

Patient information from the BMJ Group

Attention deficit hyperactivity disorder

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Attention deficit hyperactivity disorder

All children can be difficult at times. But if your child finds it hard to concentrate, to sit still, or to think before acting most of the time, he or she may have a condition called attention deficit hyperactivity disorder (ADHD). This behaviour tends to cause severe problems at home and at school. But there are treatments that can help.

We've brought together the best research about ADHD and weighed up the evidence about how to treat it. You can use our information to talk to your doctor and decide which treatments are best for your child.

What is ADHD?

Many parents worry at times about how their children behave. Often, disruptive behaviour is simply part of growing up. But in some children, it is caused by a medical condition called attention deficit hyperactivity disorder (or ADHD for short).



A child with ADHD can have difficulty concentrating.

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Children with ADHD find it **hard to concentrate**, are **overactive** and **act without thinking**. If your child has ADHD, it's important to get [treatment](#). Otherwise, ADHD may affect how your child develops, and create problems at home and at school.

If your child has ADHD, bear in mind that it's nobody's fault. Nothing you or your child has done has caused the condition.

You may feel as if your child is behaving badly on purpose. But being strict with a child who has ADHD is unlikely to make things better.

Many parents of children with ADHD offer this advice: "Don't try to cope with your child's problems on your own."

With the right treatment, your child's behaviour can improve dramatically.

Key points for parents whose child has ADHD

- ADHD is a medical condition. Children with the disorder find it hard to pay attention, are overactive and act without thinking.
- Not all children with behaviour problems have ADHD. Their behaviour may just be a phase or part of some other problem.
- The symptoms of ADHD tend to get better as children get older.
- Treatments for ADHD include drugs and talking treatments.
- Treatments can't cure ADHD, but they can help your child develop and learn normally.

Different names for ADHD

You may hear ADHD called **hyperkinetic disorder**, or HKD for short. The term HKD is usually used when your child's symptoms are severe and your child has all three signs of ADHD: inattention, overactivity, and impulsiveness. Doctors sometimes call this **combined type** or **severe combined ADHD**.^[1]

Our brain and our behaviour

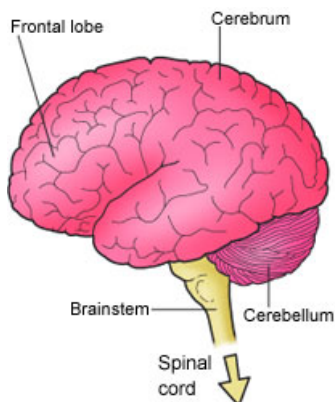
To understand what happens in ADHD, it's useful to know something about normal behaviour. Our brain controls how we behave.

- Our brain enables us to react to what we see, hear and feel in the world around us.
- Millions of nerve cells send messages between our brain and our body.
- Chemicals called neurotransmitters help the messages travel from one nerve cell to another.

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- For our brain to work properly and tell us how to behave, we need to have just the right amount of these neurotransmitters.

Our brain's control centre



The frontal lobe, which sits behind your forehead, is your brain's control centre.

The front part of the brain is called the frontal lobe. It sits just behind the forehead and is the brain's control centre. It collects information from other parts of the brain and helps decide how we react to this information. ^[2] ^[3]

What goes wrong in ADHD

Doctors aren't sure exactly what goes wrong in ADHD. But they think that the behaviour problems are linked to the way that the front part of the brain works.

- Studies suggest that this part of the brain works more slowly in children with ADHD than in other children. ^[2]
- Children with ADHD may have an imbalance in the neurotransmitters in the front part of the brain. Some doctors believe they don't have enough of a neurotransmitter called **dopamine**. Children with ADHD may also lack the neurotransmitter **noradrenaline**.
- Without enough dopamine or noradrenaline, the front part of the brain can't deal with, and react to, information in the way that it should. ^[2]
- This is why some drug treatments for ADHD aim to increase the amount of dopamine or noradrenaline in the brain. (For more, see [What treatments work for ADHD?](#))

How it feels to be a child with ADHD

A child with ADHD is unable to process information in the same way as other children. This means that for a child with ADHD:

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- The outside world rushes in with a flood of noise and images
- The child can't decide what's important and gets confused.

This is why the child finds it impossible to organise daily tasks and to finish activities.

For instance, a child without ADHD can sit happily in a room playing with a toy while the television is on, two adults talk and a car honks in the background. A child with ADHD will probably find this impossible. This child's brain can't deal with all the different sights and sounds and decide which is important. The child gets confused and can't concentrate.

Unfortunately, there are no tests that show whether the front part of a child's brain is working normally. So doctors have to rely on what children, parents, and teachers say in order to diagnose ADHD.

ADHD: why my child?

ADHD is nobody's fault. It is unlikely that anything you or your child has done has caused it. Too much television, too much sugar, or poor schools do not cause ADHD. ^[4]

The truth is, nobody knows exactly what causes ADHD. It is probably caused by a combination of many things.

Although researchers don't know what causes ADHD, they know that some things are more common among children with ADHD. These are called **risk factors** for the condition. Risk factors are things that may make it more likely that a child will get ADHD. But, so far, there is no solid evidence that these things actually cause ADHD. We know only that they seem to happen more often in children who have the condition.

Risk factors for ADHD

Risk factors are things that may make it more likely that your child will develop attention deficit hyperactivity disorder (ADHD). But it's important to realise that having a risk factor does not mean your child will develop ADHD. We know only that children who have ADHD are more likely to have these things.

- **Family history:** A tendency to get ADHD can be passed on through families. If one member of your family has ADHD, then there is a bigger chance that another member also will have it. ^[5]
- **Low birth weight:** If your child's weight at birth was below average, then he or she has a greater chance of developing ADHD. For every four or five new babies weighing less than 1.5 kilograms (about 3 pounds, 4 ounces), one will go on to develop ADHD. However, less than 1 in 10 children who were normal weight when they were born will develop ADHD. This may be linked to being born too early (premature birth).
- **Fetal alcohol syndrome:** Children with fetal alcohol syndrome often have behavioural problems very similar to children with ADHD, and may be diagnosed with ADHD.

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Fetal alcohol syndrome can happen if women drink too much alcohol during pregnancy.

- **Smoking during pregnancy:** Mothers of children with ADHD are more likely to have smoked during their pregnancy than mothers of children without ADHD.

What are the symptoms of ADHD?

Attention deficit hyperactivity disorder (ADHD) affects children in lots of different ways.



School can be a struggle for children with ADHD.

Some children are much more active than most children their own age. They are always 'on the go' and can't sit still. If these children have ADHD they are usually diagnosed quickly because their symptoms are obvious.

Other children pay less attention and do things without thinking more than most children their age. If these children have ADHD they may not be diagnosed for years. Parents and teachers may just think they are lazy or dreamy.

Children with ADHD may have **three basic problems:**

- They can't pay attention
- They are hyperactive
- They act on impulse.

Of course, nearly all children are like this at times. But children with ADHD are much more likely to act like this than children of the same age, at home and at school.

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Not paying attention



A child with ADHD can have difficulty concentrating.

Children with ADHD find it difficult to keep their mind on one thing, and may get bored after only a few minutes.

Most children can sit happily in a room playing with a toy while the television is on, two adults talk, and a car horn honks in the background.

But a child with ADHD may find this impossible. ^[6] ^[7]

Each sight and sound competes for the child's attention, so they find it impossible to tell which is most important. Their attention drifts from one thing to another.

- Because they can't concentrate, they **become bored quickly**. They are easily distracted and drift from one thing to the next.
- All this can make life difficult for both the child and those close to them. The child **gets into trouble** because their schoolwork is messy, their room is scattered with toys and their things are often broken.
- It can seem as if **the child's mind is elsewhere**. They don't listen when they're spoken to. Halfway through a sentence, they may forget what they were going to say.
- A child with ADHD may also find it **difficult to communicate** and make friends. They will give up during games and sports that require them to listen and follow rules.

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- Children with this problem will find anything that requires concentration almost **painfully hard** and will try to avoid it. Homework may be a struggle. Planning ahead is difficult.

It is important to realise that your child is not simply being dreamy, with his or her head in the clouds. Many inattentive children struggle very hard to concentrate and get things done.

Being hyperactive

Children with ADHD find it almost impossible to stay still.



Hyperactive children seem to have unlimited energy.

They will squirm in their seat, constantly fidget, wiggle their feet and get up all the time.

[\[6\]](#) [\[7\]](#) [\[8\]](#) [\[9\]](#)

Hyperactive children **never seem to run out of energy**. They run about all the time and try to climb furniture, trees, walls and even people. They chatter constantly and find it difficult to sit quietly. They may want to listen to a story, but rush off after just a few pages.

This kind of behaviour is often most noticeable in toddlers and nursery-age children.

By the time children reach school age, they are not as hyperactive. But they still have a need to release pent-up energy. If they have to sit down at school they might squirm or sit on the edge of the seat, fidget, tap their hands, or shake their feet and legs. They tend to be noisy when they are supposed to be quiet.

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As children get older, they will be less like this. But even teenagers and young adults with ADHD get restless and find it difficult to stay still.

Acting on impulse

Children with ADHD often can't stop and think before they act. ^[6] ^[7] ^[8]

A child might seem **very impatient**. They blurt things out, find it difficult to wait for their turn and interrupt conversations. Other people may complain that they can't get a word in edgewise.

Because of this, your child may have **difficulty making friends**. Other children might think he or she is just rude or embarrassing.

Your child may get **in trouble with teachers**. Children who are impulsive often talk when it's not their turn, don't listen and can't follow even simple instructions. They may grab things from other children, touch things they are not supposed to and generally mess about.

You will need to keep a careful eye on your impulsive child, because he or she may be **accident-prone**. A child with ADHD may knock things over or do dangerous things without thinking, such as running across the road.

How do doctors diagnose ADHD?

Attention deficit hyperactivity disorder (ADHD) can be difficult to diagnose. Doctors don't have a simple test that tells them for certain whether a child has it.

How does my doctor know my child has ADHD?

Doctors take great care to make sure that a child really does have ADHD before they offer treatment. ^[22] However, healthcare professionals may disagree about whether a child has ADHD. A wrong diagnosis can be harmful because your child may be given unnecessary treatment or your child may not receive the treatment they need.

If you are worried about your child's behaviour, talk to your GP or your child's teacher. Both GPs and schools can arrange for you and your child to see a specialist. This specialist, who may be a paediatrician or a child psychiatrist, will assess your child and start treatment if necessary. ^[22] But specialists in the UK are often very busy, and they are getting busier. There are long waiting lists for appointments in some areas. ^[14]

You may find it frustrating to wait for your child to be assessed for ADHD. But don't give up. If you think your child has a problem, then you have a right to have them assessed. Keep talking to your GP and your child's teachers until you are happy that your child is getting the care they deserve. It can help to talk to other parents who have been through the same thing. Check online for a support group in your area. Also, it can help to keep a diary of your child's symptoms. When you do see a specialist, this diary should help them make a diagnosis.

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Asking parents and teachers

To make a diagnosis, doctors usually ask parents and teachers about a child's behaviour. As a parent, you might be asked to:

- Fill in forms that rate how your child behaves in different situations
- Describe your child's behaviour problems, when they happen, and how long they have been going on.

This information helps the doctor get a picture of behaviour that shows whether your child has ADHD. Your doctor will pay special attention to how your child behaves in different situations, such as in school and in the playground, and when doing things that require lots of concentration, like reading or playing a board game.

To learn more about ways teachers can help your child, see [Educational options](#) .

Checking for symptoms

Your doctor will then compare your child's behaviour to the symptoms of ADHD put together by psychiatrists. These symptoms are listed in a book called the Diagnostic and Statistical Manual of Mental Disorders (DSM).

The DSM says that to be diagnosed with ADHD: ^[7]

- Your child must have six or more symptoms of **not paying attention** (inattention) or six or more symptoms of **being overactive and acting before thinking** (hyperactivity and impulsivity)
- These symptoms must have started **before your child was 12 years old**
- Your child must have been behaving like this for **at least six months**
- Your child's behaviour must be **causing problems in at least two places**, such as at home and at school.

To learn more, see the [Symptoms checklist](#) .

Checking for other causes

Your doctor may also want to rule out other causes of your child's symptoms by:

- Asking about your child's health and your own health: For example, an injury to your child's head could lead to behaviour problems
- Checking for other illnesses: Your doctor will carry out a physical examination and ask questions to see if your child's behaviour problems could be caused by something other than ADHD. To learn more, see [Conditions that are similar to ADHD](#)

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- Checking for a learning disability: Your doctor may test your child's intelligence and learning skills ^[23]
- Treating other disorders: Your child may have other health problems as well as ADHD. Your doctor will check for these, and start treatment if necessary. ^[24] To learn more, see [Conditions that can occur alongside ADHD](#) for more information
- Testing your child's hearing: A hearing problem could explain why your child is doing badly at school. ^[25]

Collecting this information takes time. You and your child may need several appointments with a specialist.

ADHD cannot explain or excuse all problem behaviour in children. If your child's behaviour does not match the symptoms of ADHD, then treatment for ADHD probably won't help.

But if your child is diagnosed with ADHD, it's important to recognise that this is a serious medical condition that requires professional help and treatment. To learn more, see [What treatments work for ADHD?](#)

Late diagnosis

Some children are more likely than others to have their ADHD missed, or diagnosed later in life. These include:

- Girls. Because ADHD is more common in boys, people sometimes don't consider that it may be a problem for some girls too.
- Children who also have conduct disorders. Conduct disorders are another group of problems that can affect children's behaviour. The behavioural problems these children have can overshadow their ADHD symptoms, so ADHD is not noticed.
- Children with autism spectrum disorders.
- Children with language problems and learning difficulties.

How common is ADHD?

Attention deficit hyperactivity disorder (ADHD) is very common. On average, there will be one or two children with ADHD in a class of 30 school children. ^{[10] [11] [12]}

But it's hard to say exactly how many children have ADHD because the condition is difficult to spot. ^[12] Also, one doctor may say a child has ADHD while another may not. So, if we compare studies, the number of children said to have ADHD can be very different.

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What we do know is that more children are being diagnosed with ADHD as more people get to know about it. Parents are now more likely to take their child to a doctor if he or she has behaviour problems. Schools, too, are more aware of ADHD and better prepared to give you information about how your child behaves in class.

Here's what we know from the research.

- It's estimated that up to 5 in 100 school-age children in England and Wales have ADHD. That's around 367,000 children.^[10] This means that in a class of 30 children there will be one or two children with ADHD.^{[10] [11] [12] [13]}
- Around 1 in 100 school-age children in England and Wales (about 73,000 children in total) have the severe type of ADHD called HKD (hyperkinetic disorder). This kind of ADHD is often called 'combined type' ADHD.^[10]
- Boys seem more likely to have ADHD than girls. In the UK, between three and nine boys are diagnosed with ADHD for every girl who's diagnosed with it.^{[13] [14]} But this may be because boys and girls tend to have different symptoms of ADHD.

Inattention is more common among girls while hyperactivity is more common among boys. And a boy who is hyperactive (shouting, running about and getting into trouble) is more noticeable than a girl who is inattentive (daydreaming, forgetful and easily distracted). To learn more, see [What are the symptoms of ADHD?](#)

What treatments work for ADHD?

Learning that your child has attention deficit hyperactivity disorder (ADHD) can be distressing. But ADHD can be treated. And the right treatment and support can help your child behave better, so that he or she can develop and learn normally.

Both talking treatments and medicines are used to treat ADHD, and these are often combined. You may worry about your child having drug treatment. We hope our treatment information will help you weigh up the benefits and risks of each option, and decide with your child's doctor on the best treatment for your child.

Key points about treating ADHD

- The drugs used for ADHD can help children concentrate, feel calmer, and think before acting.
- There are two main types of drug treatment for ADHD: stimulant drugs and non-stimulant drugs.
- Stimulant drugs include methylphenidate and dexamfetamine. The most common side effects are trouble falling asleep, loss of appetite, and weight loss.

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- Non-stimulant drugs include atomoxetine. The most common side effects are loss of appetite and weight loss.
- About half of all children who take stimulants have mild side effects. The main ones are trouble falling asleep and loss of appetite.
- Other drugs may be used if your child can't take methylphenidate, dexamfetamine, or atomoxetine, or if they don't help. But these are used less often and are usually only prescribed by a specialist.
- Behaviour therapy is a talking treatment that is likely to help your child manage their ADHD when it is combined with drug treatment. We don't know whether it helps on its own.
- We don't know how well any treatment works in the long term because most have only been studied for short periods. Your child may need treatment for many years.

In the UK, drug treatments for ADHD aren't usually recommended for children under school age. Instead, the focus tends to be on parent education. For older children, parent education and talking treatments are usually tried before drug treatment. However, children with severe ADHD may have drug treatment straight away. To learn more, see [NICE guidance on ADHD](#) .

NICE guidance on ADHD

The National Institute for Health and Care Excellence (NICE) is the independent body that advises the government about which treatments should be available through the NHS. It has issued guidance to doctors about how to treat ADHD. ^[31] ^[32]

NICE says that **children under school age** should not usually be offered drug treatments for ADHD. Instead, their parents should be offered a course to help them develop the skills to understand and improve their child's behaviour. These courses are given in groups with other parents whose children have ADHD. If these courses don't work, the children should be assessed again by a specialist, who may recommend drug treatment.

Parents of **school-aged children** are also usually offered these courses as a first treatment. Their children may also have group behaviour therapy, social skills training, and other talking treatments (to learn more, see [Therapies to manage ADHD](#)). Teenagers may have one-to-one therapy. If these treatments don't help, then children should be offered medication as part of their treatment programme. However, drug treatments may be given straight away to children with severe ADHD.

NICE recommends three drugs for treating ADHD. These are methylphenidate, [atomoxetine](#) , and [dexamfetamine](#) . A specialist doctor should prescribe these drugs. But once a child has started taking one of these drugs, their usual doctor will usually monitor them.

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Which drug a child will take depends on: ^[32]

- The side effects they get from the drug
- Whether they have another medical condition, such as [epilepsy](#) . Conditions that cause [seizures](#) (fits) or twitches (tics) can be made worse by some drugs for ADHD
- How they want to take the drug. For example, some children might not want to take their medicine at school and will need to have a long-lasting tablet or capsule
- How they and their parent or guardian feels about their treatment
- Whether they are likely to misuse the drug. Some children let their friends take their medicine, for example. Atomoxetine isn't a stimulant, so doctors may use it instead of methylphenidate or dexamfetamine if they think a child might misuse their treatment.

Which treatments work best? We've looked at the research and given each treatment a rating according to how well it works.

For help deciding which treatment is best for your child, see [How to make the best decisions about treatment](#).

Treatment Group 1

Treatments for ADHD

Treatments that are likely to work

- [Methylphenidate](#) : This is a stimulant drug. It is the most commonly used for ADHD. It has several brand names, including Ritalin, Equasym XL, and Concerta XL. [More...](#)
- [Dexamfetamine](#) : This is another stimulant drug used to treat ADHD. [More...](#)
- [Methylphenidate plus behaviour therapy](#) : This is when a child has both drug treatment and a talking treatment called behaviour therapy. [More...](#)
- [Atomoxetine](#) : This treatment works in a different way to stimulant drugs. Its brand name is Strattera. [More...](#)
- [Clonidine](#) : Doctors might try clonidine if other drug treatments haven't worked. But this treatment is not often used in the UK. The brand name for clonidine is Catapres. [More...](#)

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Treatments that need further study

- [Behaviour therapy](#) : Behaviour therapy helps children and their families learn to cope with and manage the behaviour caused by ADHD. [More...](#)
- [Fish oil supplements](#) : These are capsules with omega-3 fatty acids that you can buy from a pharmacy or health-food shop. [More...](#)
- [Vitamin and mineral supplements, and special diets](#) : These treatments include taking dietary supplements such as fatty acids and vitamins, and adhering to diets that avoid certain foods, such as the Feingold diet. [More...](#)

Treatments that are unlikely to work

- [Homeopathy](#) : This is a type of complementary medicine. [More...](#)

Other treatments

We haven't looked at the research on these treatments in the same detail we have for the other treatments we cover. (To read more, see Our method.) But we've included some information because you may have heard of them or be interested in them.

- [Complementary and alternative treatments](#) : These include biofeedback and visual exercises. [More...](#)
- [Antidepressants](#) : These drugs are usually used to treat depression. They may also help some children with ADHD. [More...](#)
- [Teaching parents how to cope with disruptive behaviour](#) : Some children with ADHD can behave in a way that's very disruptive. Doctors sometimes call this conduct disorder. Parents or guardians can take part in a programme to help their relationship with their child. [More...](#)

What will happen to my child?

Life can be difficult for children with attention deficit hyperactivity disorder (ADHD). They are often in trouble at school, can't finish games and find it difficult to make friends. And it's not easy being the parent of a child who seems intent on creating family turmoil.

A child's outlook can improve dramatically with the [right treatment and support](#) .

Below we've summarised what studies tell us about children with ADHD.

- About one-third of children completely grow out of ADHD. But around 7 in 10 children with ADHD still need treatment as teenagers. Of these teenagers, between 6 in 10 and 7 in 10 will still have ADHD as adults. ^[15]

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- Without treatment, your child's behaviour could stop him or her learning or developing. Children with ADHD are also more likely to have depression and anxiety than other children. About 1 in 3 children with ADHD will need to use mental-health services. ^[16]
- The pressure of living with a child with ADHD can put a lot of strain on the family. Teenagers with ADHD are more likely to be in a traffic accident, smoke, get pregnant and fail at school than other children. ^[17]

But treatment for ADHD can make a difference. Many children with ADHD go on to lead normal lives. ^[18]

What to expect year by year

Knowing what to expect as your child grows up may help you cope better with his or her ADHD.

- [ADHD in infants and toddlers](#)
- [ADHD in the nursery school years](#)
- [ADHD in the early school years](#)
- [ADHD in teenagers](#)
- [ADHD in adults](#)

Questions to ask your doctor

If your child has been diagnosed with attention deficit hyperactivity disorder (ADHD), you may want to talk to your doctor to find out more about the condition.

Here are some questions that you might want to ask.

- How do you know my child has ADHD?
- Could my child's symptoms be caused by something else?
- How will ADHD affect my child as he or she grows up?
- What are the best treatments for my child?
- Do these treatments have side effects?
- How long will my child need to have treatment?

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- What will happen if my child has no treatment?
 - Is there anything I can do to improve my child's behaviour?
 - Can changing my child's diet help?
 - Should my child have any special help at school? What kind of help is available?
 - Should my child see a specialist?
 - If we need to see a specialist, is there a long waiting list?
 - Do you have any handouts on ADHD that I can take home?
 - Is there anything else I can do to help my child?
-

Treatments:

Methylphenidate

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[How good is the research on methylphenidate?](#)

This information is for people who have a child with attention deficit hyperactivity disorder (ADHD). It tells you about methylphenidate, a treatment used for ADHD. It is based on the best and most up-to-date research.

Does it work?

Yes. Taking methylphenidate can help your child behave better. He or she should be less restless, more able to concentrate, and more likely to think before acting. However, most studies have only looked at methylphenidate in the short term. So we don't know for certain how well it works if your child takes it for more than about a year.

We don't know how well methylphenidate works compared with a similar drug called [dexamfetamine](#). There hasn't been enough research to say.

What is it?

Methylphenidate is a stimulant drug used for attention deficit hyperactivity disorder (ADHD). Stimulant drugs increase nerve activity in the brain. Your doctor may prescribe it to improve your child's behaviour.

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It may seem strange to treat hyperactivity with a stimulant. But stimulants like methylphenidate have been used for many years to treat ADHD, and research shows that they work. ^[33]

Methylphenidate comes as tablets. Most doctors now prescribe long-acting versions of methylphenidate. The brand names are Concerta XL, Equasym XL, and Medikinet XL. They last between 8 hours and 12 hours. The short-acting version (brand name Ritalin) is not used so much now.

How methylphenidate is used

Methylphenidate isn't usually recommended for children under school age. ^[33] For school-age children methylphenidate is the most commonly used drug treatment for ADHD in the UK.

Experts recommend that children who have been taking methylphenidate have their treatment reviewed each year. Children may have trial periods without medication from time to time, to see if they still need it. Some children grow out of ADHD symptoms and can manage without medicine as they get older. ^[31]

In the UK, there are guidelines for doctors on treating ADHD. To read more, see [NICE guidance on ADHD](#) .

How can it help?

If your child starts taking methylphenidate, there's a good chance that his or her behaviour will get better within a few days. ^[17]

This means that methylphenidate may be able to help your child: ^[34] ^[35] ^[36] ^[37] ^[38] ^[39] ^[40]

- **Concentrate more:** Your child may find it easier to concentrate, follow instructions, and focus on things such as homework. They may also be less likely to forget or lose things, and their schoolwork may improve.
- **Feel less overactive:** If your child is always on the go, he or she may feel calmer and less restless after taking methylphenidate. He or she may be more likely to sit still and less likely to run about and fidget.
- **Be less impulsive:** Your child may find it easier to think before acting, to wait his or her turn, and to resist interrupting other people's conversations. He or she may be less likely to blurt out answers before questions have been finished. Your child may also become less argumentative.

If your child is calmer and able to concentrate, his or her schoolwork, self-esteem, and relationships with family and friends may improve. But we don't know for certain if this will help your child get higher marks at school, and we don't know if the behaviour of

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children who take methylphenidate improves in the long term.^[41] Studies haven't followed children long enough to measure this.

Any improvement in your child's behaviour does not mean that the ADHD has gone away. If your child stops taking the medicine, there's a good chance that the symptoms will come back. It will take time for your child to rebuild friendships, learn appropriate behaviour, and catch up with school work.^[21]

Methylphenidate seems to work as well as the other main stimulant used to treat ADHD, dexamfetamine.^[33] But some children find one of these drugs suits them better than the other.^[33]

Methylphenidate seems to work slightly better than [behaviour therapy](#) on its own, especially in children who have more severe problems with their behaviour.^[42] ^[43] ^[44]

How does it work?

No one knows exactly how methylphenidate improves the symptoms of ADHD. But studies show that it affects the level of chemicals in the brain called **neurotransmitters**.^[45]

- Neurotransmitters are produced by nerve cells in the brain to help send, receive, and process information.
- Some studies have found that children with ADHD seem to have less of a neurotransmitter called **dopamine** in the front part of their brain. This part of the brain helps control movement, mood, and emotion.^[44]
- Doctors think that methylphenidate improves the symptoms of ADHD by increasing the level of **dopamine** in the brain. Research seems to support this theory.^[45] ^[46]

Can it be harmful?

About half of all children who take methylphenidate get mild side effects. The side effects often go away after a couple of weeks, or if children take a lower dose. About 3 in 100 of children get slightly more serious side effects, such as depression, worrying, and feeling irritable.^[42]

Here are the common side effects of methylphenidate:^[34] ^[35] ^[36]

- Your child may have less appetite and lose weight.
- Your child may find it difficult to fall asleep.

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Some children get other side effects as well, but these are less common. Some, but not all, studies of this treatment have found that children may: ^[34] ^[35] ^[36]

- Get twitches (tics). These are not always caused by the medicine - some children with ADHD also have tics. But methylphenidate may increase tics. If this happens, reducing the dose of medicine may help.
- Feel irritable. About one fifth of the studies reported this side effect
- Have stomach aches. About one fifth of studies reported this
- Have headaches. About one fifth of studies reported this.

Worries about growth

Some doctors and parents worry that stimulants such as methylphenidate might stop children growing properly. Your doctor should regularly check your child's height and weight, usually every six months. ^[31]

Worries about misuse

Another worry is that stimulants such as methylphenidate could be misused. For instance, methylphenidate is thought to work in a similar way to cocaine. They both increase the level of a substance called dopamine in the brain. But there's no evidence that methylphenidate can make a child with ADHD high. Stimulants taken for ADHD arrive at the brain very slowly, and do not offer the high that drug abusers seek.

However, there have been cases of children taking methylphenidate without it being given to them by a doctor. One study in the United States found that about 2 in 100 13 and 14 year olds took methylphenidate without a prescription. ^[47] About 4 in 100 17 and 18 year olds took it. Some children and teenagers have tried taking methylphenidate to help them concentrate or revise for an exam.

Some parents also worry that stimulants will make their child more likely to become dependent on drugs or alcohol in later years. But there's no evidence that this may happen. ^[17] In fact, studies show that children with ADHD may be less likely to become dependent on drugs and alcohol if they're treated with stimulants. ^[48]

Worries about rarer side effects

A study published in June 2009 found that children taking stimulant drugs for ADHD may have a slightly higher risk of dying suddenly of heart problems. ^[49] But a later study, which looked at records from over a million children and young people, found that those who were taking methylphenidate or other ADHD drugs didn't seem to have a higher risk of serious heart problems or stroke than those who weren't taking these drugs. ^[50]

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In the UK, doctors are advised not to prescribe stimulant drugs to anyone with heart disease or [high blood pressure](#), or to anyone with a history of serious mental health problems such as severe depression, schizophrenia, or anorexia. European experts have reviewed all the evidence about side effects of methylphenidate and say its benefits outweigh its risks.^[51] Doctors have been told to check people's health carefully before they start taking the drug, and monitor their health while they are taking it. For example, your doctor will probably check your child's heart rate and blood pressure every three months, and after each dose change.^[31]

How good is the research on methylphenidate?

There's good research to show that methylphenidate can improve the symptoms of attention deficit hyperactivity disorder (ADHD). It may help your child focus his or her attention, be less hyperactive, and think before acting.

Most of the research has looked at children and teenagers between 5 and 18 years old. The studies usually measured the effect of treatment by asking parents or teachers to grade the child's behaviour. But this doesn't look at how the child feels. And most of the studies lasted less than a year, so we can't say how well methylphenidate works in the long term.

We found several large summaries of the research (called [systematic review s](#)) that looked at many studies.^[20] ^[52] All the studies in the reviews found that methylphenidate improved children's behaviour compared with a dummy treatment (a [placebo](#)).

Some of the research suggests methylphenidate works better than psychological or talking treatments, such as [behaviour therapy](#).^[20]

There's hasn't been enough research to say whether methylphenidate is any better than another drug called [dexamfetamine](#).^[20] They both seem to work about the same.

Dexamfetamine

In this section

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[How good is the research on dexamfetamine?](#)

This information is for people who have a child with attention deficit hyperactivity disorder (ADHD). It tells you about dexamfetamine, a treatment used for ADHD. It is based on the best and most up-to-date research.

Does it work?

Yes. Taking dexamfetamine can help your child behave better. Your child is likely to be less restless, better able to concentrate, and more likely to think before acting. Most

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studies have looked only at children taking dexamfetamine in the short term. So we can't be sure how well it works if it's taken for a year or more.

We don't know how dexamfetamine compares with another common drug for ADHD called [methylphenidate](#) . They both seem to work about the same, but there isn't enough research to say for certain.

What is it?

Dexamfetamine is a stimulant drug used for attention deficit hyperactivity disorder (ADHD). Stimulant drugs increase nerve activity in the brain. Your doctor may prescribe it to help improve your child's behaviour.

Doctors often prescribe dexamfetamine to children who have tried another stimulant called methylphenidate or a non-stimulant drug called [atomoxetine](#) , but whose symptoms haven't improved.

It may seem strange to treat hyperactivity with stimulant drugs. But stimulants have been used for many years to treat ADHD.

Dexamfetamine comes as tablets. A longer-acting version called lisdexamphetamine is also available.

How dexamfetamine is used

- Dexamfetamine and other ADHD drugs aren't usually recommended for children under school age. ^[31]
- Your doctor will start your child off on a low dose to see if it helps, and to watch for side effects. If that dose doesn't work, then your doctor may increase the dose every few days or weeks . ^[53]
- Dexamfetamine is usually prescribed to children who have tried methylphenidate and atomoxetine but whose symptoms have not improved.
- Experts recommend that children who have been taking dexamfetamine have their treatment reviewed each year. Children may have trial periods without medication from time to time, to see if they still need it. Some children grow out of ADHD symptoms and can manage without medicine as they get older. ^[31]

There are guidelines for doctors on treating ADHD. ^[53] To read more, see [NICE guidance on ADHD](#) .

How can it help?

If your child starts taking dexamfetamine, there's a good chance that his or her behaviour will get better within a few days. This means that dexamfetamine may be able to help your child: ^[54] ^[15] ^[52]

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- **Concentrate more:** Your child may find it easier to concentrate, follow instructions, and focus on things such as homework. He or she may also be less likely to forget or lose things, and their schoolwork may improve.
- **Feel less overactive:** If your child is always on the go, he or she may feel calmer and less restless after taking a stimulant. He or she may be more likely to sit still and less likely to run about and fidget.
- **Be less impulsive:** Your child may find it easier to think before acting, to wait his or her turn, and to resist interrupting other people's conversations. He or she may be less likely to blurt out answers before questions have been finished. Your child may also become less argumentative or aggressive.

If your child is calmer and better able to concentrate, his or her schoolwork, self-esteem, and relationships with family and friends may improve. But we don't know for sure if this will help your child get higher marks at school, and we don't know if this will improve your child's behaviour in the long term.^[41] Studies have not followed children long enough to measure this.

Any improvement in your child's behaviour does not mean that the ADHD has gone away. If your child stops taking the medicine, there's a good chance that the symptoms will return. It will take time for your child to rebuild friendships, learn behaviour that's appropriate, and catch up on school work.^[21]

Dexamfetamine seems to work as well as the main stimulant used to treat ADHD, methylphenidate.^[53]

How does it work?

No one knows exactly how dexamfetamine improves the symptoms of ADHD. But studies show that it affects the level of chemicals in the brain called **neurotransmitters**.^[44]

- Neurotransmitters are produced by nerve cells in the brain to help send, receive, and process information.
- Some studies have found that children with ADHD seem to have less of a neurotransmitter called **dopamine** in the front part of their brain, which is the region that helps control movement, mood, and emotion. They may also lack the neurotransmitter **noradrenaline**.^[46]
- Doctors think that dexamfetamine improves the symptoms of ADHD by increasing the levels of these neurotransmitters. Research seems to support this theory.^[46]

Can it be harmful?

The main side effects of dexamfetamine are: ^[15] ^[55]

- Loss of appetite
- Loss of weight
- Problems sleeping.

Some children get the following side effects although they are less common. Your child may: ^[56]

- Get twitches (tics). These usually go away with time or by lowering the dose
- Feel irritable
- Have stomach aches.

We don't know what proportion of children will get these side effects. But studies have shown that there is little difference in the side effects of dexamfetamine and methylphenidate.

Worries about growth

Some doctors and parents worry that stimulants such as dexamfetamine might stop children growing properly. We don't know for certain if this happens, as different studies have come to different conclusions. Your doctor should regularly check your child's height and weight, usually every six months. ^[31]

Worries about misuse

Another worry is that stimulants such as dexamfetamine could be misused. But there's no evidence that dexamfetamine can make a child with ADHD high. Stimulants taken for ADHD arrive at the brain very slowly, and do not offer the high that drug abusers seek.

Some parents also worry that stimulants will make their child more likely to become dependent on drugs or alcohol in later years. But there's no evidence that this may happen. ^[17] In fact, studies show that children with ADHD may be less likely to become dependent on drugs and alcohol if they're treated with stimulants. ^[48]

A study published in June 2009 found that children taking stimulant drugs for ADHD may have a slightly higher risk of dying suddenly of heart problems. ^[49] But a later study, which looked at records from over a million children and young people, found that those who were taking ADHD drugs, including amphetamines, didn't seem to have a higher risk of serious heart problems or stroke than those who weren't taking these drugs. ^[50]

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In the UK, doctors are advised not to prescribe stimulant drugs to anyone with heart disease or [high blood pressure](#), or to anyone with a history of serious mental health problems such as severe depression, schizophrenia, or anorexia. European experts have reviewed all the evidence about side effects of methylphenidate and say its benefits outweigh its risks.^[57] Doctors have been told to check people's health carefully before they start taking the drug, and monitor their health while they are taking it. For example, your doctor will probably check your child's heart rate and blood pressure every three months and after each dose change.^[31]

How good is the research on dexamfetamine?

There is good evidence that dexamfetamine can help children with attention deficit hyperactivity disorder (ADHD). Your child might be able to concentrate better or be less hyperactive.

We found three summaries of the research (called [systematic reviews](#)) that looked at treatments for ADHD.^[54] ^[15] ^[52] All three found that children who took dexamfetamine had fewer behaviour problems than children who took a dummy treatment (a [placebo](#)).

One study found that dexamfetamine tablets that release the drug slowly over time also helped with children's symptoms.^[55] But these slow-release tablets aren't available in the UK.

We don't know whether dexamfetamine or another drug called [methylphenidate](#) works best.^[58] There hasn't been enough research to tell us for certain.

Methylphenidate plus behaviour therapy

In this section

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[How good is the research on methylphenidate plus behaviour therapy?](#)

This information is for people who have a child with attention deficit hyperactivity disorder (ADHD). It tells you about methylphenidate plus behaviour therapy, a treatment used for ADHD. It is based on the best and most up-to-date research.

Does it work?

Yes. Using these treatments together can help improve your child's behaviour. He or she may be less restless, more able to concentrate, and more likely to think before acting. This combined treatment may also help your child do better at school.

Combining methylphenidate with behaviour therapy may work better than using either treatment alone.

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Other stimulants may also be combined with behaviour therapy, but not as much research has been done on these combinations.

What is it?

Methylphenidate

Methylphenidate is a stimulant drug used for attention deficit hyperactivity disorder (ADHD). Your doctor may prescribe it to help your child behave better.

Methylphenidate comes as tablets. Most doctors now prescribe long-acting versions of methylphenidate. The brand names are Concerta XL, Equasym XL, and Medikinet XL. They last between 8 hours and 12 hours. The short-acting version (brand name Ritalin) is not used so much now.

To learn more, see [Methylphenidate](#) .

Behaviour therapy

In behaviour therapy, a trained therapist counsels and supports your child and family, and teaches you skills to manage the behaviour that goes with ADHD.

The term behaviour therapy covers a wide range of treatments. Some approaches involve working with a therapist on a one-to-one basis. Other approaches involve group activities with other children or parents. Your child's teacher may also be involved in the therapy.

To learn more, see [Behaviour therapy](#) .

There are guidelines for doctors on treating ADHD. To read more, see [NICE guidance on ADHD](#) .

How can it help?

If your child has both methylphenidate and behaviour therapy, there's a good chance that his or her behaviour will get better.

Having the two treatments together seems to work better than having behaviour therapy on its own. ^[56] ^[59] ^[52] ^[54] ^[60] It may also work better than having methylphenidate on its own. ^[61]

Having methylphenidate plus behaviour therapy may be able to help your child: ^[56] ^[52] ^[54] ^[60]

- **Concentrate more.** Your child may find it easier to concentrate, follow instructions, and focus on things such as homework. He or she may be less likely to forget or lose things, and schoolwork may improve
- **Feel less overactive.** If your child is always on the go, he or she may feel calmer and less restless. He or she may be more likely to sit still and less likely to run about and fidget

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- **Be less impulsive.** Your child may find it easier to think before acting, to wait his or her turn, and to resist interrupting other people's conversations. He or she may be less likely to blurt out answers before questions have been finished.

Your child may also become less argumentative, or less anxious or depressed. He or she may do better at school. ^[56] ^[60] But we don't know if your child's behaviour will improve in the long term. ^[62] Studies have not followed children long enough to measure this.

Any improvement in your child's behaviour does not mean that the ADHD has gone away. If your child stops treatment, there's a good chance that the symptoms will come back. It will take time for your child to rebuild friendships, learn behaviour that's appropriate, and catch up on schoolwork. ^[54]

You may feel more supported and better able to cope if your child's treatment includes therapy as well as medicine. Therapy may also allow your child to manage his or her behaviour with a lower dose of medicine. This can reduce the risk of side effects. ^[56] ^[54] ^[43] ^[63]

How does it work?

No one knows exactly how methylphenidate improves the symptoms of ADHD. But studies show that it affects the level of chemicals in the brain called **neurotransmitters**. ^[44]

Behaviour therapy is based on the idea that all **behaviour is learnt and can be unlearned**. For children who don't have ADHD, the learning process happens naturally through contact with parents, friends, and teachers. For children with ADHD, however, the learning process doesn't happen as easily. These children, as well as their parents and teachers, need some extra help.

With behaviour therapy, parents and teachers learn what triggers good and bad behaviour. They can then create settings in which good behaviour is rewarded and bad behaviour is discouraged. The child, meanwhile, learns the skills he or she needs to cope with everyday difficulties.

Can it be harmful?

There's no evidence that behaviour therapy causes any harm.

About half of all children who take methylphenidate get mild side effects. The side effects often go away after a couple of weeks, or if children take a lower dose. About 3 in 100 of children get slightly more serious side effects, such as depression, worrying, and feeling irritable. ^[42]

Here are the common side effects of methylphenidate: ^[34] ^[35] ^[36]

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- Your child may have less appetite and lose weight.
- Your child may find it difficult to fall asleep.

Some children get other side effects as well, but these are less common. Some, but not all, studies of this treatment have found that children may: ^[34] ^[35] ^[36]

- Get twitches (tics). These are not always caused by the medicine - some children with ADHD also have tics. But methylphenidate may increase tics. If this happens, reducing the dose of medicine may help.
- Feel irritable. About one fifth of the studies reported this side effect
- Have stomach aches. About one fifth of studies reported this
- Have headaches. About one fifth of studies reported this.

Worries about growth

Some doctors and parents worry that stimulants such as methylphenidate might stop children growing properly. Your doctor should regularly check your child's height and weight, usually every six months. ^[31]

Worries about misuse

Another worry is that stimulants such as methylphenidate could be misused. For instance, methylphenidate is thought to work in a similar way to cocaine. They both increase the level of a substance called dopamine in the brain. But there's no evidence that methylphenidate can make a child with ADHD high. Stimulants taken for ADHD arrive at the brain very slowly, and do not offer the high that drug abusers seek.

However, there have been cases of children taking methylphenidate without it being given to them by a doctor. One study in the United States found that about 2 in 100 13 and 14 year olds took methylphenidate without a prescription. ^[47] About 4 in 100 17 and 18 year olds took it. Some children and teenagers have tried taking methylphenidate to help them concentrate or revise for an exam.

Some parents also worry that stimulants will make their child more likely to become dependent on drugs or alcohol in later years. But there's no evidence that this may happen. ^[17] In fact, studies show that children with ADHD may be less likely to become dependent on drugs and alcohol if they're treated with stimulants. ^[48]

Worries about rarer side effects

A study published in June 2009 found that children taking stimulant drugs for ADHD may have a slightly higher risk of dying suddenly of heart problems. ^[49] But a later study, which looked at records from over a million children and young people, found that those

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who were taking methylphenidate or other ADHD drugs didn't seem to have a higher risk of serious heart problems or stroke than those who weren't taking these drugs. ^[50]

In the UK, doctors are advised not to prescribe stimulant drugs to anyone with heart disease or **high blood pressure**, or to anyone with a history of serious mental health problems, such as severe depression, schizophrenia, or anorexia. European experts have reviewed all the evidence about side effects of methylphenidate and say its benefits outweigh its risks. ^[51] Doctors have been told to check people's health carefully before they start taking the drug, and monitor their health while they are taking it. For example, your doctor will probably check your child's heart rate and blood pressure every three months and after each dose change. ^[31]

How good is the research on methylphenidate plus behaviour therapy?

There's some good evidence that taking methylphenidate and having behaviour therapy may help children with attention deficit hyperactivity disorder (ADHD).

One summary of the research (called a **systematic review**) found that parents of children who had these treatments thought they improved. But the children's teachers didn't notice an improvement. ^[54]

Two other summaries found that symptoms of ADHD improved more with both treatments than with therapy on its own. ^[52] ^[58] One of the summaries also noted that academic achievement improved with both treatments. ^[58]

Two other good studies (called **randomised controlled trials**) also found that the two treatments together seemed to work better than having behaviour therapy on its own. ^[64] ^[65] And one study found that it might also help improve children's social skills more than having methylphenidate on its own. ^[61]

Atomoxetine

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[Can it be harmful?](#)

[How good is the research on atomoxetine?](#)

This information is for people who have a child with attention deficit hyperactivity disorder (ADHD). It tells you about atomoxetine, a treatment used for ADHD. It is based on the best and most up-to-date research.

Does it work?

Yes. Atomoxetine can help the symptoms of ADHD. Your child should be less restless, more able to concentrate, and more likely to think about something before they do it.

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However, studies haven't looked at whether atomoxetine still works if it's taken for longer than a few weeks.

Atomoxetine can have side effects.

What is it?

Atomoxetine is a newer drug used for attention deficit hyperactivity disorder (ADHD). Your doctor may prescribe it to help your child behave more normally. The brand name is Strattera.

Unlike [methylphenidate](#) or [dexamfetamine](#), atomoxetine isn't a stimulant. It works in a different way to stimulants, and it affects a smaller part of the brain. ^[66]

Atomoxetine comes as capsules that your child takes once or twice a day. The capsules are long-acting, so your child will not need to take them at school.

- Doctors can only prescribe atomoxetine for children aged 6 years or older, as studies haven't shown whether it's safe for children younger than this. ^[67]
- The dose of atomoxetine is worked out in relation to how much a child weighs. Doctors start the child on a low dose and gradually increase it to the target dose.
- The child will normally see the full effect of the drug after taking it for six weeks.

There are guidelines for doctors on treating ADHD. ^[67] To find out more, see [NICE guidance on ADHD](#).

How can it help?

If your child is prescribed atomoxetine there is a good chance that his or her symptoms will improve.

Atomoxetine may be able to help your child: ^[68] ^[69] ^[70] ^[71] ^[72]

- **Concentrate more:** Your child may find it easier to concentrate, to follow instructions, and to focus on things such as homework. They may also be less likely to forget things or lose things.
- **Feel less overactive:** If your child is always on the go, he or she may feel calmer and less restless after taking atomoxetine. He or she may be more likely to sit still and less likely to run about and fidget.
- **Be less impulsive:** Your child may find it easier to think before acting, to wait his or her turn, and to resist interrupting other people's conversations. He or she may be less likely to blurt out answers before questions have been finished. Your child may also become less argumentative.

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But atomoxetine doesn't seem to change how well children do at schoolwork, or the things they are able to do in their day to day life. ^[73] ^[74]

One study found that atomoxetine was just as likely to help the symptoms of ADHD as methylphenidate. ^[75] However, the doses of methylphenidate used in the study were lower than many children actually take. Another study compared atomoxetine with a long-acting version of methylphenidate. Both treatments improved children's symptoms, but methylphenidate worked slightly better overall. However, among children who were not helped by methylphenidate, 4 in 10 had improvements when they switched to atomoxetine. ^[71]

How does it work?

Atomoxetine increases the amount of a chemical in the brain called **noradrenaline** (also called norepinephrine). Noradrenaline helps to pass messages between brain cells. Doctors think that this chemical helps with our ability to concentrate, to control our impulses, and to behave normally. ^[66]

Even so, nobody knows exactly how atomoxetine works to treat ADHD symptoms. ^[67]

Can it be harmful?

In the studies, the most common problems children had were: ^[68]

- Going off their food (loss of appetite). This happened to 15 in 100 children
- Stomach (abdominal) pain. This happened to 14 in 100 children
- Feeling drowsy. This happened to 10 in 100 children
- Being sick (vomiting). This happened to 8 in 100 children
- Having indigestion. This happened to 2 in 100 children
- Feeling dizzy. This happened to 2 in 100 children

Some children taking a dummy treatment (a **placebo**) also had these problems, although not as many.

Many studies on atomoxetine have been fairly short, lasting only six to nine weeks. But one review of studies gathered information on children who had taken the drug for three years or longer. It found that taking atomoxetine for a long time didn't appear to increase children's risk of side effects. ^[76] However, more research needs to be done to know for sure.

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Growth

Loss of appetite seems to be the biggest problem with atomoxetine. In studies, children taking atomoxetine were more likely to go off their food than children taking a placebo. But a big review of 13 studies has found that taking atomoxetine for two years is unlikely to significantly affect children's height or weight.^[77] The review found that children who took atomoxetine weighed 0.78 kg less than they would be expected to weigh, and were shorter by 0.44 cm than predicted. Children who were smallest when they started to take atomoxetine were most likely to be affected in this way.

A follow-up study suggested that although children's weight and height lagged slightly when they started taking atomoxetine, they caught up later on.^[78] A review of other studies had similar findings.^[79]

Your doctor should regularly check your child's height and weight as a precaution, usually every six months.^[31] If your child isn't growing or gaining weight as he or she should, your doctor may suggest breaks from the medicine.

Heartbeat and blood pressure

There have been some reports that atomoxetine slightly increases heart rate and blood pressure. This is usually temporary and it hasn't affected children's health, but in a small number of people with ADHD who take the drug they may be more severe, or may get worse.^[80] Researchers don't know whether these increases in blood pressure and heart rate could affect children in the future.^[69] ^[81] But a study that looked at records from over a million children and young people found that those who were taking ADHD drugs, including atomoxetine, didn't seem to have a higher risk of serious heart problems or stroke than those who weren't taking these drugs.^[50]

Atomoxetine may also cause an irregular heartbeat.^[82] Advice for doctors says they should be careful about prescribing it to people who are at risk of heart problems, or with problems that could be made worse by increases in heart rate or blood pressure.^[80]

Your doctor should check your child's heart rate and blood pressure every three months, and after each dose change.^[31]

Liver problems

The Committee on Safety of Medicines, the government body that checks the safety of drugs, has warned that atomoxetine may cause serious damage to the liver.^[83]

The risk of this happening is very small. About 1 in 50,000 people who take atomoxetine will have liver damage. It can happen at any time. Very rarely, this liver damage will be serious.

If your child is taking atomoxetine and is feeling well, you don't need to worry. But you should be aware of the most common signs of liver damage:

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- Nausea
- Yellow colouring (jaundice) on his or her skin or in the whites of the eyes
- Dark urine
- Tenderness below the ribs on his or her right side
- Flu-like symptoms.

If your child gets any of these you should see his or her doctor straight away.

Doctors in the UK have been told to look out for signs of liver damage in patients taking atomoxetine. People who have a liver reaction should stop taking the drug and should not take it again.

At the beginning of 2005, more than 2 million people around the world had taken atomoxetine. But only about 41 of these people have had liver problems.^[83] Four of these have been serious.

Thoughts about suicide

Reviews of studies has shown that a small number of children and young people who take atomoxetine are more likely to think about killing themselves.^[84] ^[85] One review involved about 2,200 children and young people. About 1 in 250 of the children taking atomoxetine thought about suicide. One child taking atomoxetine tried to commit suicide. None of the children who took a dummy drug for comparison (a placebo) thought about suicide.^[84]

In the UK, the Medicines and Healthcare products Regulatory Agency (MHRA), which checks the safety of drugs, has said parents and other carers of children treated with atomoxetine should keep a careful watch for signs of depression, suicidal thoughts, or suicidal behaviour.^[86] Some children may need to switch to a different treatment. The MHRA says that children who are doing well on this treatment should keep taking it.

If your child is getting unusual symptoms or you are worried about him or her, see your doctor.

Seizures (fits)

Atomoxetine can cause seizures (fits) in some people.^[82] Advice for doctors says they should be careful about giving it to people who've had seizures before. If your child has a seizure while you're taking this treatment, talk to their doctor. You may need to change his or her treatment.

Other psychiatric symptoms

There have been some reports of children who are taking atomoxetine having hallucinations (seeing things that aren't really there), getting delusions (imagining things that couldn't be true), and behaving in an unusual, over-excited way. Doctors have been advised to watch out for these types of symptoms in children taking atomoxetine. If your child is behaving strangely and is taking atomoxetine, see your doctor. He or she may need to stop taking the drug. ^[87]

How good is the research on atomoxetine?

There is good evidence that atomoxetine can help children and teenagers with attention deficit hyperactivity disorder (ADHD).

One summary of nine good-quality studies (called randomised controlled trials) plus four other good studies found that atomoxetine reduces the symptoms of ADHD more than a dummy treatment (a placebo). ^{[68] [69] [70] [88] [72]} The children were less likely to be hyperactive, act without thinking, or not pay attention.

Clonidine

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[How good is the research on clonidine?](#)

This information is for people who have a child with attention deficit hyperactivity disorder (ADHD). It tells you about clonidine, a treatment used for ADHD. It is based on the best and most up-to-date research.

Does it work?

Possibly. Taking clonidine is likely to help some children control the symptoms of attention deficit hyperactivity disorder (ADHD).

There's less evidence that this treatment works than there is for some other medicines, such as [methylphenidate](#) or [dexamfetamine](#).

What is it?

Clonidine belongs to a group of drugs that are normally used to treat high blood pressure in adults. It is also used to treat tics and Tourette's syndrome, and sometimes used for ADHD.

Clonidine is not normally used as a treatment for ADHD in the UK. But a specialist may still prescribe this drug if your child's behaviour does not improve with a stimulant such as [methylphenidate](#) or [dexamfetamine](#). (Stimulants are the drugs usually used to treat ADHD.)

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Your doctor might prescribe clonidine in addition to a stimulant drug.

Clonidine (brand name Catapres) comes as tablets.

How can it help?

Treatment with clonidine may help to improve the symptoms of children with ADHD, though some of the studies to show this are not very good. ^[89] ^[37]

There's better evidence that children who are taking a stimulant (dexamfetamine or methylphenidate) may be helped more by taking clonidine as well. ^[37] ^[90] Clonidine helped improve behaviour and other symptoms of ADHD, but not hyperactivity.

How does it work?

No one knows exactly how clonidine helps control the symptoms of ADHD. But it may stop the brain from making a chemical called **noradrenaline** .

Experts think that ADHD could be partly due to an imbalance of chemicals in the front part of the brain. It's this part of the brain that controls how you move and feel. By stopping the brain making noradrenaline, clonidine may improve the balance of chemicals and improve symptoms. ^[91]

Can it be harmful?

If your child takes clonidine, he or she may feel drowsy and irritable. Clonidine also lowers **blood pressure** , so your doctor will need to check your child's blood pressure regularly.

One small study involving 24 boys found that some children given clonidine (either alone or with methylphenidate) had a higher risk of developing a slow heart rhythm. ^[92] A quarter of boys taking clonidine alone, and half of boys taking both drugs, developed this symptom.

Another study found that children taking clonidine were more likely to have bouts of drowsiness or dizziness than those children taking a dummy treatment (a **placebo**) although these symptoms went away within six weeks. ^[90]

A third study found that children taking clonidine were more likely to have a slow heart rhythm, feel drowsy, or be tired or nervous, compared with children taking a placebo or methylphenidate. ^[93]

How good is the research on clonidine?

There is some research to show that clonidine is likely to work for some children with attention deficit hyperactivity disorder (ADHD).

We found one summary of the research (called a **systematic review**) that looked at six studies involving 143 children. ^[94] Researchers asked parents, teachers, and doctors to rate children's behaviour against a checklist. The results suggested that clonidine works

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better than a dummy treatment (a [placebo](#)). But some of the studies included in this review were not very good and so the results are not completely reliable.

A separate study found that taking clonidine worked as well as taking [methylphenidate](#).^[37] And two small studies found that adding clonidine to methylphenidate or [dexamfetamine](#) helped to improve some symptoms of ADHD, but not hyperactivity.^[37]
^[95]

Behaviour therapy

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on behaviour therapy?](#)

This information is for people who have a child with attention deficit hyperactivity disorder (ADHD). It tells you about behaviour therapy, a treatment used for ADHD. It is based on the best and most up-to-date research.

Does it work?

We don't know. Behaviour therapy may help you and your child cope better with attention deficit hyperactivity disorder (ADHD). But we don't know for certain if it will help your child's symptoms when used on its own.

Behaviour therapy may help children cope with their symptoms of ADHD. But it may not actually reduce the symptoms themselves.

There is some evidence that children who have behaviour therapy along with a drug treatment may do better than those who have either treatment on its own. To learn more, see [Methylphenidate plus behaviour therapy](#).

What is it?

In behaviour therapy, a trained therapist counsels and supports your child and family, and teaches you how to manage the behaviour of ADHD.

The term behaviour therapy covers a wide range of treatments. They are based on the idea that all behaviour is learnt and can be unlearned. Some treatments involve working with a therapist one-to-one. Others involve group activities with other children or parents. Your child's teacher may also be involved in the therapy.

Therapy can be used on its own, or combined with drug treatment.

To learn about the different types of therapies, see [Therapies to manage ADHD](#).

Behaviour therapy most often involves a system of rewards and penalties. This is sometimes called positive reinforcement. Here's how it works:^[20] ^[96]

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- Parents identify a few types of behaviour they want to encourage, such as getting ready for bed on time
- These are explained clearly to the child
- The child then gets a small reward (such as a special privilege) for behaving in the ideal way, or a small penalty (such as time alone in their room) for poor behaviour.

The aim is to help children plan ahead and choose the right behaviour.

How can it help?

We're not sure behaviour therapy can help your child's behaviour get better, when it is used on its own. There's not enough good evidence to say one way or the other.

However, we do know that your child is likely to benefit from having a combination of behaviour therapy and medication such as methylphenidate. ^[56]

Also, you may feel more supported and able to cope if your child's treatment includes therapy as well as drugs. Therapy may allow your child to manage his or her behaviour with a lower dose of drugs. This can reduce the risk of side effects. ^{[56] [54] [43] [63]}

One study also found that behaviour training for parents helped improve children's behaviour more than just usual care. Children were also less likely to be taking medications for ADHD at the end of the study if their parents had behaviour training. However, the researchers didn't find any differences in the children's symptoms of ADHD. ^[100]

One study found that children who have [anxiety disorder](#) as well as ADHD may be helped by behaviour therapy. ^[56]

How does it work?

Behaviour therapy is based on the idea that all behaviour is learnt and can be unlearned. For children without ADHD, the learning process happens naturally while they're with their parents, friends, and teachers. For children with ADHD, however, the learning process doesn't happen as easily. These children, as well as their parents and teachers, need some extra help.

With behaviour therapy, parents and teachers learn what triggers good and bad behaviour. They then can create settings in which good behaviour is rewarded and bad behaviour is discouraged. At the same time, the child learns the skills he or she needs to cope with everyday problems.

Can it be harmful?

There's no evidence that behaviour therapy does any harm.

How good is the research on behaviour therapy?

We found two summaries of the research (called [systematic reviews](#)) that looked at behaviour therapy for attention deficit hyperactivity disorder (ADHD).^[54] ^[101] Behaviour therapy may help you and your child manage the behaviour problems caused by ADHD. But, so far, there hasn't been much research to say whether therapy actually improves the symptoms of ADHD.

One summary of the research found no difference between children who had behaviour therapy and children who had standard treatment. Standard treatment meant children were treated by their usual doctor. They had medication, therapy, or a combination of the two.^[54] The second summary said there hasn't been enough research to say whether behaviour therapy worked.^[101]

One study found that children who had [anxiety disorder](#) on top of ADHD were more likely to be helped by behaviour therapy.^[56] Another found that including teachers and parents in the therapy process helped children's symptoms improve.^[102] But there were problems with this study that make the results unreliable.

Another study suggested that giving parents behaviour training can help improve children's behaviour, although not their symptoms of ADHD.^[100]

Fish oil supplements

In this section

[Do they work?](#)

[What are they?](#)

[How can they help?](#)

[How do they work?](#)

[Can they be harmful?](#)

[How good is the research on fish oil supplements?](#)

This information is for people who have a child with attention deficit hyperactivity disorder (ADHD). It tells you about fish oil supplements, a treatment that's been tried for ADHD. It is based on the best and most up-to-date research.

Do they work?

We don't know. There's not enough research to say whether fish oil supplements help children with ADHD.

What are they?

Fish oil supplements are capsules that contain the omega-3 fatty acids called DHA (docosahexanoic acid) and EPA (eicosapentanoic acid). These are the same as the fatty acids found in oily fish such as trout, mackerel, sardines and salmon. Omega-3 fatty acids are also called n-3 fatty acids.

You can get fish oil supplements from pharmacies and health food shops.

How can they help?

We're not sure that they can. In one study, children did not benefit from eating foods that were specially made with fish oils in them. ^[103] In this study children had 4 milligrams of fish oil added to their food each week.

How do they work?

Some people think that children with ADHD have an imbalance of fatty acids and that the fish oils help to restore the right balance. But it's only a theory.

Can they be harmful?

The study didn't report any harmful effects from fish oils. But other studies in which people have taken fish oil supplements have found that they can cause wind, bad breath and an unpleasant fishy taste in the mouth. ^[104]

Some children may refuse to take fish oil supplements, or food that is enriched with fish oils, because of the smell.

How good is the research on fish oil supplements?

We found just one good study (called a randomised controlled trial) of 40 children with ADHD, which looked at the effects of fish oils. ^[103] It found that fish oils made no difference to children's symptoms.

Homeopathy

In this section

[Does it work?](#)

[What is it?](#)

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[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on homeopathy?](#)

This information is for people who have a child with attention deficit hyperactivity disorder (ADHD). It looks at whether homeopathy can help with ADHD. It is based on the best and most up-to-date research.

Does it work?

Probably not. There has not been enough good research to say whether homeopathy helps children with ADHD. The research that has been done suggests it works no better than a dummy (placebo) drug.

What is it?

Homeopathy is a type of complementary or alternative medicine. Homeopaths believe that 'like cures like'. So, homeopaths treat people with a substance that would produce symptoms similar to their illness. However, to make a homeopathic remedy, the substance

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is diluted many times over. Most remedies are diluted so many times that none of the original substance is left.

How can it help?

It probably can't help. There have only been a few small studies. A review of the studies said that, overall, there was nothing to show it worked better than dummy treatment (a placebo).^[105]

Homeopathy isn't based on scientific principles. Experts think it's unlikely to be an effective medical treatment.^[106]

How does it work?

Homeopathy is based on the theory that, if large amounts of a substance would cause particular symptoms, giving the same substance in highly diluted form can cure those symptoms. Science doesn't support this theory. Many experts think that any benefits from homeopathy come from the placebo effect, rather than the remedies themselves. The placebo effect is seen in many studies when people get better even though they've been taking an inactive, dummy treatment (a placebo).

Can it be harmful?

One of the studies found that three people given homeopathy and one person given a dummy treatment left the trial because their symptoms got worse.^[107] But we don't know if these reactions were the result of treatment or not. The other study didn't find any harmful effects from homeopathy.^[108]

How good is the research on homeopathy?

We found one summary of the research (a systematic review) that looked at four studies on homeopathy for attention deficit hyperactivity disorder (ADHD).^[105] All the studies were small, and they found mixed results. For example, one found that children treated for 12 weeks with homeopathy remedies had improved symptoms.^[107] But another found that homeopathy made no difference after 18 weeks.^[108] Overall, the researchers concluded that there is nothing in the evidence to say that homeopathy is helpful for children with ADHD.

Vitamin and mineral supplements, and special diets

In this section
[Do they work?](#)

This information is for people who have a child with attention deficit hyperactivity disorder (ADHD). It looks at whether vitamin and mineral supplements and special diets can help with ADHD.

Do they work?

We don't know. There's not enough research to say whether vitamin and mineral supplements and special diets help children with ADHD.

Vitamin and mineral supplements

Some experts suggest that children with ADHD need extremely high levels of certain vitamins or minerals. But when children were given 10 times the normal dose of vitamin and mineral supplements, their symptoms of ADHD did not improve. ^[109]

Very high doses of certain vitamins can be dangerous. If you are considering supplements for your child, check with your doctor first.

If your child is taking any medicine, it's best to check with your doctor before giving them supplements. High doses of some minerals and vitamins can stop drugs working properly.

Essential fatty acids

These are called essential fatty acids because it's essential that you get them from food. Your body cannot make them. Some studies have found that children with ADHD have lower levels of essential fatty acids (EFAs) than other children. ^[109]

We found two summaries of research (systematic reviews) that looked at studies of children with ADHD who took fatty acid supplements. Both reviews found that there was some evidence that fatty acid supplements improve ADHD symptoms, but the quality of the studies wasn't very high, so more research is needed before we can decide if supplements of fatty acids can help. ^{[110] [111]}

Evening primrose oil (a source of EFAs) might improve the symptoms of ADHD. But there's not enough good research to be certain. ^[109]

To make sure your child has a healthy diet with lots of EFAs, provide plenty of oily fish (such as mackerel, herring or salmon) and vegetables.

Elimination diets

Some researchers think that food allergies could contribute to the symptoms of ADHD. Your doctor may be able to check if your child has an allergy. Then, together, you can create a healthy diet that helps your child avoid foods that might make the symptoms of ADHD worse. (This is called an elimination diet.) There's not enough good research on elimination diets. We don't know if they work. ^[112]

Restricting sugar and other sweeteners

Many parents say their children become hyperactive after eating sweets or having sugary drinks. Even though there have been several studies, there is no convincing evidence that sugar or artificial sweeteners cause the symptoms of ADHD.

Complementary and alternative treatments

In this section

[Do they work?](#)

[What are they?](#)

This information is for people who have a child with attention deficit hyperactivity disorder (ADHD). It tells you about complementary and alternative treatments for ADHD.

Do they work?

Many complementary and alternative treatments are used to help children with attention deficit hyperactivity disorder (ADHD). But there is little good-quality research on any of them. ^[109] ^[113] We need much more research to say whether these treatments can help improve symptoms. Also, these treatments can be expensive and take up a lot of time.

What are they?

Two of the more common alternative treatments for ADHD are biofeedback and visual exercises.

Biofeedback

Biofeedback works on the principle that you can learn to control behaviour by getting better at recognising your body's signals. There are two types of biofeedback used for ADHD.

- **Electromyogram biofeedback** (EMG biofeedback) encourages children to relax by helping them to recognise when their muscles tense. ^[114] A machine called an electromyograph is used to measure the tension in their muscles.
- **Electroencephalogram biofeedback** (EEG biofeedback) helps children recognise 'good' brainwaves that allow them to concentrate. ^[109] A machine called an electroencephalograph records your child's brainwaves as a pattern of waves and spikes across a screen. The pattern changes when your child is alert, daydreaming or sleepy. A computer converts this pattern of waves into sounds or pictures. Your child knows from the sounds or pictures whether he or she is producing 'good' brainwaves. Your child can then learn how to keep these 'good' brain waves going for longer. ^[109]

Visual exercises

A variety of visual exercises are used to treat children with ADHD. Some exercises are meant to help children pay attention by improving how their eyes focus. Other exercises involve wearing coloured lenses. Visual exercises can vary a great deal because experts have not agreed which ones work best. ^[109]

Antidepressants

In this section

[What are they?](#)

[Side effects](#)

This information is for people who have a child with attention deficit hyperactivity disorder (ADHD). It tells you about antidepressants, a treatment used for ADHD.

We haven't looked at the research on antidepressants in the same detail we have for the other treatments we cover. (To read more, see Our method.) But we've included some information because you may be interested.

What are they?

Antidepressants are drugs that are usually used to treat depression. Some of them have been tried as a treatment for children with attention deficit hyperactivity disorder (ADHD). But antidepressants are not usually used in the UK for the treatment of ADHD.

- Antidepressants might be used if a child has anxiety or depression as well as ADHD. ^[115]
- The only antidepressant that is recommended in the UK to treat depression in children is a drug called fluoxetine (brand name Prozac). ^[116] Fluoxetine is a type of antidepressant called a selective serotonin reuptake inhibitor (usually called an SSRI).
- Imipramine is another antidepressant your doctor may suggest. Imipramine and drugs like it (such as desipramine, amitriptyline, nortriptyline, and clomipramine) may help more with behaviour problems than with problems concentrating. They are called tricyclic antidepressants. ^[6]
- At the moment, antidepressants are considered an experimental treatment for ADHD. This means they should be prescribed only by specialists in ADHD. And they should probably be used only after other treatments haven't helped.

Side effects

Thoughts of suicide and self-harm

Doctors in the UK now think that many SSRIs do more harm than good when used to treat depression in children. This is because antidepressants increase the risk of self-harm and thoughts about suicide in children and teenagers. ^[116]

In the United States, the Food and Drug Administration (FDA), which checks the safety of drugs, has warned that all antidepressants can increase the risk of children and teenagers thinking about or trying to commit suicide. ^[117]

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Because of this risk, doctors and parents are advised to keep a careful check on children and young people taking antidepressants for signs of suicidal thoughts. Feeling more depressed or thinking about suicide are most likely to happen during the first months of treatment, or when the dose is changed.

Withdrawal symptoms

Children or young people who are taking antidepressants should not suddenly stop or reduce their dose, because of the risk of withdrawal symptoms. These can include chills, stomach ache, and flu-like symptoms. Gradually reducing the dose can lessen the chance of these symptoms.

Teaching parents how to cope with disruptive behaviour

In this section

[What is it?](#)

[How can it help?](#)

This information is for people who have a child with attention deficit hyperactivity disorder (ADHD). It looks at programmes designed to help parents improve their relationship with their child.

What is it?

Education programmes for parents are sometimes recommended to help them cope with children who behave in a disruptive way. Doctors sometimes describe this kind of behaviour as a conduct disorder.

Conduct disorder

Some children with ADHD can behave in a way that's very disruptive. Doctors sometimes call this **conduct disorder** or **oppositional defiant disorder**. These terms describe behaviour that's much worse than ordinary naughtiness or rebelliousness. Children with conduct disorder may: ^[118]

- Be aggressive towards other people or animals
- Break things or damage property
- Steal things
- Tell lies
- Break important rules.

Most children do these things from time to time. And not all children with ADHD have these problems. Guidelines for doctors say that if a child has done at least three of these things in a year, they may have a conduct disorder. ^[118] But conduct disorders should

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only be diagnosed by a specialist. This could be a doctor, **psychologist** or **psychiatrist** who specialises in treating children and young people.

Education programmes

One way of dealing with conduct disorders is for a parent or guardian to take part in a programme designed to help them improve their relationship with their child. The idea is that this will help the child to be less disruptive.

This approach is only recommended for children up to 12 years old. ^[118]

Parent education programmes are usually done in a group. They're based on the idea that children learn their behaviour from watching other people. Sessions last about two hours. You may learn about how best to talk to your child and ways to help you understand your child's feelings. You might role-play difficult situations and be given things to do with your child between sessions.

The sessions might be run by a psychologist or a community worker. Most parent education programmes are just for parents or guardians. But you may be asked to bring your child along once or twice. You'll usually have about 10 sessions in all.

How can it help?

Several reviews of the research have found that parent education programmes can help improve children's behaviour. ^[118] One review also found that they can help parents feel less stressed and better able to cope. But it also found that the quality of the studies varied a lot, and there wasn't much evidence that parent education programmes helped children to improve things like school results or behaviour towards other members of the family. ^[119]

Further informations:

ADHD in infants and toddlers

Children with attention deficit hyperactivity disorder (ADHD) are usually diagnosed when they start school. ^[4] Their problems are more obvious when they have to sit down and concentrate. But even if your child isn't yet school-age, you may begin to notice early signs of ADHD.

Parents of children with ADHD often say that as infants or toddlers their children: ^[19]

- Moved constantly
- Cried all the time
- Wouldn't go to sleep

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- Had to be rocked all the time
- Ran about and jumped a lot
- Were clumsy and accident-prone
- Were slow to get out of nappies
- Wet the bed
- Never did as they were told
- Had lots of temper tantrums.

However, all of these signs can also appear in children who don't go on to get ADHD.

ADHD in the nursery school years

When your child starts nursery school, playgroup or a day care nursery, his or her problems are likely to become noticeable. At this stage, children with ADHD are sometimes: ^[19]

- Unable to control themselves
- Impulsive. For example, they run out in front of cars
- Boisterous, aggressive and defiant. They push other children and grab toys
- Unable to play in a group with other children
- Unpopular with other children.

ADHD in the early school years

Starting school is an important time for all children. They have the chance to make new friends, gain independence and become involved in group activities. But if your child has attention deficit hyperactivity disorder (ADHD), going to school can be a scary and disappointing experience.

Schoolchildren with ADHD often: ^[19]

- Get poor test results and bad marks for work

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- Approach schoolwork in a messy, disorganised way
- Fail to finish their work
- Find it difficult to read, write and spell
- Find it difficult to behave in settings that don't have much structure, such as in hallways or during lunch breaks
- Seem immature or babyish, talking excessively and crying more often than other children
- Struggle with structured activities, such as sport or drama
- Lack co-ordination, making it difficult to ride a bicycle, for example
- Find it difficult to get on with other children
- Do things to annoy other people and then blame others
- Have a low opinion of themselves and feel inferior.

Most children with ADHD can go to mainstream schools. However, if your child is struggling at school, it is worth meeting the teacher to discuss what help is available for children with ADHD. For more information, see [Educational options for children with ADHD](#) .

ADHD in teenagers

The teenage years are difficult in most families. Your child is growing up, seeking his or her own identity and struggling to cope with new freedoms and responsibilities. Family conflicts are almost unavoidable. If your teenager has attention deficit hyperactivity disorder (ADHD), these problems may be worse.

For many years, experts thought that ADHD went away at puberty because teenagers with ADHD are less hyperactive than younger children. But around 70 in 100 to 80 in 100 children with ADHD still have symptoms as teenagers.^[17] ^[20] This can put great pressure on both the child and the family.

Teenagers with ADHD sometimes:^[19]

- Find it difficult to make friends and keep them

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- Perform poorly at school. Teenagers with ADHD may struggle to organise themselves or concentrate well enough for difficult schoolwork
- Behave aggressively and defiantly. They may get into fights and are more likely than other teenagers to lie, steal and get into trouble with the police
- Rebel and take risks. Because of their impulsiveness, teenagers with ADHD are more likely to take illegal drugs and abuse alcohol
- Have a low opinion of themselves. They may get depressed.

Teenagers with ADHD may need to learn [coping strategies](#) .

ADHD in adults

Experts used to think that children grew out of ADHD when they were teenagers. But we now know that about two-thirds of children with ADHD still have difficulty with concentration, impulsive behaviour and relationships as adults. And about 1 in 10 go on to have mental health problems, such as [depression](#) .^[18]

But many adults with ADHD learn to adapt to their problems. And some say they can even turn ADHD to their advantage. For instance, if you are hyperactive you will have plenty of energy. If you are impulsive, you may also be very decisive.^[8]

However, if you are an adult with ADHD, you may:

- Have a harder time performing at work than your colleagues do
- Struggle to manage your time and stick to routines and tasks. Some people find they get bored easily and switch from job to job
- Find it hard to make friends or stay in relationships. And you may find yourself out of sync during conversations, misreading how other people feel and behave
- Find it hard to judge situations and work out the consequences of your actions. Adults with ADHD are also more likely to do things that are risky or dangerous, such as taking illegal drugs.

If your ADHD symptoms stop you coping with everyday life, then you may need to continue treatment or learn [coping strategies](#) .

Educational options for children with ADHD

If your child has attention deficit hyperactivity disorder (ADHD), you may want to find out about the educational options provided at school.

If your child is diagnosed with ADHD, then it is very likely that their progress at school will be disrupted in some way. This may be because children with ADHD often fall behind with their school work or their behaviour causes problems for their teachers. Even so, there are things you can do to help your child at school.

If your child is diagnosed with ADHD it is likely that their school will try to improve your child's behaviour and ability to learn. For example, your child's teacher may be involved in your child's [behaviour therapy](#). Behaviour therapy aims to improve behaviour through a system of rewards for good behaviour.

Your child's school may decide your child needs some extra help in the classroom. Here are some of the things it may do to help.

- Involve a special education needs co-ordinator (called a SENCO). These co-ordinators work with teachers to meet the needs of children with ADHD. This means that your child can stay with classmates but get extra help.
- Involve the Behaviour and Learning Support specialist teaching service to advise the teaching staff.
- Make special seating areas. Your child's schoolwork may improve if he or she can sit in an area that has few distractions but space to move around in and release energy.
- Give your child extra breaks or special learning equipment such as computers.
- Give your child special instructions so that tasks are broken down into manageable steps.
- Encourage your child's teacher to work out a way to communicate with your child so that your child doesn't feel picked on.

Ask your child's teacher or head teacher for more information about how to help your child. Or you could contact your local education authority, the part of your local council responsible for education.

Coping strategies for teenagers and adults with ADHD

If you're a teenager or adult with attention deficit hyperactivity disorder (ADHD), the following tips may help you cope with your symptoms from day to day.^[21]

- If you can't remember an instruction, ask your teacher or boss to repeat it. Don't just guess.
- Break big jobs into smaller stages, and reward yourself as you finish each one.
- Make a list of what you need to do each day. Then put these tasks in the order you intend to do them. Cross each thing off the list as soon as you've done it.
- Work in a quiet area.
- Do one thing at a time.
- Take regular short breaks.
- Carry a notebook and write down things you need to remember.
- Use Post-it notes to remind yourself of things you need to do. Put them where you will notice them, such as on your fridge or car dashboard.
- Store similar things together. CDs should be in one place, videos in another. Bills should be separate from personal letters.
- Create a routine. Get up and go to bed at the same times each day.
- Exercise, eat a balanced diet and try to get enough sleep.

Symptoms checklist

The three signs of ADHD are not paying attention, being overactive and acting without thinking. A child can have symptoms of all three. However, to be diagnosed with ADHD a child must have:^[7]

- **Either** six or more symptoms of not paying attention (inattention)
- **Or** six or more symptoms of being overactive and acting before thinking (hyperactivity and impulsivity).

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Talking too much and fidgeting, for example, can both be symptoms of hyperactivity.

The symptoms of ADHD are listed in a book called the Diagnostic and Statistical Manual of Mental Disorders. The following list of symptoms is adapted from that book. ^[7]

Not paying attention

Inattentive children:

- Often pay no attention to detail and make careless mistakes in schoolwork or other activities
- Can't concentrate on one game or task for long
- Often seem not to listen when spoken to
- Often don't follow instructions, and fail to finish schoolwork and tasks around the house
- Often have difficulty organising tasks and activities
- Often avoid tasks that need a lot of concentration
- Often lose things
- Are easily distracted
- Are often forgetful.

Being overactive and acting before thinking

Hyperactive children:

- Often fidget or squirm when sitting down
- Keep getting up
- Often run about or climb instead of sitting still
- Often have difficulty playing quietly
- Are on the go all the time, and act as if driven by a motor
- Talk too much.

Impulsive children:

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- Often blurt out answers before a question is finished
- Often have difficulty waiting their turn
- Often interrupt others.

But, just because your child has lots, or even all, of the symptoms listed above it doesn't mean he or she has ADHD. Doctors also look for the following.

- Your child must have been behaving like this for **at least six months**.
- Some of the symptoms must have been present **before your child reached the age of 7 years old**.
- Above all, your child's behaviour must be causing problems in **at least two places** (for example, at home and at school).^[7]

Before diagnosing ADHD your doctor will also check that your child's symptoms are not caused by another condition such as bipolar disorder, anxiety disorder, or personality disorder.

Types of ADHD

Doctors divide children with ADHD into three groups, depending on how they behave.

- **Combined type ADHD:** This means your child has all three kinds of symptoms. They don't pay attention, can be hyperactive and can be impulsive. This is sometimes called **hyperkinetic disorder or HKD**.^[26]
- **Predominantly inattentive type ADHD:** This means your child's biggest problem is inattention. Hyperactivity and impulsiveness are not such big problems.
- **Predominantly hyperactive-impulsive type ADHD:** This means your child's biggest problems are being hyperactive and impulsive. Not paying attention is less of a problem.

Conditions similar to ADHD

Not all disruptive behaviour is caused by attention deficit hyperactivity disorder (ADHD). Very intelligent children sometimes appear to have ADHD. They may misbehave if they are bored at school.

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Some medical conditions can also make it appear that your child has ADHD. This is because their symptoms are similar. Your doctor may check for these conditions before diagnosing your child with ADHD. ^[7] ^[27] ^[25] ^[28]

- **Anxiety:** This condition makes children feel worried, tense and uneasy for no good reason.
- **Mood disorders:** Mood disorders include depression and bipolar disorder . Bipolar disorder involves big mood swings and can be mistaken for ADHD.
- **Oppositional defiant disorder:** Children have sudden outbursts of temper, act violently and lash out, or overreact to minor problems.
- **Learning disability:** A learning disability can make it difficult for children to make progress at school, especially if it has not been recognised..
- **Epilepsy:** Epilepsy causes seizures or fits. Some types of seizure can make a child appear to have ADHD. They may seem to lack concentration and act rashly, or have sudden mood changes. To read more, see our information on [Epilepsy](#) .
- **Movement disorder:** Children with this problem repeat certain movements over and over again. For example, they may rock backwards and forwards or bite their lip over and over again.
- **Autism spectrum disorder:** Children with autism may seem not to be paying attention in class, or to ignore instructions. To read more, see our information on Autism. To read more, see our information on [Autism](#) .
- **Tics and Tourette's syndrome:** children with these conditions may seem not to be paying attention, because they are distracted by trying to keep their tics under control.

Conditions that can occur alongside ADHD

Sometimes children with attention deficit hyperactivity disorder (ADHD) have other conditions too. We've listed the most common ones here.

Oppositional defiant disorder

This condition affects about a third of children with ADHD. ^[29] The children affected are mainly boys. These children may have sudden outbursts of temper, act violently and lash out, or overreact to minor problems.

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Sleeping problems

Many children with ADHD have difficulties getting to sleep at night, or disturbed sleep. To read more, see our information on [Sleep problems in children](#) .

Anxiety

This is an emotional problem that affects about 1 in 4 children with ADHD.^[29] It makes children feel extremely worried, tense and uneasy, for no good reason. Treating ADHD can help reduce anxiety.^[30]

Learning disability

Children with ADHD are more likely than other children to have a learning disability such as dyslexia.

Tic disorders (including Tourette's syndrome)

A tic is a pattern of movements that you can't control, like a twitch. Tourette's syndrome is a rare illness that starts in childhood and causes tics. Often a child's face twitches. It's also common to shout out noises or words (these are called vocal tics) and mimic what other people are doing. It needs to be treated separately from ADHD.^[20]

Conduct disorder

About 1 in 4 children with ADHD also have conduct disorder.^[29] It means they tend to be aggressive and can also bully people and animals. They may damage property, behave in a deceitful way and break rules set by others, such as staying out later than they should. Children with conduct disorder are also more likely to take risks than other children which can lead to substance misuse and problems with behaviour at school. They might set off a fire alarm as a joke, for example.

Depression

Depression makes children feel sad and hopeless. Depression can stop a child sleeping properly, or even thinking straight. About 1 in 5 children with ADHD have depression.^[29]

To read more, see [Depression in children](#) .

It can be more difficult to manage a child with ADHD if they also have another condition. Talk to your doctor about how the other condition can affect your child's ADHD, and the way it is treated.

Therapies to manage ADHD

Many different types of therapy are used to help children with attention deficit hyperactivity disorder (ADHD). Your doctor may recommend one of the following.

Individual counselling

This involves your child visiting a trained therapist alone to try to improve their self-esteem. The therapist will explore your child's feelings, thoughts, relationships and experiences, and talk about how these are linked to behaviour.

Therapists may use play, art or role-playing to help children who have difficulty putting their feelings into words. ^[96] ^[12]

Cognitive behaviour therapy

This therapy uses a more direct approach to help your child alter his or her behaviour. It aims to change the way your child looks at and approaches situations. Your child may learn skills such as how to make decisions and solve problems. Or the therapist might encourage changes in behaviour by giving praise or rewards. ^[12] ^[97]

Social skills training

Your child may be taught skills to help him or her behave in social situations and towards others. For example, your child may learn about waiting for their turn and sharing toys.

Through techniques like role-playing, a child might see how his or her behaviour affects others. He or she may also learn new ways to respond, when teased or pushed, for example. The therapist may teach your child to pick up on social cues, such as tone of voice, and respond appropriately. ^[12] ^[98]

Parenting skills training

In a series of group sessions and individual meetings, parents talk about how to deal with their child's behaviour. You then work with a therapist to develop ways of coping that are right for your family. Areas covered include how to discipline a child, how to praise and reward good behaviour, and how to create and lay down rules.

Parents may also be encouraged to give their child quality time each day, during which they share a relaxed and enjoyable activity. In addition, you may learn to create situations in which your child is likely to succeed. For example, you might play games that your child is good at. ^[96] ^[12] ^[98] ^[99]

Teacher training and education

Teachers go to sessions with a behaviour therapist to discuss ways to control behaviour in the classroom. The teachers then use a daily report card to record how a child copes with certain things. The card is brought home by the child and you use it to reward good behaviour.

Glossary:

dopamine

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Dopamine is a neurotransmitter, which is a chemical that helps messages pass between brain cells and other cells. Dopamine plays a role in your mood, and your physical movements.

noradrenaline

Noradrenaline is a neurotransmitter, which is a chemical that helps to send information between nerve cells. It is similar to adrenaline. Your body produces adrenaline when you're in stressful situations, which increases your blood pressure and heart rate.

psychiatrist

A psychiatrist is a doctor who specialises in psychiatry. Psychiatry is the branch of medicine that covers mental, emotional or behavioural problems.

bipolar disorder

Bipolar disorder is a disease that involves serious mood swings. It's also called manic depression. People with bipolar disorder have had, at least once, an episode of either mania or hypomania, which is where they felt very excited and energetic, and their behaviour may have been out of control. They're also likely to have had a major depression, which is a period when their mood was very low.

seizure

A seizure (or fit) is when there is too much electrical activity in your brain, which results in muscle twitching and other symptoms.

high blood pressure

Your blood pressure is considered to be high when it is above the accepted normal range. The usual limit for normal blood pressure is 140/90. If either the first (systolic) number is above 140 or the lower (diastolic) number is above 90, a person is considered to have high blood pressure. Doctors sometimes call high blood pressure 'hypertension'.

systematic reviews

A systematic review is a thorough look through published research on a particular topic. Only studies that have been carried out to a high standard are included. A systematic review may or may not include a meta-analysis, which is when the results from individual studies are put together.

placebo

A placebo is a 'pretend' or dummy treatment that contains no active substances. A placebo is often given to half the people taking part in medical research trials, for comparison with the 'real' treatment. It is made to look and taste identical to the drug treatment being tested, so that people in the studies do not know if they are getting the placebo or the 'real' treatment. Researchers often talk about the 'placebo effect'. This is where patients feel better after having a placebo treatment because they expect to feel better. Tests may indicate that they actually are better. In the same way, people can also get side effects after having a placebo treatment. Drug treatments can also have a 'placebo effect'. This is why, to get a true picture of how well a drug works, it is important to compare it against a placebo treatment.

randomised controlled trials

Randomised controlled trials are medical studies designed to test whether a treatment works. Patients are split into groups. One group is given the treatment being tested (for example, an antidepressant drug) while another group (called the comparison or control group) is given an alternative treatment. This could be a different type of drug or a dummy treatment (a placebo). Researchers then compare the effects of the different treatments.

blood pressure

Blood pressure is the amount of force that's exerted by your blood on to your blood vessels. You can think of it like the water pressure in your home: the more pressure you have, the faster and more forcefully the water flows out of the shower. Blood pressure is measured in millimetres of mercury (written as mm Hg). When your blood pressure is taken, the measurement is given as two numbers, for example 120/80 mm Hg. The first, higher, number is called the systolic pressure, and the second, lower, number is the diastolic pressure. The systolic number is the highest pressure that occurs while your heart is pushing blood into your arteries. The diastolic number is the lowest pressure that happens when your heart is relaxing and is not pushing your blood.

liver

Your liver is on the right side of your body, just below your ribcage. Your liver does several things in your body, including processing and storing nutrients from food, and breaking down chemicals, such as alcohol.

hallucinations

If you have hallucinations, you perceive things that aren't really there. You may see things that don't exist or hear voices when nobody's talking. Or you may get a crawling feeling on your skin when there isn't anything on it. Hallucinations can make you feel frightened and agitated.

delusion

A delusion is a belief you have that couldn't possibly be true. For example, you may feel that somebody is out to harm you even after it's been shown not to be true. Or you may believe that a famous person is in love with you even though you've never met him or her.

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group) is given an alternative treatment. This could be a different type of drug or a dummy treatment (a placebo). Researchers then compare the effects of the different treatments.

Placebo effect

People who are ill sometimes improve even though they've been given an inactive treatment. This is called the placebo effect. We don't know exactly why it happens. It might be that expectations about treatment help you feel better, or even lead to physical changes in the body. It's also possible that seeing a doctor or other kind of therapist is reassuring, even if the treatment itself is inactive.

allergy

If you have an allergy to something (such as pollen or a medicine), your body always overreacts to it. The reaction happens because your immune system (your body's system for fighting infection) is too sensitive to it.

psychologist

A psychologist is trained to study the human mind and human behaviour. A clinical psychologist provides mental health care in hospitals, clinics, schools or to private patients.

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