

patterns of brain activation during stuttering, with more activation of right hemisphere areas and differing patterns of usage of left hemisphere, subcortical, and cerebellar structures.

- Many people who stutter perform less well on various measures of auditory processing, motor timing, integrating complex motor tasks, and some neuropsychological measures of hemispheric dominance.
- Stuttering tends to run in families, and research clearly indicates a genetic component to the disorder for many individuals. Most theorists believe that a predisposition to stuttering may be heritable, though the expression of the disorder may be largely determined by the environment.
- Many children have concomitant problems besides stuttering, such as other speech or language development problems. These can contribute to the disorder or may indicate a more pervasive underlying etiological factor.

### **NO single factor has been shown to be THE cause of stuttering.**

- Stuttering is not caused by children's parents.
- Stuttering is not caused by drawing attention to a child's normal disfluencies.
- Stuttering is not a psychological problem (though it can have psychological consequences).
- Stuttering is not a sign of reduced intelligence, motor weakness, or neurological injury.
- Stuttering is not simply a bad habit.

### **Basic Facts about Stuttering**

- About 1% of the world's population stutters.
- Stuttering is about 4 times more common among boys than girls.
- Stuttering usually begins in childhood, between the ages of 2 and 5 years.
- Stuttering behaviors can vary from situation to situation and throughout the lifespan.

### **Support groups**

Support groups help children, teens, and adults who stutter develop healthy attitudes toward speaking and stuttering. This can be an important supplement to speech therapy, which often focuses more on speech behaviors. Support groups are a safe place to practice speaking skills, and they can also help children cope with difficult situations such as bullying and teasing. Parents also benefit from the opportunity to discuss their experiences and feelings with others in the same situation.

### **The National Stuttering Association**

The National Stuttering Association (NSA) is a 501 (c) (3) nonprofit organization. We are the largest support organization in the United States for people who stutter, with local support groups across the country and a growing network of groups for children, parents, and teens. A national conference attracts hundreds of people and includes a full schedule of events for children and families. Regional youth days give children and parents a chance to interact with and learn from experts. The NSA works closely with stuttering specialists and conducts continuing education workshops for SLPs.



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# **Childhood Stuttering:**

## **Information for Pediatricians and Family Physicians**



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### **What is Stuttering?**

Stuttering is a communication disorder that is typically characterized by disruptions, or "speech disfluencies" in the forward flow of speech. These disfluencies can be accompanied by physical tension or struggle as a speaker attempts to produce sounds and words. Many people who stutter experience significant negative emotional or cognitive reactions as a result of their speaking difficulties.

Unfortunately, speech-language pathologists, teachers, and even physicians often hold misconceptions about stuttering that can make it difficult for families to make appropriate decisions about treatment.

Pediatricians and family physicians can play a critical role in this process because they are often the first health professionals to see children who stutter. Physicians can help children who stutter and their families by providing current, accurate information about stuttering and stuttering therapy, and by referring parents to appropriate evaluation and treatment resources.

### **Causes of Stuttering**

There is strong evidence that stuttering is a neurologic, rather than a psychological disorder, affecting areas of the brain concerned with speech and language. It typically starts early in life, soon after a child begins speaking. Current theories point to an interaction between a child's language development and motor abilities for producing speech, combined with the multiple influences of the child's personality and the communicative and social environment.

In other words, there is no single cause for stuttering, so simple explanations such as "he's talking too fast" or "he's nervous" do not adequately explain this complicated disorder. Research on several fronts supports this idea of stuttering as a multifactorial disorder, for example:

- Neuroimaging studies (PET scans or functional MRI) of adults who stutter have shown different

Normal disfluency vs. stuttering

Fluency is generally described as the smooth, rhythmic, forward flow of speech. For most speakers, speech appears easy and effortless, and is generally free of interruptions, blockages, repetitions, or fragmentation of words. Disfluency is a breakdown in the forward flow of speech.

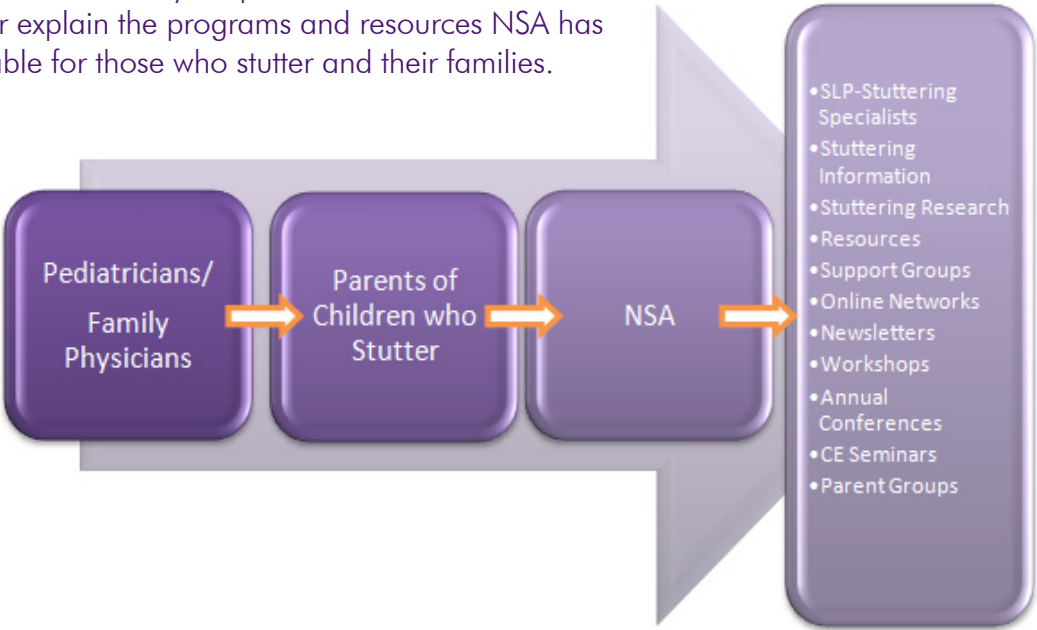
Certain disfluencies are considered normal. These include inserting sounds or words like “um,” “like,” or “uh,” repeating or revising words or phrases, or hesitating while thinking about what to say. These disfluencies are generally effortless, and the speaker may be largely unaware of any difficulty.

For young children, disfluency is a part of the normal development of speech and language ability, especially during the preschool years. Virtually all children go through a period of disfluency when learning to speak.

Stuttered speech, by contrast, is typically characterized by disfluencies in which the word units are disrupted or fragmented. For example, a child who stutters may repeat parts of words (“ca-ca-cat”) or prolong individual sounds (“sssssssalad, ffffffffish”). Sometimes, the child may be unable to produce any sound at all. Children who stutter also produce disfluencies similar to those observed in the speech of children who do not stutter, though these may occur more frequently or they may involve increased physical tension, greater effort, struggle, or irregular rhythm.

Understandably, most people who stutter react negatively to their speaking difficulties. A person may develop physical reactions as they try to cope with or prevent moments of stuttering, including tension of the muscles involved in speaking (tongue, jaw, lips, or chest). Tension can even be observed in muscles not directly related to speech (shoulders, limbs, or forehead). People who stutter also commonly develop negative emotional reactions to stuttering, such as embarrassment, guilt, frustration, and shame. Ultimately, many develop negative attitudes and beliefs about themselves and

Call us today to request informational brochures to have available for your patients. This material will further explain the programs and resources NSA has available for those who stutter and their families.



their speaking ability. These physiological, emotional, and attitudinal (cognitive) reactions can be disruptive to communication – and to the person’s life in general.

Importance of early intervention and risks of deferring treatment

As many as 75% of preschool children who begin to stutter recover. Years ago, this prompted some professionals to delay treatment in the expectation that the child would outgrow stuttering. Recent studies indicate that early intervention via speech therapy increases the likelihood that the child will develop normal fluency.

The risk of deferring treatment is that disfluent speech patterns may become “hard-wired” as the child matures. As a result, stuttering may become a life-long issue for children who continue to stutter into the school-age years. There is no consistently

reliable long-term “cure” for stuttering once an individual has reached adolescence.

When a physician identifies stuttering in a young child, or is unsure if a disfluent speech pattern is indicative of stuttering or normal disfluency, referral to a speech-language pathologist is appropriate and vital. The earlier that stuttering can be identified and an effective treatment strategy put into place, the less likely it is that the child will acquire negative emotional reactions to stuttering and experience the ensuing complications and exacerbation. This is especially important when a child’s parent or other family member stutters due to the genetic aspect of the disorder’s etiology.

Who treats stuttering

Speech-language pathologists (SLPs) certified by the American Speech, Language, and Hearing Association (ASHA) provide therapy for speech

and language disorders including stuttering. Unfortunately, many SLPs have limited training and experience in working with people who stutter. Therefore, if possible, children who stutter should be referred to SLPs who are Board Recognized Specialists in Fluency Disorders (BRS-FD), or who have demonstrated expertise in treating stuttering. A list specialists can be found at [www.StutteringSpecialists.org](http://www.StutteringSpecialists.org).

Speech therapy for stuttering

For young children, treatment often includes parental education about techniques for supporting the child’s fluency, management of environmental factors that may exacerbate stuttering, and adjustment of speech patterns to enhance fluency. These strategies can help return the child to a normal fluency pattern.

For older children, adolescents, and adults, treatment may incorporate more direct work on speech production, including management techniques such as slowing speaking rate and reducing physical tension, Many specialists also incorporate desensitization strategies to minimize avoidance of speaking situations and reduce negative reactions to stuttering.

Alternative treatments

Fluency enhancing devices are digital hearing aids that alter the way a person hears his own speech. While they may help some adolescents and adults who stutter, results are mixed. No published studies demonstrate the effectiveness of these devices with children. For young children in particular, use of an assistive device may deprive the child of the opportunity to develop normal neurologic pathways through speech therapy.

Researchers are studying prescription medications that may help some adults who stutter increase fluency. While early clinical trials with adults have been promising, no studies have been conducted involving children.

Refer your clients to the National Stuttering Association at [www.WeStutter.org](http://www.WeStutter.org).