). This effect was attributed to Vitamin E's anti-oxidant properties rather than intrinsic vitamin effect. It occurred at a very high intake (20 x the RDA of Vitamin E) which had to be given as capsules.

Since HDL may confer protection from cardiovascular disease (Miller 1978) we investigated whether HDL might be elevated by tocopherol intakes (10 x the RDA) which could be achieved by diet alone. We also tested another dietary anti-oxidant, β -hydroxy toluene (BHT) which lacks vitamin activity.

Male Sprague Dawley rats (300g, Castle Hill suppliers) were separately caged. Control animals received Allied Feeds Rat Cubes containing α tocopherol 25mg/Kg and 125mg/Kg of BHT. The Vitamin E enriched group received 125mg/Kg (10 times the RDA) of α tocopherol and 125mg/Kg of BHT. The anti-oxidant enriched group received 25mg/Kg of Vitamin E and 225mg/Kg of BHT. All diets contained 34g cis-cis-polyunsaturated fatty acid/kg. After 3 weeks on diet the animals were exsanguinate under ether. Total and HDL cholesterol were extracted and quantified according to Zlatkis (1969). Plasma HDL were isolated in the supernatant after precipitation with heparin and .092 M manganese chloride (Albers *et al.* 1978). The precipitation technique was confirmed on pooled plasma by ultra-centrifugation and polyacrylamide gel electrophoresis.

The following results were obtained:

Diet	No.	Final Weight	Total Chol.	HDL Chol.
Vitamin E	5	364	104	69
Control	5	398	113	77
Antioxidant (BHT)	5	396	106	74

No significant differences between groups was detected. This rat model does not support the hypothesis that Vitamin E or dietary antioxidants can elevate HDL levels at intakes available by diet alone.

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