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► [Disulfiram in severe alcoholism – an open controlled study.](#)

Ulrichsen J., Nielsen M.K., Ulrichsen M.

Nordic Journal of Psychiatry: 2010, 64(6), p. 356–362.

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From Denmark a randomised trial of disulfiram in the treatment of alcohol dependence reveals the major weakness of the treatment - that among some sets of patients, few will consistently take tablets they know will cause unpleasant effects if they drink.

Summary By blocking the breakdown of alcohol in the body, disulfiram produces unpleasant reactions in response to even low levels of drinking, so acts as an aversive deterrent. It inhibits the liver enzyme aldehyde dehydrogenase, preventing acetaldehyde being converted to acetate. After drinking alcohol, acetaldehyde accumulates, causing flushing, throbbing headache, nausea, vomiting, and chest pain. Disulfiram is therefore indicated for patients who wish to remain abstinent.

In Denmark disulfiram has been relatively well researched and is widely used in the treatment of alcohol dependence. This trial in Copenhagen recruited 39 of 242 otherwise eligible inpatients from a psychiatric emergency ward who had been admitted for detoxification and treatment of alcohol withdrawal symptoms. Of the 158 who refused the study, 63 did so because they wanted to be sure of being prescribed disulfiram. Patients in the study were typically men in late middle age who had previously been prescribed disulfiram, and were a mixture of employed and unemployed, single and cohabiting or married.

Patients were randomly allocated to post-detoxification outpatient treatment including or not including (the [control](#) group) the administration of disulfiram supervised twice weekly at the clinic by a nurse. Both patients and medical staff knew to which treatment patients had been assigned. All had to attend the clinic twice weekly and were also offered cognitive-behavioural group therapy. Patients were deemed to have dropped out of the study if they missed either five of 52 clinic visits or five of the 16 therapy sessions. Such patients were assumed to have returned to daily drinking.

Main findings


All but two of the 19 disulfiram patients started group therapy and seven (versus 10 of 20 controls) completed it. Five disulfiram patients and four controls remained abstinent throughout the six-month treatment and follow-up period and both groups avoided drinking on average on 100 days. On average the disulfiram patients started drinking again sooner (after about 11 weeks versus nearly 14), but this difference and none of the other differences was reliable enough to be statistically significant. During the six months, five patients from the disulfiram group and seven from the control group were re-admitted to the psychiatric emergency ward for the treatment of alcohol withdrawal symptoms.

Eleven of the 19 disulfiram patients reported side-effects at half or more of their clinic visits. All complained of gastrointestinal disturbances and a few experienced other symptoms they attributed to the drug. For seven patients side effects led doses to be reduced from 800mg to 400mg or 200mg twice weekly. However, no serious adverse effects were found, including no serious instances of the alcohol–disulfiram interaction. Four of the seven patients from the disulfiram group who completed the study asked to continue the treatment.

The authors' conclusions

Six months of supervised disulfiram administration did not affect treatment outcome in this population of patients severely affected by alcohol addiction. No significant differences between disulfiram and control group were found regarding the number of patients totally abstinent, time to first drink, alcohol-free days, and treatment completion. It may still be the case that patients who are highly motivated to take it may benefit from this drug, but using disulfiram as the first line of treatment in all patients – often the case in Denmark – seems questionable.

Results may have been biased by the large number of patients (many more than who entered the study) who refused the study because they wanted to be treated with disulfiram, perhaps leaving a relatively unmotivated set of participants not ready to respond well to disulfiram. Among these patients there was even a non-significant tendency for those prescribed disulfiram to drop out and/or return more quickly to drinking.

 Apart from the possible selection bias mentioned by the authors resulting perhaps in patients not motivated to take disulfiram, it should be remembered that these patients were detoxified not because they had attended the hospital to resolve their dependence on alcohol, but because this dependence had led to withdrawal symptoms which required emergency treatment. For both reasons, the 39 who made their ways in to the study may have been particularly unpromising candidates for the treatment. Among other sets of patients the drug has sometimes proved an effective aid to abstinence.

For more on disulfiram treatment of alcohol dependence and in particular on British studies and guidance, see this [Findings analysis](#) of a review of relevant studies.

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