

ACUTE EFFECTS OF ALCOHOL ON ZINC, ASCORBIC ACID AND FOLIC ACID IN MAN

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Alcohol abuse constitutes one of the principle nutritional problems in Australia (Hetzel, 1978).

It appears to adversely affect a wide range of vitamins and minerals or trace elements (Editorial 1978; Dreosti, 1978).

In the present study the acute effects of alcohol on plasma concentrations of zinc, ascorbic acid and folic acid plasma concentrations were assessed in six healthy subjects.

Thirty-five grams of ethanol in water was ingested at 0900 hours after an overnight fast. Subjects had free access to water. Blood samples were taken in the fasting state at 0800 hours and, on the first day at 1000, 1100 and 1500 hours.

Plasma zinc concentrations were measured by atomic absorption, plasma ascorbic acid by the method of Attwood et al (1974), and serum folic acid concentrations by radioimmunoassay technique.

Alcohol prevented the fall in plasma zinc to 82% of the fasting value which took place during the day when food was eaten ( $P < 0.02$  at 1500 hours). This effect of alcohol could not be accounted for by plasma water shifts as judged by serum albumin concentrations which remained unchanged. It seems likely that alcohol led to the movement of zinc from the intracellular to the extracellular space (Dreosti, 1978).

After ethanol, the ingestion of 2g ascorbic acid resulted in a lower plasma ascorbic acid at 3 ( $P < 0.05$ ), 6 ( $P < 0.01$ ) and 24 ( $P < 0.01$ ) hours by 90%, 180% and 150% respectively of the elevations above fasting value. It is not known whether this effect reflected decreased absorption or increased elimination.

Alcohol did not significantly modify the diurnal rise in serum folic acid from 7.9ng/ml at 0800 to 9.5ng/ml at 1500 hours. The known adverse effects of alcohol on folic acid status are presumably mediated by mechanisms other than rapid redistribution between body compartments.

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