

'Hair of the dog' may help alcohol withdrawal symptoms but it also increases alcohol dependency

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Drinking alcohol over a long period of time profoundly affects the brain, which adapts to the intoxicant and causes withdrawal symptoms when consumption stops.

Neuroscientists from the University of Southampton's School of Biological Sciences investigated [alcohol](#) dependency and withdrawal using tiny 1mm long *C. elegans* worms. Despite the worm's evolutionary distance from humans, and very simple brain of just 302 [nerve cells](#), it exhibits similar alcohol-dependent behaviours.

The research showed that [withdrawal symptoms](#) could be relieved by small doses of alcohol. However, easing the effects can increase dependency.

In humans, the symptoms are manifested in anxiety, agitation and, in extreme cases, seizures. The worms, as video footage shows, also became overactive in [alcohol withdrawal](#) and showed spontaneous and deep body bends - a behaviour rarely seen in 'teetotal' worms.

Professor Lindy Holden-Dye, a neuroscientist of the University's School of Biological Sciences and member of Southampton Neurosciences Group (SoNG), led the study. She comments: "This research showed the [worms](#) displaying effects of the withdrawal of alcohol and enables us to define how alcohol affects signalling in nerve circuits which leads to

changes in behaviour."

Funding for the research came from a joint Medical Research Council/Biotechnology and Biological Sciences Research Council initiative in the 'Neurobiology of Mental Health'.

The study, published in the journal *PLoS ONE*, also showed evidence that a particular class of brain-signalling molecule, the neuropeptide, is required for the chronic effect of alcohol on the worm's nervous system.

Professor Holden-Dye adds: "Neuropeptides are also involved in chronic alcohol effects in humans and this is leading to new ideas for the treatment of alcoholism, but their precise role is unclear. Our study provides a very effective experimental system to tackle this problem."

Provided by University of Southampton

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