

Research shows that the addictive effect of alcohol is altered in the presence of pain

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A research team from the Faculty of Pharmacy at the University of Valencia has shown that the presence of physical pain alters the effect of alcohol as a reinforcement to avoid suffering. The study, published in

journal *Pain*, analyzes how the neurochemical signals derived from alcohol are altered in the nucleus accumbens of the brain, which is responsible for pleasure, rewards and emotions such as addictions and fear.

The epidemiological data available for Europe shows that around 30% of the population suffer from [physical pain](#). Suffering it can trigger relapses in [alcohol consumption](#) and can also be a key factor to begin binge drinking, which leads to an addiction. According to the World Health Organization (WHO), alcoholism is one of the diseases that most affects the GDP in Europe. In Spain, it is believed to have a social-economical cost of 2.5% of the annual GDP.

The research team of the Department of Pharmacy and Pharmaceutical Technology and Parasitology has shown, in an experiment with rats, that [pain](#) modifies the response to [alcohol](#) in the nucleus accumbens. Thus, the amount of alcohol has to increase to produce the same neurochemical response, a fact which is measured by the release of neurotransmitter dopamine. "This altered response to alcohol can cause an increase in its consumption by large amounts in order to obtain the same subjective effects (reinforcement) that we have when we drink alcohol," explains Lucía Hipólito, spokesperson for the group that published the study, whose first signatories are Yolanda Campos-Jurado and Jesús David Lorente.

Furthermore, a second experiment verified that the amount of alcohol had to increase for animals to show the reward effects to ethanol. "These are the ones that would modify human behavior in order to search for and find the drug, in this case alcohol," concludes the University of Valencia researcher.

The third study analyzed the effect of pain on relapsing. The research team concludes that animals with pain relapse in the same way as those

who do not have pain, although this fact depends on the amount of alcohol they drink during the relapse. Therefore, it is suggested that pain causes individuals to have more risk (a greater desire) to relapse. However, the research team has not been able to assess the risk, only the magnitude.

Currently, one of the most important issues of alcoholism are the relapses, for which there are no effective therapy. As many people with pain do not have it under control with medication, they may develop alcoholism or relapse, an issue which is not being monitored in patients with pain. Furthermore, the situation of physical pain is not being monitored in abstinent patients. "In other words, as protocols do not show that pain can lead to alcoholism, it is not monitored in sick people," says Lucía Hipólito.

More information: Yolanda Campos-Jurado et al. Impaired alcohol-induced dopamine release in the nucleus accumbens in an inflammatory pain model, *Pain* (2020). [DOI: 10.1097/j.pain.0000000000001915](https://doi.org/10.1097/j.pain.0000000000001915)

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