

skills and a higher level of adaptive functioning, may develop skills for independent living and work.

## Attention Deficit/Hyperactivity Disorder (ADHD)

### Definition/Epidemiology

ADHD is a common neurodevelopmental disorder occurring in about 5% of children and 2.5% of adults, worldwide. ADHD is

marked by inappropriate inattention, impulsivity, and hyperactivity that, in turn, cause impaired functioning, as compared to typical same-age peers.

### Pathology

Despite extensive neuroimaging studies, there are no consistent pathologic brain findings or neurotransmitter abnormalities in ADHD. ADHD appears to be highly heritable. The behaviors of ADHD likely are a common phenotype caused by multiple etiologies.

### Clinical Presentation

ADHD presents before age 12 years with developmentally inappropriate inattention, hyperactivity, and impulsivity resulting in significant impairment in at least two different settings (e.g., home, school, work, with friends), by multiple observers, and the disruptive symptoms should have persisted for at least 6 months. [Table 115-3](#) lists the symptoms of inattention and hyperactivity/impulsivity that fulfill diagnostic criteria for ADHD.

### Diagnosis/Differential

ADHD is a primary disorder of attention and should be distinguished from attentional deficits that are secondary to other disorders. Causes of secondary inattention include learning disability, hearing impairment, and psychiatric disorders. ADHD can also coexist with autism spectrum disorders. [Table 115-3](#) outlines the criteria used for diagnosis of ADHD.

### Treatment

Stimulant medications such as methylphenidate and amphetamines are the primary class of medication used in ADHD. Other nonstimulant medications such as atomoxetine and guanfacine are also used. All children with ADHD benefit from behavioral interventions designed to help children re-focus and stay on task.

**TABLE 115-2** DSM-5 CRITERIA FOR AUTISM SPECTRUM DISORDER

REQUIRED DOMAIN	CRITERIA
Deficits in social communication/interaction (must have all three criteria)	<p>Problems reciprocating social or emotional interaction, including difficulty establishing or maintaining back-and-forth conversations and interactions, inability to initiate an interaction, and problems with shared attention or sharing of emotions and interests with others.</p> <p>Severe problems maintaining relationships—ranges from lack of interest in other people to difficulties in pretend play and engaging in age-appropriate social activities, and problems adjusting to different social expectations.</p> <p>Nonverbal communication problems such as abnormal eye contact, posture, facial expressions, tone of voice and gestures, as well as an inability to understand these.</p>
Restricted and Repetitive Behavior (at least 2 criteria must be met)	<p>Stereotyped or repetitive speech, motor movements or use of objects.</p> <p>Excessive adherence to routines, ritualized patterns of verbal or nonverbal behavior, or excessive resistance to change.</p> <p>Highly restricted interests that are abnormal in intensity or focus.</p> <p>Hyper or hypo reactivity to sensory input or unusual interest in sensory aspects of the environment.</p>
Symptoms must be present in early childhood, but may not become fully manifest until social demands exceed capacities.	
Symptoms need to be <i>functionally impairing</i> and not better described by another DSM-5 diagnosis.	

**TABLE 115-3** DSM-5 CRITERIA FOR ADHD

**Inattention:** 6 or more symptoms of inattention for children up to age 16, or 5 or more symptoms in those 17 years or older; symptoms present for at least 6 months.

- Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or with other activities.
- Often has trouble holding attention on tasks or play activities.
- Often does not seem to listen when spoken to directly.
- Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., loses focus, side-tracked).
- Often has trouble organizing tasks and activities.
- Often avoids, dislikes, or is reluctant to do tasks that require mental effort over a long period of time (such as schoolwork or homework).
- Often loses things necessary for tasks and activities (e.g. school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).
- Is often easily distracted
- Is often forgetful in daily activities.

In addition, the following conditions must be met:

- Several inattentive or hyperactive-impulsive symptoms were present before age 12 years.
- Several symptoms are present in two or more settings, (e.g., at home, school or work; with friends or relatives; in other activities).
- There is clear evidence that the symptoms interfere with, or reduce the quality of, social, school, or work functioning.
- The symptoms do not happen only during the course of schizophrenia or another psychotic disorder. The symptoms are not better explained by another mental disorder (e.g. Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder).

**Hyperactivity and Impulsivity:** 6 or more symptoms of hyperactivity-impulsivity inattention for children up to age 16, or 5 or more symptoms in those 17 years or older; symptoms present for at least 6 months.

- Often fidgets with or taps hands or feet, or squirms in seat.
- Often leaves seat in situations when remaining seated is expected.
- Often runs about or climbs in situations where it is not appropriate (adolescents or adults may be limited to feeling restless).
- Often unable to play or take part in leisure activities quietly.
- Is often “on the go” acting as if “driven by a motor.”
- Often talks excessively.
- Often blurts out an answer before a question has been completed.
- Often has trouble waiting his/her turn.
- Often interrupts or intrudes on others (e.g., butts into conversations or games)