

## Spasmodic Dysphonia Blog Post

### **About Spasmodic Dysphonia**

The larynx is the structure that houses the vocal folds, which vibrate and are responsible for allowing air to pass through from the respiratory system to create voice. However, when sudden involuntary movements, or spasms, occur and disrupt the natural mechanism of the vocal cords, an individual can have what is known as spasmodic dysphonia (NIH, 2020). This disorder is chronic, but rare as a result of changes to the peripheral and central nervous system. Onset of the disorder can happen suddenly and progressively, with a drastic change in voice quality, or it can develop gradually with mild symptoms initially. Symptom onset typically occurs among individuals between the ages of 30-50 with it being more common in females. However, other research has shown that some individuals can also develop symptoms as young as 20 years old and as late as 90 years old (Pitman et al., 2023). Characteristics of spasmodic dysphonia are strained, breathy, and tight voicing quality (NIH, 2020). Individuals with this disorder may experience these spasms when speaking every few sentences or even every few words. More severe cases may even cause individuals to be unintelligible during conversational speech. Some individuals may also experience a tremor of the entire larynx and vocal cords.

### **What Causes Spasmodic Dysphonia?**

The etiology, or cause, of spasmodic dysphonia is largely unknown. However, it is thought to be caused by disruptions or changes to the basal ganglia, a subcortical region in the brain responsible for motor control. When this area is damaged, muscle movements of the body can be affected. Recent research has also shown that other structures in the brain, specifically within the cerebral cortex, may be associated with spasmodic dysphonia. Further, it is also likely

that genetics may play a role in determining who might develop this disorder, although research is not entirely certain. A specific gene associated with spasmodic dysphonia has not been identified, however a mutation of a gene that causes other types of dystonias may indicate a relationship with the development of this specific disorder (NIH, 2020). Inciting events that are also thought to increase the chances of developing spasmodic dysphonia include: laryngeal surgeries, a virus, inflammatory illness, lesions, multiple sclerosis (MS) and Parkinson's disease. (Penn Medicine).

### **Differences Between Abductor & Adductor Spasmodic Dysphonia**

There are two major types: abductor spasmodic dysphonia (ABSD) and adductor spasmodic dysphonia (ADSD) that are mainly differentiated by the contraction position of the vocal folds. ADSD, more commonly occurs in 80-90% of cases, as a result of stiffening of the adductors together, making it difficult for the vocal folds to vibrate and produce sound. It affects the thyroarytenoid muscles or the lateral cricoarytenoids when producing voiced sounds. People experiencing ADSD can be described as having a strained and strangled voice that may be difficult to initiate (Dysphonia International, n.d.). ABSD only occurs within 10-20% of cases, as a result of the vocal folds abducting in the open position, prohibiting vibration and allowing air to escape from the lungs. ABSD occurs in the posterior cricoarytenoid muscles when producing voiceless sounds. (Dysphonia International, n.d.). These patients identify with weak and breathy voice characteristics. Spasms amongst both types are repressed during laughing, crying, and whispering.

### **Treatment Options for Spasmodic Dysphonia**

Symptomatology is repressed with treatment suggested by a team of a speech-language pathologist, otolaryngologist, and neurologist. There is currently no cure for spasmodic

dysphonia, but botulinum (botox) injections to the affected laryngeal muscles are found to be the most effective treatment option. Reinjections are recommended every 3 to 4 months to maximize spasm reduction. For those with mild cases, voice therapy in combination with those injections can create positive long-lasting effects to alleviate vocal strain. Voice therapists may promote an AAC device to amplify or synthesize speech. In the most severe cases, surgery may be recommended to reduce complications. This surgery may include: laryngeal nerve denervation, laryngeal nerve reinnervation, thyroarytenoid myectomy, or lateral cricoarytenoid myectomy (Dysphonia International, n.d.). Further research is being conducted to determine the effectiveness of deep brain stimulation in alleviating symptoms.

### **The Role of Speech Therapy**

An individual who presents with spasmodic dysphonia has typically received a diagnosis from an otolaryngologist before seeking voice therapy from a licensed speech-language pathologist (SLP). Medical professionals often use videostroboscopy to visualize the vocal folds and identify the presence of spasmodic dysphonia. The otolaryngologist and SLP collaborate to determine the most appropriate treatment route for the patient with an overall goal of improving vocal quality and quality of life. This multi-disciplinary team may also determine a combined-modality treatment option such as botulinum toxin (botox) injections in addition to voice therapy may provide the best treatment outcome. SLPs often plan 6-8 treatment sessions that occur over an 8–10-week time frame (Pitman et al., 2023) and include teaching the patient techniques to improve respiratory support and reduce hyperfunctional compensatory strategies. For example, an article by Dysphonia International (n.d.) outlines a strategy for individuals diagnosed with ABSD that involves replacing voiceless speech sounds with voiced speech sounds to increase vocal control. Additionally, the article states efforts such as vocal rest, anxiety

management, and sensory gestures (neck muscle massage) are beneficial for those with ADSD since they aid in the reduction of tension/strain. The SLP will be sure to monitor the patient's attitude during treatment and educate the patient on the importance of advocating for a quiet listening/speaking environment and managing anxiety to reduce tension and frustration.

## References

Hillel, A. (2023, February 24). Spasmodic Dysphonia. Johns Hopkins Medicine.

<https://www.hopkinsmedicine.org/health/conditions-and-diseases/spasmodic-dysphonia>

National Institute on Deafness and Other Communication Disorders . (n.d.-b). Spasmodic

Dysphonia. <https://www.nidcd.nih.gov/sites/default/files/Documents/publications/SpasmodicDysphonia-508.pdf>

Penn Medicine. (n.d.). Spasmodic Dysphonia. Pennmedicine.org.

<https://www.pennmedicine.org/for-patients-and-visitors/patient-information/conditions-treated-a-to-z/spasmodic-dysphonia>

Pitman, M., Kamat, A., & Baredes, S. (2023, August 2). Spasmodic dysphonia treatment & management. Medical Therapy, Surgical Therapy, Follow-up.

<https://emedicine.medscape.com/article/864079-treatment>

Types of spasmodic dysphonia. Dysphonia International. (2022a, July 9).

<https://dysphonia.org/about-sd/what-is-spasmodic-dysphonia/types-spasmodic-dysphonia>

Voice therapy. Dysphonia International. (2022b, July 9).

<https://dysphonia.org/about-sd/treatment-for-sd/voice-therapy/>