



NIDCD Fact Sheet | **Voice, Speech, and Language**

Specific Language Impairment

What is specific language impairment (SLI)?

Specific language impairment (SLI) is a communication disorder that interferes with the development of language skills in children who have no hearing loss. SLI can affect a child's speaking, listening, reading, and writing. SLI is also called developmental language disorder, language delay, or developmental dysphasia. It is one of the most common developmental disorders, affecting approximately 7 to 10 percent of children in kindergarten. Of those children with language impairment, approximately 2 to 3 percent also have an existing medical condition and/or intellectual disability. The impact of SLI usually persists into adulthood.

What causes SLI?

The cause of SLI is unknown, but recent discoveries suggest that it has a strong genetic link. Children with SLI are more likely than those without SLI to have parents and siblings who have also had difficulties and delays in speaking. In fact, 50 to 70 percent of children with SLI have at least one family member with the disorder.

Learning more than one language at a time does not cause SLI. The disorder can, however, affect both multilingual children and children who speak only one language.

What are the symptoms of SLI?

A child with SLI often has a history of being a late talker (reaching spoken language milestones later than peers).

Preschool-aged children with SLI may:



Specific language impairment is one of the most common developmental disorders, affecting approximately 7 to 8 percent of children in kindergarten.

- ▶ Be late to put words together into sentences.
- ▶ Struggle to learn new words and make conversation.
- ▶ Have difficulty following directions, not because they are stubborn, but because they do not fully understand the words spoken to them.
- ▶ Make frequent grammatical errors when speaking.

Although some late talkers eventually catch up with peers, children with SLI have persistent language difficulties. Symptoms common in older children and adults with SLI include:

- ▶ Limited use of complex sentences.
- ▶ Difficulty finding the right words.
- ▶ Difficulty understanding figurative language.
- ▶ Reading problems.
- ▶ Disorganized storytelling and writing.
- ▶ Frequent grammatical and spelling errors.

How is SLI diagnosed?

If a doctor, teacher, or parent suspects that a child has SLI, a speech-language pathologist (a professional trained to assess and treat people with speech or language problems) can evaluate the child's language skills. The type of evaluation depends on the child's age and the concerns that led to the evaluation. In general, an evaluation includes:

- ▶ Direct observation of the child.
- ▶ Interviews and questionnaires completed by parents and/or teachers.
- ▶ Assessments of the child's learning ability.
- ▶ Standardized tests of current language performance.

These tools allow the speech-language pathologist to compare the child's language skills to those of same-age peers, identify specific difficulties, and plan for potential treatment targets.

Is SLI the same thing as a learning disability?

SLI is not the same thing as a learning disability. Instead, SLI is a risk factor for learning disabilities, since problems with basic language skills affect classroom performance. This means that children with SLI are more likely to be diagnosed with a learning disability than children who do not have SLI. They may struggle with translating letters into sounds for reading. Their writing skills may be weakened by grammatical errors, limited vocabulary, and problems with comprehension and organizing thoughts into coherent sentences. Difficulties with language comprehension can

make mathematical word problems challenging. Some children with SLI may show signs of dyslexia. By the time they reach adulthood, people with SLI are six times more likely to be diagnosed with reading and spelling disabilities and four times more likely to be diagnosed with math disabilities than those who do not have SLI.

Is SLI a lifelong condition?

SLI is a developmental disorder, which means that its symptoms first appear in childhood. This does not mean that, as children develop, they grow out of the problem. Instead, the problem is apparent in early childhood and will likely continue, but change, with development.

For instance, a young child with SLI might use ungrammatical sentences in conversation, while a young adult with SLI might avoid complex sentences in conversations and struggle to produce clear, concise, well-organized, and grammatically accurate writing.

Early treatment during the preschool years can improve the skills of many children with language delays, including those with SLI. Children who enter kindergarten with significant language delays are likely to continue having problems, but they and even older children can still benefit from treatment. Many adults develop strategies for managing SLI symptoms. This can improve their daily social, family, and work lives.

What treatments are available for SLI?

Treatment services for SLI are typically provided or overseen by a licensed speech-language pathologist. Treatment may be provided in homes, schools, university programs for speech-language pathology, private clinics, or outpatient hospital settings.

Identifying and treating children with SLI early in life is ideal, but people can respond well to treatment regardless of when it begins. Treatment depends on the age and needs of the person. Starting treatment early can help young children to:

- ▶ Acquire missing elements of grammar.
- ▶ Expand their understanding and use of words.
- ▶ Develop social communication skills.

For school-age children, treatment may focus on understanding instruction in the classroom, including helping with issues such as:

- ▶ Following directions.
- ▶ Understanding the meaning of the words that teachers use.
- ▶ Organizing information.
- ▶ Improving speaking, reading, and writing skills.

Adults entering new jobs, vocational programs, or higher education may need help learning technical vocabulary or improving workplace writing skills.

What research does the NIDCD support on SLI?

The National Institute on Deafness and Other Communication Disorders (NIDCD) supports a wide variety of research on the causes, symptoms, diagnosis, and treatment of SLI. Examples of recently funded research include:

- ▶ **Genetic research:** Studies in twins and in molecular genetics consistently show a strong genetic link for SLI. Researchers are studying the risk of delayed language skills in twins compared to single-born children. Twins show a risk for delayed language skills but there appears to be no increased risk for speech problems or nonverbal IQ deficits. Other scientists are studying the genetic link between SLI and variants in the genes on certain chromosomes.
- ▶ **Bilingual research:** The standardized tests that speech-language pathologists use in schools to screen for language disorders are based on typical language development milestones in English. Non-native speakers are more likely to score in the at-risk range on these tests, but it can be hard to distinguish between children who are struggling to learn a new language and children with true language disorders. After studying a large group of Hispanic children who speak English as a second language, NIDCD-funded researchers developed a dual language diagnostic test to identify language disorders. Clinical trials will aim to ensure that the test is effective across different age groups. The same research team is also testing an

intervention program with a small group of bilingual first graders with SLI to find techniques and strategies to help them succeed academically.

- ▶ **Treatment research:** NIDCD-funded researchers are re-imagining treatment designs and offering more rigorous tests of language treatment options. Researchers are applying basic learning principles to SLI treatment to improve preschool-aged children's word-learning and grammar. Other researchers are looking for the best ways to improve academic language skills, such as decoding words for reading or producing well-structured stories. Additional studies are looking into treatments that work with the ways that adults with SLI learn and remember information over time. Researchers are striving to develop personalized treatment planning by exploring how and for whom specific interventions work.

Where can I find more information on SLI?

For more information, see:

- ▶ Centers for Disease Control and Prevention
 - Language and Speech Disorders in Children at <https://www.cdc.gov/ncbddd/developmentaldisabilities/language-disorders.html>
 - Learn the Signs. Act Early. At <https://www.cdc.gov/ncbddd/actearly/index.html>
- ▶ American Speech-Language-Hearing Association
 - Early Identification of Speech, Language, and Hearing Disorders at <https://www.asha.org/public/Early-Identification-of-Speech-Language-and-Hearing-Disorders>
 - Typical Speech and Language Development at <https://www.asha.org/public/speech/development>

Visit the NIH Clinical Research Trials and You website (<https://www.nih.gov/health-information/nih-clinical-research-trials-you>) to find clinical trials on specific language impairment.



National Institute on
Deafness and Other
Communication Disorders



The NIDCD maintains a directory of organizations that provide information on the normal and disordered processes of hearing, balance, taste, smell, voice, speech, and language. Visit the NIDCD website at <https://www.nidcd.nih.gov/directory> to search the directory.

More NIDCD fact sheets on Voice, Speech, and Language:

- ▶ Speech and Language Developmental Milestones
- ▶ Your Baby's Hearing and Communicative Development Checklist

Visit the NIDCD website at <https://www.nidcd.nih.gov> to read, print, or download fact sheets.

For more information, contact us at:

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The NIDCD supports and conducts research and research training on the normal and disordered processes of hearing, balance, taste, smell, voice, speech, and language and provides health information, based upon scientific discovery, to the public.



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