

Resource 9: What causes ADHD?

Here's just a flavour of the debate about what causes ADHD.

Environment theories

Various theories about environmental causes of ADHD have been proposed over the past few decades, ranging from children watching too much television to poverty.

One theory was that artificial food additives, such as colourings or preservatives, made children hyperactive or inattentive. This led to many parents changing their children's diets, and schools discouraging children from consuming colourful sweets. However, a number of research studies concluded that a restricted diet helped only a small percentage of children with ADHD.

Other theories have focused on toxins produced by cars and industrial processes, and the use of drugs, alcohol and cigarettes by pregnant mothers. We know that a high level of exposure to these substances can damage the developing brain of a foetus, but links to ADHD have not been substantiated.

The fact is, we're not sure whether environmental changes, such as poor diet and pollution, are responsible for the high incidence of ADHD. It's generally agreed that ADHD is not due purely to environmental factors – although they can exacerbate the condition.

Biological theories

A genetic basis of ADHD is suggested by the fact that most children with ADHD have a close relative (usually male) affected to some degree by the same problem. Also, in studies of identical twins, both have ADHD in 90 percent of cases, while siblings carry a 30 to 40 percent risk of inheriting ADHD.

Thanks to advances in brain scanning technology we now know that there are differences in brain activity between people who have ADHD and those who don't. The current thinking is that ADHD is a neurological condition which gives rise to a typical behaviour pattern in a variety of situations.

People with ADHD have neurological problems associated with inhibiting behaviour. ADHD behaviours are probably affected by the way messages in the brain are carried. The brain structures that regulate attention use dopamine* to transmit messages to one another. In ADHD these neurotransmitters* operate less effectively.

This can affect four major brain functions:

- working memory
- inhibiting behaviour
- self-directed speech
- sequencing and verbal fluency

(See Resource 10 for more information about these effects.)

Continued on next page...

Cultural and social factors

ADHD is found in all cultures, races and social groups. This strengthens the theory that it's a neurological condition. But think about these two questions:

- More children from economically poorer groups are affected by ADHD – so, are some of the symptoms we see actually a product of early social experience?
- More children in the USA are diagnosed than in the UK, so do cultural factors influence our perception and classification of the same behaviours?

The causes and effects of ADHD are not as straightforward as you might think. Although evidence from brain research points to a neurological basis for ADHD, it may not be the case that all pupils with this neurological predisposition end up displaying problem behaviours.

It appears that the quality of early experience may protect some children from developing ADHD behaviours and may place some children at more risk.

Age of onset

The behaviours that typify ADHD often start between the ages of three and five years old. However, the age of onset can vary widely – some pupils don't develop symptoms until late childhood or even early adolescence. For some children, the symptoms of hyperactivity decrease with age, but symptoms of inattention and impulsivity do not.

Glossary items:

Dopamine: an important neurotransmitter (or 'messenger') in the brain.

Neurotransmitters: chemicals released from a nerve cell that transmit an impulse to another nerve, muscle, organ or tissue – messengers of neurological information from one cell to another.