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What Your Voice is Saying About You: Vocal Changes and the Late Effects of Polio

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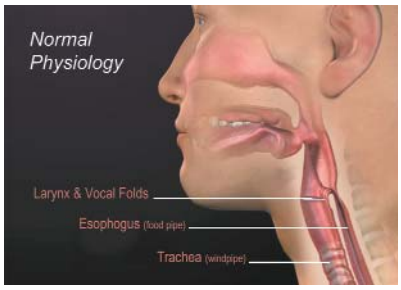

Image courtesy of Passy-Muir, Inc., Irvine, CA.

A speech-language pathologist in private practice, a clinical consultant with Passy-Muir, Inc. and a national seminar leader on medical topics, Mary Spremulli addresses how voice changes may relate to polio survivors, a topic raised frequently by PHI readers.

What is your voice saying about you?

"Our voice resonates with life. Because this is so, it can touch the lives of others. The caring and compassion imbued in your voice finds passage to the listener's soul, striking his or her heart and causing it to sing out; the human voice summons something profound from deep within, and can even compel a person into action."

— Daisaku Ikeda
Buddhist Philosopher

Why does my voice sound this way?

Over the last few years, a number of individuals with a history of polio 40 or 50 years ago have been referred to my speech pathology practice complaining of changes in their vocal function. They were often young children at the onset of their polio, so some of them are unsure if their original diagnosis was bulbar or spinal.

Now, many of them in their 60s or 70s report voice problems or changes, such as: "my voice is weaker," "my voice gives out by the end of the day," "my voice is scratchy and hoarse." Not infrequently, these changes in voice are accompanied by changes in swallowing function with associated complaints of increased "choking" when eating or drinking.

Is this related to having had polio?

In many of these instances, the change in voice can represent further weakening of the respiratory and phonatory (voice production) system. In particular, if individuals had initial bulbar polio symptoms, they have likely already spent a lifetime using some compensatory respiratory and oral-pharyngeal muscle function. This muscle function may now be further weakened due to further muscle degeneration, age-related changes, muscle disuse atrophy or vocal misuse. Separating out the causes and contributors to current voice problems can be challenging for the voice therapist or otolaryngologist.

Why should I see an Ear, Nose, and Throat Doctor (ENT)?

Any sudden change in voice function, or any change, such as hoarseness, that persists for more than a few weeks warrants an examination by an ENT. The ENT will conduct a direct visualization of your vocal folds and larynx (voice box) by passing a small scope with a camera through your nose and making sure there are no growths, such as nodules (calluses that form from misuse) or polyps (a usually benign, fluid-filled outgrowth of tissue that also may be from misuse) or tissue changes suggesting a more serious diagnosis.

A direct visualization can also confirm the contribution of acid reflux, in particular stomach acid that escapes from the top muscle of the esophagus (food pipe). This type of reflux, is also referred to as laryngopharyngeal reflux or "silent reflux," and it is often a factor causing hoarseness or other voice changes.

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Mary Spremulli, MA, CCC-SLP, *is the author of Voice Aerobics DVD, a three-part voice and exercise workout, Voice Aerobics Grand Slam™ and Voice Aerobics CD Songbirds™, speech and vocal exercise set to music (www.VoiceAerobicsDVD.com). A speech-language pathologist in private practice, she leads national seminars on medical topics and serves as a clinical consultant with Passy-Muir, Inc. (www.passy-muir.com), manufacturer of tracheostomy and ventilator swallowing and speaking valves.*

Patients are often surprised when the ENT prescribes anti-acid medication for their voice changes, not realizing that our anatomic design places the opening of the esophagus and the opening to the windpipe dangerously close, and the vocal folds often receive the insult of acid which may escape from the top muscle of the esophagus.

What is a voice evaluation?

Following an ENT examination, patients are typically referred to a speech-language pathologist (voice therapist), who may conduct further instrumental examination using videostroboscopy. In videostroboscopy, a rigid scope with a camera attachment is placed through the mouth to visualize the larynx and evaluate the dynamic movement of the vocal folds.

The voice therapist will also perform a clinical evaluation of vocal function. This exam involves taking a thorough history that includes questions about how you use your voice throughout the day, medication use that may be affecting your voice – particularly inhalers and steroids – as well as any surgery you may have had on your throat or any tubes placed down your throat during surgery or in an emergency to maintain ventilation. Measurements of pitch, vocal intensity and voice duration are obtained, as well as observations of your respiratory patterns.

In addition to this history and perceptual data, the voice therapist will observe how you use your breath support and voice during conversational speech. Behaviors that can harm the vocal folds, such as frequent throat clearing or coughing, will also be noted as these common habits over time can injure the vocal folds. You will likely also be asked about hearing, since a decline in hearing may cause difficulty in your ability to accurately judge vocal intensity in your own voice or others.

Although not directly related to voice production, the vocal folds' position at the opening of the windpipe also makes them gatekeepers against foreign bodies entering into the upper airway. Therefore, you will be asked about any problems you may be having with choking or coughing when eating or drinking. These symptoms may also be an indication that the sensation of the larynx or function of the vocal folds have declined in some way, permitting food or liquid to now enter your upper airway. A separate swallowing evaluation may be recommended.

Can voice therapy help?

Once an accurate diagnosis of your voice problem is made, treatment will likely be a combination of medical and therapeutic management. Problems requiring further medical treatment will be handled by the ENT. These may include medications to treat acid reflux, thin/thick mucus/secretions or to reduce post-nasal drainage. More serious problems, such as polyps, may require surgery.

The voice therapist will focus on vocal hygiene, which includes modification of environmental factors that may be serving as irritants to the larynx and vocal folds, instruction in methods to eliminate throat clearing and other abusive habits, and encouraging improved hydration through water intake and/or steam.

Then, much like a music teacher, the remainder of voice treatment will focus on improving functional use of your voice instrument. In the case of ▷

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▷ someone with poor diaphragmatic breathing and respiratory muscle use due to polio and post-polio symptoms, a modified respiratory muscle training program may be recommended.

Relaxation techniques and methods to reduce muscle straining in the neck muscles and larynx may be demonstrated. Use of optimal pitch and posture and techniques for improving loudness without straining will all be emphasized. Voice treatment may be offered for six to eight visits, with development of a home exercise program to encourage strengthening of the system, preservation of muscle function and maintenance of any improvement achieved. For individuals with voice changes from PPS, conservation techniques, including use of personal voice amplification devices may also be beneficial.

Our larynx is a rather amazing organ. Our ability to use its shared functions of breathing, digestion and voice production make it clearly one of our uniquely human gifts. Throughout our lives, our voice mirrors physical growth and other body changes. It conveys our physical and emotional health, and at times, it inspires poetry. ▲

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