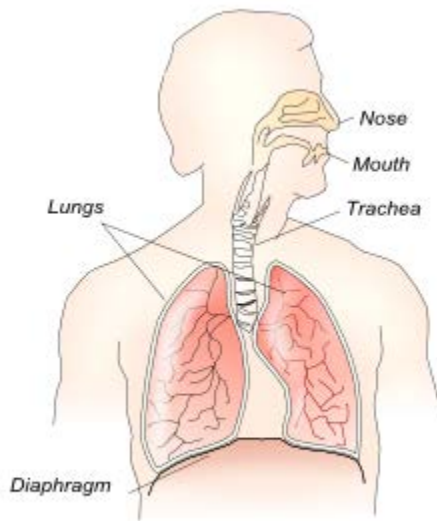
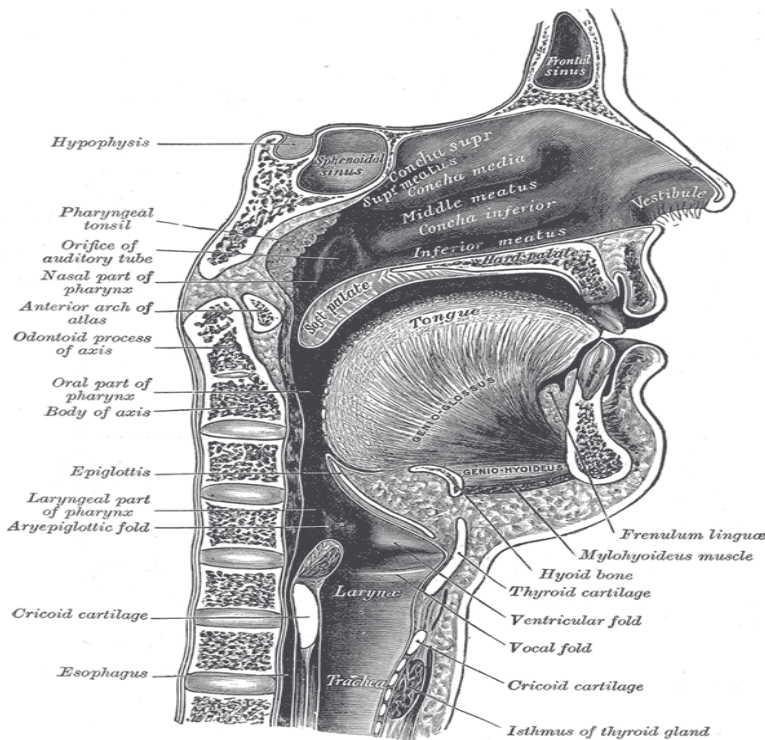


1. Physics of breathing



[http://commons.wikimedia.org/wiki/Image:Respiratory\\_system.svg](http://commons.wikimedia.org/wiki/Image:Respiratory_system.svg)

2. Anatomy of the Vocal Tract



from the 20th U.S. edition of Gray's Anatomy of the Human Body

### 3. Warm-ups

**The Lip Trill or Bubble** - A warm-up to reduce tension in the lips. The lips form the vowels as you sing. Any degree of tension in the lip area will produce some tension in the tone.

Imagine that you are swimming under water. As you blow out the water there will be a brbrbrbr sound as the lips vibrate naturally and easily.

Begin with a short lip trill, supported by air from the belly. Repeat the trill 4-5 times and extend the duration a little longer with each trill. Try not to purse the lips. Simply pretend that you are blowing bubbles under the water. If you find this difficult to do, it is a sign that your lips carry too much tension.

**The tongue trill.** If you can "roll" your r's you can do the tongue trill.

To execute the tongue trill, try flapping your tongue against the roof of the mouth (the hard palate.) You can also try purring like a cat. Hold the sound steady and keep the breath connected.

Once you have learned the trills, practice them on a full scale. Support the trills with plenty of air.

**Humming** is an excellent beginning warm-up because it stretches the vocal cords like a runner stretches the legs. A couple of things to keep in mind as you hum are:

- Keep the lips **loose and relaxed**. Avoid pressing them together. You want to feel the vibrations occurring in the lips as you hum.
- Open the mouth as if you are singing the vowel "ah". Then slowly bring the lips to a **gentle** close for the humming position. This will keep the space open inside the mouth to provide resonance as you hum.
- Follow the notation in the picture below as you hum. You are humming the C Major scale. Modulate in half steps when repeating the scale. Do not sing higher than is absolutely comfortable and easy. This rule applies to **all exercises**.

#### Do Re Mi Fa So La Ti Do



#### Open Vowel Warm-ups

The open vowels for singing are **Ah, Eh, Ee, Oh, Oo**. Mouth position is crucial to fine singing. This is a whole other lesson which I will write about later. For now, concentrate on the **Ah** vowel position by dropping the jaw to project your sound. Maintain a nice "2 finger space" between the top teeth and the bottom teeth.

- Begin with the **Ee** vowel and sing on a comfortable but energetic tone, sustaining the tone for 5 seconds. Using good breath support, repeat and hold for 10 seconds. Be sure to keep the open mouth position the entire time.

- Repeat the exercise on a different tone.
- Now repeat this same exercise using **Oo, then Oh, Eh and finally Ah.**
- Sing these vowels in any order you like. You will be stretching your voice and increasing your range as you warm up.
- When you are finished, you will be ready to use the arpeggio warm-up shown below.

#### 4. Vocal Ranges

##### Bass



##### Baritone



##### Tenor



##### Alto



##### Mezzo-Soprano



##### Soprano



**5. The most popular singing hubs ~**

- [Sing Wise](http://www.singwise.com/) (http://www.singwise.com/)   
Comprehensive series of vocal topics with well-researched information. Excellent resource for the serious student.
- [The Tongue, The Rudder For Sound, Speaking And Singing](http://vocalcoach.hubpages.com/_1ictfyqvvgguwn/hub/The-Importance-of-The-Tongue-in-Singing) (http://vocalcoach.hubpages.com/\_1ictfyqvvgguwn/hub/The-Importance-of-The-Tongue-in-Singing)   
Hold your tongue! Well, just make sure this "rudder" is nice and relaxed. Otherwise your singing will suffer.
- [The Miracle of Breathing - Exercises to Learn Diaphragmatic Breathing](http://vocalcoach.hubpages.com/_1ictfyqvvgguwn/hub/TheMiracleofBreathing) (http://vocalcoach.hubpages.com/\_1ictfyqvvgguwn/hub/TheMiracleofBreathing)   
The air we breathe in a lifetime equals the volume of 2 football fields, 17 stories high. Are you breathing correctly? Learn to use the diaphragmatic muscle. Add years to your life. Easy Step-by-step.
- [6 Tips For How You Can Sing and Singing Better Than Ever](http://vocalcoach.hubpages.com/_1ictfyqvvgguwn/hub/6-Tips-to-Better-Singing) (http://vocalcoach.hubpages.com/\_1ictfyqvvgguwn/hub/6-Tips-to-Better-Singing)   
Here are 6 easy tips for improving your present singing voice. Confidence is everything, so you must begin believing in yourself. Until you do this, others will not believe you either.
- [Singers - How to Avoid Throat Irritation When Singing](http://vocalcoach.hubpages.com/_1ictfyqvvgguwn/hub/How-to-Avoid-Throat-Irritation-When-Singing) (http://vocalcoach.hubpages.com/\_1ictfyqvvgguwn/hub/How-to-Avoid-Throat-Irritation-When-Singing)   
Singers, as well as speakers, often acquire throat irritations. This interferes with the voice and interrupts the presentation, audition, recording session and show. Learn what to do to avoid throat problems with these great tips that are proven to work.
- [6 Good Reasons To Sing](http://vocalcoach.hubpages.com/_1ictfyqvvgguwn/hub/6-Good-Reasons-To-Sing) (http://vocalcoach.hubpages.com/\_1ictfyqvvgguwn/hub/6-Good-Reasons-To-Sing)   
What - me sing? Absolutely! And here are 6 main reasons to sing. Plus, you just might live a longer and healthier life.

## Caring For Your Voice

The voice is a highly delicate instrument. It is important for a singer to care for his or her voice so that fatigue, strain and injury may be avoided, and so that it may function at its optimum.

Maintaining overall good health through healthy habits is critical. Insufficient rest, obesity, poor nutrition and hydration, substance abuse and allergies can all lead to sicknesses that can have serious affects on the speaking and singing voice.

A singer must pay close attention to the signals that his or her voice gives so that the necessary steps toward preventing problems can be taken. At times, a change in certain behaviours or unhealthy habits may be necessary in order to protect the voice from developing problems in the first place. (This is where a vocal instructor may be particularly beneficial.)

## Warming Up

Just as a serious athlete would never push his or her body to its physical limits without first stretching and loosening the muscles and joints, a singer should never put his or her vocal apparatus to the test without first “stretching” it. A proper warm-up involves gently and systematically preparing the voice for the demands that are about to be placed on it.

A great way to allow the voice to warm up in all parts of the range quickly and without strain is to trill the lips and/or tongue (as in "rolling one's r's") during arpeggios, scales or glides that both climb and descend in pitch. Lip and tongue trills help to loosen the throat, jaw, tongue and lips, spread the vocal folds so that they vibrate mainly at their edges, and encourage relaxation in the student who doesn't need to concentrate on having perfect tone, registration, enunciation and pure vowels at the same time. It is much easier for singers to gently access their full range by trilling the lips and tongue than by singing actual vowels and consonants (as when they sing the sound “la”). Vowels and consonants must be formed (shaped or articulated) with the tongue, pharynx, soft palette, facial muscles and lips, whereas, during trills, the sound coming from the vocal folds faces no resistance or shaping from the articulators until it reaches the tip of the tongue or the lips. The sound can then remain natural and unimpeded - the phonation threshold pressure is lowered by providing an acoustic load that is relatively inert. Since the upward force on the vocal folds is minimized due to positive oral pressure, the throat is able to remain open and relaxed, and airflow faces no obstruction from the articulators. The voice is freed up, and the singer can warm-up in the highest and lowest parts of the range with ease and minimal risk of strain. Trills also help to get the respiratory muscles into full action rapidly.

If the singer is unable to do either lip or tongue trills, as some of my students aren't, simple five-note scales (ascending then descending in pitch) on any comfortable vowel or combination of vowels and consonants are the next best kind of warm-up exercise. They limit the voice to a short range, allowing it to properly loosen up. Once these shorter scales have been completed, the singer may wish to try full octave scales to continue stretching the vocal instrument. Arpeggios generally contain intervals of thirds, fourths and/or fifths, and I always recommend against singing vowels for arpeggios initially in the lesson (as a warm-up exercise) because many students find the intervallic leaps to be stress and tension inducing. (Arpeggios are, of course, a useful technical exercise, but they probably should not be attempted until the voice has had some time to loosen up first.)

Singing along to the radio in the car on the way to lessons or performances does not generally constitute a sufficient warm-up, as most popular songs are limited in range. Attempting to sing more challenging songs as a warm-up, though, can lead to vocal strain.

After the initial warm-up, it is still prudent to tackle vocal exercises in order of difficulty, which may involve putting off those which are designed to broaden a singer's range until a little later in the lesson.

## Hydration

The vocal folds vibrate against each other in order to produce sound. In order to vibrate properly and to work effectively, they need to be well lubricated with moisture.

Hydration should be a priority throughout the day. A singer should give the body at least a half hour before a lesson, audition or performance to benefit from fluid intake. (In other words, it isn't sufficient to wait until the lesson or performance to begin drinking water.) Ideally, a singer should drink enough water during a twenty-four hour period to make his or her urine run clear. Room temperature water is ideal, since cold water can have a numbing effect on the throat and mouth.

Apart from not drinking enough water, the vocal apparatus gets dry for a number of reasons, including environmental dryness, (mainly from heating and air conditioning systems removing much of the humidity in the air), medications (e.g. antihistamines), diuretics (e.g. caffeine, alcohol), illegal drugs, cigarette smoke and other air pollutants. Before singing, it is not only recommended that a vocalist drink an adequate amount of water, but that he or she also avoid these sources of dryness.

Humidifiers are very helpful if the living environment is excessively dry, and are ideal for use in bedrooms during sleeping hours when plummeting outdoor temperatures cause heating systems to start up and when several hours will pass without water being consumed. Invest in a cool mist humidifier, (as opposed to a warm mist humidifier, which is more prone to encouraging the growth of bacteria). It is important to regularly clean the humidifier, drop bacteria-killing drops into the water and change the filter as needed. Also, having the humidifier running continuously during the winter months will not only help to get adequate moisture into the air, but will also help prevent the growth of bacteria by not allowing the

water in the humidifier tray to stand still. (Any time that water is standing still, it becomes a breeding ground for bacteria and mold, which can cause respiratory irritation.)

## **Sleep**

One of the worst “irritants” for many singers is insufficient rest. When the body is tired, the voice will often show signs of fatigue, such as overall weakness or loss of control, diminished range and poor tone, and the singer may lack the energy and concentration needed in order to be able to perform at his or her best. These symptoms of inadequate rest may be difficult to hide from a listening audience.

Being overly tired can also decrease a singer’s ability to effectively concentrate on his or her technique while singing, which could lead to strain or injury. Therefore, whenever possible, a singer should get a full night’s sleep before performances or lessons.

## **Smoking and Singing**

Smoking and exposure to smoke (second-hand smoke) irritates and dries the tissues of the throat, particularly the vocal folds. As I wrote above, a lack of lubrication leads to improper vocal cord vibration and function. It is often thought that as long as the singer doesn't speak or sing while exhaling smoke, not much direct damage will be done to the vocal folds. However, since the smoke must pass the vocal folds on the way from the lungs to the mouth, that kind of thinking doesn’t make any sense because the folds are still being exposed to the smoke whether they are vibrating at the time or not.

Smoking may promote laryngopharyngeal reflux, or acid reflux, which can also affect the vocal folds and cause irritation in the entire throat.

Additionally, smoking degrades lung function, which affects the voice by decreasing airflow through the vocal folds and lessening lung capacity and stamina while singing. This drastic loss of lung capacity is one of the biggest effects of smoking on the singing voice.

Nicotine is a sedative. It deadens the nerves that control the support musculature, and does not allow the proper use of the lungs. The effects of tar in terms of congesting the lungs are also significant, but this is a complex problem. The primary issue of tar in the lungs is that the nicotine deadens or paralyzes the hair (cilia) in the bronchioles and bronchial passages. When healthy, these tiny, finger-shaped bits of tissue increase the surface area of the bronchioles, allowing more oxygen to pass through to the capillaries behind them. Under normal circumstances, they also sway gently back and forth to move the mucous and phlegm around, regularly flushing mucus from the respiratory system and preventing ‘gunk’ from building up.

When the cilia is paralyzed by nicotine, tar and phlegm begin to coat them. This congestion reduces lung capacity. It also reduces the body's ability to gauge and react to irritation from smoke.

The body also attempts to forcefully remove the excess mucous by coughing. This is what is known as the 'smoker's cough'. This coughing also happens after the smoker has had a prolonged absence of nicotine in his or her system (e.g., in the morning, after a full night of sleep) because the cilia begin to function again, moving the mucous around. Coughing can cause irritation in the throat.

Furthermore, smoking causes edema (swelling) of the tissue that coats the vocal folds. "Swelling" means an increase in water content, and this in turn means that the folds are heavier than normal. Heavier vocal folds produce a lower tone than lighter vocal folds, just as thick guitar strings produce a lower note than slender guitar strings. The smoker's voice typically sounds more raspy or gravelly, as well as deeper. Unfortunately, after many years of smoking, this swelling may become permanent.

Many rock and pop singers revel in the fact that their voices sound deeper, more gravelly and raspy when they smoke. It needs to be understood, however, that even though smoking may deepen the overall tone of the voice (due to the extra weight of the folds), it doesn't really significantly affect the lower range, since range is mostly determined by the size and shape of the vocal instrument itself (e.g., the length and thickness of the vocal folds and the length and width of the resonating 'tube'). Singers reach a certain point where the vocal folds become as compact and as slack as they possibly can be, and that is the lowest that they physically will ever be able to sing. The deeper sound of smokers' speaking and singing voices is deceptive. Although smokers may speak in a lower range of pitches than they naturally would if they didn't smoke, this doesn't mean that their vocal instruments are also capable of reaching lower notes.

Furthermore, due to the increased weight and swelling of the folds, the overall range of the singer is diminished. The extra mucous on the folds can actually inhibit their ability to vibrate effectively, preventing the singers from being able to phonate at both lower and higher pitches that they might ordinarily be able to sing if their folds were clear and lighter in weight.

Of course, no discussion about smoking would be complete without mentioning that smoking is the leading cause of both vocal fold and lung cancers, both of which will likely end a singing career.

### **Carbonation and Caffeine**

Avoid consuming carbonated drinks (e.g. soda) before singing. They not only produce excess gas, but the caffeine in most sodas serves as a diuretic, inhibiting the body's ability to re-absorb fluid, which leads to a retention of water in the urine. Essentially, they increase the excretion of water from the body, which can lead to mild dehydration.



Since caffeine acts as a diuretic, all products containing caffeine such as soda, coffee, teas and chocolate should not be consumed before a lesson, rehearsal or performance. (Note that most “decaffeinated” drinks still contain some caffeine.)

### **Foods**

Certain foods, such as spicy dishes, greasy fried foods and fad diets should be avoided prior to a performance because they can create an upset stomach, which can cause gastric reflux. In this situation, the acids in the stomach rise up the esophagus to irritate the tissues of the vocal folds.

Dairy products will not harm the voice, but are known to stimulate mucous (phlegm) production in the throat and sinuses, which may interfere with clear vocal production. They should, therefore, not be consumed in the two hours prior to the start of a singing task (e.g., lesson or performance). Some people are especially sensitive dairy, such as people with asthma.

### **Dust**

Allergies are caused by an overly sensitive immune response. The immune system normally protects the body against harmful substances such as bacteria and viruses. Allergy occurs when the immune system reacts to substances (allergens) that are generally harmless and, in most people, do not cause an immune response.

When a person with allergies breathes in an allergen, histamine and other chemicals are released as part of the immune response. This causes itching and swelling, mucous production, wheezing, and in serious cases, hives and rashes, as well as other symptoms. Symptoms vary in severity from person to person. Most environmental allergens contact the skin or eyes, or are inhaled. Therefore, most symptoms affect the skin, eyes or the breathing passages. Post-nasal drip, the irritating trickle of mucous from the nasal passages into the throat caused by allergies or sinusitis, can also result in a cough.

House dust contains tiny particles of pollen, mold, fibers from clothing and fabrics, detergents, dead human skin cells and microscopic insects (mites). Dust mites, including small fragments of dead mites, are the primary cause of dust allergy and are found in the highest numbers in bedding, mattresses, and box springs. They leave droppings everywhere that they go. Their droppings contain left-over enzymes which the mites use to digest the skin dust. It is these enzymes that are the most important part of mite dust in causing asthma and other allergic diseases. In fact, house dust mites and their droppings are the most important cause of asthma worldwide.

Clean frequently to minimize dust. Vacuum frequently, preferably using a small-pore filter to capture dust mites. (Vacuuming the mattress is not nearly as helpful as people might think. It removes very few of the mites, which can cling to the mattress perfectly well to avoid being sucked into the vacuum cleaner. However, vacuuming will remove some of the skin dust on which the mites feed, and a little of their droppings, and may still be worthwhile as part of a proper plan. Also, some vacuum cleaners, like Kirby’s, are better than others.) Avoid using

vacuum cleaners wherever damp dusting is possible. Damp-mop and dust often. Eliminate as many "dust catchers" as possible, including rugs, bed ruffles or canopies, cloth-covered furniture and curtains where it is difficult to eliminate the mites effectively. Bedding and mattresses harbour dust mites. Special covers for mattresses, box springs and pillows to reduce dust mite allergens can be purchased. Wash rugs, bedding and furniture coverings weekly, if possible.

Avoid activities that raise dust from reservoirs such as furniture and the floor, where it is otherwise harmless, to the air that you breathe.

The amount of dust in a house depends not only on cleanliness, but also on the amount of moisture in the house. Dry houses in very cold climates or on high mountains have few mites, but houses in temperate climates and normal altitudes have more. Therefore, don't allow humidity to build up, but ventilate. Don't heat more or for longer than necessary. Central heating and air-conditioning systems may be helpful, particularly if they include special filters to capture dust.

## **Nasal Allergies**

Severe nasal allergy symptoms (e.g., acute sinusitis or seasonal rhinitis) can affect your singing tone. Singers rely on the kinesthetic feedback from the ringing quality produced in the face's resonating cavities to know that they are using proper tone. Clogged nasal passages that result in a hyponasal vocal quality can prevent the sound from resonating effectively in the sinus cavities. Hyponasality can hamper a singer's ability to increase his or her volume, potentially leading to overuse of other muscles in the neck for increased loudness demands.

One of my recommendations for dealing with mild congestion due to nasal allergies, if you don't wish to take allergy medications, is that you take Fisherman's Friends (extra strength) lozenges just before you sing. They are really effective at temporarily clearing the sinuses and getting rid of post-nasal drip, and can be taken immediately before a performance. Many people don't appreciate their strong flavour – personally, I don't mind them at all – and you'll have a greenish-brown tongue afterwards, but they are pretty effective for many people. What's especially great about Fisherman's Friends is that they don't coat the throat or dry out the sinuses, making it possible to sing after taking one. Fisherman's Friends may not be quite as helpful for someone with really serious sinus issues, although a couple of my students with bad allergies take them regularly, and they report positive results with them. They'll even suck on them during lessons when their allergies are acting up. You should be able to buy them at most pharmacies.

Allergy medications (e.g. antihistamines) can dry out your sinuses, but sometimes they are the only things that work quickly enough for serious allergies. If you need to take them, just ensure that you are also drinking extra water to compensate for the additional dryness factor.

Some allergy sufferers swear by products like neti-pots and SinuCleanse that clean out the sinuses with a saline solution and a nasal aspirator/bulb (a.k.a. nasal irrigation). Daily, you would pour the solution into one nostril and allow it to come out the other, then reverse the process, in order to rinse the nose and rid it of pollens, etc. that might make their way down

into your throat or lungs or up into your sinuses. Some Ear, Nose and Throat doctors sell similar products out of their offices, and you might be prudent to visit an ENT (otolaryngologist) and ask for his or her advice on dealing with your allergies long-term. (They really are the experts on the subject.) Just make sure that you explain to the doctor that you are a singer in case that information alters how he or she would approach treating you.

You can also try the naturopathic route. It may take longer for you to see the positive effects but it could be more helpful in the long run (by boosting your immune response) than allergy medications that merely address immediate symptoms. Some people claim to have great success with herbal remedies like Echinacea or Fenugreek and Thyme – used most often for sinus headaches. Stinging Nettle helps heal mucus membranes and decreases histamine release, especially in the sinuses. You may wish to visit a local naturopathic store or meet with a naturopathic doctor for assessment and to ask for some advice. Of course, attempt to avoid known allergens, whenever possible.

Also, warming up your voice with exercises that will gradually “loosen” the congestion before you sing would likely be very helpful. A lot of my students with chronic allergies and colds find that they need some extra warm-up time before performing or taking their lessons.

With lessons, you will (hopefully) learn to be able to sing over or past minor sinus congestion from allergies and colds by focusing your resonance in the facial cavities as opposed to the nasal passages, so you might be able to correct any nasally tone that you might be struggling with. Sinus problems will always have some negative effect on singing because they affect the resonating chambers in the head, so you should attempt to find an effective long-term treatment for them, but you can learn to better disguise their effects with some good vocal technique and targeted warm-ups.

### **Pet Allergens**

People who are allergic to certain animals are rarely allergic to the animals' fur or feathers. They are actually allergic to the small scales of skin (dander) that the animals shed. Some people are allergic to the animals' saliva, particularly cats. Cats have saliva that contains a protein that is known to cause allergy. A person can come into contact with animal saliva if licked by the pet, if the pet is touched after it has groomed itself, or if an object that the animal has recently licked or chewed is touched. People who are allergic to animals may need to avoid keeping pets. Frequent bathing and grooming of the pet (preferably by someone who is not allergic to the animal) may help. Allergy to animals may also include wool, which may contain tiny amounts of dander (skin).

Research data suggests that room air filters may be of some use against cat dust (dander) in houses but are much less effective against dust mites, (which does not prove that they are effective enough to make a difference in asthma caused by cats). Mite dust particles are larger than cat dust particles, and fall out of the air more quickly. In contrast, cat dust is much finer, and stays in the air much longer. However, installing an air filter is not a reasonable substitute for not having cats.

### **Mold and Mildew**

While having sufficient humidity in the air is crucial to maintaining healthy lung and vocal fold function, having too much humidity in the air can be dangerous. Excessive humidity and dampness can lead to mold – a fuzzy growth on moist, organic matter - and mildew – a mold growing on fabric. Mold is most common indoors in damp locations such as basements, or bathrooms (washrooms). Fabrics, rugs, stuffed animals, books, or wallpaper can contain mold spores if they are frequently in contact with water or kept in a damp place. When mold spores land on damp organic material, such as wood, paper, feathers, hair, cellulose, petroleum products, rubber, carpet, etc., they may begin growing and digesting the material. If enough moisture is available for the mold to emerge from hibernation, they are very likely to start growing on walls.

Molds reproduce by spreading microscopic spores. In sensitive individuals, inhaling or touching mold or mold spores can cause allergic reactions that may include respiratory problems such as coughing, sneezing, wheezing, infection and/or difficulty in breathing, hay fever-type symptoms, nose and throat irritation, nasal or sinus congestion, and runny nose, just to name a few. The most common reactions are flu-like symptoms and asthma. Those with chronic lung or immune problems are at risk for more serious reactions like fever, lung infections and a pneumonia-like illness.

Toxic molds can produce several toxic chemicals called mycotoxins that can damage health. These chemicals are present on the spores and small mold fragments that are released into the air. In high concentrations, mold fragments, spores, and mycotoxins can trigger symptoms even in individuals who have no allergies. Toxic mold can be linked to the rapid rise of the asthma rate over the past twenty years, as well as chronic sinusitis, and can increase one's susceptibility to a wide variety of diseases by weakening the immune system.

Minimize exposure to mold spores by keeping rooms dry (with a relative humidity below sixty percent), using a dehumidifier if necessary. Discard moldy or mildewed articles (books, toys, shoes, and so on). Use synthetic fabrics for clothing and household furnishings whenever possible. Disinfect bathrooms, basement walls, and furniture with diluted bleach or other appropriate disinfectant solution. Molds also tend to be more robust in poorly ventilated areas with little air movement to disrupt their growth, so it helps to open a window or two now and then. Sealing air leaks in the building's exterior and using a mechanical ventilation system to provide fresh filtered air can help to reduce entry of mold spores and make it easier to keep indoor humidity levels ideal.

### **Noise Pollution and Other Environmental Irritants**

Many people injure their voices by trying to compete against the sounds of loud machinery, loud music or crowd noise. If that is the case, try to use amplification equipment (i.e. microphones and vocal monitors) if it is appropriate.

Environmental pollutants, such as cigarette smoke, dust, or smog, can cause a cough, which may cause irritation or inflammation in the throat.

### **Singing While Sick**

While it is always best to rest and allow the body to recover naturally from mild illnesses such as colds, sometimes singing while sick can't be avoided. If a singer has a performance scheduled and he or she feels it necessary, for the sake of his or her career, to participate in that performance, the singer should take some extra measures to speed up recovery and to ensure that injury to the voice is not sustained.

There are many products on the market that are designed to provide temporary relief of allergy and cold symptoms. Below is a general list of the types of over-the-counter and prescription medications to avoid. However, everyone responds differently to different products, and it is important to choose ones that are effective for oneself, and take into consideration how they will affect one's singing voice, including hydration. Get the advice and recommendations of a doctor and a singing teacher, especially if the problem is a persistent one.

### **Acid Reflux**

The throat and vocal cords are affected by multiple factors, including exposure to acid and stomach contents. In many individuals, stomach contents may travel up through the esophagus back into the throat. Some individuals experience this as a burning or sour taste in their throats, others as "heartburn", and sometimes the urge to cough will be felt. Most, however, never feel or sense anything, except for hoarseness or a "lump" in their throat. These acid reflux symptoms are due to inflammation caused by exposure to enzymes and acid from the stomach. When the throat and vocal folds are inflamed, they do not function well, which in turn affects the voice.

If acid reflux symptoms are persistent and are interfering with singing, consult with a doctor about medications to keep it under control.

### **Laryngitis**

Laryngitis is an inflammation of the larynx, where the vocal folds are located. The irritation suffered by the vocal folds causes hoarseness or a complete loss of the voice. Laryngitis may be caused by viral infection, bacterial or fungal infection, inflammations due to overuse of the vocal folds or excessive coughing.

If a vocalist requires analgesics or topical anesthetics to alleviate laryngeal discomfort, the laryngitis is severe enough to warrant canceling a voice commitment, as there is some risk associated with performing with laryngitis. Inflammation of the vocal folds is associated with increased capillary fragility and increased risk of vocal fold injury or hemorrhage. Many factors must be considered in determining whether a given performance or concert is important enough to justify the potential consequences.

### **Asthma and Other Respiratory Infections**

Colds, influenza, bronchitis, pneumonia and other bacterial and viral respiratory infections cause inflammation in the lungs, making it difficult for a singer to breathe easily. Some

chronic conditions, such as asthma, chronic bronchitis, emphysema, and cystic fibrosis, are characterized in part by a cough.

The effects of severe respiratory infection are obvious and will not be enumerated. Restrictive lung disease, such as that associated with obesity, may impair support by decreasing lung volume and respiratory efficiency. Even mild obstructive lung disease can impair support enough to result in increased neck and tongue muscle tension and abusive voice use capable of producing vocal nodules.

Most inhalers are not recommended for use by voice professionals. Many people develop contact inflammation from sensitivity to the propellants used in many inhalers, which may also cause a cough. Use of steroid inhalers for prolonged periods may result in candida laryngitis and may often cause laryngitis even without a chemical propellant. Prolonged steroid inhaler use, such as is common in asthmatic patients, also appears capable of causing wasting of the vocal muscles.

The best option is to get asthma symptoms under control as naturally as possible (e.g. avoid irritants that may trigger an asthma attack). However, if an asthmatic singer requires the use of fast-acting or steroid inhalers in order to breathe clearly – or to breathe at all – they are considered necessities.

### **Mucous (Phlegm) and Throat Clearing**

Some irritants are problems because they cause the creation of thick mucous in abundance. A symptom of colds and allergies is excessive mucous production.

Chronic throat clearing is a potentially damaging habit. Because it is an unnatural use of the voice, excessively clearing the throat places stress on the vocal folds and can lead to inflammation that will only worsen as the habit becomes more persistent. Forceful throat clearing is also counter-productive because, as the throat becomes inflamed and irritated by the clearing action, the body will respond by creating more copious thick mucous to protect and soothe the throat.

A singer should avoid mucous-producing foods, such as dairy products for several hours before singing, especially if he or she is prone to developing excessive mucous (e.g. due to asthma, intolerance or sensitivity to dairy, seasonal allergies, etc.).

Instead of attempting to loosen up excess mucous or phlegm by clearing the throat, a singer should force a cough. Because coughing is a natural reflex that is designed to expel substances that are irritating the air passages, the body won't be damaged by the activity (i.e. the throat and vocal folds won't develop further inflammation) unless the coughing, too, becomes a persistent habit.

### **Lozenges, Cough Candies and Cough Suppressants**

Another method of loosening up mucous or soothing a sore throat is to suck on lozenges or cough suppressants. However, lozenges and cough candies generally coat the throat – some even numb it – in order to soothe it. For some singers, the coating left by these cough

medications can have the same irritating effect as the mucous that they are trying to get rid of, causing further discomfort in the throat.

Fisherman's Friends are a brand of lozenge, (made of eucalyptus and menthol), that can be taken immediately before a performance. Although many people don't appreciate their strong flavour, they are very effective at suppressing coughs and clearing up mucous without leaving a coating on the throat. They are also helpful in providing temporary relief from the irritation of post-nasal drip due to mild colds and allergies, and are useful at bedtime as a substitute for antihistamines, which can have a drying effect on the air passages.

Avoid lozenges with analgesics. (See below for an explanation.)

### **Analgesics**

Analgesics are colloquially known as painkillers, and they include acetaminophen, the nonsteroidal anti-inflammatory drugs (NSAIDs) such as the salicylates, narcotic drugs such as morphine, synthetic drugs with narcotic properties such as tramadol, and various others. Some other classes of drugs not normally considered analgesics, including tricyclic antidepressants and anticonvulsants, are used to treat neuropathic pain syndromes but can have the same effects. Analgesics are frequently used in combination, such as the paracetamol and codeine preparations found in many non-prescription pain relievers (aspirin, ibuprofen, naproxen, etc.). They can also be found in combination with vasoconstrictor drugs such as pseudoephedrine for sinus-related preparations, or with antihistamine drugs for allergy sufferers.

Aspirin and other analgesics are frequently prescribed for relief of minor throat and laryngeal irritations. Besides masking pain – an important indicator of underlying physiological problems - aspirin and ibuprofen can make it easier to have a hemorrhage on the vocal folds. The platelet dysfunction caused by aspirin – it may interfere with the clotting mechanism - predisposes the patient to hemorrhage, especially in vocal folds traumatized by excessive voice use in the face of vocal dysfunction. Severe hemorrhage or mucous scarring may result in permanent alterations in vocal fold vibratory function and can thus be devastating to a professional voice. In rare instances, surgical intervention may be necessary.

The use of analgesics, including topical sprays, is extremely dangerous and should be avoided. Pain is an important protective physiologic function, and masking it risks incurring significant vocal damage, which may be unrecognized until after the analgesic or anesthetic wears off.

If the analgesic is for headache or some other discomfort not intimately associated with voice production, symptomatic treatment should be discouraged until strenuous voice obligations have been completed. However, acetaminophen may be a worthwhile substitute for aspirin and ibuprofen.

### **Fatigue, Strain and Injury**

Vocal fatigue is the inability to speak or sing for extended periods of time without experiencing a change in voice quality. Signs of vocal fatigue may include a “cracking voice” – this may also be a sign of insufficient hydration – a throat that feels strained and sore, a diminished natural vocal range, a changing timbre (tone quality) and hoarseness.

Injuries to the voice are common, especially amongst untrained or improperly trained singers. Vocal fold lesions, which include vocal nodes (calluses on the vocal folds due to overuse), vocal fold polyps and vocal fold cysts are the most common injuries sustained by singers. Lesions are thought to arise following "heavy" or traumatic use of the voice, including voice misuse such as speaking in an improper pitch, speaking excessively, screaming or yelling, or using the voice excessively while sick.

A change in voice quality and persistent hoarseness are often the first warning signs of a vocal fold lesion. Vocal fold lesions lead to a wide range of voice disturbances including an unreliable voice, vocal fatigue, voice breaks, an airy or breathy voice, an inability to sing in a high, soft voice, a hoarse or rough voice quality, frequent throat clearing, and an increased effort to speak or sing.

While pain during speaking or singing may indicate vocal fold lesions, or a number of other medical conditions, it is much more commonly caused by voice abuse with excessive muscle activity in the neck and tongue.

In all cases where pain and changes of vocal quality persist, a doctor should be consulted for diagnosis and treatment. The doctor should be made aware of the extent to which the voice is used (e.g. how the singer performs, how often, etc.) and whether upcoming performances are critical to the singer’s professional development. Treatment options should be discussed in view of how they may further affect use of the voice.

In many cases, rest is the best treatment for mild voice disturbances. However, depending on the cause, short-term use of prescription medication or voice therapy with a speech pathologist may be necessary.



### Vocal Assessment Form

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Range:



Pitch Memory:

1. Pitch Matching (correctly match a selection of pitches) -  
Use 5 different pitches # correct: \_\_\_\_\_

2. Intervals How many times before correct?

- a. 1, 3, 5 \_\_\_\_\_
- b. 1, 4, 6 \_\_\_\_\_
- c. 1, 7, 5b \_\_\_\_\_
- d. 1, 2, 1, 1# \_\_\_\_\_
- e. 1, 5, 4, 6, 7, 8 \_\_\_\_\_

Timbre:

- Dark
- Bright
- Strident/Piercing
- Nasal
- Raspy
- Breathy
- Tremolo

Sing a short song (national anthem; Happy Birthday; My Bonnie; etc) - solo performance. Is the person able to sing a simple, unaccompanied melody?

Tonal Quality:	Superior	Excellent	Good	Fair	Poor
<ul style="list-style-type: none"> <li><input type="radio"/> resonance</li> <li><input type="radio"/> control clarity</li> <li><input type="radio"/> focus</li> <li><input type="radio"/> consistency</li> <li><input type="radio"/> warmth</li> <li><input type="radio"/> vowel formation</li> </ul>	Open, resonant, stylistically appropriate tone in all registers /ranges, round, well matched vowels	Characteristically appropriate tone most of the time but lacks consistency in outer ranges; good vowel formation	A basic tonal concept but lacks consistency throughout the entire range, vowels fairly well formed	Weak or forced vocal production much of the time; tone lacks full resonance; vowels not well matched	A lack of understanding of how to produce a healthy, basic tone; unawareness of vowel matching

<b>Intonation</b>					
<ul style="list-style-type: none"> <li>○ accuracy of pitch</li> </ul>	Accurate intonation in all registers /range; pitch adjustments made instantly	Minimal intonation difficulties; pitch adjustments usually successful	Generally accurate intonation with some out-of-tune notes; pitch adjustment skill are developing	Some sense of intonation, but pitch adjustment skills are not developed	An unawareness of tuning problems; a need for basic pitch adjustment skill development
<b>Rhythm</b>					
<ul style="list-style-type: none"> <li>○ accuracy of note and rest values</li> <li>○ duration</li> <li>○ pulse</li> <li>○ steadiness</li> <li>○ correctness of meters</li> </ul>	Outstanding accuracy; correct pulse/meter used throughout song	Infrequent errors with pulse that is mostly correct	Occasional rhythmic errors, with a lack of consistency in pulse/meter	Numerous inaccurate rhythms with an incorrect pulse/meter	An unawareness of rhythm / pulse / meter
<b>Technique</b>					
<ul style="list-style-type: none"> <li>○ posture</li> <li>○ breath management</li> <li>○ attacks / releases</li> </ul>	Correct posture, breathing, support, balanced attack and release, as though natural	Proper vocal technique is used with some minor inconsistencies	Good technique is emerging but has not become habitual	Major inconsistencies in posture and breath management	Evidence of proper posture, breath management and support are lacking
<b>Diction</b>					
<ul style="list-style-type: none"> <li>○ pronunciation</li> <li>○ clarity of text</li> </ul>	Correct, intelligible and expressive pronunciation	Minor errors in pronunciation or consonant enunciation at the beginning, middle or end of words	Several errors in diction and consonant enunciation ; text is clear as words but unclear as a whole	Incorrect pronunciation; lacking most consonant enunciation	Pronunciation is incorrect and text is unclear; inconsistent explosive consonants and vowel shapes

Harmonic sensitivity:

1. Sing solo song again with auditioner singing a harmony line  
Is the person able to hold the melodic line without losing the melody?
  
2. Have the person sing a harmony to the song.  
Is the person able to sing an appropriate harmonic line to a melody?

Tunes to tonal center \_\_\_\_\_ tends to sharpen \_\_\_\_\_ tends to flatten \_\_\_\_\_