



**OVERVIEW OF DIAGNOSIS,
TREATMENT AND PREVENTION**

PREVENTION

Voice Disorder Prevention: Highlights

Prevention of Voice Disorders – Avoid Risk Factors and Maintain Voice Health

Most voice disorders are preventable. Strategies that raise patient awareness of voice disorders and voice health play key roles in the prevention of voice disorders.

Voice Health Through Vocal Hygiene – Not Just for Performing Artists

Voice health as a part of good health is not just for voice professionals. Just as hygiene plays a key role in general health issues and the prevention of diseases, vocal hygiene plays a key role in voice preservation and the prevention of voice disorders.

Components of Vocal Hygiene

Components of vocal hygiene are:

- Healthy diet and lifestyle
- Voice warm-ups before use
- Voice training on proper technique to meet voice demands
- Voice exercise to improve endurance and power
- Proper voice use and avoidance of voice misuse and overuse

Remembering Steps for Vocal Hygiene

- V** Value your voice through healthy diet and lifestyle.
- O** Optimize your voice with vocal warm-ups before use.
- I** Invest in your voice with training in proper voice technique.
- C** Cherish your voice by avoiding voice misuse, overuse, and abuse.
- E** Exercise your voice to increase endurance and power.

Understanding Voice Disorder Prevention

In Brief

As in any disease, prevention is the best medical strategy.

- It has no side effects
- It has no complications
- It has no associated downtime
- It is cost-effective

Successful voice disorder prevention strategies involve three levels of prevention:

Goals of Voice Disorder Prevention Strategies

Level of Prevention	Goal of Prevention	Target Group
First	Maintaining good health and good function	All
Second	Avoiding known risk factors that cause voice disorders	At-risk group
Third	Avoiding the risk factor(s) that caused the voice disorder (as part of treatment and to prevent recurrence)	Patients who have a voice disorder

Two Aspects in Prevention of Voice Disorders

The two main aspects of prevention of voice disorders are:

1. Avoiding the cause or causes of a voice disorder
2. Maintaining good voice health through vocal hygiene

Avoiding the Causes of Voice Disorders

Many voice disorders are caused by risk factors that could have been prevented in the first place. For example, many voice disorders result from vocal overuse and/or misuse. Proper voice use, technique, and vocal health can minimize the risk of developing many voice disorders.

Voice Disorder Prevention Strategies When Risk Factor Is Known

Risk Factor	Voice Disorder	Prevention Strategy
Smoking	Laryngeal cancer Reinke's edema	Avoid smoking and both active and passive exposure
Voice misuse and/or overuse ("voice abuse")	Vocal fold nodules, polyps, cysts Vocal fold hemorrhage Vocal fold granuloma Vocal fold scar	Use proper voice technique Avoid trauma to vocal folds through voice misuse or abuse

Backflow of stomach fluids to voice box	Reflux laryngitis	Adopt anti-reflux lifestyle changes
	Vocal fold granuloma	Take medication to prevent backflow

Risk factors for different voice disorders are discussed in depth within specific topics on this site. *(For more information, see Laryngeal Atypia and Early Cancer, Laryngeal Advanced Cancer, Laryngitis, Pediatric Voice Disorders, Reflux Laryngitis, Reinke's Edema, Recurrent Respiratory Papillomatosis, Spasmodic Dysphonia, Vocal Fold Granuloma, Vocal Fold Nodules, Polyps, Cysts, and Reactive Lesions, Vocal Fold Paresis/Paralysis, Vocal Fold Scarring, and Voice Dysfunction in Neurological Disorders.)*

Maintaining Voice Health Through Vocal Hygiene

Preventive voice care, or vocal hygiene, is similar to the fields of physical fitness and dental hygiene. Maintenance of physical fitness is critical for success in athletics. Likewise, dental hygiene, which involves daily tooth and mouth care, is important to maintain dental health and achieve good long-term function.

Comprehensive Model for Voice Care Disorder Prevention

Different voice centers usually have their own established preventive voice care programs. Specific methods used may differ among programs, but they all share two common goals.

1. Improve voice health and function
2. Prevent voice disorders

An example of such a program, called the VOICE model, is presented below to illustrate the approaches to voice disorder prevention.

Components of Preventive Voice Care

1. Healthy diet and lifestyle
2. Voice warm-ups
3. Voice training on proper technique to meet voice demands
4. Avoidance of voice overuse/misuse/abuse
5. Voice exercise to improve endurance and power

V-O-I-C-E: A Mnemonic for a Preventive Voice Care Model

- V** Value your voice through healthy diet and lifestyle.
- O** Optimize your voice with vocal warm-ups before use.
- I** Invest in your voice with training in proper voice technique.
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Component 1: Healthy Diet and Lifestyle

Value Your Voice Through Healthy Diet and Lifestyle

Voice health follows overall health. Prevention of voice disorders requires individuals to value all aspects of their voice. Voice health follows the overall health of your body -- things that help you stay healthy in general also preserve the quality and function of your voice. Additionally, healthy living can enable improved recovery in the event of a voice disorder.

A healthy voice requires specialized care and maintenance of all parts of the voice system: posture, breathing, vocalizing, and projecting. As in physical fitness, vocal fitness is reflected in diet and lifestyle.

Towards a Healthy Diet for Voice

Each person's voice may react differently to any number of common foods and beverages. Individuals should be aware of their voice and determine whether any voice complaints are associated with a particular food or drink. (For example, some people report that drinking milk before speaking or singing causes an increase in phlegm or laryngeal mucous, making the voice unclear.) Then, people can avoid or reduce exposure to these foods or drinks when possible.

Certain types of food and beverages can complicate voice production.

- **Through increased risk of backflow of stomach fluids to the voice box:** Chocolates, spicy foods, caffeine, and alcohol can increase the stomach's production of stomach acid. This increases the risk of backflow of stomach fluids, which can cause reflux laryngitis. (*For more information, see Reflux Laryngitis.*)

- **Through effects on the nervous system:** Caffeine and alcohol can contribute to decreased voice quality. Caffeine, for example, is a nervous system stimulant that can cause hyperactivity and tremor, both of which can affect the voice negatively. Alcohol is a nervous system depressant that can impair coordination of speech and voice. Additionally, excessive alcohol intake can impair judgment, resulting in unhealthy vocal production.
- **Through "drying-out" effects on the lining of vocal folds:** Caffeine and alcohol have also been associated with the "drying out" of vocal folds, which can contribute to voice problems.

The Role of Water

Proper hydration is key to the optimal function of vocal folds. When the body is slightly dehydrated, the mucous made by the throat to lubricate the vocal folds becomes thicker. This thicker mucous can interfere with vocal fold vibration.

The nutritional recommendation is to drink 6-8 glasses of water per day. Professional voice users and performing artists may require even more water. In fact, speaker's podiums or panelists' tables usually have glasses of water served. Individuals who have talked for several hours often feel "dry," and instinctively pick up a glass of water.

Towards a Healthy Lifestyle for Voice

While the prevention of voice disorders begins with a healthy diet, leading a healthy lifestyle is equally significant. Individuals who smoke, consume excessive amounts of alcohol, and/or use illicit drugs are at increased risk for voice disorders. Excessive use may lead to chronic swelling and irritation of the vocal folds, which can lead to voice disorders such as Reinke's edema, laryngeal atypia, cancer, and vocal scarring.

Factor	Effects
Smoking	Exposure to smoking causes vocal fold irritation, resulting in swelling and inflammation
Illicit drug use	"Sniffed" drugs can dry and irritate the lining cells of the vocal tract Some drugs can numb the vocal folds Altered mental status may lead to voice abuse
Alcohol use	Alcohol use can result in poor judgment that may lead to voice abuse, which then causes damage to vocal folds
Sleep deprivation	Proper rest allows quick and complete repair after minor irritation

The Role of Voice Rest

A frequently overlooked component of lifestyle that contributes to a healthy voice is voice rest. Programming short periods of voice rest into the day's routine can rejuvenate the voice and possibly make it stronger – especially for individuals who use their voice frequently in their job.

For example, by taking a quiet coffee break, not shrieking with the radio on the way home, and controlling cheers at a sporting event, one can "save" the voice and keep it prepared for times when it is needed most.

The bottom line is that valuing voice by following a nourishing diet and healthy lifestyle is a great first step in preventing voice problems.

Component 2: Voice Warm-Ups

Voice Readiness Through Exercise

Regardless of how frequently an individual uses voice during the day, voice disorders can be prevented by voice warm-up exercises that get the voice ready for optimal function. It is also important to "cool down" the voice at the end of the day.

Just as body conditioning and warm-ups are important to athletes, voice conditioning through voice exercises can improve strength,

endurance, range, and flexibility of the voice.

Red Flag

Just as athletic warm-up exercises are meant for normal healthy bodies but can be detrimental in the presence of disease, voice warm-up exercises are meant for people with normal voice.

Individuals with voice problems (hoarseness, weak voice, or any voice-related complaint) should seek medical voice care consultation prior to adopting a voice exercise program.

Voice centers have their own voice warm-up exercise programs. Typically, voice exercise programs address four key aspects of sound production.

- Proper posture
- Appropriate breath support
- Healthy sound
- Adequate resonance

Warm-up for Proper Posture

Posture is important to voice production since the body serves as the frame for voice support.

Sample Posture Exercise

1. Stand with one foot slightly in front of the other at shoulder width to provide a firm base for the well-aligned head, neck, and torso (upper body).
2. While standing, bend at the waist like a "rag doll" and gradually "roll up," so that the head, neck, and body are in line.
3. While standing:
 - a. Raise both arms to the sky
 - b. Inhale and hold your breath
 - c. Lower both arms beside your body
 - d. Exhale
4. With your body well aligned as described above:
 - a. Relax the facial muscles by massaging them with your hands
 - b. Relax the jaw muscles by chewing an imaginary piece of gum
 - c. Warm-up the neck muscles by:
 - Looking right, then center
 - Looking left, then center
 - Looking up, then center
 - Looking down, then center

Warm-up for Voice Power ("Breath Support")

Air forced out of the lungs provides the "power" for voice production. This is referred to as "breath support." Developing proper breath support is important for voice production. The consensus among voice care professionals is that exercises can help improve breath support.

Sample Breath Support Exercises

Exercise #1

1. Inhale with silent breath through the nose.

2. Exhale on a "s," as in "Sam," until you run out of air.
3. Inhale fully (this is called a "recoil breath").

Exercise #2

1. Inhale with silent breath through the nose.
2. Exhale on a lip trill where lips are closed tight and air is blown out creating a "rolled B" with your lips flopping in the wind; if a "rolled B" lip trill is difficult, exhale on an "f."
3. Inhale fully ("recoil breath").

Warm-up for Healthy Sound

Warm-up voice exercises, or "vocalizing" exercises, are important for optimal voice production. Performing artists do these exercises routinely. Non-performing professional voice users – such as teachers, preachers, and public speakers – can also benefit from warm-up exercises.

Vocalizing exercises help relax the throat muscles and vocal folds for optimal vocal fold vibration, which is critical for proper voice production. While retaining proper posture and breath support, vocalizing exercises are designed to improve sound by improving vocal range and flexibility of voice.

An Example of Vocalizing Exercises

Exercise #1

1. Begin with a silent breath through the nose.
2. On a comfortable pitch, hum on an "m," as in "mom," or on an "ng," as in "sing."
3. Slide to higher and lower pitches while humming, sounding like a siren.

Exercise #2

1. Begin with a silent breath through the nose.
2. Do a "lip trill" (or make a constant "f" sound) – placing the lips together and force air through them to make them vibrate like doing a "raspberry."
3. Add a comfortable pitch to the trill (or change "f" to "v").
4. Slide to higher and lower pitches while lip trilling (or singing "v").
5. Produce the lip trill (or "f").
6. Produce ascending and descending scales using the hum siren and lip trill.

Warm-up for Adequate Resonance

The shape and size of the mouth, nose, and throat, and sinuses (or vocal tract) all contribute to the resonance that distinguishes one person's voice from someone else's. Resonance helps define the overall quality (or timbre) and sound of the voice during speech and singing. In optimal voice production, one can feel a slight vibration behind the cheekbones. The vibration is produced when sound travels through the facial bones and spaces, including the oral and nasal cavities.

In isolation, vocal fold vibration produces only a buzzing noise and acts as the sound source for one's voice. The beautiful tonal quality, as well as the vowels and consonants for speech, are produced by adjustments in the spaces above the vocal folds that act as a filter for the sound source of the vocal fold vibration. This is called the source-filter theory of speech production.

For example, the random buzzing of a trumpet mouthpiece in isolation changes to the familiar brass quality when you connect the horn to the mouthpiece, just as the buzzing of the vocal folds changes to an individual's unique voice quality when coupled with the cavities of the vocal tract (neck, mouth, and nose).

Experts believe that a tightening of the passage above the vocal folds produces a penetrating "ringing" or "twangy" voice quality as

heard in a witch's cackle, a child's taunt of "nya nya," and country-western singing. This brassy quality lends acoustic power to the speech signal without increasing demands upon the vocal folds, thus decreasing impact injuries to the vocal folds (such as nodules, polyps, or cysts).

Voice exercises can extend the posture, breathing, and sound warm-ups to enhance the resonating powers of one's vocal tract. These exercises usually begin with a pure twang exercise and then progress to balancing this powerful ring within one's warmer voice quality.

Sample Voice Resonance Exercises

Exercise #1

1. Begin with either a silent nasal breath or a silent mouth breath.
2. Cackle like a witch using a bright "Hee, Hee, Hee!"
3. Pretend you are taunting another child with the familiar "Nya, nya!"

Exercise #2

1. Prepare with a silent mouth or nasal breath.
2. Make the brightest "ee" possible, and then proceed to the other vowels (a, i, o, u).
3. Sing ascending and descending glides or sirens using each twangy vowel.
4. Sing ascending and descending sirens on each vowel, gradually reducing the amount of pure twang to balance with your natural singing quality.

Exercise #3

1. Prepare with a silent mouth or nasal breath.
2. Practice reading aloud from the newspaper or a book with your new, resonant voice quality.

Component 3: Voice Training on Proper Technique to Meet Voice Demands

Invest in Proper Voice Technique, Training and Consultation

Practice: Practice can help prepare the voice for almost any situation. As with all tasks, practicing good vocal habits is a key step in preventive voice care, and can improve voice function.

Voice training: Invest in voice training provided by qualified voice teachers in order to increase vocal range and repertoire. Advice from accomplished local actors and singers is a great first step in finding such a professional. Additionally, the National Association of Teachers of Singing (NATS) provides voice teacher recommendations (visit them online at www.nats.org).

Medical consultation for voice disorders: Invest in voice care treatment by seeking care from qualified voice care professionals when voice problems persist for two or more weeks beyond the end of cold and flu symptoms, especially if risk factors, such as smoking and reflux, exist. Timely evaluation of voice disorders by an ear, nose, and throat physician (ENT or [otolaryngologist](#)) or ENT-voice specialist ([laryngologist](#)) is important.

Component 4: Avoidance of Voice Overuse/Misuse/Abuse

Cherish Your Voice

Voice is a reflection of an individual's persona and physical well-being. Preventing voice disorders requires that one cherish all that goes into communicating that message. A person's voice can reflect his or her psychological state. Singers have known for years that the voice reflects both mental and physical health. Cherishing and respecting your voice will ensure its vibrancy for years to come.

Restraint

Cherishing one's voice implies using restraint during potentially vocally abusive situations such as during sporting events, loud concerts, noisy parties, and in crowded nightclubs.

Almost everyone has experienced a phenomenon called the "Lombard effect," which refers to raising the volume of the voice in the presence of competing background sound or noise. For example, suppose you are talking to your friends at a noisy party and the background music suddenly stops; when this happens, you end up surprised that you have been talking so loudly. In addition, you may also notice hoarseness or scratchiness in your voice the next morning – symptoms of inflamed or irritated vocal folds from yelling the night before.

Though voice disorders typically result after years of constant abuse, it is good to get into the habit of using your voice sparingly in noisy environments. Also, try to maintain an awareness of the background noise at each location so you continue to speak in a normal volume. You may choose to move to a quieter part of the party to talk, or move closer to the people with whom you are speaking. This will reduce the amount of vocal effort required to communicate.

Throat Clearing

Many people are surprised to learn that frequent throat clearing is another abusive behavior that can affect voice. When one clears the throat, the two vocal folds are brought together with very high impact. This can harm the vocal folds if continued repeatedly for a period of time.

Instead of throat clearing, swallowing or sipping water can help remove the excess mucus in your throat. The swallowing mechanism often clears the mucous from the vocal folds, eliminating the need for a throat-clearing gesture.

Most importantly, frequent throat clearing can be a sign of backflow of stomach fluids to the voice box – even if you do not experience heartburn. Medical consultation with an otolaryngologist is necessary to determine the cause of frequent throat clearing.

Proper Hydration

You may choose to enhance your living environment with a humidifier, when practical. For years, performers have advocated the use of humidifiers. Breathing humidified air increases the surface hydration of the mucous lining of the voice box and vocal folds, increasing ease and quality of speaking.

Respecting Yourself

Finally, cherish your voice by respecting yourself.

The first function of the vocal folds is to close in order to protect the airway and lungs. The larynx similarly protects the airway by constricting. Most people can recall a stressful situation, such as being called upon in class when not fully prepared, when their voice felt tight and unclear. This effect is most likely due to the constricting of voice box as a reflexive protection from stressful situations.

If you are in an anxious or uneasy environment, quiet, deep breathing through the nose can make you feel calmer, slow your heart rate, and relax your voice box. If anxiety plays a role in an individual's voice disorder, psychological support should be sought when tightness in the throat persists – even if a clinical examination reveals medical lesion or cause.

Even those who care for their voices quite well need to speak loudly and forcefully on occasion. In these instances it is best to increase the volume of the voice through proper technique. Proper technique is best learned in consultation with a voice care team.

Component 5: Voice Exercise to Improve Voice Endurance and Power

Exercise Your Voice

The voice is a dynamic instrument capable of producing many complex and intricate sounds. Each person's voice is highly personalized by the melodic, emotional, and colorful qualities inherent to it. Vocal exercise and training can keep a voice healthy and prepared.

There are several ways to exercise the voice. The best exercises for each individual can be determined in consultation with a voice care team.

Voice Disorder Prevention: The Curtain Call

Voice is a special and distinctive instrument capable of beautiful expression. Preventive voice care programs – such as the VOICE model – can preserve an individual's unique voice qualities.

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 **Advisory Note**

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