

# EFFECT OF ACETALDEHYDE CONCENTRATION IN ALCOHOLIC BEVERAGES ON SALIVARY ACETALDEHYDE

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## Introduction

Ethanol consumption is a well established risk factor for upper digestive tract cancers. Moreover, there is some evidence for different levels of risk associated with different types of alcoholic beverages. Ethanol itself is not carcinogenic, but there is strong evidence that the first metabolite of ethanol, acetaldehyde, is a probable local carcinogen in humans.

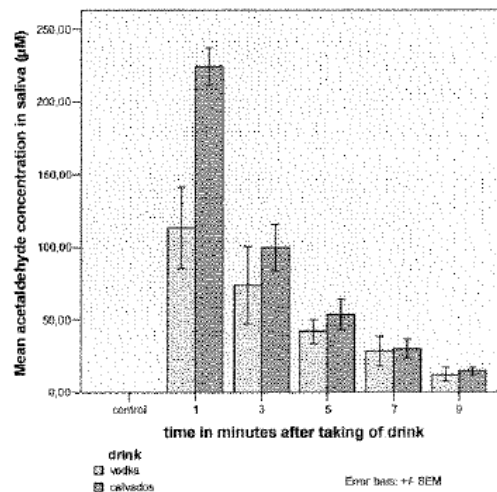
Acetaldehyde is found in varying concentrations in different alcoholic beverages, and highest levels have been found in calvados. Furthermore, consumption of calvados has been linked to an increased risk for oesophageal cancer. The aim of this study was to examine possible differences in salivary acetaldehyde concentrations after a single dose of either vodka with no acetaldehyde or calvados with high acetaldehyde concentration (2091 $\mu$ M).

## Materials & Methods

5 volunteers rinsed 5ml of each alcoholic beverage in their mouths for five seconds on separate days for each beverage. After discharging the oral contents volunteers gave five saliva samples at two minute intervals from which acetaldehyde concentrations were measured gas-chromatographically.

## Results

The salivary acetaldehyde concentration of the first sample after calvados was significantly higher than after vodka (224  $\pm$  13  $\mu$ M and 113  $\pm$  28  $\mu$ M respectively,  $p < 0.05$ ,  $\pm$  SEM). Higher acetaldehyde concentrations after rinsing with calvados were found also in the second and third samples, but the differences were not statistically significant.



## Conclusions

These preliminary results show that acetaldehyde of microbial origin is produced from ethanol in the oral cavity instantly (less than one minute) after ethanol intake. Furthermore, acetaldehyde in alcoholic beverages appears to increase the salivary acetaldehyde concentration. This could potentially explain the epidemiological associations between different types of alcoholic beverages and upper digestive tract cancer risk.