

## ZINC AND ALCOHOL INTERACTIONS IN RATS

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Zinc deficiency during pregnancy in rats is highly teratogenic (Hurley 1977) and in rats (Randall *et al.* 1977) and humans (Hollstedt *et al.* 1977), maternal alcohol abuse also appears to be embryotoxic. Liver and plasma zinc levels are stated to fall rapidly in rats after experimental ethanol exposure (Wang and Pierson 1975). Possible interactions between alcohol intake, dietary zinc and foetal development prompted the present study concerning the effect of ethanol on zinc balance and tissue zinc distribution in rats. In addition, the reported protection afforded by parental zinc against ethanol toxicity in rodents (Yunice and Lindeman 1977) led to a study into the effect of dietary zinc on the metabolism and toxicity of orally administered ethanol in rats.

Ethanol (20%) administered to rats for 12 weeks had no effect on the zinc or copper balances of stock animals nor were tissue levels of these elements affected, except for kidney copper which was approximately halved. However, animals receiving both a zinc-deficient diet and 20% ethanol died after 8-12 weeks of treatment whereas the zinc-deficient diet or the alcohol treatment alone were not as deleterious.

No effect was observed on the rate of removal of alcohol from the blood, or on ethanol narcosis following zinc injection or dietary zinc restriction or supplementation. Liver alcohol dehydrogenase was not altered in any of the experimental groups. Body temperatures were appreciably lower during alcohol coma in zinc-deficient animals and more died while comatose than did their zinc-sufficient counterparts.

## REFERENCES

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