NEWS

Cognition and behavior: Gaze related to language ability

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Eye control: Language impairment may determine whether children with autism have trouble focusing their gaze on a single object.

Children with both autism and language impairment have similar trouble suppressing their reflexes and avoiding distractions during a visual task compared with language-impaired children without autism, according to a study published in the January issue of *Developmental Science*[1]. Children with autism but no language difficulties perform the same as controls do.

The study shows that some individuals with autism have problems with attention that are more closely linked to their language deficits than to their autism.

People with autism are known to struggle with both attention and social interaction, but the interplay between these two skills is unclear. For example, a tendency to avoid eye contact may be a form of **social avoidance**. But it may also be the result of **attention** and motor difficulties, such as the inability to fix one's glance on a certain place.

Indeed, studies have found that people with autism have problems **shifting their eyes** when looking from one point to another.

In the new study, researchers used **eye-tracking** technology to follow the gaze of children with autism and that of controls, with and without language impairment, as they watched pictures

appear on a screen. Within each experiment, the four groups were roughly equivalent in size, although the total number of children varied from 59 to 72.

Children in each group are equally quick and accurate when told to look away from a smiley face in the middle of the screen toward a monster that appears in one of four corners. Each group also shows the typical tendency to be faster if the smiley face disappears before the monster appears, rather than if their time on the screen overlaps.

This suggests that basic visual motor abilities are not impaired in autism or language deficit, the researchers say.

However, children with both autism and language impairment and those with language impairment alone make more mistakes than the other two groups when told to look in the exact opposite direction from the monster.

This may be because they are more likely than children with better language skills to **misunderstand the task**. But they are just as likely as those children to quickly correct their initial mistake. This suggests that the impairment lies in an inability to suppress their initial reflex, the researchers say.

In a final experiment, the researchers told the children to watch only one of three dragons that flew around the screen. Children with language impairment with and without autism are more likely than children in the other groups to glance at the wrong dragons, the study found. This suggests that these children are more easily distracted than those without language impairment.

Both deficits in visual attention seen in the study involve the choice of when to move one's eyes, and do not reflect basic motor function, the researchers note.

One caveat of the study is that both groups of children who have language impairment have a lower nonverbal intelligence quotient (IQ) than either controls or children with autism alone. This suggests that visual deficits may be related to IQ and not to language.

References:

1: Kelly D.J. *et al. Dev. Sci.* **16**, 56-66 (2013) **PubMed**