



Drug Facts: Stimulant ADHD Medications –

Methylphenidate and Amphetamines (Adderall)

Revised June 2009

Stimulant medications (e.g., methylphenidate and amphetamines) are often prescribed to treat individuals diagnosed with attention-deficit hyperactivity disorder (ADHD). ADHD is characterized by a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequently displayed and more severe than is typically observed in individuals at a comparable level of development. This pattern of behavior usually becomes evident in the preschool or early elementary years, and the median age of onset of ADHD symptoms is 7 years. For many individuals, ADHD symptoms improve during adolescence or as age increases, but the disorder can persist into adulthood. In the United States, ADHD is diagnosed in an estimated 8 percent of children ages 4–17 and in 2.9–4.4 percent of adults.

How Do Prescription Stimulants Affect the Brain?

All stimulants work by increasing dopamine levels in the brain—dopamine is a brain chemical (or neurotransmitter) associated with pleasure, movement, and attention. The therapeutic effect of stimulants is achieved by slow and steady increases of dopamine, which are similar to the natural production of the chemical by the brain. The doses prescribed by physicians start low and increase gradually until a therapeutic effect is reached. However, when taken in doses and routes other than those prescribed, stimulants can increase brain dopamine in a rapid and highly amplified manner—as do most other drugs of abuse—disrupting normal communication between brain cells, producing euphoria, and increasing the risk of addiction.

Why and How Are Prescription Stimulants Abused?

Stimulants have been abused for both “performance enhancement” and recreational purposes (i.e., to get high). For the former, they suppress appetite (to facilitate weight loss), increase wakefulness, and increase focus and attention. The euphoric effects of stimulants usually occur when they are crushed and then snorted or injected. Some abusers dissolve the tablets in water and inject the mixture. Complications from this method of use can arise because insoluble fillers in the tablets can block small blood vessels.

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