

# Imaging study reveals white-matter deficits in users of codeine-containing cough syrups

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An imaging study of chronic users of codeine-containing cough syrups (CCS) has found deficits in specific regions of brain white matter and associates these changes with increased impulsivity in CCS users.

Researchers used diffusion tensor imaging (DTI) (an MR imaging technique), coupled with fractional anisotropy, to investigate the [white matter](#) integrity of chronic CCS users. Deficits were found in multiple regions of the brain, including the inferior fronto-occipital fasciculus, which other studies have found to be abnormal in other forms of addiction, such as addiction to the Internet, alcohol and heroin.

The study found the white matter deficits in CCS users also correlated with increased impulsivity traits in the subjects, as measured by the Barratt Impulsiveness Scale. These findings were consistent with results of previous studies of heroin and cocaine addicts. White matter disruptions also correlated with the duration of CCS use.

Codeine-containing cough syrups have become one of the most popular drugs of abuse in young people around the world. Progressive changes in the white matter of users' brains may cause greater [impulsivity](#) in CCS users.

The study, titled "Abnormal White Matter Integrity in Chronic Users of Codeine-Containing Cough Syrups: A Tract-Based Spatial Statistics Study," was published this month on the website of the *American Journal of Neuroradiology (AJNR)* at <http://dx.doi.org/10.3174/ajnr.A4070> and will be available in print in the January 2015 issue of the *AJNR*.

Provided by American Society of Neuroradiology

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