

# HIV infection and chronic drinking have a synergistic, damaging effect on the brain

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More than half of clinic patients infected with the human immunodeficiency virus (HIV) report they also drink heavily. While highly active antiretroviral therapy has helped to reduce HIV-related cognitive and motor deficits, neuropsychological deficits may continue and even be exacerbated by alcohol. A study of memory deficits has found that HIV infection and chronic alcoholism have synergistic, damaging effects on brain function.

Results will be published in the October issue of *Alcoholism: Clinical & Experimental Research* and are currently available at Early View.

"It has been consistently documented that chronic heavy drinking results in cognitive and motor deficits, particularly impairments in component processes of executive functions, memory, visuospatial abilities, and speed of cognitive processing and motor movements," said Edith V. Sullivan, professor in the department of psychiatry and behavioral sciences at Stanford University School of Medicine and corresponding author for the study. "Chronic heavy drinking co-occurring with [HIV infection](#) is highly prevalent, and the separate and combined untoward effects on the brain and its processes can be significant and disruptive of activities of daily living."

This prevalence exists despite considerable educational and prevention programs regarding both HIV and alcoholism, added Sara Jo Nixon, a professor in the department of psychiatry at the University of Florida. "Furthermore, their comorbidity constitutes an even greater health

concern with implications for treatment adherence, work and interpersonal skill maintenance."

Sullivan and her colleagues examined working and episodic memory in four groups (n=164) - 40 individuals with HIV (28 men, 12 women), 38 with chronic alcoholism (24 men, 14 women), 47 with both HIV and chronic alcoholism (38 men; 9 women), and 39 "normal" controls (22 men, 17 women) - at baseline and then again at a one-year follow-up. Measures included accuracy scores, response times, and rate of information processing.

"Individuals who are both positive for HIV and have a history of chronic heavy drinking are at greater risk than individuals with only one of these conditions to have trouble learning new information," said Sullivan.

"This difficulty in new learning can affect an individual's ability to use information important to the successful completion of personal and work-related activities."

"Too frequently, when widespread deficits are associated with disease, the need to disentangle underlying interacting processes is overlooked," said Nixon. "Specifically, Sullivan and her colleagues' ability to identify a particular component of memory, 'episodic,' as being impaired, while another, 'working,' is spared supports the continued need construct studies which provide explicit contrasts among subprocesses which may be inappropriately grouped under a broad superordinate category." In other words, she said, specific damages were "cloaked" by overall damage prior to this study.

"Immediate episodic memory is dependent on intact medial temporal lobe systems that have been shown to be affected in both HIV infection and chronic alcoholism," explained Sullivan, "whereas working memory is primarily associated with more frontally based systems that may not be as severely effected at this moderate stage of disease. Results showed

that individuals were able to retain information over time, which suggests that retrieval of information was intact, whereas lower scores on immediate memory suggested that difficulties were associated with ability to learn, or encode, information."

"The immediate real-world and clinical impact of this study is considerable," observed Nixon. "The data suggest that specific interventions for enhancing the process of encoding or learning new information, such as prescription regimens, should be employed to enhance treatment outcomes as well as work and interpersonal situations. If individuals are aware and engage in 'encoding-rich' strategies, overall quality of life and adaptation may be enhanced."

Nixon also noted that questions have been raised regarding the impact of anti-retrovirals on the brain. "While these medications can effectively control obvious markers of [HIV](#), indirect measures on neurocognitive function are less clear," she said. "There is a need to examine this behavioral/biochemical dissociation."

Source: Alcoholism: Clinical & Experimental Research

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