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Language development in autism with hyperlexia

The case of two identical twins

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What is hyperlexia?

Present in 6 to 21% of the autistic population, hyperlexia is characterised by an intense and precocious interest in written material. A hyperlexic child will develop an excellent ability to decode words at a very early age but will have more difficulty understanding the meaning of the text. Hyperlexia is a special ability linked to autism: 84% of hyperlexic people are on the autism spectrum. Often seen as an obstacle to language development, could this marked interest in letters reveal another way of developing language?

Paul and Luc* are identical twins with autism and hyperlexia who were seen 16 times between the ages of 4 and 8. Their social, communicative and language skills, as well as their strengths and interests, were assessed using questionnaires, interviews with the mother, adapted standardised tests, and observations with the children.

Strengths and Interests

PAUL

From his very first months, Paul showed a keen interest in letters. By 6 months, he was already often reaching for toys with letters. By 18 months, he was writing words backwards and forwards, and correcting letters of the alphabet that had been inverted. His other interests are mainly related to visual and auditory perception. He enjoys lining up toy cars or placing them in the shape of a letter, writing words and drawing characters from his favourite TV programme, classifying objects according to their colour or shape, and building structures with toys to produce an image with their shadow. He also developed a particular interest in classical music at a very early age. When he was around 18 months old, his mother saw him writing the word "Beethoven" as he hummed Beethoven's 9th symphony.

LUC

Like Paul, Luc showed a marked interest in letters and numbers from the age of 12 months. By 18 months, he began to write words, name letters in French, En-

glish, and Spanish, correct the spelling of written words that he had never used orally, and correct alphabetical order forwards and backwards. He could accurately sing complex melodies that he has heard before, solve 48-piece puzzles, and build realistic Lego structures, such as cars and aeroplanes, without a model.

Language, social and communicative skills

Standardised tests were used to measure the language skills of the twins at ages 4, 5 and 7 years old. Their performances were irregular and underestimated their actual abilities. According to the tests, at 4 years of age, the twins' ability to produce and understand words was similar to that of a 16-month-old child. Instead, the test results reflected their mood and cooperation on that day. Children sometimes don't give answers, not because they can't, but because they don't seem to want to. Rather than responding to the instructions given, they spontaneously set about doing something that interests them, such as drawing and writing the names of characters from their favourite TV programme.

PAUL

Paul's first significant words, other than "mommy" or "daddy", were spoken at around 15 months. At 16 months, he suddenly stopped responding to his first name and his oral language skills stopped progressing. At age 4, Paul seems to show little interest in social interaction, not engaging in reciprocal exchanges and not interacting with other children his age, apart from his brother. However, Paul was able to express his basic needs using simple words, pointing, or directing the carer's hand towards what he wanted. He used many incomprehensible made-up words and did not use sentences to communicate. By the age of 7, this jargon had almost disappeared from his vocabulary, and he was able to form simple sentences without errors, in French and English. He was also able to name familiar objects from a picture, although he sometimes gave incorrect, but connected answers, such as "fire, water" when shown a picture of a fireman. According to his parents, he knows over 500 words, but cannot use them to communicate.

Although the intense interest in written material may seem invasive and restrictive at first, over time it can become more complex and constitute a gateway to new interests, thus contributing to the acquisition of new skills rather than detracting from them.

* Paul and Luc are fictitious names used to protect the children's anonymity.



Hyperlexia may therefore not be an additional barrier to language acquisition.

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LUC

Luc's development of language and social skills is similar to that of his brother. Before the age of 3 years old, his language consisted exclusively of letters, which he named as soon as they are present in his environment. At ages 4 and 5, Luc made occasional errors in pronouncing sounds and displayed echolalia, the repetition of words or phrases that have already been heard. Unlike Paul, he could make combinations of words and showed more advanced social communication skills than his brother, such as pretend play. He sometimes initiated interactions with his brother by joining in his games, but never with other children. At age 7, Luc's ability to produce words was like that of a 4-year-old, while his ability to understand words corresponds to that of a 5-year-old. Also, the transformation of sounds had completely disappeared, and echolalia had diminished considerably. He is now able to form complete sentences of increasing complexity, to recite and manipulate sequences of letters and numbers, to have short, simple conversations, to respect turn-taking, and he takes the initiative in asking questions.

Evolution and importance of interests

According to their mother, by the age of 5 both children were devoting around 90% of their time to their various intense interests, mainly linked to the same sources. Both children's interests evolved and became more complex. Their interest in letters developed into a passion for books at the age of 6. At the age of 8, new interests associated with social situations, such as playing cards, role-playing and playing with other children, emerged, whereas the twins showed no interest in these activities at the age of 6. Although the intense interest in written material may seem invasive and restrictive at first, over time it can become more complex and constitute a gateway to new interests, thus contributing to the acquisition of new skills rather than detracting from them.

Although the autistic interest in written material does not initially appear to have a social function, the twins' common interests have enabled them to develop relationships, as they now spend most of their time playing together and sharing their activities. The twins have used their ability with letters to communicate and to compensate for their difficulty in communicating orally. To ask their mother for something, they can now write a word to describe what they wanted.

Their interests were also associated with soothing properties and contributed to their well-being. Singing the alphabet could help to calm them. In tests, the twins were considerably more motivated and focused on the task when their interests were included. This illustrates the importance of taking the interests of autistic children into account when formulating interventions designed to build a picture of their abilities.

Hyperlexia: an alternative route to language acquisition?

At the end of the study, the twins' language development was still markedly delayed in relation to their age. Their trajectory was characteristic of what is generally observed in autistic children: a significant delay, but a late recovery. Hyperlexia may therefore not be an additional barrier to language acquisition. Several studies suggest that hyperlexia may reflect the superior functioning of certain autistic visual processes, such as shape recognition. This would explain their interest in complex visual forms such as letters. This interest in written material could then be used to stimulate the development of oral language. Fluent language may then appear suddenly following the development of reading skills in hyperlexic children. 🌸