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Can They See It? Narrower Vision In Children With ASD

What is this research about?

Children with autism spectrum disorder (ASD) have difficulties with social communication. Differences in visual perception may contribute to those challenges in some children. This research provides insight to why children with ASD may focus on fine details at the expense of ‘seeing the big picture’ as they view the world. One theory for this fine-detail bias in children with ASD is that they have ‘weak central coherence’ (WWC), that is difficulty combining multiple features of a visual scene, and focus more on a smaller number of features at one time. This study hypothesized that children with ASD may have poorer peripheral vision compared to children without ASD, contributing to their weaker ability to process a larger visual scene. This research identifies the differences in visual perception in children with ASD compared to their peers.

What did the researchers do?

These researchers compared 26 children (average age of 11), half diagnosed with ASD, and half were not. Both groups were similar in terms of sex, and non-verbal IQ. They used a computerized vision test to measure the ability to see with both central and peripheral vision, called the ‘functional field of view’. They tested each child to detect a visual stimulus (a number) as they moved it away from the center of the visual field. If they could detect the stimulus, they were asked if they could identify what the number was. The further the stimulus is from

What you need to know:

Children with ASD may have a wide range of visual impairments that are caused by a limited peripheral vision. Changes in vision may affect the quality of social communication. This study identifies some deficits in visual detection in the peripheral vision in children with ASD that may contribute to loss in ability to ‘see the big picture’.

the center of vision, the more likely it is detected by peripheral vision and be globally processed, and the harder it may be to identify.

What did the researchers find?

The researchers found that both children with and without ASD could easily detect the stimuli until it was moved into the peripheral vision. Children with ASD took longer to detect stimuli presented in the periphery than typically developing children. The children were then asked to identify what number was presented on each stimulus. Although both groups of children had a harder time identifying the correct number when the stimulus was presented outside the center of vision, children with ASD performed worse. Overall, children with ASD have a narrower functional field of vision compared to typical developing children. This finding confirms that children with ASD may not be able to see a wide visual-spatial field like other children – making it more difficult to process global information.



How can you use this research?

This is an additional explanation for why children with ASD may have poor performance on global information processing tasks, not only because of WWC, but also narrower visual perception. The reduced functional field of vision in children with ASD may contribute to other reduced visual functions including the ability to see while moving in the dark, where there is an advantage to having functional peripheral vision.

About the Researchers

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This research summary was written by Caitlin Siu and Jonathan Lai for the Chair in Autism Spectrum Disorders Treatment and Care Research. This research summary, along with other summaries, can be found on our [blog](#) and at asdmentalhealth.ca/research-summaries

About the Chair

The Chair in Autism Spectrum Disorders Treatment and Care Research is dedicated to studying ways to improve the mental health and well-being of people with Autism Spectrum Disorders (ASD) and their families in Canada.

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For more information, visit the Chair in Autism Spectrum Disorders Treatment and Care Research website at asdmentalhealth.ca

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