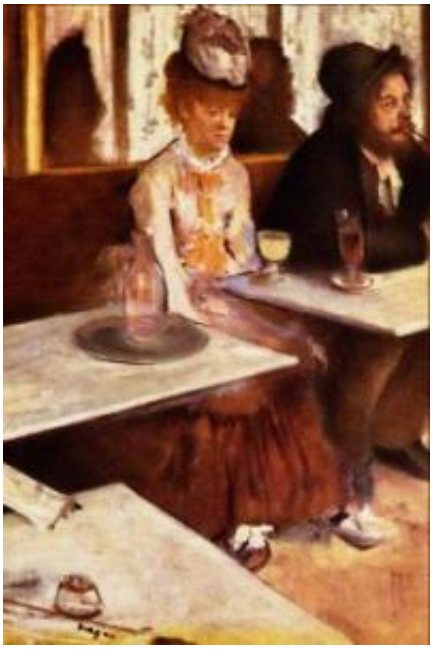
Brain study shows why alcoholics fall off the wagon again... and again

June 1 2011



(Medical Xpress) -- A new University of Sussex study adds to our understanding of why recovering alcoholic patients find it so hard to give up boozing for good.

Researchers looked at the behaviour and brain activity of alcoholic patients who had recently undergone detoxification, and found that the very act of detoxification from alcohol results in damage to the areas of the brain that veto spontaneous desire - such as the desire to drink.

And the really bad news is that repeated detoxifications cause further damage, making it even harder for alcoholics to remain dry.

Experimental psychologist Professor Dora Duka led research in which alcoholic patients or healthy social drinker volunteers were tasked with pressing the space bar on a keyboard every time either of two abstract patterns appeared on a screen.

For each correct press, they received 10p. The researchers then introduced an 'incentive conflict': every now and then both patterns were presented at the same time. However, pressing the space bar on these occasions resulted in losing 10p.

Social drinkers quickly learned to 'abstain' from pressing the space bar, but the alcoholic patients were unable to control their reward seeking, even though it led to loss of money. The degree of impairment was related to whether the abstaining alcoholic patients had experienced only a single detoxification prior to the test, or several.

In a second experiment, the researchers used brain imaging to identify which areas of the brain were activated in social drinkers while performing this task. When pressing the bar to gain money, the parts of the brain involved in processing 'reward' signals (the nucleus accumbens) lit up. But during the part of the task that required them to abstain, subregions within the area of the brain responsible for controlling desire (the prefrontal cortex) were activated.

When the researchers then looked at the brains of alcoholic patients they found that they had reduced nerve cells (grey matter) in the prefrontal cortex. The more detoxifications they had undergone, the greater the damage and the less likely they were to control their desire.

Professor Duka says: "It has been known for some time that repeated

detoxifications have deleterious effects on brain function, but this is the first study to suggest that they make it harder to abstain."

She adds that, when planning detoxifications of alcoholic patients, they, their medical advisers, and support teams need to ensure that everything is set up to give the optimal chance that a single detoxification is sufficient to accomplish control over drinking. "If it fails, and the patient relapses, it will become progressively more difficult to abstain on future occasions."

The paper, 'Unique Brain Areas Associated with Abstinence Control are Damaged in Multiply Detoxified Alchoholics' is published in the journal, *Biological Psychiatry.*

Provided by University of Sussex

Citation: Brain study shows why alcoholics fall off the wagon again... and again (2011, June 1) retrieved 25 April 2024 from https://medicalxpress.com/news/2011-06-brain-alcoholics-fall-wagon.html