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► **Cognitive enhancement as a pharmacotherapy target for stimulant addiction.**

Sofuoglu M. [Request reprint](#)

Addiction: 2010, 105, p. 38–48.

Extends the search for an effective drug-based treatment for stimulant dependence to 'cognitive enhancers' which can redress associated deficits in the ability to perform tasks requiring attention, memory or other self-control or intellectual abilities.

Original abstract *Background* No medications have been proven to be effective for cocaine and methamphetamine addiction. Attenuation of drug reward has been the main strategy for medications development, but this approach has not led to effective treatments. Thus, there is a need to identify novel treatment targets in addition to the brain reward system.

Aim To propose a novel treatment strategy for stimulant addiction that will focus on medications enhancing cognitive function and attenuating drug reward.

Methods Pre-clinical and clinical literature on potential use of cognitive enhancers for stimulant addiction pharmacotherapy was reviewed.

Results and conclusions Cocaine and methamphetamine users show significant cognitive impairments, especially in attention, working memory and response inhibition functions. The cognitive impairments seem to be predictive of poor treatment retention and outcome. Medications targeting acetylcholine and norepinephrine are particularly well suited for enhancing cognitive function in stimulant users. Many cholinergic and noradrenergic medications are on the market and have a good safety profile and low abuse potential. These include galantamine, donepezil and rivastigmine (cholinesterase inhibitors), varenicline (partial nicotine agonist), guanfacine (alpha2-adrenergic agonist) and atomoxetine (norepinephrine transporter inhibitor). Future clinical studies designed optimally to measure cognitive function as well as drug use behaviour would be needed to test the efficacy of these cognitive enhancers for stimulant addiction.

Last revised 20 December 2010

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