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What is a Nonverbal Learning Disability?

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Abstract: Nonverbal learning disabilities affect a child's abilities in specific academic domains and have an impact upon social perception and interpersonal relationships. Hahn discusses the components of the nonverbal learning disability syndrome, including its core characteristics, academic and intellectual features, and associated features.

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Full Text: Nonverbal learning disabilities affect a child's abilities in specific academic domains. In addition to academic learning, nonverbal learning disabilities have an impact upon social perception and interpersonal relationships.

There is no universally-accepted definition for nonverbal learning disabilities. Even the label used to describe them can vary depending on the discipline of the author. For example, a neurologist is more likely to refer to this syndrome as a right hemisphere deficit syndrome. The educational literature has coined the term nonverbal learning disability to distinguish it from learning disabilities where language functions are primarily affected.

Nonverbal learning disabilities are the result of differences in brain development and/or brain function. As is the case for most neurodevelopmental disabilities, the cause is not known, and is likely due to both genetic and environmental factors.

The following list summarizes the components of the nonverbal learning disability syndrome.

Core characteristics:
Social perception weaknesses. The problems with social perception seen in children with nonverbal learning disabilities are the same as those seen in Asperger disorder.

Difficulties with space and time concepts. These weaknesses can result in difficulties understanding one's geographical location or learning how to read a clock.

Visual-spatial and motor organization weaknesses (dyspraxia). These weaknesses can make it difficult to learn how to get dressed in the early years of life, and can affect handwriting in the school years. The child may appear "clumsy."

Academic and intellectual features:
* Math weaknesses

Gaps in language and reading comprehension. Although basic language functions remain intact, children with nonverbal learning disabilities can find it difficult to understand words with multiple meanings or words that include space/time concepts.

High verbal and low performance IQ scores on psychological testing. The new Wechsler Intelligence Scales (version 4) no longer calculates performance and verbal IQ's; this criterion may need to change as a result.

Associated features:
* Attention deficit disorder.

Feelings of depression or anxiety. Neurological signs on the left side of the body such as decreased coordination, subtle motor weaknesses, etc.

Primary Characteristics of Nonverbal Learning Disabilities
* Social cognition and social perception. The hallmark of nonverbal learning disabilities is problems with social...
cognition. Social cognition allows us to simultaneously perceive and understand words, sentences, tone of voice, facial expression, gestures, salient information about the speaker (adult, child, teacher, parent) and information about the environment (classroom, restaurant, grandmother’s house) amongst other components. Social cognition also allows us to infer what another person might be thinking, even when that person does not tell us what he or she is thinking. A typically developing child is able to attend to all of these components in rapid sequence and can understand the relationship between these components. The child can then use this information to create theories about what the other person might be thinking, and will modify his/her response accordingly.

Children with nonverbal learning disabilities have difficulty with the type of information processing described above. In addition, they have difficulty understanding emotions (both their own and those of others). They also use the nonverbal components of social interactions much less successfully. Thus a monotone voice, limited facial expression, and/or poor eye contact often characterize their social interactions. Even if they do learn some appropriate social interactions in one setting or with one set of people, they may not be able to modify their social interactions to fit the needs of new social situations as they arise.

Children with Asperger disorder are also known to have deficits in their social cognition. The developmental literature is unclear about how to distinguish individuals with nonverbal learning disabilities from those with Asperger disorder. Individuals with nonverbal learning disabilities likely have a wider range of social skills and social deficits. Individuals with Asperger disorder do not have the specific learning disabilities described above, and also have stereotyped interests and routines.

* Higher order language functions. Words that have multiple or ambiguous meaning are challenging for children with nonverbal learning disabilities. They often misunderstand humor, for example, and have much greater difficulty with concepts such as "justice", "liberty" and "propaganda" because of the multiple meanings and perspectives that such words contain.

* Other weaknesses. In addition to social perception and higher order language weaknesses, there are certain other learning processes that are also characteristic of children with nonverbal learning disabilities. These include math weaknesses, weaknesses in visual-spatial organization, and dyspraxia (clumsiness). Attention problems indistinguishable from attention deficit disorder are characteristic. Some authors also describe anxiety in nonverbal learning disabilities, though it is difficult to say if this anxiety is primary (i.e. an intrinsic difference in the brain's ability to modulate feelings of anxiety), or secondary to the child's cognitive and social vulnerabilities.

Promoting success and independence at home, in school, and in the community

Children with nonverbal learning disabilities should be expected to perform all of the same tasks and chores as would be expected of any other child their age. In addition, they should be encouraged to develop recreational interests and participate in social and sports activities in the community.

* Managing tasks and chores. The strategies used for children with attention deficit disorder can be very helpful. For example, parents can facilitate the completion of the daily routine and chores by breaking the task into smaller components. Checklists can be used to help the child identify and complete each step of the task. Schedules and other organizational tools can help the child manage his/her school bag, notebooks, and homework assignments.

* Increasing independence in the community. Children with nonverbal learning disabilities may require explicit instruction about how to identify landmarks in their neighborhood and make their way home, or how to manage interactions in public places such as stores and restaurants. Providing a written set of instructions and/or prerehearsed scripts can facilitate this.

* Creating social opportunities. Social opportunities can be provided with other children with similar interests. The child should be encouraged to attend a computer club, cub scouts, or another extra-curricular activity that does not tax the child's organizational and motor weaknesses. For example, a child with a nonverbal learning
disability may not be successful in an activity such as soccer, which requires motor coordination as well understanding social cues and complex rules, but can be encouraged to join a jogging club or a swim team. Further, the people who interact with the child with a nonverbal learning disability can help the child build social and other skills. Any information provided about the child will be appreciated. One way to do this is to explain to others that the child is learning about social interactions, and that he or she will appreciate feedback if he or she appears confused, or if he or she misunderstands a joke and gets angry for no apparent reason, etc. Providing a document such as this article (or portions thereof) can serve the same purpose.

* School success. Children with nonverbal learning disabilities can be mainstreamed in most courses at school, though they will likely require remedial help with arithmetic and higher order language functions, especially in later years. Most have difficulty with handwriting, and with traditional extracurricular activities such as physical education and art. A physical and/or occupational therapist can be consulted to learn how to manage fine/gross motor weaknesses. Keyboarding can be used to circumvent handwriting weaknesses.

* Social skills training. Social skills training is important both for the child's emotional health, as well as for training of concepts that are needed to understand higher-order reading and language tasks. The child's attention has to be drawn to the components of social interactions described above. The parent or tutor can help the child by being very explicit about his/her own actions, and the intentions behind those actions. For example, the parent can explain why he or she is raising his voice or emphasizing one word versus another, why he or she is looking in one direction versus another, or why he or she is making close eye contact versus looking away. The child should be encouraged to create theories about what the conversational partner might be thinking or feeling. Finally, the child should be encouraged to ask for further clarification of social interactions when the meaning may not be clear.

* Expanding reading comprehension. Reading weaknesses typically become apparent once reading demands exceed the grade four level. The tutor needs to assure that the child understands any spatial, time, or social concepts that may be included in the reading passage. Complex words or concepts will require additional explanation and/or review.

* Clinical interventions. Children with nonverbal learning disabilities can benefit from mental health services. To begin with, they should be encouraged to learn to label their own emotions, to learn about their learning style and interests, and to learn how to explain their needs to others. Psychopharmacological interventions can be considered in any child with a nonverbal learning disability who has a superimposed mood or anxiety disorder, provided that the disorder is significantly interfering with the child's day to day function, and provided that the child's neuropsychological needs are being addressed adequately.

Sidebar

Case Example
George is 13 years old. He came to see me when he was 12 years old because he was found at school with cuts on his arms, which he told his teacher he had inflicted upon himself. George's parents were concerned about this, as well as the fact that he is "teased" so much at school. His mother stated that George complained about stomach aches and headaches this year, and wondered if this meant that he was depressed or anxious. Repeated doctor's visits had not revealed any medical problem.

George was not able to tell me why he cut himself. However, not long after we started to speak to one another, he told me about all of the children at his school, and how hard it is to make friends. "At lunch, I try to get a conversation started, but they've already started a conversation about something that I can't relate to." He kept telling me how he thought that his teachers didn't "protect" him from the other students. He added: "They say that I overreact. Well sometimes I do overreact. But it does feel like there is someone out there trying to ruin me."

He told me he was going to attend a camp this summer, and I asked him what he was going to do at the camp.
He replied: "Well, on Thursday I'll be testing water samples for pH and dissolved oxygen. Did you know that fish breathe dissolved oxygen? I'm going to check for iron deposits too," he added. When I asked him if the camp was designed for students who want to do science projects, he explained that he was going to bring some of his scientific equipment, and was going to test the water on his own. In addition to the words he shared with me, George revealed his difficulties with social interactions through his poorly sustained eye contact and at times limited, at other times exaggerated, facial expressions.

George has had a life-long history of difficulties with peer interactions. He always gravitated towards computer games and technical activities. His grades were always good, he did not have any behavior disturbances, and did not require any special education services. However, when he entered into middle school, he began to have more significant difficulties with peers. He began to show his frustration through aggressive behaviors, and often complained that the other students were "out to get him." His grades started to worsen, especially in writing exercises, even though he maintained above-average grades in science. For the first time, he failed his math courses, though this had always been an area of weakness. He found it very difficult to find his way from class to class, and complained: "Whenever I ask people to help me find the way, they always point in the wrong direction and make me get lost."

When I first met his parents I initially told them to review information on the web about Asperger disorder. His mother later reported to me that, as she read the description, she started to cry, because she recognized her son. As more information was gathered, however, it became clear that George was better characterized as having a nonverbal learning disability. Psychological testing completed within the year prior to his visit with me revealed a verbal IQ of 120, and a performance IQ of 100 (Full scale IQ of 109). He had significant organizational impairments and math weaknesses. His social impairments were very similar to those of a person with Asperger disorder.

George's overall presentation and performance at school improved dramatically following his initial visits with me. His father now understood why George "never gets anything done." Self-injurious behavior, which was likely driven by anxiety, ceased. He and his family created a schedule, with a list of chores, which helped him to remember and organize all of the things he had to do each day.

Special education support included language and reading support, which George needs in order to read lengthy texts, and when he is working on literary subject material. Math continues to be difficult for him. George is still concerned about his peer interactions, but he is now also subject to less teasing because his school team and his peers support him with his social interactions. In addition to a social skills group, in which he participates with other peers who are learning about social interactions, his typically developing peers assist him by telling him or showing him which of his interactions are the most successful, and which ones are not. They are also more explicit in their conversations, and make sure that George understands what they said, especially when he asks them for directions.

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Subject: Learning disabilities; Nonverbal communication; Special education; Social interaction; Attention deficit disorder;

Publication title: The Exceptional Parent