

# An introduction to ADHD

School resources

ADHD stands for attention-deficit/hyperactivity disorder. It is a neurodevelopmental difference with both internalising and externalising characteristics<sup>1</sup>. According to the National Institute of Mental Health, in order to be diagnosed with ADHD, a person must display an ongoing pattern of inattention, impulsivity, and/or hyperactivity that is severe and consistent enough to interfere with everyday functioning.

**Inattention** means that the person tends to lose focus very easily, have difficulty getting started on or persisting with a task, and can appear disorganised despite giving their best efforts. These behaviours are due to the way their brain works and not to a lack of intelligence or understanding. The behaviours are also not a response to a situation or a particular person (for example, defiance).

**Impulsivity** means people tend to act without thinking first. They may have trouble delaying gratification, making plans, or setting goals, and instead they opt always to go for the immediate reward. Not thinking through decisions can put them in harm's way or get them into trouble at school or in social situations.

**Hyperactivity** means that a person has difficulty being still. They may constantly move about or wear others out with their incessant activity. People with ADHD may also display hyperfocus, or an ability to concentrate very closely on a particular activity (usually something they enjoy) to the extent that they are unaware of anything else. Some people only display one of these symptoms, but many exhibit a combined type of ADHD with two or more of the above characteristics.

Although everyone may at times display the behaviours listed above, people with ADHD exhibit these behaviours consistently and in a way that makes it difficult for them to progress through everyday activities in multiple areas of their life. A diagnosis of ADHD can be made by a psychologist, psychiatrist, or paediatrician after a comprehensive evaluation. In general, symptoms have to be long-lasting, interfere with everyday functioning, be present before age 12, be experienced across multiple contexts, and not be attributable to any other medical condition such as an injury or situational conditions such as trauma. The characteristics of ADHD can show up as early as 3 years old, although it is important to note that they change as a person ages, and often young children who display ADHD characteristics early in life no longer meet the diagnostic criteria by the time they have started school. At school, students with ADHD often have difficulty in multiple areas of life, such as poor academic performance and difficulty with relationships.

## Causes of ADHD

Research is not yet clear on the specific causes of ADHD. However, it seems that both genetics and environmental factors may play a role in the development of ADHD. The American Psychiatric Association indicates that ADHD does seem to run in families as three out of four children with ADHD have a relative with ADHD. In addition, recent family, twin, and adoption studies<sup>2</sup> have linked genes to the development of ADHD. Certain events or environmental exposures may also possibly lead to the development of ADHD<sup>3</sup>. These include brain injury, maternal smoking, drug use or drinking during pregnancy, being born prematurely, low birthweight, and environmental exposure to lead. However, more research is needed in order to determine these factors as definite causes of ADHD.

## Common myths debunked by research

There are many misconceptions and misunderstanding concerning ADHD, but research consistently demonstrates the lack of validity of the following common myths:

### ADHD is a modern problem

ADHD is a common childhood neurodevelopmental difference, and the number of diagnoses has been rising in recent years. Does this mean that more children have the disorder than ever before, or that more children are being diagnosed? Similar to what has been found with autism, there is evidence that increasing awareness, changes in diagnostic criteria, and access to medical care, as well as the development and evolution of policies for special education, may explain increasing rates over time. In addition, most data that have been collected show that the dramatic increase in the rate of ADHD relies on (telephone) reports of parents or physicians rather than on robust data produced by studies using standardised procedures on representative samples of the population. The most comprehensive international review on ADHD prevalence to date<sup>4</sup> found that there has not been an increase in the prevalence of ADHD from 1985 to 2012. Although understanding and diagnosis of ADHD has changed over time, there are significant published reports of ADHD prior to the 20th century<sup>5</sup>.

### People grow out of ADHD

Until the early 1990s, ADHD was considered a childhood disorder. It is still most often diagnosed in childhood when the difference is most noticeable to others. However, it has been found that up to 85% of people with ADHD continue to experience symptoms into adulthood<sup>6</sup>, although the characteristics as well as the impacts of ADHD may change as children get older and enter adulthood. For example, children with ADHD might demonstrate hyperactivity, whereas teenagers may hyperfocus on tasks that they enjoy, like video games. Although excessive energy and movement often diminish when individuals reach adulthood, many features of ADHD remain, such as inattentiveness or impulsivity. In adults, ADHD symptoms can be associated with different outcomes than in childhood, such as unemployment, relationship problems, substance abuse, and higher mortality rates<sup>7</sup>. These changes in presentation of the difference may cause confusion as to whether ADHD persists. It seems most likely that ADHD endures over time, but as an individual grows and develops, the differences manifest in changing ways. This in turn affects the impacts that they experience as a result of ADHD.

### More boys than girls have ADHD

Research has found that gender ratios of ADHD can vary significantly<sup>8</sup>. Parents and teachers may miss ADHD in girls because their characteristics tend to differ from the characteristics of boys. Girls are usually not hyperactive, or they may channel their hyperactivity into what are perceived to be more productive activities, which means their behaviour is less likely to be characterised as disruptive. Girls are more likely to display inattentiveness, difficulty sustaining attention, and difficulties with organisation and planning, although they are also likely to be effective at masking or compensating for their symptoms<sup>9</sup>. Women and girls with ADHD tend to have difficulties with time management, disorganisation, money management, frequently feeling overwhelmed, anxiety, or depression. There may also be hormonal factors that influence how ADHD is expressed in girls and women. Recent research has found that ADHD is likely to be just as prevalent in girls as it is in boys<sup>10</sup>, and rates of diagnosis among adults are now roughly equivalent in men and women<sup>11</sup>.

### ADHD is just a problem in certain cultures or countries

Historical studies have found that variance in rates of ADHD in the United States, United Kingdom, Australia, New Zealand, and Canada may be due to discrepancies in the diagnostic criteria and definitions of the condition rather than an actual disparity in the prevalence of the disorder<sup>12</sup>. Cultural factors including stigma and what is considered to be 'normal' behaviour may contribute to varying rates

of diagnosis. In addition, receiving an official diagnosis of ADHD requires access to medical care and often an evaluation by a specialist such as a psychologist or psychiatrist. There are many populations of children in the world that do not have access to these resources due to location or socioeconomic status.

## Classroom behaviours of students with ADHD

Students with ADHD may:

- Make mistakes in school work or overlook details
- Seem distracted by their own thoughts or other things going on around them
- Seem not to listen even when spoken to directly
- Constantly lose essential belongings like school supplies, keys, or glasses
- Be easily distracted from the task at hand, resulting in missed appointments, forgetting to turn in assignments, and not completing activities. They may start, but are easily side-tracked and do not remember to finish
- Experience difficulty completing long reading assignments and listening to lengthy conversations or lectures
- Have trouble sitting in their seat and staying still, even when expected to do so
- Consistently demonstrate restlessness
- Talk nonstop
- Have difficulty waiting for their turn and blurt out the answer instead
- Have trouble with appropriate social interactions because they interrupt, say whatever comes to mind first, act without thinking of how it will affect others, or intrude on others' space or conversations

In short, although children with ADHD may display a variety of different characteristics, they have difficulty managing and regulating their own thoughts and behaviours (also known as [executive function](#)). They have a harder time controlling their impulses, thinking before acting, making a plan and sticking to it, telling their brain when to be active and when to be still, controlling emotional responses, and staying focused when they are not especially interested.

## Strengths of children with ADHD

The apparently negative aspects of working with students with ADHD are often reported but very rarely are the positive qualities that many students have as a result of their ADHD described. Having students with ADHD can bring energy and life to a classroom as they are often creative and innovative thinkers, talented in the arts, imaginative, curious, and willing to take risks. Students may also display an ability to hyperfocus on a task they find interesting, engaging, or meaningful, leading to excellent performance on that task. As a teacher, focusing on students' strengths can support them to be more engaged and more likely to improve. Giving students the opportunity to recognise and focus on strengths, offering them choices, and supporting the development of their [executive function](#) and [self-regulation](#) skills will make for a more positive learning environment for all students, not just those with ADHD.

## Teaching students with ADHD

Students with ADHD are at a higher risk for low academic achievement. As a result, they are frequently recommended for special education programmes and spend more years in those programmes. They also experience more discipline problems. Literacy and numeracy scores for students with ADHD are 8-10% lower than their peers, even when there is no learning disability present. This is often due to inattention during the elementary years, when foundational skills are taught frequently, and causes students with ADHD to struggle long-term. Teachers often focus exclusively on behavioural interventions, but, unless they also target missed academic skills, these interventions will be unsuccessful. In order to help students with ADHD, teachers must remember to address gaps in foundational knowledge, and support and develop behavioural, study, organisational, and executive functioning skills. When teaching students with ADHD teachers should:

### Provide routines and clearly stated behavioural expectations

Research has shown that it is much easier for students with ADHD to succeed when they clearly know what is expected<sup>13</sup>. Teachers should aim to create an organised and predictable learning environment with clearly displayed behavioural expectations and consequences. To maintain order, it is important to stick to the same routines each day, even when activities change. A routine helps students to feel comfortable when attempting a new skill.

In addition, it is helpful to all students to describe behavioural expectations explicitly before beginning a new activity. For example, tell students who are working in a group that they may talk to their group members in a quiet voice but that they may not talk to students in another group or across the room. Remind students of appropriate ways to get your attention, and appropriate and inappropriate things to be doing during group work time. Give some thought to managing daily transitions. Have a specific musical tune, hand signal, or visual cue, or use all of the above to signal a transition and help students practise the appropriate response.

When a student does not meet expectations, the teacher should address behaviour consistently and without anger. Students with ADHD often also have issues with confidence, and respond in a more positive manner to consequences delivered in a calm and rational manner. Also remember to recognise and make parents aware when a student is doing well. Negative behaviour is easy to notice and react to, but, by remembering to celebrate desirable behaviour, the likelihood of compliance in the future is increased.

### Use lists, learning objectives, and scaffolding

Arriving to class with the correct materials is often a challenge for students with ADHD. Listing materials on a sign outside the door or on the board for younger students makes it clear what is needed for the lesson. It is also helpful to display learning objectives for the lesson as numbered steps on the board and summarise them aloud. For a bigger project or paper, giving students a written description as well as clearly going over expectations can be helpful.

Research links deficits in executive functioning skills with the tendency to procrastinate and become easily overwhelmed by long-term tasks<sup>14</sup>. Breaking larger tasks into steps or smaller assignments, each with a detailed description, separate due date, and clearly defined deadline can help make it easier to get started. This also teaches students the skill of how to manage big projects on their own in the future. In addition, having a clear deadline and giving feedback on each step can create the urgency necessary to complete the task.

Starting with a review of the skills and knowledge necessary for the lesson allows students with ADHD to access the information and not begin the lesson at a disadvantage. It is also a great opportunity for

the teacher to activate interest and help students relate their interests to the lesson. Students with ADHD can be capable of focusing intensely on something they are interested in. However, they may need help connecting the class content to their strengths and passions.

### Teach study and executive function skills explicitly

Research demonstrates that students with ADHD often lack basic study skills and struggle with [executive function](#)<sup>15</sup>. Coaching them so that they are aware of how to implement and apply more effective study skills can help them to become better students. Think about the tasks that students need to complete in the classroom and teach them strategies for managing those tasks. For example, if students need to take notes, teach them how to use a note-taking format. If students need to study for a test, teach them how to break up the material into manageable chunks and give them a variety of study techniques so that they can be encouraged to find a strategy that works well for them.

Many students with ADHD have trouble staying focused on assignments. The teacher can show them how to choose a specific task, block out distractions, focus for a period of time, and then take a short 'brain break' and move around. Gradually, they should be able to increase the time they are staying focused and working. If students need help with time management, set specific time limits and make students aware of how much time they will have. A visual countdown timer with ten and five minute warnings can be helpful for this, although time limits should not become a source of anxiety. For some students, it also helps to time tasks that could be considered dull in order to turn necessary but tedious practice into a competition or game. Often graphing or recording the scores and comparing over time helps students to set personal goals and grow in their basic skills.

### Provide choice and variety

Allowing students to make choices about where they sit, how they complete an activity, what books they read, or what type of project they complete encourages active participation. We all give more effort when we are doing something we have chosen and enjoy. It is also an easy way for the teacher to help the student connect the assignment with their interests. Some students with ADHD or other learning differences may need to access assistive technology or accommodations. If all students are making choices about how they learn best, students with learning differences will not feel singled out when they need to use a computer to dictate notes or listen to an article read aloud from an online textbook.

Helping children with ADHD succeed in school can be a challenge for teachers. Luckily, strategies that are effective for teaching students with ADHD are also helpful to most students. In fact, modifying teaching approaches and curriculum to meet the needs of diverse learners often results in better teaching for all as lessons become more versatile, interesting, and practical.

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