Medical Xpress

# Damaged gait and balance can recover with long-term abstinence from alcohol

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Chronic alcoholism is often associated with a disturbed gait and balance, likely caused by alcohol damage to neural systems. While some studies have suggested that abstinence can lead to partial recovery of gait and balance functions, questions remain about duration of abstinence and sample size. This study of both short- and long-term abstinence has found that alcoholics' gait and balance can continue to recover with long-term abstinence from alcohol but that deficits can persist, especially eyes-closed standing balance.

Results will be published in the December 2011 issue of *Alcoholism: Clinical & Experimental Research* and are currently available at Early View.

"Chronic alcohol abuse consistently damages the cerebellum, a complex structure located at the back of the brain below the cerebrum," explained Stan Smith, a neurobehavioral scientist with Neurobehavioral Research and corresponding author for the study. "The cerebellum has multiple functions, including control of balance and coordination. Alcohol also damages subcortical white matter, the myelinated fiber tracts that connect different parts of the cortex, and other central nervous systems [such as] motor effector and feedback systems. Long-term alcohol dependence also results in impaired dopamine transmission in the striatum, an important area for motor control."

This study examined 70 (49 men, 21 women) short-term (6 to 15 weeks) abstinent and 82 (48 men, 34 women) long-term (minimum of 18

months, a mean of 7.38 years) abstinent alcoholics, as well as 52 (32 women, 20 men) control individuals. The two alcoholic groups did not differ in terms of lifetime drinking, family drinking density, or years of education. Study authors also looked at gender and alcohol-use variables.

"Our study used a large sample, which enhances generalizability," said Smith. "Our long-term abstinent alcoholics also had very extended abstinence, more than seven years on average, compared to previous studies. Our results provide evidence that recovery of gait and balance, when visual support is available, may be attained with extended abstinence."

On the other hand, said Smith, the eyes-closed measures require greater balance and motor control. "Visual feedback makes balance easier by providing visual reference points for motor adjustment. Yet even with extended abstinence, structures important for balance – like the cerebellum – may not fully recover, so impaired performance on the more difficult balance measures persists."

Some previous studies have suggested that women metabolize alcohol differently than men, added Smith, and that impairment of brain functions in women, including cognitive processes, occurs with less lifetime alcohol misuse than for men. "Our finding of more impaired function in women than in men with short-term abstinence is consistent with this," said Smith. "However, the good news is that women in our long-term abstinent group performed similarly to men, suggesting that they recover to a comparable level with extended abstinence."

The bottom line, said Smith, is that impaired brain functions in alcoholics appear to recover with an extended abstinence, even if there is relatively little recovery with short-term abstinence. "This means there is hope for significant recovery of balance function with extended abstinence," he said.

Provided by Alcoholism: Clinical & Experimental Research