

# Attention Deficit/ Hyperactivity Disorder

It is estimated that during the past 10,000 years, humans have evolved as much as 100 times faster than at any other time since the split of the earliest hominid from the ancestors of modern chimpanzees. In most parts of the world, babies no longer die in large numbers. People with genetic damage that was once fatal now live and have children. Some scientists speculate that more inheritable traits could be accumulating in the human species and that these traits are anything but good for us. For example, behavior disorders such as Tourette's syndrome and attention deficit hyperactivity disorder (AD/HD) may be encoded in a few genes in which case their heritability could be very high. David Comings, a specialist in these two diseases, has argued that these conditions are more common than they used to be and that evolution might be the reason: women with these syndromes are less likely to attend college and thus tend to have more children than those who do. However, other researchers have brought forward serious concerns about Comings' methodology. It is not clear whether the incidence of Tourette's syndrome and AD/HD is in fact increasing at all (Ward, 2009).

AD/HD is one of the many labels for one of the most prevalent and, undoubtedly, the most controversial conditions in child psychiatry. AD/HD is conservatively estimated to occur in 3.0% to 7.5% of school-aged children, but more permissive criteria yield estimates up to 17%, and up to 20% of boys in some school systems receive psychostimulants for the treatment of AD/HD. Despite the absence of controlled studies in preschool-aged children and concern about potential long-term adverse effects, stimulant medications are increasingly being administered to children as young as 2 years of age (Castellanos & Tannock, 2002).

Longitudinal epidemiological studies demonstrate that AD/HD is no more common today than in the past. The apparent statistical rise in the number of cases may be explained by increased public awareness and improved diagnosis. Researchers using state-of-the-art imaging techniques have found differences in several brain regions of AD/HD and non-AD/HD children of similar ages. On average, both the frontal lobe and the cerebellum are smaller in AD/HD brains, as are the parietal and temporal lobes. AD/HD seems to be the result of abnormal information processing in these brain regions, which are responsible for emotions and control over impulses and movements. Experts now believe that neural information processing—the foundation of experience and behavior—may break down in children with AD/HD, especially when many competing demands suddenly flood the brain. In this circumstance or when faced with tasks requiring speed, thoroughness, or endurance, the performance of AD/HD brains decreases dramatically compared with the brains of other children. A lack of stimulation, on the other hand, quickly leads to boredom.

The attention deficit is particularly evident whenever children are asked to control their behavior—stopping an impulsive action or maintaining a high level of performance in a given task (Rotenberger, 2007). Most argue that AD/HD involves a central deficiency in response inhibition (Barkley, 2006). A deficit in the inhibition of behavior will produce an adverse impact on executive functioning, self-regulation, and the cross-temporal organization of behavior toward the future. Behavior inhibition is critical to the development, privatization, and proficient performance of the four executive functions. The four executive functions