

## Comparison of the amnesic, ataxic and hypothermic effects of ethanol and acetaldehyde in mice.

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Acetaldehyde, the first metabolite of ethanol, has been suggested to be involved in many behavioral effects of ethanol. However, very few studies have been published on the role of acetaldehyde in the amnesic and ataxic effects of ethanol. The aim of the present studies was to compare the profiles of ethanol and acetaldehyde in several behavioral tests, measuring motor coordination, learning and memory in mice. Female Swiss mice were injected intraperitoneally with ethanol (0-3g/kg) and acetaldehyde (100-300mg/kg). The effects of these substances on a series of representative behaviors were investigated. The amnesic effects were tested with an object recognition task and a one-trial passive avoidance test. Additionally, the rectal temperatures were used to evaluate the hypothermic effects of the two substances. Finally, motor coordination was assessed using the accelerating rotarod test. The results showed that acetaldehyde, like ethanol, altered memory as shown by a reduced performance in the passive avoidance test and the object recognition task. In addition, acetaldehyde at doses between 100 and 300 mg/kg induced significant hypothermic effects, but that was of shorter duration than ethanol-induced hypothermia. Finally, significant ataxic effects of both acetaldehyde and ethanol were observed in the accelerating rotarod test. Overall, the results of the present study clearly show that acetaldehyde, like ethanol, has amnesic, hypothermic and ataxic properties in mice at least at relatively high concentrations.