CONDITION

# Attention deficit hyperactivity disorder

Learn how attention deficit hyperactivity disorder affects attention, activity, and impulse control, and how ADHD is diagnosed, treated, and monitored in children and adults.

**WHAT IT IS**
Neurodevelopmental condition

**BODY SYSTEM**
Nervous system

**MAIN SYMPTOMS**
Inattention, hyperactivity, impulsivity, poor organization

**WHAT CAUSES IT**
Genetic and environmental influences

**HOW IT IS DIAGNOSED**
Careful clinical assessment

**MAIN TREATMENT**
Behavioral strategies, psychological treatment, medication

**CAN IT BE CURED?**
No, symptoms can continue lifelong

**IS IT AN EMERGENCY?**
Sometimes, suicidal intent or immediate danger

**LONG-TERM OUTLOOK**
Symptoms may persist but are often manageable

## Overview

Attention deficit hyperactivity disorder, or ADHD, is a neurodevelopmental condition. This means it is related to how the brain develops and manages functions such as attention, activity level, planning, and self-control.

ADHD begins in childhood, although some people are not diagnosed until adolescence or adulthood. Symptoms can continue throughout life. They may change over time; for example, visible hyperactivity may become less noticeable in an adult, while restlessness, poor time management, or difficulty finishing tasks may remain.

Everyone has occasional trouble concentrating or controlling impulses. With ADHD, symptoms are more persistent than expected for a person's age. They occur in more than one part of life, such as at home, school, work, or in relationships, and they interfere with daily functioning.

ADHD is not a sign of low intelligence, laziness, poor character, or inadequate parenting. With appropriate support, many people with ADHD manage symptoms effectively and build on strengths such as creativity, energy, curiosity, and the ability to focus deeply on interesting tasks.

## Symptoms

ADHD symptoms fall into two main groups: inattention and hyperactivity-impulsivity. A person may have mainly inattentive symptoms, mainly hyperactive-impulsive symptoms, or a combination. Clinicians call these presentations because the pattern can change over time.

Inattentive symptoms may include:

Hyperactive or impulsive symptoms may include:

Symptoms can look different by age and setting. A young child may run or climb when it is not appropriate. An adult may feel internally restless, change jobs frequently, miss deadlines, or make impulsive financial decisions.

Some people, particularly girls and women, have mostly inattentive symptoms without obvious hyperactivity. Their difficulties may be mistaken for daydreaming, anxiety, or lack of effort. This can delay recognition.

Emotional outbursts, frustration, and sensitivity to criticism can occur with ADHD, but they are not part of the core diagnostic criteria. Similar problems can also result from anxiety, depression, trauma, sleep loss, or other conditions.

- Being easily distracted or losing track of conversations
- Making frequent mistakes from overlooking details
- Having difficulty organizing tasks, belongings, or time
- Starting tasks but struggling to finish them
- Avoiding tasks that require sustained mental effort
- Frequently losing items such as keys, school materials, or phones
- Forgetting appointments, instructions, or routine responsibilities
- Appearing not to listen, even without an obvious distraction
- Fidgeting, tapping, or feeling physically restless
- Difficulty staying seated when expected
- Talking more than the situation allows

- Interrupting or answering before a question is finished
- Difficulty waiting for a turn
- Acting quickly without considering possible results
- Feeling driven to stay busy or do several things at once

## Causes and risk factors

There is no single known cause of ADHD. Research suggests that it develops through a combination of genetic and environmental influences affecting brain development.

ADHD often runs in families. Having a close biological relative with ADHD increases the likelihood of developing it, but genes do not determine the outcome by themselves.

Factors associated with a higher likelihood of ADHD include premature birth, low birth weight, and certain prenatal exposures, such as alcohol. Serious brain injury and exposure to lead may also contribute in some cases. An association does not always prove that a factor directly caused an individual person's ADHD.

Parenting style does not cause ADHD. Sugar, television, video games, and social media have also not been shown to be primary causes. However, sleep, stress, household routines, and the demands of a person's environment can make existing symptoms easier or harder to manage.

ADHD commonly occurs alongside other conditions. These may include learning disorders, autism spectrum disorder, anxiety, depression, sleep disorders, tic disorders, and substance use disorders. Identifying these concerns is important because they can affect both symptoms and treatment choices.

## Diagnosis

There is no blood test, brain scan, or single questionnaire that can confirm ADHD. Diagnosis requires a careful clinical assessment by a qualified healthcare professional. Depending on age and local services, this may involve a pediatrician, psychiatrist, psychologist, neurologist, or another clinician trained in ADHD assessment.

The evaluation usually reviews:

For children, clinicians commonly obtain information from parents or caregivers and teachers. For adults, childhood records or reports from someone who knew the person when younger can be helpful, although these are not always available.

Standardized rating scales may organize information and measure symptom severity. They support the assessment but cannot establish the diagnosis by themselves.

The clinician also considers other causes of attention or behavior problems. These include poor sleep, hearing or vision difficulties, learning disorders, anxiety, depression, trauma, medication effects, substance use, and some medical conditions. More than one condition may be present.

To meet diagnostic criteria, symptoms must persist for a defined period, be inconsistent with the person's developmental level, occur in at least two settings, and cause meaningful impairment. Brief concentration problems during stress, illness, or sleep deprivation do not necessarily indicate ADHD.

- Current symptoms and how they affect daily life
- When symptoms began and whether some were present before age 12
- Behavior in more than one setting
- School reports, work history, or information from family members
- Medical, developmental, mental health, and family history
- Sleep, substance use, medicines, and other possible explanations

## Treatment and management

ADHD management is individualized according to age, symptoms, daily impairment, coexisting conditions, personal preferences, and treatment availability. A plan may combine education, behavioral strategies, environmental changes, psychological treatment, and medication.

Education about ADHD can help replace blame with practical problem-solving. Clear routines, written instructions, calendars, reminders, reduced distractions, and breaking large tasks into smaller steps may support daily functioning.

For younger children, structured parent or caregiver training is often an important part of care. These programs teach consistent routines, positive reinforcement, and ways to respond to difficult behavior. They are not based on the idea that parenting caused ADHD.

School-age children may benefit from classroom behavior plans, movement breaks, reduced-distraction testing areas, help with organization, or formal educational accommodations. Families can work with the school to determine what support is appropriate.

Adolescents and adults may benefit from skills-based therapy or ADHD-focused cognitive behavioral therapy. This can address planning, time management, procrastination, emotional

responses, and unhelpful thinking patterns. Coaching may provide practical support, although training and regulation of coaches vary.

Medication can reduce core symptoms for many people. The main categories are:

Available medicines and approved ages vary by country. A clinician selects treatment based on expected benefits, possible adverse effects, medical history, coexisting conditions, and the risk of misuse or diversion.

Common medication concerns can include reduced appetite, sleep difficulty, headache, stomach discomfort, sleepiness, or changes in heart rate and blood pressure. Different medicines have different risks and monitoring needs. Patients and caregivers should review the medication guide and report new physical or mental health symptoms.

Prescription stimulants are controlled substances in many countries because they can be misused and can lead to dependence. They should be stored securely, taken only by the person for whom they were prescribed, and never shared or sold.

Treatment is not limited to reducing a symptom score. Goals may include safer driving, improved school or work performance, better relationships, fewer missed responsibilities, and improved confidence. If one approach is not effective or causes troublesome effects, the clinician may reassess the diagnosis, treatment plan, or other conditions rather than simply continuing unchanged.

Regular physical activity, consistent sleep, and balanced meals can support general health and may make symptoms easier to manage. They do not replace evidence-based ADHD treatment when symptoms are causing significant impairment.

- Stimulants like methylphenidate or lisdexamfetamine , including medicines based on methylphenidate or amphetamine
- Nonstimulants , including atomoxetine and certain medicines that affect norepinephrine or related brain signaling

## Complications

Without effective support, ADHD can contribute to academic difficulty, problems at work, conflict in relationships, financial mistakes, and low self-esteem. Impulsivity and inattention may increase the risk of injuries, traffic collisions, or unsafe decisions.

People with ADHD may also have a higher likelihood of anxiety, depression, substance-related problems, or other mental health concerns. These outcomes are not inevitable. Early recognition, appropriate treatment, practical accommodations, and attention to coexisting

conditions can reduce impairment.

Medication can also cause complications if it is taken incorrectly, shared, or used in larger amounts than prescribed. Secure storage and regular medication review are important.

## Follow up

ADHD usually requires ongoing review rather than a one-time assessment. Follow-up visits may examine symptom control, progress toward personal goals, functioning at home or work, sleep, mood, and any adverse effects.

For children and adolescents taking medication, clinicians may monitor appetite, weight, growth, pulse, and blood pressure. Adults may also need heart rate and blood pressure checks. Monitoring depends on the medicine and the person's medical history.

Arrange routine follow-up if symptoms remain disruptive, treatment benefits do not last through necessary activities, side effects are troublesome, or major life demands change. Transitions such as starting secondary school, college, a new job, pregnancy planning, or moving from pediatric to adult care may require an updated plan.

Contact a clinician promptly for marked mood changes, hallucinations, severe agitation, new suicidal thoughts, or concerning heart-related symptoms after starting or changing a medicine.

Seek emergency help for suicidal intent, a suspected overdose, seizure, fainting, severe chest pain, severe breathing difficulty, or behavior that creates an immediate danger. These symptoms are not routine features of ADHD and need urgent assessment.

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