

What is ADHD?

Children with attention-deficit/hyperactivity disorder (ADHD) may have symptoms that look like¹:

- Being overly active
- Acting out without thinking about the results
- Having trouble learning
- Finding it hard to pay attention
- Forgetting or losing things
- Having trouble taking turns
- Making careless mistakes or taking unnecessary risks
- Often squirms, fidgets, or bounces when sitting

- ADHD is a long-term **medical condition** that can interfere with your child's activities in various situations: at home, with friends, or at school.^{2,3}
- ADHD is one of the most common brain-based disorders that affects about one in ten school-aged children. Symptoms continue into adulthood for more than half of those who have it in childhood. People who have ADHD may have higher levels of inattention, impulsiveness, and/or hyperactivity than their peers.⁴
- ADHD used to be called attention deficit disorder (ADD); both are the same medical condition.³
- ADHD symptoms start before age 12 years, and in some children, they are noticeable as early as 3 years of age. ADHD symptoms may continue into adulthood.



medical condition⁵
A condition that may require medical attention or treatment.

What is ADHD?

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What causes ADHD?

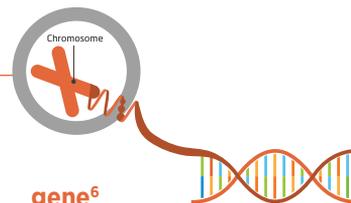
ADHD is a complex condition, and we don't know exactly what causes it. ADHD is thought to result from the interaction of several factors and that no one single thing causes ADHD.¹

Genes

- We know that ADHD tends to run in families.^{1,2} If a parent has ADHD, there is more than a 50% chance that a child will have ADHD.³ If an older sibling has it, there is more than a 30% chance that a younger sibling will have it.³
- While this suggests that **genes** play a role in the development of ADHD, scientists have not identified a single gene that causes ADHD.¹ Rather, interactions among many genes may contribute to the development of ADHD.²

Environment

- Some environmental factors have been linked to an increase in the risk of ADHD.^{1,2} Just like with genes, however, no single cause can explain all cases of ADHD.²
- Exposure to certain substances during pregnancy or when a child is very young may be associated with an increased risk of ADHD.² Researchers continue to try to clarify the nature of these relationships.²



gene⁶

Genes are the basic units by which inherited information is passed from a parent to a child. A child inherits one copy of each gene from their mother and one copy from their father.

What causes ADHD?

- Environmental factors that may contribute to the risk of developing ADHD include:
 - Cigarette smoking, alcohol use, or drug use during pregnancy.³
 - Exposure to **environmental toxins** during pregnancy.^{2,3}
 - Exposure to environmental toxins at a young age.^{2,3}
 - Some environmental toxins that have been studied in ADHD include lead, pesticides, and chemicals used in consumer goods.²⁻⁵
- Low birth weight and brain injuries may also increase the risk of a child developing ADHD.³



environmental toxin⁷

An environmental toxin is a small amount of a poison that is found in the air, water, food, etc.

Diet

It is not clear if diet influences the development of ADHD. More sugar in the diet may be associated with worse ADHD symptoms; however, it is not known for sure that the additional sugar is what causes this correlation.²



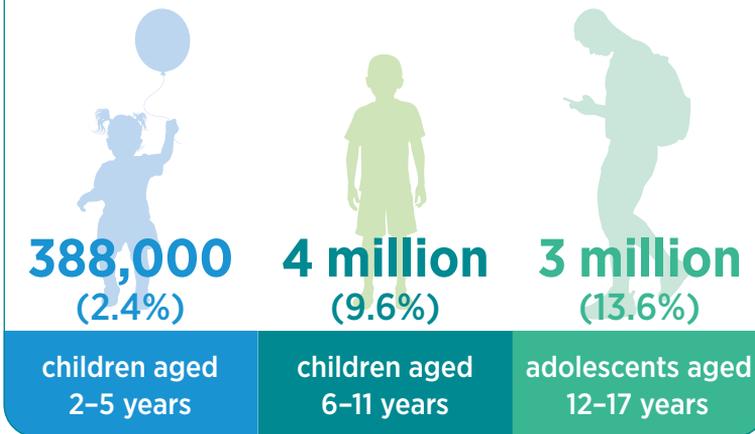
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Who else can have ADHD?

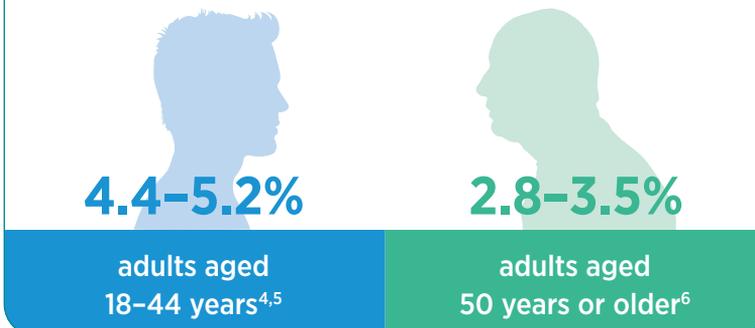
A ADHD affects people from childhood (with some children showing symptoms as early as age 4 years) through adolescence and into adulthood. The rates of ADHD vary between children, adolescents, and adults.^{1,2}

In the United States, a large number of children have been diagnosed with ADHD at some point in their lives.^{1,2}



Boys are twice as likely to be diagnosed with ADHD as girls.¹

Adults with ADHD in the United States



ADHD is less likely to be noticed in girls, which may be because they tend to have symptoms related to *inattention* rather than *hyperactivity* or *impulsivity*.³ These terms are explained in the next section.

Who else can have ADHD?

Information such as the number of people affected by ADHD, which individuals have ADHD, and risk factors for ADHD are aspects of the **epidemiology** of ADHD.



epidemiology⁷

Epidemiology is a branch of medicine that studies the distribution (frequency and pattern), causes, and risk factors of disease- and health-related situations and events in specified groups of people.



Having ADHD doesn't mean that your child can't be successful.
There are many well-known people with ADHD.

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Does my child or I have ADHD?

Diagnosing ADHD in children

There is no single test to diagnose ADHD. Common problems like sleep disorders, anxiety, depression, and certain types of learning disabilities can look very similar to ADHD.¹

Your health care professional will ask parents, teachers, and others who care for your child in different settings to help in diagnosing ADHD.^{1,2}

Signs of ADHD in children^{1,3}

Children with ADHD show signs of **inattention** and **hyperactivity/impulsivity** in certain ways.



hyperactivity⁵

Hyperactivity means that a person has increased movement, impulsive actions, a shorter attention span, and is easily distracted.



impulsivity⁶

Impulsivity means that a person tends to act on impulse rather than thought. People who are overly impulsive seem unable to control their reactions or to think before they act.



inattention⁴

Inattention is a lack of focus when it is required, for example, when listening to directions.

Does my child or I have ADHD?

Table 1 lists some signs of ADHD.

Table 1. How a child with signs of ADHD may behave^{1,2}

Inattention

- Often has a hard time paying attention, daydreams
- Often does not seem to listen
- Is easily distracted from work or play
- Often does not seem to care about details, makes careless mistakes
- Frequently does not follow through on instructions or finish tasks
- Is disorganized
- Frequently loses a lot of important things
- Often forgets things
- Frequently avoids doing things that require ongoing mental effort

Hyperactivity/Impulsivity

- Is in constant motion, as if "driven by a motor"
- Cannot stay seated
- Frequently squirms and fidgets
- Talks too much
- Often runs, jumps, and climbs when this is not permitted
- Cannot play quietly
- Frequently acts and speaks without thinking
- May run into the street without looking for traffic first
- Frequently has trouble taking turns
- Cannot wait for things
- Often calls out answers before the question is complete
- Frequently interrupts others

Diagnosing ADHD in Adults^{3,8}

A diagnostic evaluation can be provided by a health care provider who gathers information from multiple sources. These sources include ADHD symptom checklists, behavior rating scales, a detailed history of past and present everyday behaviors, and information from others who know the person well. Your health care provider will also perform a complete physical examination.

Only 5 symptoms are needed to diagnose ADHD in adults and adolescents aged 17 years or older and behavior scales are used to confirm the diagnosis.

Symptoms may look different in adolescents and adults. For example, hyperactivity may look like restlessness.



Does my child or I have ADHD?

A health care provider will look for the signs in **Table 1** and follow the criteria below to confirm that your child has ADHD. Evaluation of the signs and symptoms listed below is one part of the overall process used to diagnose ADHD.^{1,2}



2+

Symptoms occur in 2 or more settings, such as at home, in school, and in social situations, and interfere with normal activities.



6+

In a child aged 4 to 16 years, 6 or more symptoms must be identified.



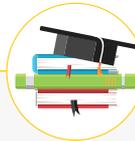
5+

In a child 17 years of age, and in adults, 5 or more symptoms must be identified.



symptom⁷

A symptom is a sign of disease that is obvious to the patient, physician, and others.



The symptoms significantly impair your child's ability to function in some of the activities of daily life, such as schoolwork, relationships with you and siblings, relationships with friends, or the ability to function in groups such as sports teams.



Symptoms start before the child reaches age 12 years. However, these may not be recognized as ADHD symptoms until a child is older.



Symptoms have continued for more than 6 months. Symptoms need to be inappropriate for the child's developmental level.¹

Does my child or I have ADHD?

ADHD rating scales

As part of the evaluation process, several scales may be used to see if ADHD symptoms are present. Some can be given in the doctor's office or at school; others can be completed by a parent or by the child.

Examples of parent and teacher rating scales:

- ADHD Rating Scale-V (ADHD-RS-V)⁹⁻¹¹
- Child Behavior Checklist/Teacher Report Form^{12,13}
- Conners Rating Scale¹⁴

CONNERS
PARENT GLOBAL INDEX Form
by C. Keith Conners, Ph.D.

Parent's Name: _____ Child's Name: _____ Today's Date: ____/____/____
Child's Gender: M F Birthdate: ____/____/____ Age: ____ Years Grade: _____

FIRST Rating Date: ____/____/____

Rate your child on the following in the past month:

	Not True at All	Just a Little True	Pretty Much True	Very Much True
1. Restless or overactive.	0	1	2	3
2. Excitable, impulsive.	0	1	2	3
3. Falls to finish things he/she starts.	0	1	2	3
4. Inattentive, easily distracted.	0	1	2	3
5. Temper outbursts.	0	1	2	3
6. Fidgeting.	0	1	2	3
7. Disturbs other children.	0	1	2	3
8. Demands must be met immediately—easily frustrated.	0	1	2	3
9. Cries often and easily.	0	1	2	3
10. Mood changes quickly and drastically.	0	1	2	3

PHYSICIAN ONLY
Write the circled number into the numbered box across each row.

Restless-Impulsive	Emotional Lability

TOTAL RAW SCORE: _____
T-SCORES: _____

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Example of adult rating scales:

- ADHD Rating Scale-IV (ADHD-RS-IV) with adult prompts¹⁵
- Adult ADHD Self-Report Scale (ASRS) Symptom Checklist¹⁶

Does my child or I have ADHD?

Tips to help alert for ADHD

In your child:

- ✓ Organize your child's old report cards or school records and look for patterns or comments
- ✓ Look for specific examples in different situations, like school, camp, or sports
- ✓ Ask for reports from caregivers, family members, other parents or adults who have regular contact with your child
- ✓ Talk with former teachers, religious and scout leaders, or coaches

In you:

- ✓ Organize performance reports from your work and look for patterns or comments
- ✓ Ask family members, friends, or colleagues about your behavior



ADHD is treatable. If your child is diagnosed with ADHD, your doctor will team up with you and your child to identify a treatment plan that works for your child.

Does my child or I have ADHD?

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After the diagnosis

After receiving a diagnosis of ADHD, your health care provider will work with you to create a “treatment plan” that addresses problem areas for your child. To find the best option for your child, it helps if you work closely with others involved in your child’s life—health care providers, therapists, teachers, coaches, and other family members.¹

Parent/
caregiver
training

School/
educational
accommodations

Medications
for treating
ADHD



After the diagnosis

Parent/caregiver training

The American Academy of Pediatrics (AAP) recommendations for parent/caregiver training for children with ADHD are¹:

- For children younger than age 6 years, provide **behavior therapy** before trying medication.
- For children aged 6 years and older, behavior therapy and medication together.



School/educational accommodations

You can work with your child's school to develop accommodations based upon your child's treatment plan. Some ways a school or teacher can lessen the effect of ADHD on your child's learning include²:

- Allowing extra time to take tests 
- Adapting instructions and assignments for your child
- Providing positive reinforcement and feedback
- Using technology to help with tasks 
- Allowing breaks or time so your child can move around
- Changing the environment to limit distraction
- Providing extra help with staying organized 

behavior therapy¹

Behavior therapy is a treatment option that can help reduce behaviors that can be disruptive to others. Parents learn skills that can help improve their child's behavior and functioning at school and at home.



After the diagnosis

By law, a child with ADHD has the right to receive an individualized education plan (IEP), special education services, and changes to the learning environment to meet his/her needs.

There are two laws that govern special services and accommodations for children with disabilities, including those with ADHD:

1 The Individuals with Disabilities Education Act (IDEA)²



IDEA

Individuals with Disabilities Education Act

This law provides for individualized education plans (IEPs) and special education services to meet the unique needs of the child.

2 Section 504 of the Rehabilitation Act of 1973²



This law provides for a 504 Plan covering services and changes to the learning environment to meet the needs of the child.

Talk with your child's school and teachers to see which services your child is eligible to receive.²

After the diagnosis

Medications for treating ADHD

- Several kinds of medications are available to treat ADHD. These medications may help manage your child's symptoms, but they don't cure ADHD.³
- **Table 1** lists the types of medications that are available to treat ADHD and the forms in which they can be given.⁴
- These medications are classified as either **stimulants** or **non-stimulants**



stimulant^{13,14}

Prescription stimulants are medicines that are used to treat ADHD. Stimulants may help increase alertness and attention.

Despite their name, stimulants actually have a calming effect on children with ADHD who exhibit hyperactivity. They increase the levels of brain chemicals. One of these chemicals, dopamine, is associated with motivation, attention, and movement.

Stimulants

- Stimulants have been used to treat ADHD since the 1960s.³
- They are the most often used and the best-known types of ADHD medications.¹
- Commonly prescribed stimulants like amphetamine and methylphenidate are federally-controlled substances (CII) because they can be abused or lead to dependence.
- Stimulants can be short-acting or long-acting and come in forms such as tablets, capsules, and liquids.
- The most common side effects with stimulants include increased blood pressure, decreased appetite, sleep problems, social withdrawal, dry mouth, weight loss, anorexia, belly pain, nausea, restlessness, dizziness, and fast heart rate.⁵

Non-stimulants

- Non-stimulants have been approved to treat ADHD for 17 years.^{1,3}
- Non-stimulants are available in short- and long-acting formulations, and come in tablet and capsule forms.
- Non-stimulants may take a few weeks before you see an effect.^{1,3}
- Non-stimulant effects can last up to 24 hours.
- Common side effects of non-stimulants include nausea, vomiting, sleepiness, dizziness, tiredness, belly pain, constipation, dry mouth, decreased appetite, insomnia, erectile dysfunction, trouble with urination, trouble with menstrual periods, and hot flashes.⁶

After the diagnosis

- There are two types of stimulants:
 - 1 methylphenidate
 - 2 amphetamine

Table 1. Types of medications to treat ADHD in children^{4,7}

Medication type	Forms available	Length of effect
Stimulants		
1 Methylphenidate		
Short-acting	 Tablets  Liquid	3-6 hours
Long-acting	 Capsule  Tablets  Skin patch  Liquid	8-12 hours
2 Amphetamine		
Short-acting	 Tablets  Liquid	4-6 hours
Long-acting	 Capsule  Tablets  Liquid	6-13 hours
Non-stimulants		
Long-acting	 Capsule	24 hours
Long-acting	 Tablets	12 hours

After the diagnosis

Medication won't get rid of your child's ADHD symptoms completely, but when a medication works well, your child's ADHD symptoms will be less severe and will occur less often.⁸

Even after you fill your child's prescription, it's important to work closely with your child's doctor to adjust or "fine-tune" their medication, dosage, or timing to best suit your child's needs.

- Your child's medication should work during the times that they need coverage the most.⁹
- Undertreated ADHD can impact academic success and interfere with extracurricular, social, and family activities, as well as sleep.⁹
- Teenagers' ADHD medication should work after school and into the evening to improve their ability to focus on driving and reduce impulsive behavior.⁹

Your health care provider will work with you to determine what is best for your child.

There may be times when a parent or health care provider wants to stop a child's ADHD medication for a period of time. The pros and cons of such a decision should always be discussed with your child's health care provider.¹⁰

Your child's health care provider will most likely start with the lowest dose of medication they think will help your child.¹¹ He or she will monitor your child closely and use your feedback to slowly adjust dosing so that your child gets the maximum benefits of his or her medication with the fewest side effects.^{1,3}

Individualizing dosing

- Scored tablets can be adjusted for smaller doses.¹²
- Liquids can be changed by as little as 1 milliliter.⁵
- Liquids may simplify adjusting the dose in one prescription. They may also be more easily adjusted to get exact dosages at home.



ADHD medications come in different forms, like capsules, tablets, and liquids.

After the diagnosis

Some signs that may suggest your child's medication needs to be fine-tuned include¹³:

- Your child's focus is better in the morning but gets worse early in the afternoon. (This might mean that the morning dose is wearing off too quickly.)
- Your child has sudden changes in weight or appetite. (This might mean that your child has a slower metabolism or the dose may be too high.) 
- Your child seems too "hyper" and irritable during most of the day when the medication is active. (This might mean the dose is too high or it's not the right medication for your child.)
- Your child focuses better but isn't him/herself when the medication is active. (This might mean that the dose may be too high or it may not be the right medication for your child.)
- Your child functions much better at school but still struggles to get homework done starting in the late afternoon. (This might mean that the dosing schedule or regimen may need to be adjusted or that a different medication may need to be considered.) 
- Your child responds well to the medication during the day but has a lot of trouble falling asleep most nights. (The medication may be lasting too long, or your child may actually need a small dose of it closer to bedtime.)
- Your child gets very irritable, "hyper," or very serious for several hours each day as the medication wears off. (The medication may be dropping off too fast.

A noticeable "crash" or drop off of the medication may be a sign that you should re-evaluate the child's regimen with his or her health care provider.)



After the diagnosis



Although ADHD is a long-term condition, the good news is that with the right treatment plan, it often can be managed, which can improve your child's symptoms.

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What's next?

Tips for speaking to your child's teacher:

- ✓ Schedule an appointment to speak with your child's teacher before the school year begins. Make the teacher aware of your child's ADHD. Provide a copy of your child's 504 Plan or IEP and ask the teacher to look over the accommodations.^{1,2}
- ✓ Make the teacher a part of the solution, and accept your responsibility as part of your child's education team.¹
- ✓ Provide the teacher with basic information about ADHD if they are not familiar with it.¹
- ✓ Let the teacher know what he or she is most likely to see in class. Does your child tend to talk out of turn? Is it hard to get your child back on track when his or her attention wanders?^{1,2}
- ✓ Ask for feedback about your child's progress, classroom performance, etc.^{1,2}
- ✓ Arrange regular meetings with your child's teacher to monitor his or her progress and review if accommodations are working.^{1,2}

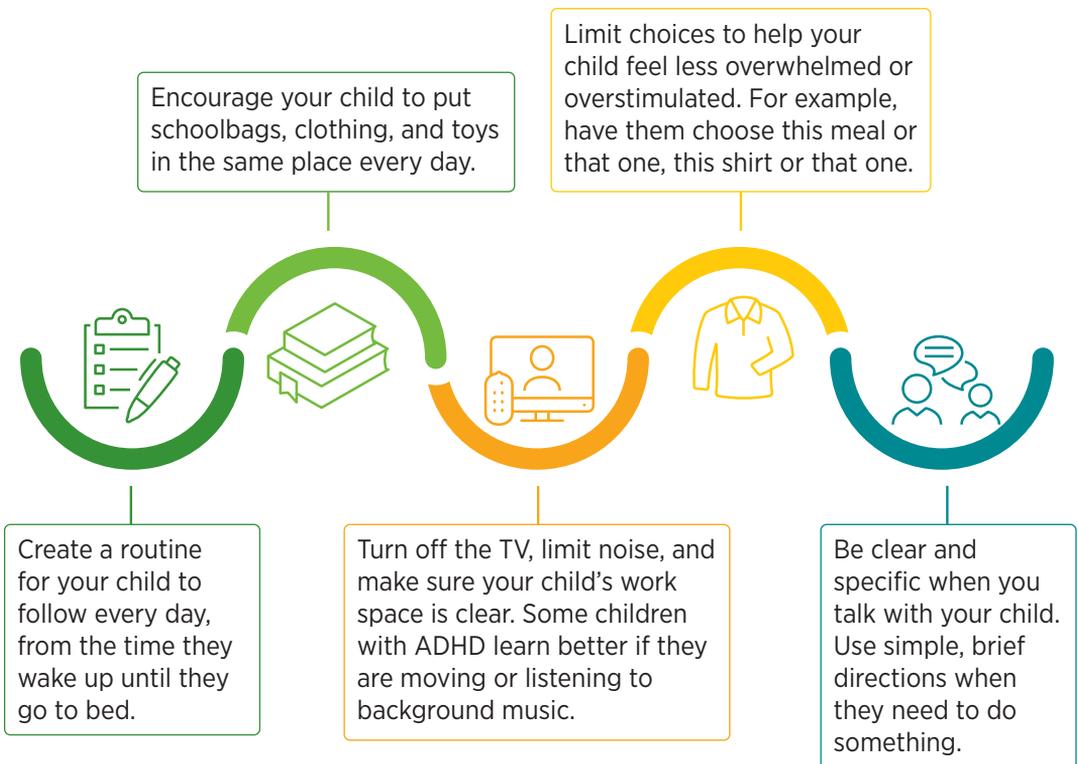


What's next?

How parents, caregivers, and family members can help a child manage his or her ADHD at home:

- Be supportive
- Praise good behavior
- Limit distractions in surroundings
- Maintain a consistent, organized schedule
- Make sure they get enough sleep
- Make sure they eat balanced and nutritious meals
- Make sure they get enough physical activity

Some specific examples that may help with your child's behavior include³:



What's next?



Help your child plan. Break down tasks into simpler, shorter steps. For longer tasks, take breaks in between steps.

When disciplining your child, avoid scolding, yelling, or spanking. Instead, use time-outs or loss of privileges as consequences for inappropriate behavior.

Nutritious food, lots of physical activity, and sufficient sleep can help keep ADHD symptoms from getting worse.



Use a chart to list goals and track positive behaviors. Let your child know they have done well by telling them or by rewarding them in other ways. Be sure the goals are realistic—small steps are important!

Create opportunities for success. Encourage your child in things that he or she does well—school, sports, art, music—to help create positive experiences. Build your child's confidence by rewarding them and acknowledging their accomplishments.

What's next?

You should contact your child's doctor if⁴:

- You don't see improvements in your child's ADHD symptoms within the time frame your health care provider has given you. For example, it may take several weeks to see positive changes in your child's symptoms.
- Your child's medication stops working. Their dose may need to be changed, or they may need a different medication.
- Your child has issues that are different than the most common side effects of their medication. For example, they have no appetite, they have trouble sleeping, they are more irritable than usual, or they start making repetitive sounds or movements.
- Your child has blurred vision or other eyesight changes, is seeing things that aren't there, or experiences heart problems. You should contact your doctor or health care provider right away for these and any other side effects you notice.
- Your child begins to fear being away from family, going to school, or that bad things will happen to him or her. This may suggest an anxiety disorder.
- Your child's behavior often causes challenges with other children, teachers, parents, and siblings. This may suggest a behavioral disorder.
- Your child has trouble with a specific topic or skill, like reading, math, or writing. This may suggest a learning disorder.



What's next?

When to contact your child's health care provider after evaluation and treatment has started

It may not always be clear when to contact your child's health care provider. If something worries you, call the health care provider. As with any medicine, you should seek immediate medical attention if your child takes too much of their medicine or if they develop any side effect at all.⁴



Living with ADHD is about monitoring your child's symptoms and working with your child's doctor, school, teachers, friends, and family members to find what works best for him or her.

What's next?

Several organizations provide education and support for families affected by ADHD

Children and Adults with Attention-Deficit/Hyperactivity Disorder (CHADD)

chadd.org



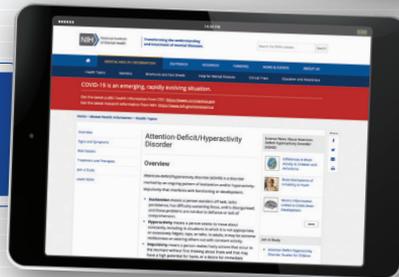
The Attention Deficit Disorder Association (ADDA)

adda.org



The National Institute of Mental Health Attention-Deficit/Hyperactivity Disorder (NIMH-ADHD)

nimh.nih.gov



References

1. Children and Adults with Attention-Deficit/Hyperactivity Disorder (CHADD). Tips for Talking with Teachers About ADHD. Available at <https://chadd.org/for-parents/tips-for-talking-to-teachers-about-adhd/>. Accessed June 7, 2020.
2. Understood.org. 7 Tips for Talking to Your Child's Teacher About ADHD. Available at <https://www.understood.org/en/school-learning/partnering-with-childs-school/working-with-childs-teacher/7-tips-for-talking-to-your-childs-teacher-about-adhd>. Accessed June 7, 2020.
3. Centers for Disease Control and Prevention (CDC). Treatment of ADHD. Available at <https://www.cdc.gov/ncbddd/adhd/treatment.html>. Accessed June 7, 2020.
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Health care provider helpful hints



I tell the parents or caregiver: you have a great kid, a very creative and innovative kid, you must positively reinforce your kids to help them maximize their potential. Don't believe the 3M's (myths, misconceptions, and media) when it comes to ADHD. Instead believe in the 3C's (comfort, confidence, and conviction) when your child is diagnosed with ADHD to help your child maximize their potential and development. Their kid is not "bad" as this condition is so misunderstood and stigmatized. Your child with ADHD is very creative and innovative and you just need to work with them, to help them be successful in school and in life. Positively reinforce your child and figure out what they like to help them understand how to control themselves. Don't be afraid to include the teachers and therapy, and even medications, to help get your child on track in the classroom and in life and don't be afraid to tell your doctor about any fears or concerns you may have, no matter what they are, and make sure they understand them.

~ Morris Levinsohn, MD



Health care provider helpful hints



Often when I have a new patient coming in for ADHD, they hang their head low and feel like there is something wrong with them. I will always take some extra time to build them up. I have a poster in my office that shows a lot of famous people that have ADHD. I tell them that I also have ADHD. Then I tell them there is nothing wrong with your brain. We (those of us with ADHD) have great brains. A lot of the ‘best of the best’ have ADHD. When we are in our niche, we do better than others! Our brains see more, hear more, think more than others and that is a good thing not a bad thing! We just can’t turn it off when we need to. It is not true that we cannot focus, in fact we can hyper focus. The real problem is that we cannot filter. When we are excited about something, we hyper focus so well people think you can’t be ADHD. When there is something that is not so exciting, even though we are trying, we just cannot turn off those other thoughts, so we get distracted. Medication does not make you better, you are already great! Medication just gives you a better filter so you can filter out those extra thoughts, noises, and impulses.



*~ Dr. Derek Brugman
Carolina Attention Specialists
Charlotte, North Carolina*

Health care provider helpful hints



Getting a diagnosis of ADHD means your child can benefit from extra support from parents and educators. Get to know your child in a new way by paying attention to when they struggle and how that relates to their diagnosis. Children with ADHD may get easily frustrated, feel targeted or unsuccessful. Map out ways you can support them such as helping them accomplish small tasks one at a time or accompanying them while doing schoolwork and encouraging them to complete it. Give positive feedback and help them understand themselves better.

~ Henry Hasson, MD

Assistant Professor of Neurology and Pediatrics



ADHD encompasses much more than the typically thought of inability to focus or sit still. It can also include being easily frustrated, emotional lability (quickly changing emotions), difficulty making decisions, and/or difficulty with changes in a plan or routine. As a parent of a child with ADHD, patience, a structured routine, and a sense of humor can go a long way.

~ Emily Thompson, MD



Health care provider helpful hints



I compare ADHD to spotty WiFi in certain brain networks. It's not that your device (your brain) isn't awesome; it's just off line too much of the time. This leads to buffering and makes it harder to stay on track and complete tasks efficiently. It's more frustrating than waiting for your favorite content to stream online.

~ James C. Wiley, MD, FAAP



Some parents are initially skeptical of the ADHD diagnosis since their child will focus only on certain areas. Once it is explained that attention disorders are both episodic and pervasive in different individuals, they become less angry and more accepting of their child. Natural enthusiasm and abilities, variable motivating factors like rewards, even a modest amount of stress of clear completion times can temporarily override the diagnosis for selective activities.

~ Dennis B. Alters, MD, DLFAPA



