

ADHD

.....
AND YOUR PRESCHOOLER



Acknowledgements From the Editor-in-Chief: I would like to thank the families who responded to our earlier guide for school age children and who asked for a similar resource for preschool age children, as well as our fellows in Developmental-Behavioral Pediatrics; ADHD Clinical Workgroup; and colleagues in Clinical Informatics who all contributed to this effort.

— Jason Fogler, MA, Ph.D, Co-director: ADHD Program

Editorial Staff

Jason Fogler, MA, PhD
Editor-in-Chief
Editor: School-Age Guide
Co-Director: ADHD Program

Liesl Windsor, MD*
Audrey Christiansen, MD*
Helene Pinches, MD*
Kate Linnea, PhD
Elizabeth Harstad, MD, MPH
Heather Potts, PhD

Series Editors

Elizabeth Harstad, MD, MPH & Helene Pinches, MD*
Editors: Preschool Guide

Kate Linnea, Ph.D, and Marie Reilly, MD
Editors: Adolescent Guide

Contributors

Aveline Ajalan, PsyD*
Natalie Cerda, MD*
Audrey Christiansen, MD*
Hanalise Huff, MD*
Kate Linnea, PhD
Helene Pinches, MD*
Dasha Solomon, PsyD
Cara Soccorso, PsyD
Marie Reilly, MD
Karen Spencer, MD, MS, MPH
Liesl Windsor, MD*

* Denotes our trainees in Developmental-Behavioral Pediatrics, Psychology and Neurology

Table of Contents

- 1 ADHD and preschool children
- 6 Preschool readiness
- 8 Executive functioning
- 12 Behavior and ADHD
- 19 Building independence
- 20 Social skills
- 23 Sleep and ADHD
- 25 Nutrition and ADHD
- 27 Interventions Q&A

ADHD and preschool children

Welcome

You may have received a diagnosis of ADHD from your child's doctor and probably have questions. This guide will walk you through some areas of strengths, challenges and practical tips for working with your child.

In preschoolers, ADHD can look like enthusiasm, zest for life, horseplay, joy, curiosity or "wanting to get into everything." Many of these are positive aspects of your child's personality. However, with ADHD, some of these tendencies go too far and can cause problems. For example, your child may be really excited about playing with a new friend and accidentally knock them over by playing too roughly.

Attention-Deficit/Hyperactivity Disorder (ADHD) is a medical condition that causes a child to have trouble paying attention and controlling their impulses.

ADHD is the most common neurodevelopmental disorder in childhood. It affects 6–12% of school aged children.¹

What are the types of ADHD?

ADHD can look different as your child grows and changes:

- **Predominantly inattentive:** A child has trouble paying attention, especially when they're supposed to focus on one thing for a longer time, like in a classroom lesson or on homework. This is sometimes referred to as "ADD," but a clinician will refer to it as "ADHD with Predominantly Inattentive Presentation." Girls who have this form of ADHD may not get diagnosed until middle school or later because they may not cause trouble in the classroom.
- **Predominantly hyperactive/impulsive:** Children with this type of ADHD are mostly boys. They are often impulsive and have trouble sitting still. They may fidget, talk a lot, grab things out of other people's hands and interrupt conversations. They are often impatient and have more injuries than other children because of their impulsive behavior. These are typically the most troubling symptoms for preschool age children. Hyperactivity tends to get better as they get older. The impulsivity and inattention can last into adulthood.
- **Combined:** Children with this type have both impulsive and hyperactive behavior, as well as inattention and distractibility. This is the most common kind of ADHD in children and tends to be how ADHD is described and seen in the media.

How is ADHD diagnosed?

The diagnosis is based on reports from you and other people who interact with your child (daycare or preschool teachers.) It's true that all children at times have hyperactive, impulsive and inattentive behavior. But children with ADHD tend to show these behaviors to a higher degree and it affects their day-to-day functioning.³

Here is how your healthcare provider may determine that your child has ADHD:

- We get a detailed history of your child's development and symptoms. ADHD symptoms appear before age 12 in 2 or more settings.
- To do this, we use questionnaires or checklists.
- We also use reports from parents, teachers and other adults involved in your child's care (like babysitters and daycare workers).
- ADHD is not diagnosed using blood tests, brain imaging studies or by tracking eye movements.

How is ADHD treated?

Treatment is based in a partnership between parents, teachers and clinicians. The professionals on your team will have suggestions, but you as a parent are the team captain and will be your child's primary coach.

Intervening early greatly improves how children with ADHD perform academically and how they get along with parents, peers and teachers. It helps them stay out of trouble at school and later in life.

It's important to keep in mind that ADHD treatment looks different at different ages and can be individualized for your child's needs.

The first kind of treatment for preschoolers is behavioral therapy that gives you guidance and strategies.⁴ Therapists will work with you to become systematic about the behaviors you pay attention to and how you respond to them.

A secondary type of treatment for preschool children with ADHD is medication. Medication may be considered if behavior therapy alone is not effective or if symptoms are so severe that they pose a risk to your child's or other people's safety (darting into the street, recklessly climbing onto high shelves.) However, research shows that up to 1/3 of preschoolers with ADHD can have significant improvements in their symptoms with behavior therapy alone.

ADHD can impact all areas of your child's life. There are 3 ways it can affect behavior:²

- Inattention looks like a child has trouble paying attention and following through with tasks or instructions, being disorganized and forgetful, and having poor attention to detail.
- Hyperactivity looks like a lot of physical activity at inappropriate times and a lower ability to self-regulate (like fidgeting).
- Impulsivity looks like acting without thinking. It can put a child at risk of getting hurt.



Developmental Phase

Preschool - Elementary

Upper Elementary / Middle School

Behavioral Interventions

- Primarily done by parents and teachers, with coaching/professional support.
- Strategies focus on attending to and rewarding desired behavior and selectively ignoring problem behaviors (so long as no one is getting hurt).
- 2 commonly used evidence-based strategies for this age include token economies (sticker charts) and visual schedules.
- Regular exercise and staying active can help with focus and to "burn off" extra energy.
- Parent-led management and positive behavior plans continue, but target behaviors can also include executive functioning skills (such as organization, time management, planning.)
- Token economies, sticker charts and visual schedules can still be effective, with modifications based upon developmental age and target behaviors.
- School-based supports are often called Positive Behavior Plans or Behavioral Intervention Plans.

Medication

The first line medication is methylphenidate (often referred to by the brand name Ritalin). Guanfacine is a non-stimulant medication that is often recommended. These are short-acting medications that may last through a school day, but "booster" doses or extended-release options are sometimes recommended if after-school symptoms are a problem. You and your doctor should be in close communication about how the medicine is affecting your child -- how it is helping and whether there are side effects like reduced appetite, trouble falling asleep, or headache or upset stomach -- and using that communication to make decisions about maintaining or changing the medication.

Non-stimulant medications such as guanfacine and clonidine are sometimes recommended to treat ADHD in preschool age children under certain circumstances.



High School



Young Adult

- Parents continue to provide oversight and support, but responsibility begins to shift to teens. Start to allow your child to manage their time and schedules.
- Executive function coaching can be helpful at this age.

By this age, we want our teens to be involved in the process of communicating to their prescribers how the medicines affect their functioning and to start to take ownership over taking their medicine on a schedule.

- By this age, your young adult should know how to effectively use “self-reinforcement,” such as using preferred activities for completing cognitively demanding activities (such as term papers.)
- Young adults are more responsible for their choices and actions, but some may need continued supports to problem-solve new challenges.
- As they begin to live on their own, having systems in place to support safe driving and medication storage, paying bills, and ensuring that they meet work and school obligations (and how to manage these gracefully if they are missed) should be the highest priority goal.
- Executive coaching and motivational enhancement therapy may be needed, especially for young adults who are continuing to struggle in work or school

We want our young adults to know the different medication classes affect their symptoms and which ones give them the best balance of benefits with few or no side effects.

How does ADHD impact my child?

The impact of ADHD, along with any other conditions your child has, can be significant. Below lists some of the most common problems that come with having ADHD during the preschool and early elementary years so that you can be proactive in noticing and addressing them. A major goal of treatment is to support development and the best possible mental health, educational, behavioral and social outcomes.



Learning disabilities: One-third to over 60% of children with ADHD have a learning disability, like dyslexia, dyscalculia (learning disability in math) or dysgraphia (learning disability in written expression).⁵ You should meet with your child's teacher regularly to get updates on how they are learning material compared to their peers. While it is true that some children learn more slowly than others, consistent difficulty or "slow learning" should not be ignored. It is your legal right to request an evaluation by the school system to address any learning concerns, especially because intervening early greatly improves learning outcomes for children. You can do this by submitting your request in writing to the school and you can ask your healthcare provider for help.



Physical injuries: Children with ADHD are more likely to get injured.⁶ Getting bumps and bruises is part of being a kid. However, if your child is getting noticeably more bumps and bruises than others their age, especially from things like climbing too high on the playground or not looking where they are going when running, talk to your child's doctor. Treating your child's ADHD will help them be more in control of their body and to "look before they leap."



Social interactions: Sometimes children with ADHD can have difficulty maintaining friendships over time, because their impulsivity or hyperactivity can cause difficulties in play and other interactions with their peers. Treatments for your child's ADHD, including teaching them social skills, can help.

References

1. Attention-Deficit/Hyperactivity Disorder (ADHD) – Centers for Disease Control and Prevention [Internet]. CHADD. [cited 29 August 2019]. Available from: <https://www.cdc.gov/ncbddd/adhd/diagnosis.html>
2. American Psychiatric Association. Attention-deficit/hyperactivity disorder. In: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, American Psychiatric Association, Arlington, VA 2013. p.59.
3. Fogler JM, Stein, DS. ADHD: Practical tips for parents. Boston, MA: Boston Children's Hospital in association with the Leadership Education in Neurodevelopmental Disabilities program. 2016.
4. Subcommittee on Attention-Deficit/Hyperactivity Disorder, Steering Committee on Quality Improvement and Management, Wolraich M, et al. ADHD: clinical practice guideline for the diagnosis, evaluation, and treatment of attention-deficit/hyperactivity disorder in children and adolescents. *Pediatrics* 2011; 128:1007.
5. DuPaul, George J. et al. (2013). Comorbidity of LD and ADHD: Implications of DSM-5 for Assessment and Treatment. *Journal of Learning Disabilities* 46(1):43–51.
6. Pastor PN, Reuben CA. Identified attention-deficit/hyperactivity disorder and medically attended, nonfatal injuries: US school-age children, 1997-2002. *Ambul Pediatr* 2006; 6:38.

Preschool readiness

Preschool can be a wonderful place for children to form meaningful relationships and explore their surroundings. It's also a great way to prepare children for elementary school. When you're thinking about whether your child is ready for preschool, it's good to keep a few things in mind:

In preschool-aged children, behavioral interventions are the recommended approach to managing ADHD. The preschool classroom is a good place to work on skills using the same behavioral strategies used at home.

Children with ADHD are more likely to have challenges with friendships and learning. While it is important for parents to decide whether their child is emotionally and physically ready to start school, it is equally important to consider whether the preschool program is able to give your child enough stimulation, support and supervision.

Preschool accommodations

If your child is attending preschool in your district's public school system, you can work with the school to find the best ways to support your child. Federal laws require schools to provide adequate assistance and to protect the rights of children with disabilities. These laws include the Individuals with Disabilities Education Act (IDEA) and the Section 504 of the Rehabilitation Act of 1973.

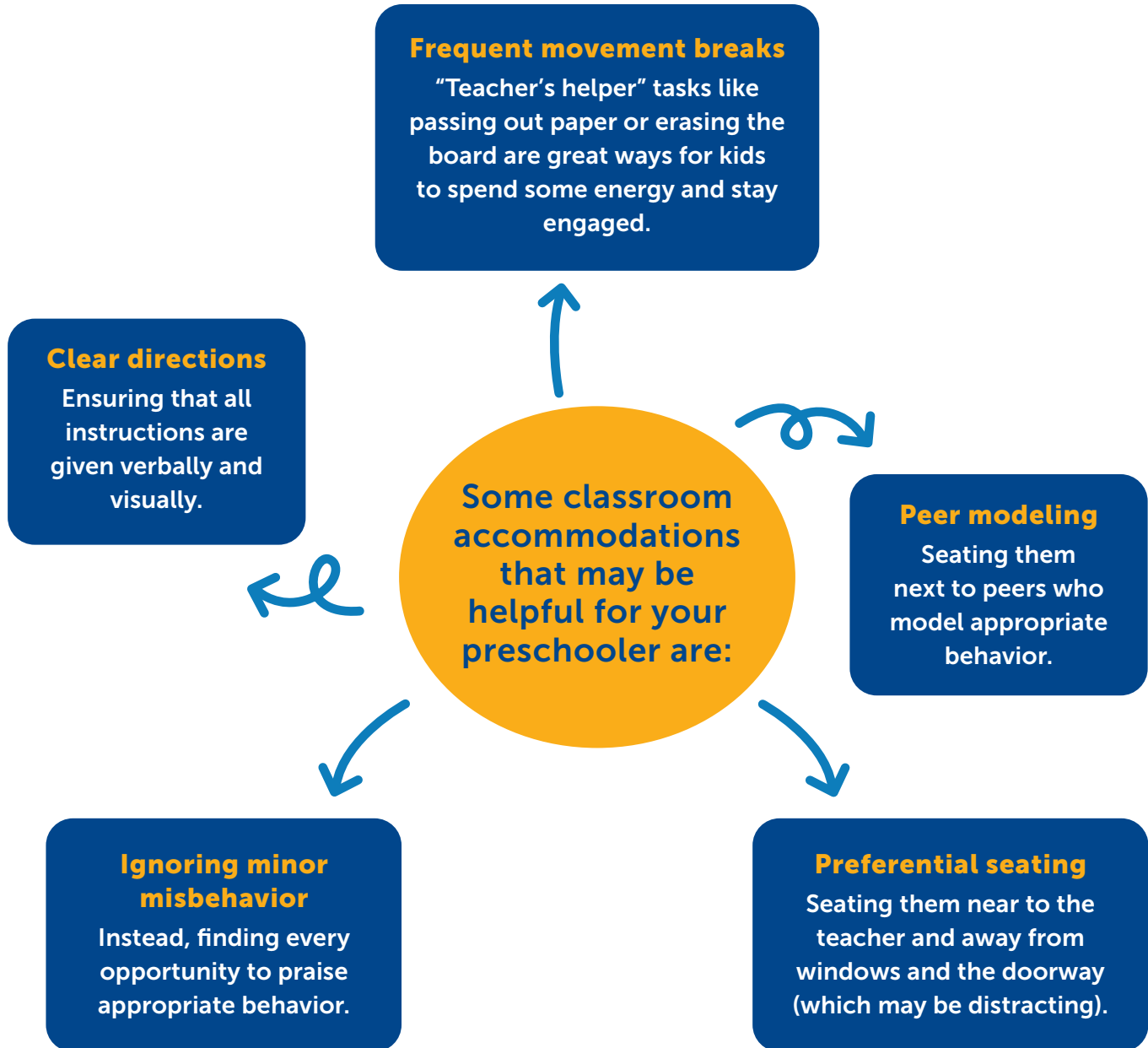
School districts are required to create a customized plan for each student to implement these protections. These plans are called Individualized Education Programs (IEPs) and 504 Plans. These plans are generally not offered by private daycare centers, but you and your child's clinician can still offer suggestions to your child's day care staff about how they can work best with your preschooler using the strategies provided in the figure on the following page.

The details of what these plans offer vary widely between school districts. Whether your child qualifies for services through an IEP or accommodations through a 504 Plan depends on the degree of your child's impairment. The goal of accommodations in the classroom should be to create an environment that encourages engagement and supports learning.

Some parents wonder whether they should tell their child's school about their child's diagnosis. We recommend open communication with your child's school to make sure that they are aware of your child's needs and that services are outlined in an IEP or 504 Plan. It's important for establishing appropriate expectations and a positive classroom environment.

Some important questions to consider when choosing a preschool include:

- Is there a high ratio of teachers to children in the classroom?
- How much experience does the staff have with children with ADHD and using behavior management techniques?
- Is the program highly structured, with consistent routines and expectations each day?
- Are visual aids and schedules being used to enhance engagement and learning?
- What is the physical space like? Will your child have enough ways to expend their energy positively?



For Further Reading:

1. A 14-Month Randomized Clinical Trial of Treatment Strategies for Attention-Deficit/Hyperactivity Disorder. Archives of General Psychiatry. 1999;56:1073.
2. CHADD: <https://chadd.org>
3. HealthyChildren.org
4. Bright Futures: <https://www.brightfutures.org>

Executive functioning

Executive functioning (EF) is the collection of skills that allows us to organize our thoughts, set priorities, stay motivated, regulate our emotions and much more. EF is like the “boss” of the brain and helps to manage other brain (cognitive) functions. EF occurs primarily within the prefrontal cortex (part of the brain’s frontal lobe) with connections to other brain regions to provide support. This brain region, along with corresponding EF skills, begins to actively develop between adolescence through early adulthood. Because this part of the brain develops later, many EF skills (especially more complex ones) don’t emerge until the early teens to mid-20s. Behavioral inhibition and working memory are among the first EF’s to develop in preschool. Cognitive flexibility develops later (school age to adolescence) and builds upon the EF skills learned in earlier years.

Many challenges that are commonly considered to be an ADHD symptom are actually related to EF. Differences often found in ADHD brains, primarily in the frontal lobe, are suspected to be connected to the behavioral challenges and EF associated with ADHD.

Core Executive Functioning Skills

EF Skill	Definition	Challenges associated with this EF Skill
Inhibition (Cognitive/Mental and Behavioral Inhibition)	Ability to stop automatic or dominant responses and to control one’s behaviors, emotions and thinking	<ul style="list-style-type: none"> • Overreacting to consequences or correction of their behaviors • Risky behavior, like climbing trees unsafely or running into the street after a ball • Difficulty playing with 1 thing at a time
Working Memory (Visual and Verbal Working Memory)	Ability to remember/hold information in the mind to “work” with it	<ul style="list-style-type: none"> • Quickly forgetting what you just told them (verbal) • Difficulty remembering more than 2 simple things at a time • Quickly forgetting where they placed things
Cognitive Flexibility	Ability to shift or alternate thinking between different concepts or ideas	<ul style="list-style-type: none"> • It is typical for a child to not be able to shift thinking/behaviors until age 7-9 (so be patient!) • Needing extra, extra time to switch tasks • Difficulty seeing things from 2 different perspectives at the same time (around age 5-7)



Developmental Phase

Preschool - Elementary

Upper Elementary / Middle School

EF Skill

Working Memory & Inhibitory Control (emerging)

Working Memory & Inhibitory Control (advanced)

Definition

Working Memory refers to the ability to hold information in mind long enough to follow single and multi-step instructions; it is also needed for rote memorization of facts once children start formal education.

Inhibitory control comes into play when we instruct children to “look both ways before crossing the street”, delay gratification during the iconic “marshmallow task”, and wait until fresh-baked cookies cool before eating them.

Challenges associated with this EF Skill

Little ones who “have trouble listening” or who are identified as “impulsive” at home or in daycare settings are more often than not delayed or deficient in the development of these emerging EF skills and should be monitored.

The prototypical elementary school student sitting at their desk listening attentively to their teacher requires well developed capacities for working memory and inhibitory control; and children who do not seem to be fitting into this mode – certainly by Third Grade but often sooner -- are often identified for further evaluation and intervention.



High School

Mental Flexibility & Time Management
(developing)

Mental flexibility is the skill required to manage one's time (especially in regard to long-term goals like end-of-term projects or applying for college or a first job), take others' perspectives, think abstractly, and "multi-task" (meaning, in this instance, to be able to switch seamlessly between different types of activities).

The classic "Sunday night panic" – realizing that one has waited too long to complete a major assignment – comes from having poorly developed mental flexibility (and often maladaptive compensatory behaviors like procrastination and task avoidance). Learners with deficiencies in this domain will often be quite rigid and unable to consider alternative problem-solving strategies even when their current one proves ineffective – sometimes resulting in irritability and immature temper outbursts.



Young Adult

Mental Flexibility & Time Management ("work-ready")

By this age, the majority of young adults in their mid-20's should be functioning more or less independently. When they are not, as is often the case with ADHD and other neurodevelopmental conditions, we might see major problems in work completion at school or work. The "first year flameout" – college students who need to take a leave of absence after their first semester – are often struggling with the skills needed to organize their time and accordingly fail to complete their assignments and thus end up on academic probation. This kind of setback often coincides with secondary mental health and substance use problems (arising from task avoidance, low self-esteem, or both). Recognizing the primary EF problem can help a great deal in helping these students (and new employees) to get out of self-destructive patterns and focus on learning the skills that will make them successful.

Tips for parents

Children with ADHD and EF challenges benefit from direct instruction (teaching) of EF skills, and parents are some of the best role models and "coaches."

- Younger children often need a lot more support in learning structures, routines and rules. Clearly explain to your child rules, routines and expectations. Model or show them what they should do and practice, practice, practice!
- Pretend play is great for developing memory, flexibility and problem-solving. Join in on their play and praise all of the great skills that they are using, such as "I like how you tried something different and fixed it!"
- Create a daily visual schedule for your home.
- Timers can be helpful if your child has a hard time shifting their focus away from something fun to something else (turning off a game to brush teeth for bed).
- Break down larger tasks into small and more realistic ones.
- A visual checklist of tasks your child needs to do (such as things that go into their backpack) may be helpful.
- Encourage your child to use an organizational system, like using colored bins for their belongings (toys, shoes). This practice with organization at home will pay off when they go to school.
- You can encourage memory skills through learning songs (B.I.N.G.O.), plays/scripts and games (Memory, Guess Who?).
- Games are great ways to encourage patience, sharing, memory and turn-taking. In addition to board games and card games, you can make up your own "Good Behavior Game." Or try a game when for 1 minute, everyone has to be quiet or for 1 minute everyone has to stay seated and wait to eat a cookie.
- To encourage emotional control, teach your child coping strategies (deep breaths, counting to 10) during neutral times and apply these relaxation strategies during times of stress. Verbal prompts or using a visual list/pictures of strategies can be helpful until your child becomes more independent with using coping skills.
- Check in with your child daily and provide positive and supportive feedback. Name and praise the skills they are using, and say that you want them to continue to do them! Avoid criticism or using a harsh tone, which often has the opposite effect and may make your child resistant to trying the skills again. As your child learns new skills, gradually pull back your support and encourage your child's independence.

References

- Diamond A. Executive Functions. *Annu Rev Psychol.* 2013;64:135-168. doi:10.1146/annurev-psych-113011-143750
- Goldstein S, Naglieri JA, eds. *Handbook of Executive Functioning.* Springer-Verlag; 2014. doi:10.1007/978-1-4614-8106-5
- Dawson, P., Guare, R. *Smart but Scattered: The Revolutionary Executive Skills Approach to Helping Kids Reach Their Potential.* Guilford Press; 2009.
- Guare, R., Dawson, P, Guare, C. R. *Smart but Scattered Teens: The Executive Skills Program for Helping Teens Reach Their Potential.* Guilford Press; 2012.
- Center on the Developing Child at Harvard University. *Enhancing and practicing executive function skills with children from infancy to adolescence.*
<https://46y5eh11fhgw3ve3ytpwxt9r-wpengine.netdna-ssl.com/wp-content/uploads/2015/05/Enhancing-and-Practicing-Executive-Function-Skills-with-Children-from-Infancy-to-Adolescence-1.pdf>

Behavior and ADHD

Many children have behavioral, social and emotional challenges. These challenges might be more common in children with ADHD because of the increasing demand for self-control, like sitting still, listening and paying attention.

Transitions between activities, especially from preferred activities (playing) to less preferred activities (homework or brushing teeth), can be especially hard for children with ADHD, and this is when behavioral problems most often arise.

The strategies described below help with managing behavior and improving social and emotional wellbeing. They can be done at home, as well as with support from a therapist, teacher or healthcare provider. A general rule to keep in mind is that positive behavioral strategies are more effective than punishment.

Catch your child being good

Most children look to adults for responses to their behavior, and their behavior is affected by the way adults respond to them. Giving positive attention will motivate a child to do the same behavior again. Children with ADHD often get negative responses to their behavior. It's even more important to pay attention to your child's good (or desired) behaviors. Plus, positive behaviors are more effective than punishments at increasing desired behaviors.

Tangible rewards

Tokens and behavior charts are ways for parents and teachers to acknowledge, track and reward preferred behavior in the form of giving stickers or tokens. It gives immediate reinforcement and helps your child feel a sense of accomplishment.

Each time your child shows a desired behavior, reward them by placing a sticker on a chart or placing a token in a jar. For example, you might ask your child to pick up their toys or sit at the table nicely for their meal. When they do this, a sticker gets placed on their chart or a token gets placed in a jar. When the chart or the jar are full, they earn a reward, like special time with a parent. Special time might mean playing a favorite game, going for a walk or blowing bubbles outside. It doesn't have to be long to be effective!

If your child is asking whether their behavior will get a sticker, it means they're invested in the system. It's a good sign that you will be able to channel your child's positive motivation.

Directed praise

When a behavior is acknowledged through praise and rewards, your child is more likely to do it again. Praise is a positive response through words ("Great job picking up your toys!") and/or actions (high fives or hugs).

Praise should...

- Happen immediately after the desired behavior
- Be specific
- Be genuine
- Be consistent

Kids respond to different types of strategies. 1 of these will likely work for your child.

Use them 1 at a time to see the effect they have – not all at once.

Redirect – Offer another activity for your child to do instead.

Example: Your child is whining. Instead of asking them to stop, ask them to help you make dinner.

Provide a forced choice – Provide 2 or 3 options for your child to choose from. This gives them some control in a decision.

Example: Your child is crying because they want a candy bar. Offer them 2 other snack options (“No candy bar. Do you want crackers or an apple?”)

Replace the behavior – Replace the undesired behavior with something else.

Example: Your child is repeatedly tapping their fingers on a desk. Give them a stress ball or thinking putty to occupy their hands.

Daily Report Cards (DRCs)

Your child's school may use a DRC (also called a Positive Behavior Plan) to improve your child's effort, attention and other behaviors. They can improve communication between the school and home. Goals written on the DRC should be "just right," so that they're challenging, but doable. For more information, look up the Center for Children and Families at Florida International University website.

Encouragement

Kids with ADHD have a much harder time starting and finishing tasks like chores. Giving simple prompts and words of encouragement lets them know that their efforts are being noticed. Prompts can be helpful reminders to start and follow through with tasks. Encouragement can boost their sense of accomplishment, especially for hard tasks or ones they don't like. We recommend 4 positive or encouraging statements to 1 redirection or criticism.

Positive phrasing

Parents and teachers need to provide positive directions for how they want children to behave. Kids are often told what *not* to do but not what parents want them *to* do. This includes using more positive than negative language (avoiding "no"). For example, say something like, "Walk in the hallway, please." instead of "Don't run," or "Quiet voices, please" instead of "Stop yelling!" In these examples, using positive language encourages and provides specific feedback on what they should do instead.

Consistency

All children benefit from consistency and structure, especially kids with ADHD. Although you can't control every situation, there are ways to make your child's day more predictable, so they know what to expect.

- A visual schedule helps by breaking down tasks (getting ready for school in the morning) or routines (doing homework after school) using words and visuals together. Your child can check off activities as they complete them.
- Timers help set limits on how long an activity will last and helps your child transition between tasks.
- Putting specific events or changes in routine on a calendar can help your child anticipate what changes will happen when. It can be helpful to look at the changes coming up with your child, like a family vacation or end of the school year.
- Social Stories® break down unfamiliar events using concrete and safe language. They can explain any concept and can be repeated to prepare for an event.

Ignore negative behaviors

Unlike giving praise, ignoring a behavior can make it happen less over time. This is because negative attention, like yelling, negotiating or even showing strong emotions on your face can accidentally encourage (reinforce) unwanted behavior. Pick and choose your battles. If no one is getting hurt, the behavior can likely be ignored. However, the behavior may worsen before it gets better. This is called an extinction burst.

What if these behaviors are unsafe?

Unsafe behaviors are physically dangerous to your child or others. They can't be ignored and you need to respond. If the behavior is not a safety risk but is concerning, look at the section titled "Acknowledging positive behaviors."

How to approach unwanted behavior

- Stay calm (or at least pretend to)! Remember, yelling is a form of attention and can accidentally encourage (reinforce) unwanted behavior.
- Be consistent. If you sometimes respond and sometimes don't, the behavior might worsen.
- Acknowledge feelings after the moment has passed. Let your child know that you understand why they feel the way they do. It helps them expand their feelings vocabulary. "I understand that you're frustrated, you were playing with that toy. But we do not hit our friends."

Discipline

Discipline is the practice of training people to obey rules or a code of behavior. Sometimes discipline and punishment are necessary. But don't use punishment often, and only for specific behaviors. Punishment alone doesn't teach skills.

Time outs

Time out is a chance for a reset when your child loses control and behaves inappropriately. Time outs should be clear, immediate and consistent.

Making it clear helps your child understand why it is happening. Keep explanations simple, and only say them once ("If you hit, you will get a time out. If you use safe hands, you keep playing!").

Making it immediate helps your child understand exactly when it will happen. If you give a time out immediately after the behavior, your child will learn that their behavior caused the time out. This is more effective than talking through the behaviors later.

Consistency is key when shaping behaviors.



Steps for successful time outs

STEP 1

This area should be safe and free of toys and attention from others. 'This area should be safe. Remove toys and don't let other people give your child attention during time out.

STEP 2

Stay calm (or again, at least pretend to).

STEP 3

Tell your child in simple words what the problem behavior is ("no hitting"), and that they need take a time out.

STEP 4

Place your child in a safe, quiet corner, and do not engage with them until they are calm and regulated. Many experts recommend keeping a child in time out for the number of minutes that equals their age. So, a 4 year old would be in time out for 4 minutes. It's most important to have your child "re-set" their behavior than stick to a strict time limit.

STEP 5

After your child has calmed down, praise them for doing a good job calming down. Remind them why they were put in the time out using positive language ("Remember, safe hands!") and bring them back into the group or activity. Remember that the time out was the punishment and now it's over.

STEP 6

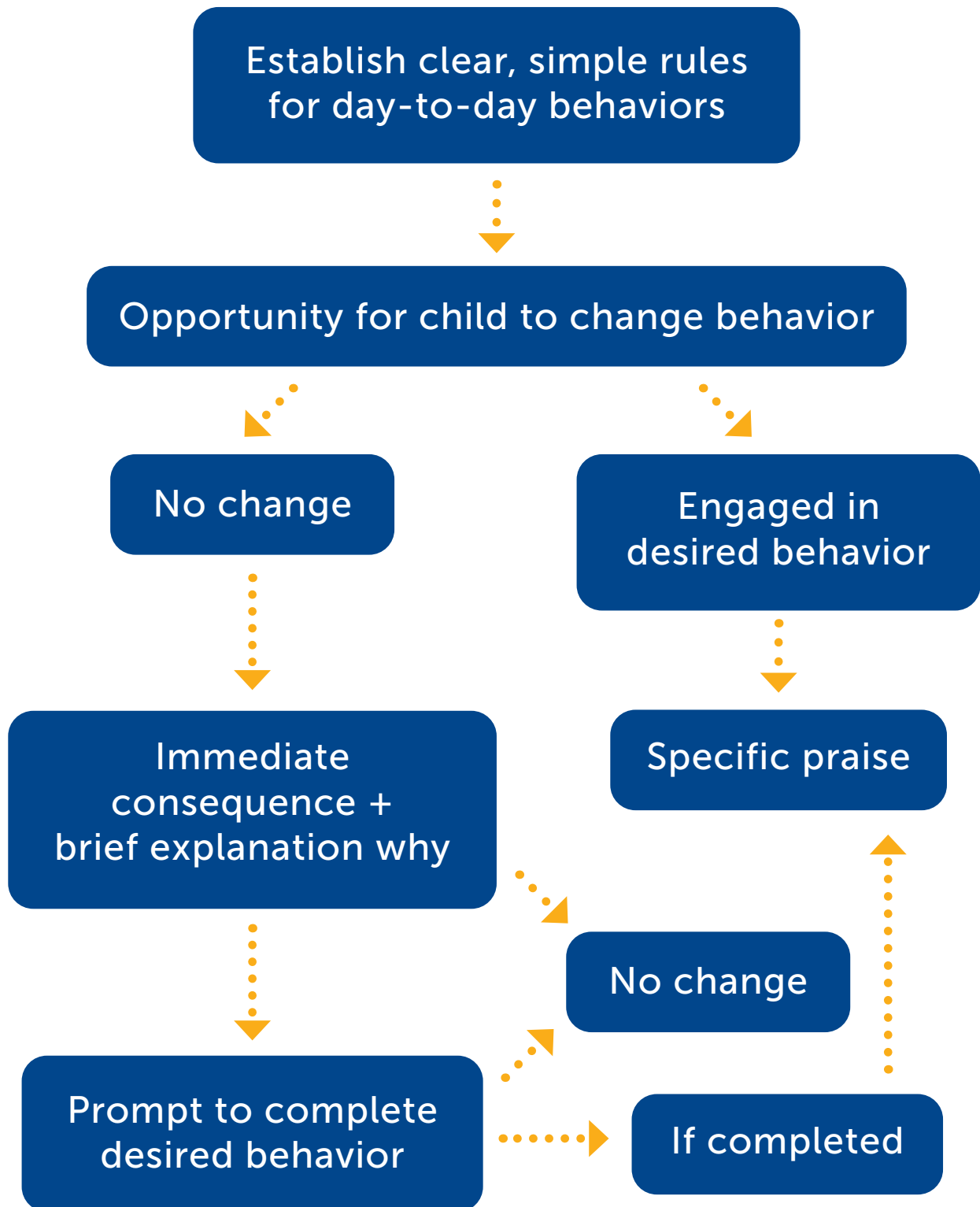
Allow for positive "time in" with your child every day. This will make the time they spend in time out that much more effective, because the desire to be with you receiving positive attention and will have stronger motivation for avoiding behaviors that lead to time out.

Remember:

Your child may be engaging in behaviors to avoid a task. Sending them to their room may give them the break they were seeking or a way to not complete the task. So, it's important to make sure that they go back and complete the original task after the time out is over.

Punishment alone doesn't teach skills. Your child will learn what *not* to do, but not what *to* do instead. Appropriate discipline helps teach skills.

Appropriate Discipline



Supports and resources

These strategies can help manage difficult behaviors in your home, community and at school.

Other supports that might be helpful may include:

- **Working with a behavior specialist.** Behavior therapy at this age includes training you (parent/s). It teaches you practical strategies geared to your child's behaviors.
- **Friendships.** Having 1 close friend can help children with ADHD who may have difficulty connecting with their peers.
- **Exercise.** Finding ways to increase opportunities for kids to be active can address symptoms of inattention and hyperactivity.
- **Extra-curricular activities.** Encourage your child to participate in activities that are fun and engaging to help them feel successful and increase their self-esteem. These activities can also improve social behaviors and allow your child to be creative.
- **Doctor support.** Kids with ADHD may have additional challenges. Maintaining a close relationship with your child's doctor or therapist can be helpful to help manage challenges as they arise and support your child's development.

Parent self-care

Raising children can be challenging. Raising a child with ADHD can be even more challenging. Taking time for yourself is very important. Giving yourself a break and pursuing your own interests and relationships will help you be an even better parent.

For Further Reading:

- "Smart but Scattered: The revolutionary executive skills approach to helping kids reach their potential," by Peg Dawson and Richard Guare.
- "Superparenting for ADD," by Edward Hallowell and John Ratey.
- The website Children and Adults with Attention Deficit/Hyperactivity Disorder (chadd.org).
- "Taking Charge of ADHD, Third Edition: The Complete Authoritative Guide for Parents" by Russell Barkley, PhD, to be a useful resource. This book outlines many of the behavioral management strategies that assist parents of children with ADHD.
- help4adhd.org



Building independence

Paving the way toward independence begins in infancy and continues through young adulthood. Children need many opportunities to try out new tasks for themselves, build their confidence and gain mastery. You play a key role in the process by teaching your child new skills slowly, using a step-by-step approach. Here are some ways to help your child build independence:

Consistency and structure

Structure at home is a “magic ingredient” for most children, and especially for children with ADHD. Keeping a basic routine can help improve your child’s behavior and support independence. Consider setting routines for the morning, after school, dinner time, bedtime and weekend.

Set age-appropriate goals

- Choose activities that your child can do by themselves.
- Model new skills, like tying shoelaces. Once your child enjoys practicing the new skill with you, you can encourage them to do it by themselves.

Reinforce desired behavior

- Provide specific praise when your child completes a task. Instead of saying something general, like “good job”, label what they did well: Good job putting away your shoes! I like that you put away your toys by yourself!
- Use a visual reward system, like a sticker chart, to help your child track their efforts at home. Keep the system simple and focus on just a few behaviors to reinforce at a time. It will help keep the whole family focused.
- Always “catch your child being good” when they independently behave in ways that you want to repeat.

Tools to help

Visual schedules, chore charts and bulletin boards can display useful information that helps your child complete their routine.

After school routine



Hang up coat



Put shoes away



Wash hands



Have a snack



Play



Read a book/
homework



Eat dinner



Shower



Sleep

Social skills

It's not hard to imagine how behaviors like having a tough time waiting your turn or interrupting could be off-putting to peers. Children with ADHD often struggle socially,¹ because inattention lowers their ability to a) notice and appropriately respond to social cues given by their peers, and b) acquire social skills through observational learning.^{2,3} Research shows that ADHD symptoms contribute to an interaction style that is bossy and disruptive.⁴ As a result, they may be quickly judged and rejected by peers,⁵⁻⁷ and they are less likely to have close friendships.⁸

As parents, you play a critically important role. Through modeling, providing structure and talking through expectations and problem-solving with your child, you provide a context for them to learn appropriate social behaviors. Children with ADHD will not learn without having opportunities to recover from mistakes and try new skills. Treating ADHD symptoms can help with impulsive interrupting or failing to listen to others before speaking, but kids really need the practice! Our goal is to build confidence and competence, not guarantee instant success.



Here are some tips for helping kids navigate social situations with ADHD:

Best friendship

Research shows that focusing on the development of a single close friendship may show greater gains than an entire group.⁹ Try to foster any positive peer relationship that your child has.

Extracurricular activities

Enroll your child in team sports and extracurricular activities. They will need coaching from you, and you will want to carefully select team coaches/instructors who have the temperament and skillset to manage ADHD-related behaviors.

Follow-through and prep

Follow through on plans. And help your child prepare for playdates, birthday parties and other social events. Talk through expectations and any anticipated difficulties. If you know something will be hard for your child, problem-solve and strategize together.

Structure and strategy for playdates

Playdates usually go better with at least some structure rather than a lot of down time. Come up with fun activities with your child ahead of time. Activities may include baking cookies, creating an obstacle course, playing a yard game or doing an art project. Doing some type of physical activity (sports, tag, ice skating) can be good ideas.

Give feedback immediately and often

To help your child begin to notice (and monitor) their own behavior that may be causing social difficulties (interrupting, getting too close to others, grabbing), give your child feedback right away and often. Be sure to give feedback privately (away from peers) and in a tone that is supportive, rather than critical.

Targets, goals and rewards

Identify 1 or 2 areas where your child is struggling socially. Create goals on improving a specific behavior or skill (greeting others, sharing, keeping hands to self). Because this isn't easy for your child, you can come up with creative ways to remind them to remember their goals. For example, if your child is working on "personal space" encourage them to imagine everyone around them in hot lava, or that they are all standing in hula-hoops. Remember to reward your child when they reach a goal or demonstrate a targeted behavior. Rewards may simply include praise or include something tangible that was previously agreed upon. Remember, this is not easy for your child and we want to celebrate their hard work and accomplishments (big or small)!

Lead by example and explain

Not only do you want to model prosocial (expected or "good") behavior and problem-solving, but also try to point out what you're doing or noticing by verbalizing or explaining. For example, speak about why you're choosing to reach out to a friend, or what you're noticing about someone's facial expression and how you may respond. This may be family members, characters on TV, etc.

Systems that support success

As children get older, they need to take on greater independence. This means greater potential for missed social opportunities, sending the wrong message and for frustration within a friendship. For example, if your teen often runs late to social events, they may not be invited anymore. Or if your child forgets to text their friend back, that friend may withdraw. Set up a system that sets your child up for success. For example, you may encourage your child to set a reminder in their phone each day to respond to texts or calls from friends. When you're creating these systems, it will be important to explain why addressing these behaviors are important and how missed texts or being late can impact relationships.

References

1. Hoza B, Mrug S, Gerdes AC, Bukowski WM, Kraemer HC, Wigal T, et al. What aspects of peer relationships are impaired in children with attention-deficit/hyperactivity disorder? *J Consult Clin Psychol*. 2005;
2. Cunningham CE, Siegel LS, Offord DR. A developmental dose-response analysis of the effects of methylphenidate on the peer interactions of attention deficit disordered boys. *Journal Of Child Psychology And Psychiatry, And Allied Disciplines* [Internet]. 1985 Nov [cited 2019 Sep 19];26(6):955–71. Available from: <http://search.ebscohost.com/login.aspx?direct=true&db=mnh&AN=4066819&site=ehost-live&scope=site>
3. Landau, S. & Milich, R. *J Abnorm Child Psychol* (1988) 16: 69. <https://doi.org/10.1007/BF00910501>
4. Whalen CK, Henker B. The Social Profile of Attention-Deficit Hyperactivity Disorder: Five Fundamental Facets. *Child Adolesc Psychiatr Clin N Am* [Internet]. 1992 Oct 1 [cited 2019 Sep 19];1(2):395–410. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S1056499318305959>
5. Hoza B. Peer Functioning in Children With ADHD. *J Pediatr Psychol* [Internet]. 2007 May 28 [cited 2019 Jan 17];32(6):655–63. Available from: <https://academic.oup.com/jpepsy/article-lookup/doi/10.1093/jpepsy/jsm024>
6. Peer relationships in hyperactive children: Description and treatment. - *PsycNET* [Internet]. [cited 2019 Sep 19]. Available from: <https://psycnet.apa.org/record/1983-06085-001>
7. Ernhardt & Hinshaw, 1994. Initial Sociometric Impressions of Attention-Deficit Hyperactivity Disorder and Comparison Boys: Predictions from Social Behaviors and from Nonbehavioral Variables., *Journal of Consulting and Clinical Psychology*, 1994. [cited 2019 Sep 19]; Available from: <https://eric.ed.gov/?id=EJ494314>
8. Hoza B, Mrug S, Pelham WE, Greiner AR, Gnagy EM. A friendship intervention for children with Attention-Deficit/Hyperactivity Disorder: Preliminary findings. *J Atten Disord* [Internet]. 2003 Apr 26 [cited 2019 Jan 17];6(3):87–98. Available from: <http://journals.sagepub.com/doi/10.1177/108705470300600301>
9. Gardner DM, Gerdes, AC. A Review of Peer Relationships and Friendships in Youth with ADHD [Internet]. Vol. 19, *Journal of Attention Disorders*. DOI: 2015 [cited 2019 Sep 5]. Available from: https://epublications.marquette.edu/cgi/viewcontent.cgi?article=1203&context=psych_fac

Sleep and ADHD

Overview

Sleep is important for your child's development, behavior and overall health. Poor sleep can lead to more hyperactivity and impulsivity, and children with ADHD are more likely to have sleep problems. Between 15-30% of preschool-aged children have trouble falling asleep or wake up at night. Many preschoolers have difficulty with both.¹ Recommended sleep time for children ages 3-5 years is 10-13 hours (including naps) a day.² Improving your child's sleep, along with other treatments for ADHD, can improve their behavior.

Sleep hygiene

"Good sleep hygiene" refers to the behaviors and routines that promote good quality sleep. This is an important part of helping your child sleep well each night. Children with ADHD benefit from structure and routine, and your child should have a consistent sleep routine every night that includes quiet and calming activities. For example, they might brush their teeth, get into pajamas and then read a story or listen to quiet music in bed. We recommend dimming the lights before bedtime and not filling your child's bed with toys. Their bed should be a place to sleep, not to play.

At the end of your child's bedtime routine, when you leave their room, they should be sleepy but not yet asleep so that they learn to fall asleep on their own. They should fall asleep the same way every night. This way, they can fall back asleep on their own if they wake up at night.³

Bedtime challenges

Many preschoolers resist going to bed with a behavioral response, such as throwing a tantrum, demanding that you stay in their room or coming out to ask you for something. This is normal behavior for this age. A consistent routine and maintenance of boundaries along with using the strategies discussed above can help manage this behavior.



Here are several ways those strategies may be applied to bedtime:

Positive reinforcement

Use sticker charts or other positive reinforcement at bedtime to encourage your child to stick to a bedtime routine. For example, your child could earn a sticker for finishing parts of their bedtime routine or they could get a sticker each morning for having stayed in bed at bedtime.

Limit setting (“1 and done”)

Many preschoolers resist bedtime by increasing demands like asking for a snack, to go to the bathroom or for another story. Setting a limit can help to stop this behavior and shorten the bedtime routine. For example, they can ask for 1 additional story and have 1 bathroom trip. After that, they have to stay in bed to earn a sticker.

Systematic ignoring

If your child has a hard time separating from you at night, this technique can help. Put your child to bed drowsy, but awake. If they call you, reassure them briefly (1-2 minutes) with a pat on shoulder and consistent phrases (“I love you. It’s nighttime and it is time to sleep”) rather than picking them up or giving long explanations and cuddling. Then wait for longer and longer amounts of time between responses (2 minutes, then 5 minutes, then 10 minutes, etc.)⁴

Talk with your child’s doctor if they continue to have problems sleeping. Other conditions, such as periodic limb movement disorder, can be associated with ADHD and can affect your child’s ability to sleep well. Treating both conditions can improve their overall sleep quality. This can help their ability to focus and self-regulate.⁵

References

1. Kerr S, Jowett S. Sleep problems in pre-school children: a review of the literature. *Child Care Health Dev* 1994; 20:379.
2. Recommended Amount of Sleep for Pediatric Populations: A Consensus Statement of the American Academy of Sleep Medicine. Paruthi S, Brooks LJ, D’Ambrosio C, Hall WA, Kotagal S, Lloyd RM, Malow BA, Maski K, Nichols C, Quan SF, Rosen CL, Troester MM, Wise MS. *J Clin Sleep Med*. 2016;12(6):785. Epub 2016 Jun 15.
3. Owens J, Mindell J. Sleep Hygiene: Healthy Sleep Habits for Children and Adolescents. In: *A Clinical Guide to Pediatric Sleep*, 2nd ed, Lippincott, Williams & Wilkins, Philadelphia 2010.
4. https://www.uptodate.com/contents/behavioral-sleep-problems-in-children?search=sleep&source=search_result&selectedTitle=3~150&usage_type=default&display_rank=3#H3923040410
5. Avi Sadeh, Lee Pergamin, Yair Bar-Haim. Sleep in children with attention-deficit hyperactivity disorder: A meta-analysis of polysomnographic studies. *Sleep Medicine Reviews*: 10, 381–398. 2006

Nutrition and ADHD

Picky eating

- Children often go through phases when their preferred (yum!) and non-preferred (yuck!) foods vary. As they go through different phases, the amount that they eat can change a lot – from a seemingly small amount 1 day to more than yourself the next! This is normal.
- The best way to approach changes in your child's preferences is to consistently model healthy eating and offer variety of food choices to help them feel independent. For example, offer 2 healthy choices at snack time and let your child choose which they would like to have. Then, eat it with them!
- Make meals interesting by involving your child in preparation. Include colorful items from each food group and experiment with the way it looks. For example, apples can be eaten in thin slices, with a yogurt dip or peanut butter, or cooked into applesauce. Keep in mind that your child may need to try a new food up to 12 times before it becomes something they feel familiar with. When a food is new and not yet preferred, a "serving" may just be 1 or 2 bites.
- Serve your child an appropriate amount of food for their age. For example, a serving of a fruit or vegetable for a 4 to 5-year-old child might be ¼ to ½ of a cup. For a sample daily menu with serving sizes, you can visit <https://www.healthychildren.org>
- Talk with your child about "healthy fuel for healthy bodies" if they are old enough. Remember that your goal is to help them to make healthful choices on their own!
- Never respond to your child's refusal to eat a certain type or amount of food in anger. Don't give ultimatums or bribes. This will only create a battle that no one will win. Do your best to stay neutral and consistent in your responses.
- If you feel that these tips aren't working, that your child is not making progress with eating or that they are getting more picky, talk with your child's healthcare provider.

Healthy diet tips

- Feed your child a healthy diet with enough fruits, vegetables, whole grains, lean proteins and healthy fats.
- Give them 3 meals a day, with 1-2 small snacks between mealtimes as needed. Limit snacking between meals to help them to be hungry for meals.
- Make sure they drink mostly water. Limit juice.
- Avoid food and drinks that are highly processed, high in sugar or that have caffeine.
- Eat meals while sitting at a table as part of a shared experience. Have at least 1 family meal together a day to model healthful cooking, enjoying nutritious foods and family bonding.
- Keep mealtimes to no more than 20–30 minutes, especially for young children.

Appetite

Your child's appetite may vary from day to day. Having consistent mealtimes, offering appropriate serving sizes of food and limiting snacks can help maintain a healthy appetite.

For children who take medication for ADHD, there are a few other things to be aware of:

- A common side effect of stimulant medications to treat ADHD is appetite suppression, or a lower appetite. This only happens when the medication is active. Your child may not be as hungry around midday, when their medication is at its peak effectiveness. This may mean they don't eat as much at lunchtime. Your child's appetite will probably return as the medication wears off in the evening.
- Some children may have some mild belly pain. This also happens only when the medication is at its peak, and should get better as it wears off.
- We recommend having your child eat a healthful breakfast in the morning before they take their medication. Even if your child is not a big breakfast eater or has a hard time getting out the door in the mornings, they may enjoy something fast, like trail mix or a smoothie with yogurt.
- If your child is not hungry at lunch, you can provide nutritious, calorie-dense foods like nut butters, avocado, hard boiled eggs, dried fruit or cheese. Eating even a small amount of these foods can give them healthy energy to move through their day.
- If your child eats less at lunch but then gets hungry in the evening after their medication has worn off, consider offering them an extra helping of dinner or a healthy evening snack.
- Most children continue to take in the same number of calories even if they are at different times during the day. Your child's doctor will monitor their growth and you can talk about it together at follow-up visits. If you ever have a concern about your child's nutritional intake or growth, you should discuss it with your healthcare provider.

Elimination diets

- Elimination diets include gluten-free, casein-free, dye-free and other restrictive dietary plans that "eliminate" intake of certain foods types or ingredients. Food additives, allergies and intolerances typically do not affect behavior in a clinically significant way. Elimination diets are not routinely recommended for children with ADHD because there is not clear evidence showing that they are effective.
- If the decision to try an elimination diet is being considered, the diet should be supervised by your child's healthcare provider and a dietician. Your child's healthcare team can collect detailed information about their symptoms, advise on how to approach maintaining appropriate nutrition and monitor your child's growth carefully.

Supplements

- Fatty acids (like omega-3s): Although fatty acid supplements aren't likely to be harmful, they are not recommended as a treatment for ADHD because there is no clear evidence that increasing fatty acid concentrations in children with ADHD improves their symptoms.
- Megavitamins: There is no evidence that megavitamins are beneficial in treating the core symptoms of ADHD. There is also a significant risk of serious side effects related to their use.

Interventions Q&A

Excerpts from this section were featured in the Discoveries – Stories and News from Boston Children's blog post, "Common questions about ADHD Treatment": <http://discoveries.childrenshospital.org/adhd-treatment/>

Evidence-based interventions are treatments that have been studied using standardized procedures and have shown to be effective. If an ADHD treatment has demonstrated positive results in multiple, well-done research studies, then it's reasonable to consider it as a treatment (or what we call an "intervention") for your child.

When considering an intervention, we recommend that you ask your child's clinician if there are research studies that back it up. Here at Boston Children's Hospital, we only recommend a treatment if there is an established, published track record of the treatment. Please feel free to call your provider at Boston Children's for guidance if you have questions about an intervention you've heard about.

If a treatment has not been rigorously studied, it has the potential to be harmful, ineffective or be a waste of your time and money.

Below, we share answers to some common questions that parents ask about ADHD treatments for their children.



Will omega-3 fatty acid supplements improve their ADHD symptoms? What about any other supplements or vitamins?



Omega-3 fatty acid or fish oil pills are commonly used supplements in the United States that may reduce inflammation and improve health outcomes for certain conditions. While they seem to be helpful for overall health and wellness, there is currently no clear evidence that shows clinical benefits from omega-3 supplements in improving outcomes for children and adolescents with ADHD.¹ So, we don't generally recommend omega-3 or essential fatty acid supplements to treat ADHD.

Vitamin supplements have not been proven to impact ADHD treatment either. Using megavitamins to treat ADHD has been shown to be ineffective and potentially harmful, and should be avoided.²

Q Should I cut out sugar, food additives, casein or gluten from my child's diet? Will putting them on a special diet improve their ADHD symptoms?

A While some children may have true allergy or sensitivity to these foods, most children (with or without ADHD) do not. Elimination diets, like sugar-free, casein-free, additive-free, the "few foods diet" (also called an oligoantigenic diet) and gluten-free diets are unlikely to improve ADHD symptoms in the majority of children.³ Also, clinical guidelines from the American Academy of Pediatrics do not routinely advise elimination diets for ADHD treatment.

At Boston Children's, we generally don't recommend special diets or elimination diets for children with ADHD. All children, with or without ADHD, benefit from a healthful diet focused on whole grains, fruits and vegetables, with little processed foods. Lowering the amount of food additives, like food colorings and preservatives, is a good idea for all children because of health concerns about these products.⁴ Studies have not shown a link between sugar intake and hyperactivity, but all children benefit from only having a moderate amount of sugar to help promote healthy growth. Our providers are available to answer any questions or talk about elimination diets. If you do decide to try an elimination diet, it's important to work with your child's doctor and dietitian to make sure that their nutritional needs are met.

Q An occupational therapist at my child's school recommended a weighted blanket and sitting on a yoga ball during class.

A Occupational therapy has known benefits, like improving fine and gross motor strength and coordination, but it has not been proven to be clinically beneficial for treating ADHD. Occupational and physical therapy could certainly be helpful if your child has motor weakness or coordination issues (usually motor apraxia or developmental coordination disorder)—but not for ADHD.

Some occupational therapists have suggested that "sensory processing disorder" may underlie or overlap with the various symptoms of ADHD and other neurodevelopmental disorders like Autism Spectrum Disorder.⁵ This claim has not been supported by the research literature. Right now, none of the established medical or psychological professional societies recognize sensory processing disorder as a diagnosis.⁶ So we don't recommend sensory-modulating occupational therapy devices as a treatment for ADHD.

Q Are fidget spinners recommended?

A There are no scientific studies proving that fidget spinners provide benefits to children with ADHD. There is actually some evidence that fidget spinners might worsen a child's attention in the classroom. Serious safety concerns have also come up because children can accidentally swallow parts of these products.

For recommendations on how to help support your child in the classroom, please see the school section of this booklet. It has information on accommodations (special plans) you may want to consider adding to your child's 504 Accommodation Plan or Individualized Education Plan (IEP).

Q: Is it true that there is a genetics blood test that my child can take that will determine the best ADHD medication for them to take?

A Our genes play a role in how we metabolize medications. For example, 1 person might react poorly to one medication but have no side effects on a different medication. The field of pharmacogenomics is based on the idea that by studying certain genes that are involved in how medications are processed by the body, or metabolized, clinicians can predict which drugs may work better and produce less side effects for a person.

Significant advances have been made in this area. But genetic testing to determine which ADHD medication should be prescribed to children is not yet a routine recommendation, and additional research is needed.⁷ There are genetic tests available that aim to help guide ADHD medication selection for people based on their genetics. However, studies analyzing the accuracy, precision and effectiveness of these tests are still needed. So, we don't currently recommend these tests. In other words, we are not yet able to "pre-select" medications for ADHD based on genetic testing.

It's common for children to try multiple ADHD medications before finding the kind that works best for them. All children metabolize medications differently, so clinicians often start medications at a low dose and slowly raise it while carefully monitoring a child's response.

Sometimes, it's useful to have a consultation with a pharmacogenomics specialist like if a child has tried several medications with little benefit. Or if they experienced an unusual amount of side effects. In these cases, we recommend discussing the possibility of a pharmacogenomics consultation. If genetic testing may be a good idea, it's best for testing to be requested by clinicians with expertise in the field in order to meaningfully interpret the results and use them to make medication decisions.

Q: Is it a good idea to use a trigeminal nerve stimulator device as a treatment for ADHD?

A Trigeminal nerve stimulation (TNS) is a non-invasive, "neuromodulation" device that provides electric stimulation to the trigeminal nerve while your child sleeps. The thought behind this device is that stimulation of the trigeminal nerve will send signals to parts of the brain thought to be involved in ADHD. There are currently only 2 studies supporting the effectiveness and safety of this device as a treatment for ADHD.⁸ Many more studies are needed before it can be routinely recommended as a treatment for ADHD in children and adolescents.

Neurofeedback and other "brain-training" interventions like CogMed have captured parents' interest, too. The data supporting them as a treatment for ADHD are quite limited. Children may become quite skilled at the "brain training" tasks and games, but it's unclear whether improved skill at these games translates into better real-world outcomes like academic performance or better organization skills.⁹

References

1. Abdullah M, Jowett B, Whittaker PJ, Patterson L. The effectiveness of omega-3 supplementation in reducing ADHD associated symptoms in children as measured by the Conners' rating scales: A systematic review of randomized controlled trials. *J Psychiatr Res.* 2019;110(November 2018):64-73. doi:10.1016/j.jpsychires.2018.12.002
2. Haslam RH, Dalby JT, Rademaker AW. Effects of megavitamin therapy on children with attention deficit disorders. *Pediatrics.* 1984;74(1):103 - 11. <http://onlinelibrary.wiley.com/o/cochrane/clcentral/articles/957/CN-00034957/frame.html>.
3. Nigg JT, Holton K. Restriction and elimination diets in ADHD treatment. *Child Adolesc Psychiatr Clin N Am.* 2014;23(4):937–953. doi:10.1016/j.chc.2014.05.010
4. Trasande L, Shaffer RM, Sathyanarayana S. Food Additives and Child Health. *Pediatrics.* 2018;142(2):e20181408. doi:10.1542/peds.2018-1408
5. ADHD and Sensory Processing Disorder: How Are They Different? <https://www.steppingstonesca.com/single-post/2017/02/02/ADHD-and-Sensory-Processing-Disorder-How-Are-They-Different>. Published 2017. Accessed May 7, 2019.
6. Sensory Integration Therapies for Children With Developmental and Behavioral Disorders. *Pediatrics.* 2012;129(6):1186-1189. doi:10.1542/peds.2012-0876
7. Riaz N, Wolden SL, Gelblum DY, Eric J. HHS Public Access. *Curr Probl Pediatr Adolesc Health Care.* 2018 February ; 48(2): 40–49. doi:10.1016/j.cppeds.2017.12.003
8. McGough JJ, Sturm A, Cowen J, et al. Double-Blind, Sham-Controlled, Pilot Study of Trigeminal Nerve Stimulation for Attention-Deficit/Hyperactivity Disorder. *J Am Acad Child Adolesc Psychiatry.* 2019;58(4):403-411.e3. doi:10.1016/j.jaac.2018.11.013
9. Evans SW, Owens JS, Wymbs BT, Ray AR. Evidence-Based Psychosocial Treatments for Children and Adolescents With Attention Deficit/Hyperactivity Disorder. *J Clin Child Adolesc Psychol.* 2018;47(2):157-198. doi:10.1080/15374416.2017.1390757

© Boston Children's Hospital, 2022. All rights reserved.

Publication Date 1/12/2022 #170472.

This booklet is for educational purposes only. For specific medical advice, diagnoses and treatment, talk with your health care provider.



Boston Children's Hospital

Where the world comes for answers

Family Education Guide