

Stuttering: Understanding and Treating a Common Disability

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Childhood-onset fluency disorder, the most common form of stuttering, is a neurologic disability resulting from an underlying brain abnormality that causes disfluent speech. Stuttering can lead to significant secondary effects, including negative self-perception and negative perception by others, anxiety, and occasionally depression. Childhood-onset fluency disorder affects 5% to 10% of preschoolers. Early identification of stuttering is important so that therapy can begin while compensatory changes to the brain can still occur and to minimize the chances of the patient developing social anxiety, impaired social skills, maladaptive compensatory behaviors, and negative attitudes toward communication. However, stuttering may be persistent, even with early intervention, and affects about 1% of adults. In patients with persistent stuttering, speech therapy focuses on developing effective compensatory techniques and eliminating ineffective secondary behaviors. The role of family physicians includes facilitating early identification of children who stutter, arranging appropriate speech therapy, and providing support and therapy for patients experiencing psychosocial effects from stuttering. Finally, physicians can serve as advocates by making the clinic setting more comfortable for people who stutter and by educating teachers, coaches, employers, and others in the patient's life about the etiology of stuttering and the specific challenges patients face. (*Am Fam Physician*. 2019;100(9):556-560. Copyright © 2019 American Academy of Family Physicians.)

Fluent speech is a complex process that combines word selection with the motor activities that allow the articulation of those words. This involves coordination of the respiratory, laryngeal, and articulatory muscles. Speech is a defining feature of human cognition^{1,2} and one of the principal developmental tasks for preschool children.

Types of Stuttering

Preschoolers often have difficulty mastering motor planning and execution as they struggle with the complex process of learning to speak. This is developmentally normal and formally labeled as “other disfluencies.” However, those with childhood-onset fluency disorder (the most common form of stuttering) exhibit additional stutter-like disfluencies that usually do not occur in peers who do not stutter (*Table 1*).³

The incidence of childhood-onset fluency disorder varies somewhat among studies but is typically between 5% and 10% of preschoolers.⁴ Most instances of childhood-onset fluency disorder resolve, but the condition persists in about 1% of adults, making it a relatively common disability.^{1,5}

Childhood-onset fluency disorder is distinct from neurogenic and psychogenic stuttering. Neurogenic stuttering is an acquired form of stuttering that follows brain injury, such as from stroke or trauma. Psychogenic stuttering is a manifestation of a psychiatric condition. These forms of stuttering are much less common than childhood-onset fluency disorder and are not addressed further in this article.

Etiology and Effects

Neuroimaging of those with childhood-onset fluency disorder, from preschoolers to adults, has revealed consistent abnormalities of the portions of the brain that control how speech is planned and executed.^{1,2,5-7} However, the precise abnormalities vary somewhat among individuals.⁷ The degree of disfluency and the rate of recovery represent an interplay between these abnormalities and genetic and environmental factors that is not completely understood.¹

CME This clinical content conforms to AAFP criteria for continuing medical education (CME). See CME Quiz on page 527.

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Patient information: A handout on this topic, written by the authors of this article, is available at <https://www.aafp.org/afp/2019/1101/p556-s1.html>.

SORT: KEY RECOMMENDATIONS FOR PRACTICE

Clinical recommendation	Evidence rating	Comments
Referral to a speech-language pathologist should be considered for any child who exhibits stutter-like disfluencies, especially if there are parental concerns or the disfluency has remained unchanged for 12 months or is worsening in severity or frequency. ^{1,19,20}	C	Expert opinion and limited data from systematic review
Therapy for persistent stuttering should be individualized and focused on developing effective compensatory techniques and eliminating ineffective secondary behaviors. ²⁸	C	Systematic review of low-quality studies
Families should be reassured that stuttering is primarily the result of brain abnormalities and is not the fault of the patient or family. ^{1,2,5-7}	C	Meta-analysis, review, case-control observational studies
Patients with stuttering should be evaluated for secondary psychosocial effects and offered appropriate treatment. ^{1,8,10,14-16,22,28}	C	Multiple studies show risk of psychosocial effects; qualitative studies show benefits of treatment

A = consistent, good-quality patient-oriented evidence; **B** = inconsistent or limited-quality patient-oriented evidence; **C** = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, go to <https://www.aafp.org/afpsort>.

Psychosocial responses to stuttering can cause secondary harm, such as negative self-perception and negative perception by others, anxiety, and occasionally depression. Even preschoolers tend to view disfluency negatively, which can cause those who stutter to feel inferior and can lead to teasing and bullying.⁸ Thus, children who stutter

often socially withdraw and have reduced verbal output.⁸ Adults who stutter experience similar adverse social effects. Adult fluent speakers have been noted to show discomfort when listening to people who stutter.¹⁹ People who stutter may be perceived as neurotic, unconfident, or shy.^{10,11} One study showed that people who stutter are given lower ratings when being evaluated for occupations with high speaking demand, raising concerns about how disfluency can affect employment.¹² In the United States, people who stutter are significantly less likely to finish college, be fully employed, and advance in their careers.¹³

Although preschool children who stutter do not have an increased predisposition to anxiety, the adverse social effects of stuttering can lead to anxiety, especially social anxiety, beginning as early as seven years of age. This can continue into adulthood in those who have persistent stuttering.¹⁴⁻¹⁶ Increased anxiety can worsen the underlying disfluency, much as fluent people might have speech difficulties when faced with a stressful situation.¹⁷

Electroencephalography studies indicate that people who have persistent stuttering typically learn to engage in enhanced speech motor preparation as a compensatory strategy.⁶ Thus, for people who stutter, fluent speech requires the conscious monitoring of a process that is largely unconscious for fluent speakers.¹ Factors that interfere with monitoring, such as social anxiety,

TABLE 1

Differentiating Stutter-Like Disfluencies from Other Disfluencies

Categories	Examples
Stutter-like disfluencies*	
Dyshymic phonation	
Blocks	Unable to articulate
Broken words	"O pen"
Prolongations	"Mmmmy"
Part word repetition	"B-but"
Single word repetition	"You-you-you"
Other disfluencies†	
Interjections	"Um"
Multisyllable repetitions	"I want I want to go"
Revised/abandoned utterances	"I want/hey look at that"

*—Characteristic of childhood-onset fluency disorder.

†—Typically transient and present in most preschoolers learning to speak.

Information from reference 3.

fatigue, or complexity of speech content, can lead to increased disfluency.

Speech Therapy Referral

CHILDHOOD STUTTERING

The U.S. Preventive Services Task Force found insufficient evidence to recommend routine screening for speech and language delay and disorders,¹⁸ and there are no well-validated screening recommendations from other organizations. A literature review developed for the U.S. Preventive Services Task Force found that early therapy for stuttering had a positive impact; however, the review was limited by the small size and heterogeneity of the studies and therefore did not meet criteria to support a recommendation for routine screening.¹⁹

Although most children younger than seven years who stutter will eventually develop what is perceived to be fluent speech, there currently is no method to determine which children will have persistent disfluency with lifelong adverse consequences. Thus, referral to a speech-language pathologist should be considered for any child who exhibits stutter-like disfluencies (*Table 1*), either directly observed by the physician or based on parental report. Referral is particularly indicated if there are parental concerns or the disfluency has remained unchanged for 12 months or is worsening in severity or frequency.^{1,19,20} The speech-language pathologist can confirm the diagnosis of stuttering, provide additional education and support to the parents, and initiate therapy if warranted.

It is generally considered best to institute therapy early, while the speech centers of the brain are more plastic, allowing compensatory changes in the brain to occur.¹ Early therapy can also minimize the chances of developing debilitating social anxiety, impaired social skills, and negative attitudes toward communication.^{1,8,14,16,19,21,22}

Therapy may be indirect (training parents to increase fluency-enhancing behavior while decreasing fluency-inhibiting behavior) or direct (training parents to encourage fluent speech with the child).²³ Therapy consists of joint sessions with the child and parent where the parent learns interventions to practice with the child.²⁰ The goal is to decrease disfluencies to a level where they are not noticed by the child or others. After extensive studies, no pharmacologic agent has

been shown to have a significant benefit for persistent stuttering at any age.^{24,25}

PERSISTENT STUTTERING

Rates of stutter resolution by seven years of age range from 65% in a prospective study to 87.5% in cohort studies, regardless of whether the child received treatment.⁴ By seven years of age, the growth and remodeling of the brain is largely complete, although childhood-onset fluency disorder occasionally starts after this age.²³ Stuttering that continues after seven years of age is classified as persistent stuttering. At this point, the rate of achieving normal fluency slows significantly.¹

For many people with persistent stuttering, the inability to predictably communicate is the most debilitating effect, and regaining a sense of control over communication is often their principal goal in therapy.²⁶ As stuttering persists, the patient may begin to develop ineffective secondary behaviors, including word avoidance and mannerisms such as grimacing. This makes speech and appearance even more dysfunctional; therefore, reducing or eliminating these secondary behaviors is also an important therapeutic goal.¹ Another important component of therapy is helping the patient accept that it is okay to be a person who stutters.²⁷ The goal of therapy for persistent stuttering transitions from a principal emphasis on achieving fluency to developing effective compensatory techniques and eliminating ineffective secondary behaviors.²⁸

Many different speech therapies have been developed, partly because of the variety of neurologic deficits that can cause stuttering and the many ways that people who stutter react to their disability. A systematic review of available therapies found that most interventions are beneficial for at least some people and thus the focus of speech therapy should be individualized.²⁸

The Family Physician's Role

Family physicians have several key roles in treating those who stutter and supporting them and their families. Family physicians can offer reassurance that stuttering is primarily the result of brain abnormalities and is not the fault of the patient or family.^{1,2,5-7} Additionally, the physician can facilitate early identification of children who have significant disfluency characteristic of

stuttering and offer appropriate referral. Stuttering resources for physicians, parents, and patients are included in *Table 2*.

If speech therapy is indicated or requested, the family physician should assist with finding a competent speech-language pathologist who has the necessary training and experience to work with people who stutter. A list of certified speech-language pathologists is available from The Stuttering Foundation at <https://www.stutteringhelp.org/referrals-information> and the American Board of Fluency and Fluency Disorders at <https://www.stutteringspecialists.org/search/newsearch.asp>. Patients with persistent stuttering should be advised that many different therapy techniques can be effective and that the emphasis of their therapy should be on the development of a personalized treatment plan that addresses their specific needs.²⁸

Parents of young children should be counseled to engage in techniques that may reduce the frequency of disfluency and may help prevent progression to more severe disfluency. This includes the parents slowing the rate of their own speech and ensuring that the child is given an equal opportunity to speak during group conversations. Parents should also acknowledge any episodes of evident speech frustration, because this provides needed emotional support, but avoid attempting to correct the speech (i.e., filling in words, offering prompts such as to “slow down,” or interrupting) outside of designated speech therapy times.²⁰

The family physician should support parents and other caregivers and address parental guilt, anxiety, and frustration as needed.⁸ Even if they are not interested in pursuing formal speech

therapy, it is important to evaluate people with persistent stuttering for the presence of secondary emotional, social, and psychological effects, especially feelings of isolation, social anxiety, and depression, and offer appropriate treatment.^{1,8,10,14-16,22,28} Treatment of secondary mental health effects can draw on any commonly used therapies, although cognitive behavior therapy has been shown to be particularly effective.¹⁶ The physician should remain vigilant for physical symptoms that can be exacerbated or caused by the stress associated with stuttering.

Advocacy is also an important role for the family physician, beginning with making the clinic setting more comfortable for people who stutter. Office staff should be educated about stuttering and the issues that may interfere with the care of people who stutter, including feeling uncomfortable speaking to office staff and physicians, avoiding obtaining health care because of this discomfort, and overcoming staff resistance to the patient's request to rely on a third party to help them navigate the medical system.²⁹

Finally, family physicians are well positioned to educate teachers, coaches, employers, and others in the patient's life about the etiology of stuttering and the specific challenges patients face. When discrimination occurs, the family physician should provide information emphasizing that stuttering is due to neurologic deficits and thus is classified as a disability covered under Title I of the Americans with Disabilities Act.

This article updates a previous article on this topic by Prasse and Kikano.³⁰

Data Sources: PubMed searches were completed using the terms stutter, stuttering, stuttrer, anxiety and stuttering, depression and stuttering, stuttering guidelines, and speech disfluency. References at the end of good-quality articles were reviewed to identify additional pertinent articles. The Agency for Healthcare Research and Quality's Effective Healthcare Reports, Cochrane Database of Systematic Reviews, National Center for Complementary and Integrative Health, U.S. Preventive Services Task Force, UpToDate, and Essential Evidence Plus were also searched, but no additional useful information, including relevant guidelines, was found. Articles used in this paper were systematic reviews, including meta-analyses, other reviews, prospective cohort studies, case-control observational studies, randomized controlled trials, and some observational studies if no other information was available. Search dates: August to December 2018; February to April, 2019; and July 2019.

TABLE 2

Stuttering Resources for Physicians, Parents, and Patients

American Board of Fluency and Fluency Disorders:
<http://www.stutteringspecialists.org>

American Speech-Language-Hearing Association:
<https://www.asha.org>

National Stuttering Association: <https://westutter.org>

The Stuttering Foundation: <https://www.stutteringhelp.org>

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