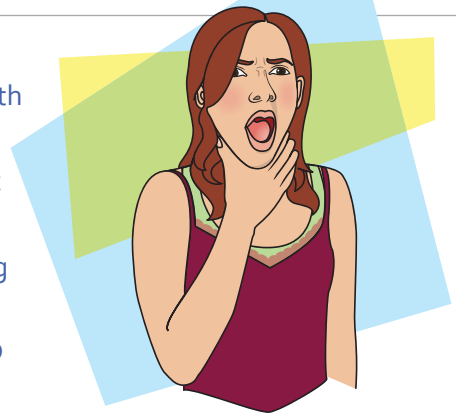


What are Vocal Cord Dysfunction (VCD) and Inspiratory Laryngeal Obstruction (ILO)?

Vocal Cord Dysfunction means that your vocal cords do not act normally. It is also called paradoxical vocal fold motion disorder. With VCD, instead of your vocal cords opening when you breathe in and out, your vocal cords close. When your vocal cords close, it makes it harder to get air into or out of your lungs. Sometimes another part of your voice box (larynx) above or around the vocal cords is causing the blockage of your breathing and so the problem is called ILO (inspiratory laryngeal obstruction). This fact sheet will focus on VCD but the same information applies to ILO.



Where are the vocal cords and what do they do?

Your vocal cords are deep in your throat in your voice box (larynx). Normally, when you breathe in (inhale), your vocal cords open. This allows air to go into your windpipe (trachea) and lungs. When you breathe out (exhale), your vocal cords open and let the air out of your lungs. Breathing out can cause your the vocal cords to vibrate and lets you produce sounds for speaking.

Common signs and symptoms of VCD

- Shortness of breath or difficulty getting air into or out of your lungs
- Tightness in the throat or chest
- Frequent cough or throat clearing
- A feeling of choking or suffocation
- Noisy breathing (stridor, gasping, raspy sounds or wheezing)
- Hoarse voice

VCD can come on suddenly and may be mild or sometimes severe and make you go to the emergency room. Even if an attack is severe, the oxygen level in your blood is usually normal. VCD symptoms do not usually occur during sleep.

VCD is often confused with asthma

Often people with VCD are thought to have asthma because the symptoms and triggers for VCD and asthma can be similar. However, symptoms from VCD are not relieved by taking asthma medicines that open your breathing tubes (bronchodilators like albuterol). A

confusing fact is that some people have both VCD and asthma. When a person with both VCD and asthma starts to cough, wheeze or have trouble breathing, it can be difficult to tell if the symptoms are from asthma, VCD, or both at the same time.

What can trigger VCD?

There are many different possible triggers of VCD. Often no trigger can be found. VCD may be triggered by:

- Acid reflux (GERD)
- Post-nasal drip
- Upper respiratory infection (cold)
- Exercise
- Strong odors or fumes
- Tobacco smoke
- Strong emotions and stress

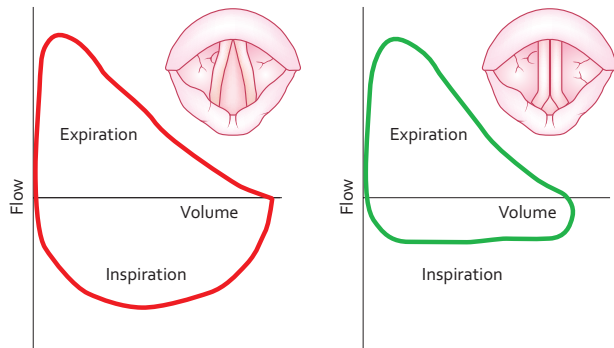
How do I know if I have VCD?

Your doctor needs to make sure that you do NOT have vocal cord damage, damaged vocal cord nerves, a vocal cord growth or other problems that are different than VCD. VCD can be very hard to prove. Your healthcare provider can find out if you have VCD by testing your breathing and looking at your vocal cords.

Common tests for VCD:

- Lung function (breathing) test called spirometry looks at how well air moves in and out of your lungs. It also includes a flow-volume loop to show how the air flows into your lungs. If you are having VCD

symptoms during the test, the test will sometimes, but not always, show blockage mainly of the air flowing into the lungs. Breathing test results are usually normal if your VCD is not active at the time of testing. This is one reason why determining if you have VCD can be so hard. (See the ATS fact sheet on Pulmonary Function Tests.)



- Laryngoscopy is the best way to tell if you have VCD. A healthcare worker will look at your vocal cords when you are having difficulty breathing. To look at your vocal cords, a small, flexible tube with a camera (laryngoscope) is passed through your nose to the back of your throat where your vocal cords can be seen. Before the laryngoscope is put into your nose, medicine to numb your nose and throat is used. The test is usually done as an outpatient. You are awake for this test and during the test you may be asked to talk, to see if your vocal cords work normally. Laryngoscopy can help show that you do NOT have vocal cord damage or other vocal cord problems besides VCD.
- A challenge study may be done with lung function testing after you exercise on a treadmill or cycle or inhale a medicine called methacholine or histamine to try to bring on VCD symptoms. If symptoms develop, a breathing test or laryngoscopy will be done to confirm the abnormal closure of the vocal cords. A challenge study may be combined with laryngoscopy.

How is VCD treated?

VCD is different than many other breathing problems because medicines are not the main treatment to control or prevent VCD.

- The main treatment for VCD is learning techniques that help you control your vocal cords. These techniques are usually taught by a speech therapist or psychologist who is trained and experienced in treating VCD.
 - The techniques you will learn will help to improve your ability to relax your throat muscles which

allows your vocal cords to behave normally.

- You may have to meet with a therapist at least 2–3 times to learn these techniques.
- Learning these techniques takes regular practice. You will need to practice them even when you are not having VCD, so you can be ready to control the symptoms before they become severe.
- Strong emotions and stress can trigger VCD so it is important to learn to manage your stress. Relaxation techniques, biofeedback, and psychotherapy have been shown to be helpful in controlling VCD.
- If you have asthma and VCD, it is important that you take actions to keep both under good control.
- If your VCD is triggered by post-nasal drip or acid reflux (GERD), it is important to talk to your healthcare provider about what you can do to control these.

Authors: Marianna Sockrider MD, DrPH, Dan Craven MD, Hazel Hewitt MA, CCC-SLP, Susan Brugman MD

Reviewers: Bonnie Fahy RN, MN, Gustavo Matute-Bello, MD, Roomi Nusrat MD, Sumita Khatri MD, Ben Suratt MD

Rx Key Points

- ✓ If you or your healthcare provider thinks that you may have VCD or exercise induced ILO, ask to see a VCD specialist.
- ✓ Learn the techniques that control VCD and practice them regularly.
- ✓ If you have asthma or acid reflux, take your medicines regularly.
- ✓ Work on ways to reduce your stress and do what helps you relax and stay calm.

Healthcare Provider's Contact Number:

Resources:

American Thoracic Society
www.thoracic.org/patients

National Jewish Medical and Research Center
www.nationaljewish.org/conditions/vocal-cord-dysfunction-vcd

Allergy and Asthma Network: Mothers of Asthmatics
<http://www.allergyasthmanetwork.org/education/related-conditions/common-related-conditions/vocal-cord-dysfunction/>

This information is a public service of the American Thoracic Society. The content is for educational purposes only. It should not be used as a substitute for the medical advice of one's healthcare provider.



Vocal Cord Dysfunction/VCD (Also Known as Paradoxical Vocal Fold Motion/PVFM)

In 1983, doctors at National Jewish Health described a condition that may mimic asthma. This condition is called Vocal Cord Dysfunction, or VCD. People with VCD may report asthma-like symptoms to their doctors. It can also co-occur with asthma, making its correct diagnosis complicated.

What are the symptoms of VCD?

Symptoms of VCD can include:

- Shortness of breath
- Intermittent hoarseness or wheezing
- Chronic cough and/or throat clearing
- Chest and/or throat tightness
- “Just having trouble getting air in.”



These symptoms are a result of an intermittent abnormal closing of the vocal cords (VCD) during breathing, versus an inflammation of the lower airways (as occurs with asthma). Based on these symptoms, many people with VCD may be diagnosed with asthma and treated with asthma medications, including oral steroids. VCD alone does not respond to traditional asthma therapy, or only minimally improve with this treatment. When VCD is not correctly identified, patients may develop significant side effects from taking medication. These are often seen with long-term use of oral steroids, without much benefit. Incorrect diagnosis and treatment may also lead to frequent emergency room visits and hospitalizations, even intubation. An important factor to be aware of is that some people have a combination of asthma and VCD.

What happens with VCD?

To understand VCD, it is helpful to know how the vocal cords work. The vocal cords are located at the top of the windpipe (trachea) and vibrate from exhaled air to produce noise and voice. Breathing in and out causes the vocal cords to open, allowing air to flow through the windpipe (trachea). However, with Vocal Cord Dysfunction, the vocal cords close together, or constrict, during inhalation or exhalation. This leaves only a small opening for air to flow through to the windpipe and causes asthma-like symptoms.

Many people with VCD have problems with postnasal drip from chronic nasal and/or sinus congestion, gastroesophageal reflux (GER) or laryngopharyngeal reflux (LPR). This relationship may be one of cause and effect, because these conditions can lead to chronic irritation of the throat that then causes the vocal cords to become hypersensitive to irritant stimuli.

How is VCD diagnosed?

Making a diagnosis of VCD can be **very** difficult. If your doctor suspects VCD, you will be asked many questions about your symptoms. Common symptoms include a chronic cough, chronic throat clearing, shortness of breath, difficulty breathing, chest tightness, throat tightness, intermittent hoarseness and wheezing. Many people diagnosed with VCD complain that they have "difficulty getting air in."

Breathing tests like spirometry can be useful in diagnosing VCD, but only if they are done when symptoms are occurring. In the absence of any other complicating conditions like asthma, breathing tests for VCD will be normal. However, if spirometry is conducted when symptoms are present, and if the doctor obtains what is called a "flow volume loop," VCD will cause a flattening of the inspiratory (and/or expiratory) part of the loop.

While spirometry is important and useful, a procedure called a laryngoscopy is the most definitive test in making the diagnosis of VCD. This procedure is performed by a specialized doctor. Using a flexible tube with a fiber optic camera, the doctor can see how your vocal cords open and close. A laryngoscopy should be done when you are having symptoms, because abnormal vocal cord movements do not occur all the time. Other tests may be done to trigger symptoms so that your doctor can observe your vocal cords when you are having symptoms. These may include an exercise challenge, bronchial provocation, or irritant challenge. It is important to know that people with Vocal Cord Dysfunction **cannot** produce symptoms voluntarily.

If the symptoms of VCD are not provoked during testing, your doctor may still have you evaluated by the speech-language pathology team. These individuals add their expertise and perspective to the diagnostics and may start you with a trial of therapy. How you respond to therapy can provide information on whether you do or do not have VCD.

What can trigger VCD symptoms?

Possible triggers of VCD are often similar to asthma triggers. Triggers may include upper respiratory infections, air pollution, strong chemical fumes and odors, cigarette smoke, singing, laughing, emotional upset, postnasal drip, gastroesophageal reflux, laryngopharyngeal reflux, "silent" reflux, cold air and exercise. Sometimes the trigger is not known.

How is VCD treated?

Once diagnosed with VCD, a specific treatment program can begin. If VCD is the only condition, asthma medications may be stopped. If both asthma and VCD are diagnosed, asthma medications may be continued, but are often decreased once the VCD is better controlled. Treatment for gastroesophageal reflux, laryngopharyngeal reflux disease and postnasal drip should be started if these are present, as they irritate the vocal cords.

There are special exercises and therapies that help control VCD. Speech therapy is a very important part of the treatment for VCD. These exercises increase your awareness of abdominal breathing and relax your throat muscles. This enables you to have more control over your vocal cords and throat. Learning cough suppression and throat clearing techniques can also be extremely helpful. You will learn to practice these exercises while you are symptom-free in order to effectively use the exercises during VCD episodes. All of these exercises are aimed at overcoming the abnormal vocal cord movements, controlling the vocal folds with the breath stream and improving airflow into your lungs.

Another important part of treatment is supportive counseling. Counseling can help you adjust to a new diagnosis and a new treatment program. Counseling can also help you identify and deal positively with stress that may be an underlying factor in VCD. Most people with VCD find counseling to be very beneficial.

Visit our website for more information about support groups, clinical trials and lifestyle information.

PTE.046 © Copyright 1995 Revised 2003, 2006, 2016

NOTE: This information is provided to you as an educational service of National Jewish Health. It is not meant to be a substitute for consulting with your own physician.

National Jewish Health is the leading respiratory hospital in the nation. Founded 121 years ago as a nonprofit hospital, National Jewish Health today is the only facility in the world dedicated exclusively to groundbreaking medical research and treatment of patients with respiratory, cardiac, immune and related disorders. Patients and families come to National Jewish Health from around the world to receive cutting-edge, comprehensive, coordinated care. To learn more, visit njhealth.org.

VCDQ Questionnaire

Developed in England

Table 2. The 12-item Vocal Cord Dysfunction Questionnaire (VCDQ)

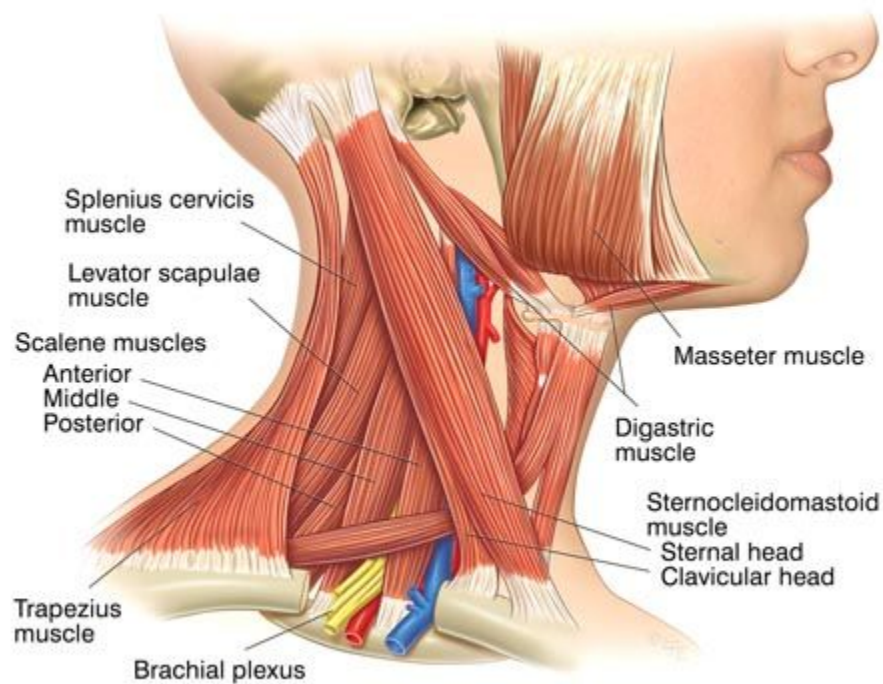
	Disagree Strongly	Disagree	Neither agree nor disagree	Agree	Agree strongly	Score
Question	1	2	3	4	5	
My Symptoms are confined to my throat/upper chest	1	2	3	4	5	
I feel like I can't get breath past a certain point in my throat/upper chest because of restriction	1	2	3	4	5	
My breathlessness is usually worse when breathing in	1	2	3	4	5	
My attacks typically come on very suddenly	1	2	3	4	5	
I feel that there is something in my throat that I can't clear	1	2	3	4	5	
My attacks are associated with changes in my voice	1	2	3	4	5	
My breathing can be noisy during attacks	1	2	3	4	5	
I'm aware of other specific triggers that cause attacks	1	2	3	4	5	
My symptoms are associated with an ache or itch in my throat	1	2	3	4	5	
I am frustrated that my symptoms have not been understood correctly	1	2	3	4	5	
I am unable to tolerate any light pressure around the neck – <i>e.g. tight clothes</i> or <i>bending the neck</i>	1	2	3	4	5	
The attacks impact on my social life	1	2	3	4	5	

Exercises for Those Suffering Vocal Cord Dysfunction

BY AMANDA MCCRACKEN
NOV 13, 2013

You can reduce VCD by paying attention to your neck and facial muscles.

1. Stretch your scalenes (muscles along the side of your neck) by pinning these muscles with your fingers along the clavicle and leaning your head backwards. Jut your jaw out to get a deeper stretch. Stretch your tongue down toward your chin.
2. Raise your eyebrows and stretch your whole face. Stretch your face and lips by saying “Meow” in an exaggerated fashion.
3. Gently squeeze along your sternocleidomastoid muscles (the long neck muscle that runs from behind your ear to your collar bones) and with two fingers massage your masseter (muscle along sides of your jaw used for chewing).



MORE FROM RUNNER'S WORLD

18-Minute Core Workout

Speech pathologists specializing in VCD recommend runners who have constrictive breathing issues to also concentrate on expanding their rib cages.

1. While lying down, place your hands on the sides of your ribcage and, while inhaling, mentally push your breath into your hands.
2. Place one hand on your chest and one on your belly; feel yourself melting into the ground as you breathe into both hands.
3. Find your intercostal muscles by placing your fingers between your ribs. Push into these muscles and breathe to expand the space between the ribs. These muscles contract and expand the ribcage to allow for the inflation and deflation of your lungs. The more relaxed these muscles are, the more elastic your ribcage is and the more room exists for expansion.
4. Roll out your erector muscles along your spine with a foam roller (making a “T” with your spine against the roller) to help decrease any curvature in your spine that collapses your lung capacity.

If you suspect you are experiencing VCD, what can you do?

1. If you have an inhaler, don't stop using it until you see a doctor. If you are referred to a speech and language therapist, make sure he or she is trained in VCD. Consider asking your doctor for a pulmonary test, specifically a laryngoscopy.
2. Mentally visualize relief. Burke Fishburn, a competitive age group runner who has VCD says, “I visualize my whole body being surrounded by clean cold air and that my pores can breathe.”

3. Don't try to control your breathing. Focus on "letting go" instead. The harder you try to take in air the more the muscles tighten. As vocal cords shorten other muscles begin to recruit and constrict. Take small sniffs of breath through the nose, then slowly exhale through your mouth keeping your lips slightly parted while slowly blowing.

SEE ALSO: Vocally Distressed to learn more about this dysfunction

For more on VCD treatment, visit <http://www.nationaljewish.org/healthinfo/conditions/vcd/treatment/>

Belly Breathing

Diaphragmatic Breathing

1. Stand, sit or lie down comfortably in a quiet place.



2. Close your eyes and loosen any tense muscles. Make sure to relax your shoulders.



3. Place one hand on your upper chest and another on your belly button.



4. Breathe in slowly through your nose for *three seconds*. Feel your stomach expand. Your chest should remain still.



5. Breathe out slowly through your mouth for *three seconds*. Feel your stomach move back.



6. Repeat steps 4 and 5. Gradually increase the time you take to breathe in and out.

Four seconds in and four seconds out, five seconds in and five seconds out.....