Genetic distinctions between autism and ADHD

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Autism and ADHD have often been confused with one another. In fact, it isn't uncommon for people with autism to be diagnosed with ADHD at some point in their lives. But if the two are so similar, what is it that sets them apart?

Scientists have long debated whether autism and ADHD are separate conditions, or one condition with different levels of severity. To settle the argument once and for all, they're turning to genetics for answers.

What is ADHD?

Like autism, attention deficit hyperactivity disorder (aka ADHD) is described as a condition that affects people's behaviour. It usually manifests itself as restlessness, lack of concentration, and acting on impulse.

Most cases are recognised and diagnosed before a child is 12 years old, but it can sometimes take until adulthood for a diagnosis to be made. Symptoms have been known to improve with age, but many of those diagnosed young continue to experience issues much later in life.

People with ADHD may also experience other problems, like sleep and anxiety disorders.

The similarities between autism and ADHD

Several similar symptoms are seen in both autism and ADHD, including:

- **Inattention:** Difficulty paying attention, or an intense focus on select topics or interests.
- **Hyperactivity:** Restless and fidgety. Unable to stay still or talking excessively.
- **Impulsivity:** Acting impulsively without considering the consequences. Interrupting others, engaging in dangerous behaviour, or behaving aggressively.
- **Sensory processing** difficulties: Unable to regulate stimuli coming through their senses. Sensitive to touch, sound, or taste.
- **Behaviour problems:** Significant behavioural problems that interfere with learning or making friends.
- **Difficulty socialising:** Struggle to understand social cues and can't figure out the rules of social engagement.

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What makes autism and ADHD different?

A study of nearly 80,000 people found that seven genetic regions (or 'loci') have common variants in people with autism, ADHD, or both. This appears to confirm theories that there are genetic similarities between the two, and that a person can have both at the same time. Scientists also noted that these specific loci are also strongly associated with other psychiatric conditions such as depression.

Interestingly however, there are five loci that carry variants that can set autism and ADHD apart. Therefore, if a person only has variants associated with autism, a clear autism diagnosis should be possible.

As scientists carry out more research in this area, they may even be able to separate autism from one 'umbrella' condition into several more specific genetic categories.