

## **The Artistic and Medical Importance of Vocal Training\***

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### **Abstract**

Vocal training is a type of education that develops good habits in using one's voice for effective and correct use while speaking and singing. From a medical perspective, the discovery and development of new technologies have contributed to our understanding of the makeup of the human voice. By means of these tools, a host of new frontiers have been opened in the knowledge and therapy of voice. One of these treatment methods is vocal training (voice therapy). It is very important that people who experience vocal problems need to see an ear, nose and throat specialist first, and, if need be, to apply for a vocal education with the advice of the specialist. Problems experienced should not be ignored or else serious and invasive operations may be required, and irreversible negative results may arise. Some of the discomforts that may be experienced due to the incorrect use of voice by people who apply it for professional performances are: vocal cord nodules, vocal cord cysts, vocal cord polyps, etc. To avoid such discomforts from the beginning, one should learn the correct use of the voice; hence, it would be appropriate to receive vocal training. In case desired results are not achieved by vocal training, it is very important to try alternative medical strategies for people's vocal health. People who receive proper vocal education would protect themselves from the potential vocal problems discussed in this article, and they would be able to perform at the highest level in professions for which the voice is intensely used. This study presents the reasons that vocal training is necessary from both the artistic and medical perspectives.

**Keywords:** vocal training, voice therapy, vocal health, use of voice

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## Sanatsal ve Tıbbi Açıdan Ses Eğitiminin Önemi

### Öz

Gerek bilimsel gerekse de sanatsal disiplinlerin ortak çalışma alanı olan ses eğitimi, insana, sesini konuşurken veya şarkı söylerken doğru ve etkili kullanmasına yönelik davranışları kazandıran bir eğitimidir. Ses yapısının iyi anlaşılması, tıbbi açıdan birçok yeni teknolojik aygıtın keşfedilmesini ve geliştirilmesini sağlamıştır. Bu aygıtlar vasıtasıyla birçok tanı ve tedavi yönteminin önü de açılmış bulunmaktadır. Bu tedavi yöntemlerinden biri de ses eğitimidir (ses terapisi). Ses problemleri yaşayan kişilerin önce bir kulak-burun-boğaz uzmanına, sonra eğer gerekiyorsa uzmanın yönlendirmesiyle ses eğitimine (ses terapisi) başvurmaları son derece önemlidir. Yaşanan problemler ihmal edilmemelidir. Aksi takdirde ciddi cerrahi müdahaleler gerektirebilir veya geri dönüşü neredeyse imkansız olabilecek olumsuz sonuçlar doğurabilir. Seslerini kullanarak mesleklerini icra eden insanların yanlış ses kullanımında karşılaşılabilecekleri bazı ses rahatsızlıkları şunlardır: Ses teli nodülleri, ses teli kistleri, ses teli polipleri vb. Baştan bu gibi rahatsızlıklara zemin hazırlamamak için sesin doğru kullanılmasının öğrenilmesi gerekir. Dolayısıyla, ses eğitimine (ses terapisi) yönelmek uygun olacaktır. Ses eğitiminin sonuç vermediği vakalarda da tıbbi yöntemlere başvurulması kişilerin ses sağlığı açısından çok önemlidir. Ses eğitimi alan kişiler, burada belirtilen oluşması muhtemel ses rahatsızlıklarından kendilerini korumuş olacaklar ve yoğun ses kullanımı gerektiren mesleklerini en üst verimlilikle icra edebileceklerdir. Bu çalışmada, ses eğitiminin sanatsal ve tıbbi açıdan neden gerekli olduğu bilimsel veriler ışığında sunulacaktır.

**Anahtar Sözcükler:** ses eğitimi, ses terapisi, ses sağlığı, ses kullanımı

## Introduction

### The Human Voice

The voice is among the most identifiable traits of the human body. With its limitless possibilities, it brings to the fore the person's characteristics of soul and intelligence. It is the main vehicle for reflecting outwardly the inner constitution of our spiritual beings. With certain color applied by our voices, we can create the sounds of words to express all of our emotions, and this manner of communicating our feelings is called speaking. The thing we call a speaking event arose from the natural and proper use of the vocal chords, the creation of the sound that connected vowels with consonants, and the adaptive relationship between them. The ability to speak is one of the most important factors in the continuation of the existence of humanity over the ages. According to Songar, "The ability to speak came into existence with the human being." (Songar, 1986, p. 71).

When speaking proved insufficient, humans succeeded in turning sound into melody by using resonance and rhythm with different profiles, some shorter and some longer. It was at that moment that song appeared. On the contrary, the eighteenth-century intellectual Rousseau said that the origin of speech and song is the same, and that speech separated from song (melody) due to the weakening of melody with language. It has even been said that song existed before speech, and that this may be understood from examples in nature (Patel, 1996). In making music, the human voice has been carried through to today as a tool in the most natural, useful, skillful, and effective manner (Uçan, 2005).

If we relate life in the world to an orchestra or a musical composition, the human voice would be this orchestra's oldest and most capable instrument and this will remain the case throughout existence. The human voice has two functions: speaking and making music. The voice can produce all the different sounds of the other musical instruments on its own, and in fact, it is more capable than the other instruments because of the power of expression given by the ability to produce language as well. While the other instruments are produced by humans, the voice is an inborn instrument of humans. In this way, the human voice is the world's most precious instrument. This instrument is not only a useful tool for communication but, at the same time, it is a mirror that reflects the human self (Kia, 2001).

### Voice Production

"The existence of the voice and speech is a function of the complex coming together of the mechanisms of the central nervous system, the pulmonary and laryngeal functions, and the actions of resonance and articulation" (Gerçeker, 2000). The voice cannot be brought about only by using the laryngeal region, as has been previously assumed. It is only with the use of all of the components of the body that the most perfect voice can be achieved. In order for the body to be able to produce a healthy vocal sound, the body posture must be straight and well-balanced, and the chest cavity, lungs and other organs related to the respiratory system must be healthy

(Burad & Çağlar, 1972). As the most detailed aspect of the human voice, the laryngeal region must be absolutely healthy and in good shape. Merely having these factors, however, will still not be enough: the resonance-producing oral cavities and even the human's hormonal balance and psychological state should be healthy in order to produce the conditions for the most desirable voice (Munzur, 2004).

### **The Vocal Organs**

Within the laryngeal region, the voice is produced by certain labia. These are called the vocal chords. The sound of the voice is produced by the vibration of the vocal chords with the breath; the first tone created is called the natural voice, or the still undeveloped sound that comes to our ears (Dellwo, Huckvale, Ashby, 2007). The thing we describe as the human voice is fundamentally the sound supported by the breath that moves to the resonance cavities and then is joined by the organs of speech.

All of the sound-producing organs are almost all pertaining to the respiratory system. Only the mouth takes on the added responsibility of digestion. Aside from the responsibility of absorbing air, the lungs also take on the role of blowing the air onto the vocal chords. The voice, only with the aid of these organs can become a musical instrument. However, much one produces sound from the laryngeal region, as those who sing songs in a professional capacity can attest, it is not that simple and the other organs also play important roles in the production of a beautiful singing voice. These are:

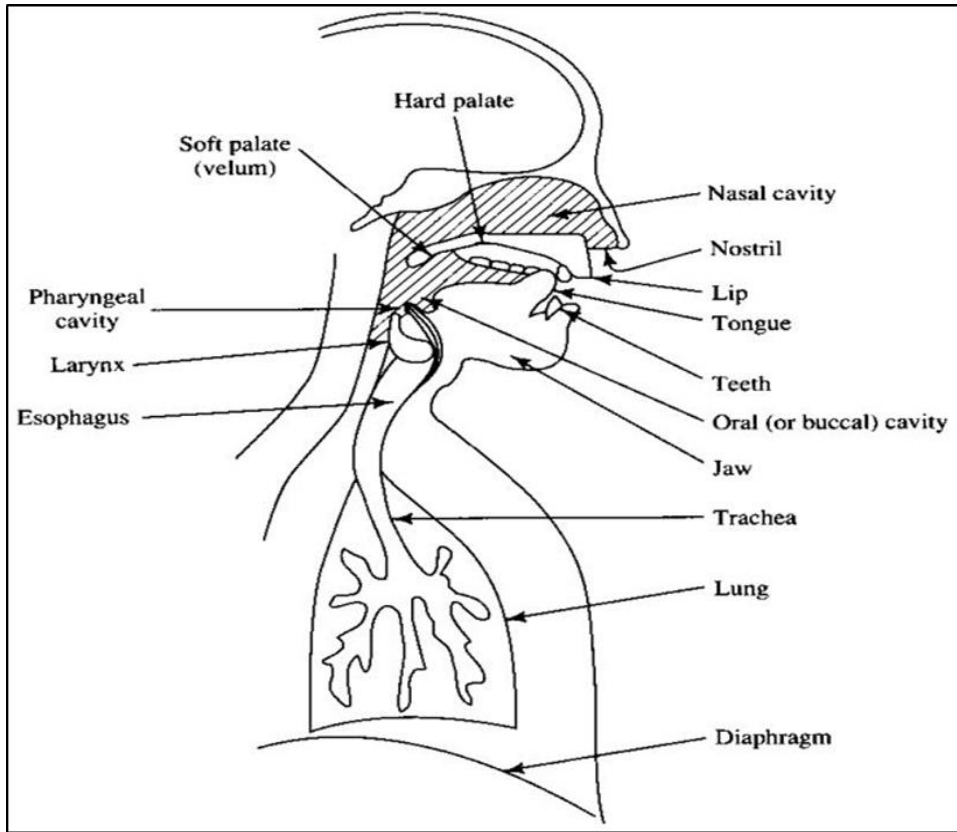
*The breathing organs:* lungs, diaphragm, chest cavity, mouth, nose

*The speech organs:* vocal chords, laryngeal organs (larynx, pharynx), tongue

*The resonance cavities:* the sinus cavities located in the face and forehead

The throat, vocal cavity, and nose are the other areas that provide support to the vocal chords. They are necessary for increasing the quality and strength of the sound produced. These regions resemble in function the body of stringed instruments. This is because the human body, like the other instruments, requires a resonating chamber in order to produce a tone. However, unlike the other instruments, the human body naturally harbors the organs already present within itself, and these regions are in medical terms referred to as the resonating chambers (Altundağ, 2008). All of these organs, shown in the table below, will only be able to produce a quality and beautiful sound with hard work and a disciplined regimen.

Table 1



(<http://www.barcode.ro/tutorials/biometrics/voice.html>)

### Vocal Science

The son of a famous tenor and himself an opera singer, Manuel Garcia gave up the pursuit of singing and began to teach when he lost his voice at a young age. Having educated so many students, Garcia is almost as knowledgeable about the human larynx as a doctor. However the information he acquired from medical books was insufficient and one day he procured a dentist's mirror from a medical supplies store. With one hand placing the dentist's mirror in his mouth and using a hand mirror in the other hand to get a reflection, he was able to see his own vocal chords (Radomski, 2005).

Manuel Garcia was the first person to witness first-hand the activity of the vocal chords through his discovery of what is now called the laryngeal mirror. His studies and conclusions were collected in a book published on 22 March 1855. In this way, the foundations were laid for the fields of laryngology and phoniatry. Garcia was the one who proved that the human voice was produced through the vibration of the vocal chords. Before producing a sound, the vocal chords stand apart from one

another. The sound is produced with the movement of air from the lungs. In those days, laryngologists were not very specialized in this topic and the laryngeal mirror was not successfully incorporated into the mainstream medical practice. This is because the laryngologists of that time did not think that sick people would be able to open their larynx widely (Nazarenko, 1963).

*Laryngology* is the scientific branch that examines the throat and sicknesses of the throat. *Phoniatory* examines the systems related to vocal production using medical research and clinical studies (for diagnosis and therapy). Problems that arise in the voice, speech, and swallowing also fall under the umbrella of phoniatory in American approaches, and are known as “speech pathology” (Wermke, 2001).

**Sicknesses and other factors that affect the voice**

Vocal chord nodules, vocal chord polyps, reflux, Reinke’s edema (the accumulation of fat in the vocal chords), upper-respiratory tract infection, vocal chord cysts, vocal chord bleeding, laryngitis, hypothyroidism (the decrease in thyroid hormone seen in adults) , anxiety, allergies, chronic diseases, sexual hormones (Kenn & Balkissoon, 2011)

**Some types of surgery**

Especially the chest and throat surgery, sinusitis, tonsil removal, thyroid surgery, chronic bloodloss, loss of heat, vocal weakness as a result of decreased muscle. (<http://www.medicalnewstoday.com/articles/188993.php>)

Table 2

*Healthy Vocal Cords*

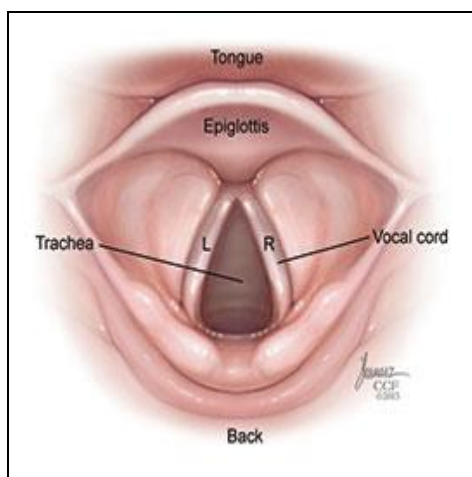


Table 3

*Vocal Cord Nodule*



Table 4

*Vocal Cord Polyp*



Table 5

*Vocal Cord Cyst*



(<http://my.clevelandclinic.org/services/head-neck/diseases-conditions/hic-vocal-cord-lesions>)

**Diagnosis in Vocal Therapy**

Due to the greater understanding of the makeup of the voice, new tools have offered much progress in the development of vocal therapy. With the help of new technologies, new paths have been charted in diagnosis and treatment. However much a medical expert or voice teacher can make discoveries, it is vital that vocal be assessed objectively. So, a device called “spectrograph” which analyses the frequency and volume of the vocal through signals has enabled us to get precise results. This device indicates clearly any vocal disorder and their proper treatment methods. (Ömür, 2004). Another device commonly used for diagnosis of any vocal disorder is Video-laryngo-stroboscopy (VLS) which is good at examining the motion of vocal cords and larynx (Cruz, Dedivitis, Rapoport, Guimarães, 2004).

If the major cause of the disorder is improper vocal usage, there are some modern vocal training methods for it. It will prove useful for the doctors and vocal trainers to coordinate on this issue. For the cases not requiring any medical intervention, it will be better for the patient if the vocal trainer is to deal with it at the request of the doctor. Thus, the diagnosis will be definite for the patient to start taking regular vocal therapy. Whenever the patient is informed that he is to recover from it with the help of therapy, he will be in good spirits. Along with all the technological and methodological developments, the medication should be also taken into consideration. It is vital that we take medicine consciously with the consultancy of a doctor. Otherwise, adverse results may arise. Unless vocal training and medication prove to be useful, surgical intervention may be necessary.

**Vocal Therapy and Vocal Training**

Vocal training is an interdisciplinary education in a specialized field that is aimed at the voices of individuals in communicating and performing, the habits and behaviors required to be able to use voices in an effective way, and is harbored within the steps of an education founded in singing (Töreyn, 2015).

Vocal therapy is among the most effective ways used for treating the function of the voice and the variety of deformations and ailments. Many techniques used in vocal therapy assure the proper functioning of the throat and the many muscle groups found in the laryngeal region, and in this way many effective options for therapy are presented for the defects in the behavior of the vocal and speech organs, and the lack or hyperfunctioning of the motor skills.

The region of vocal production is important in vocal therapy clinics. Vocal therapy clinics play a leading role in the rehabilitation of this region. These clinics are common especially in European countries and in the United States of America. Clinical studies in the incorrect use of the voice or sicknesses resulting in the misuse of the voice (for example nodules or polyps) have produced important results in voice therapy (Sulica & Behrman, 2003).

Today the general and specialized skills of treating defects in the voice and speech have become vastly developed. However, in spite of this the importance of vocal training has never waned, to the contrary, medical experts say that it is necessary to have vocal training alongside therapy and they often refer their sick patients to vocal training (Daniel, Stephen, Shelley, 2005). Without stepping outside certain worldwide standards, there are many schools, teachers, experts, and therapists that apply these techniques and teach them. Within this period language and speech therapists have acquired an important place in this profession. Aside from language and speech therapists, another group of experts that work on the behavior of these organs and exercise them strenuously is voice teachers (Behrman, 2006).

The meaning of the word “chant” in French means “the art of singing songs with the voice, the exercising of the voice for health and stability, development, and the production of stable sounds with the voice” In another aspect, the human voice is defined as a unique one to possess the art of vocal music which is the integration of technical and musical vocals (from P. Larousse & M. Robert to transfer Töreyn, 2015, p. 159). With this definition, the major objective is for the voice to acquire not only technical but also musical features.

These features can only be applicable if and only if the techniques of breathing, speaking, singing and nice and clear vocal articulation are studied and learned. The practice of vocal articulation is an essential part of technical equipment. Although a person with a symptom of dysphonia necessitates an articulation practice focused on diction during speech therapy, he requires the correct pronunciation of the verbal vocal when singing. And this forms an essential point in the acquisition of the



behaviors. It is one of the major objectives for all the behaviors acquired during this process to be applicable for the practice of the rich repertoire in the world.

When the other techniques of therapy are taken into consideration, it is seen that the subjects of vocal training, healthy vocal cords and technical capacity follow the same pattern; however, the differences in therapy methods, and vocational terminology, the presence of the subjects such as music's idiosyncratic alphabet- the note- and each language's own phonology do not sometimes enable the two groups to cooperate.

When the vocal is used unconsciously and illiberally, it causes some vocal discomfort on the side of the person addressing and annoyance on the side of the people addressed due to the mispronunciation of the words, poor vocal quality and improper eloquence style. So, vocal performance requires some intellectual background information apart from the technical equipment. Thus, the amateur vocalists are endeavoring to attend the courses given by professionals, which creates a supply and demand in a society. For this reason, the therapy methods to rehabilitate and improve vocals are to be cooperated with the vocal training doctrine. Today, these therapies are more and more preferable and commonly used. (Bloch, Gould, Hirano, 1981).

The vocal therapy techniques used for the treatment of dysphonia (a neurological disorder affecting the voice muscles in the larynx, or voice box) have been very effective. This therapy helps use of voice at a high performance and acquisition of the proper behaviors with the technical trials. The vocal training, different from a speech therapy, is a therapy method focusing on the quality of intonation. Actually, both techniques are the sub-branches of "vocalogy" focusing on vocal performance and practiced at the Clinique named as "singing and vocal therapy." The vocal therapies usually take 20 séances or more related to the patient's case (Bakır-Kınış, 2012). Time-scheduling for the patients of stuttering and dyslalia is not favorable due to the different stages of illness. Vocalogy (vocal therapy) is used for the treatment of vocal cord paralysis and vocal cord nodules and has successful results. (Boone & Farlane, 2000), (Morrison, Rammage, Nichol, Pullan, May, Salked, 1994), (Carroll, 2000)

### **Vocal Training For Singers**

Vocal training is required for singers. This rule is applicable for people in any branch of music who sing songs. Until today no one who has not taken vocal training has become famous or beloved on the part of society. These songs are not very difficult from melodic or technical perspectives. This kind of music retains in the mind easily and its ability to be memorized by the people has necessitated its durability. These folk and pop songs' composition for use of the throat does not require a very high level of technique. In this case, compositions with long phrases designed to display the type, technique, and quality of the voice demonstrate the necessity of vocal training for singers (Sabar, 2011). In our age, it is a great need for

academic vocal training in the performance of existing compositions, in the manner of staying true to the style, to perform without mistakes, and how to use and extend the voice (Öztoprak, 2013).

In vocal training, before anything else it is important to learn how to properly take and release a breath. For this the diaphragm breath is required. The diaphragm breath is the breath taken in relation to the lower half of the lungs. The diaphragm breath, in comparison to the other breathing techniques, is not a burden on the heart. This breath is the natural breath of the person who is lying down. While lying on our backs with our hands over our stomachs, it is easy to make this movement. This natural breath while lying down is achieved with more effort and certain techniques while standing on our feet. The acquisition of this technique is one of the foundations of vocal training (Kajander & Peper, 1998).

In the kind of music education given in voice, there are vocal training, singing education, choral education, and speaking education. According to the aims, it can be administered individually or in groups. Individual vocal training is much more productive for evaluation of voice type, what kinds of problems exist and what kind of methodology is required. Compared with individual study, choral training requires more meticulous attention. A choral conductor by not paying attention to the voices of the members can injure their voices or can ruin them through the selection of the wrong repertoire. For this reason it is important for people who sing in a chorus to take individual vocal lessons separately. Puškova, an important name in this field who spent years in choral music and choral conducting, has the following to say on this issue: it is indispensable for musicians to receive vocal training, especially choral singers due to the demands of their branch. This is because only with proper vocal technique may choral aspects like balance in the ensemble, intonation, articulation and phrasing (musical periods) be executed in the correct manner. It is due to a lack of or incorrect vocal training that many vocal artists cannot execute some musical passages or sing in the upper registers. The importance of proper vocal training is underscored when this situation is brought into a worse condition. On the other hand, those with proper technique who can use their voices in a knowledgeable way are able to apply these musical elements the way they should be with an academic manner. Another question: vocal training should not be administered by just anybody, but rather should be given by authorized people and experts (Puškova, 2013).

### **Views of Vocal Trainers**

When speaking of voice, vocal training comes to mind. Vocal training is not done for a small period of time but rather is a lifestyle. To use the voice properly necessitates living one's life with discipline. People need to take vocal training from those whose profession it is to use their voice to sing songs. This is because many unfortunate people come to us who have experienced problems with their voices or have lost their voices completely due to improper use. We rehabilitate their voices working in tandem with voice experts in the Ankara Ibn Sina Hospital. In this respect it is a pleasing development to see the pairing of the musical and medical sciences

(Talınlı, 2013). In order to open the vocal chords to melodic and rhythmic use, to professionally produce sound coming from the diaphragm and passed through the lips, to seek vocal color, to produce pitch with the voice, and to ensure the proper level of resonance and tone in the voice, it is necessary to receive vocal training.

Vocal training is a necessary step for those who want to sing professionally. In whatever branch of the performing arts one wants to pursue a career, one is required to bring out the color and tone of the voice based on the length and width of the vocal chords. This characteristic, which is unique in each and every individual, can only be discovered through vocal training. To have proper phonetics and to eliminate the possibility of out of tune melodies, is only possible with organized and disciplined vocal training. Without receiving this education many people see damage to their voices and eventually have to seek medical attention (Puşkova, 2013).

### Conclusion

In light of the above information, anyone who use their voices in a professional capacity, whether they be doctors, lawyers, politicians, speakers, teachers, religious leaders, salesmen, actors, actresses, and singers, should use their voices in a more knowledgeable and proper manner or else they may occasionally be faced with problems. If that were not enough, those who experience a decrease in their professional performance would be negatively affected by this and they will become demoralized. If we consider those who use their voices for their professions and cannot perform their duties and for this reason are unable to sustain themselves, we are faced with a disturbing picture.

It would be to the benefit of those who experience problems with their voice to begin the process of receiving vocal training, vocal therapy or other treatment methods. If not, advanced vocal problems can lead to the necessity of surgical operations and the rise of unexpected negative results. For these reasons, vocal training is extremely desirable. Those who participate in vocal training would protect themselves from the above-listed problems and would be able to perform their jobs at the highest level.

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