■特 集<音 痴>

Method for Curing Motor-Related Off-Key Singing

—Is Tone Deafness Really Deafness?—

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We call those who cannot carry a tune “tone-deaf”, but are they really? In my opinion, it is not true at all! I have successfully corrected an entire group of 220 off-key singers through muscle training. Even though the musical ear and voice production are interrelated, I believe the motor-related tendency is overwhelmingly strong to be able to sing in simple tune. Furthermore, in some cases even professional musicians and composers who have absolute pitch or relative pitch cannot sing in simple tune. Among the 220 off-key singers studied, there were even cases where off-key singers could not recognize whether their pitches were correct or not, high or low during their singing, but they could sing in correct tune throughout a song after being cured.

According to The New Oxford Dictionary of English (1998), tone-deaf means “unable to perceive differences of musical pitch accurately”; also Stedman’s Electronic Medical Dictionary V. 4.0 (1998) refers to amusia (mainly used in the medical field) as, “a form of aphasia characterized by an inability to produce or recognize music.” and is classified in four types: “instrumental amusia (loss of ability to play a musical instrument), motor amusia (inability to produce music), sensory amusia (inability to interpret or appreciate musical sounds), vocal amusia (the inability to sing, although speech is intact).”

The latter dictionary says tone deafness is sensory amusia in the medical field. But does tone deafness really have any relation to “deafness” as that word is used in everyday language or general use? No, because tone deafness includes an inability

to carry a tune and have a sense of hearing musical pitches. One way or the other, this is a pathological and physiological agenda. But the tone-deaf have not, up to now, been treated medically. Moreover, they have not received effective treatment. In the absence of an effective cure, the tone-deaf have been “ignored.” Existing treatments have been on the ungrounded level of old wives’ remedies. And even now, scholars have not come up with a valid solution.

We are able to acquire a considerable understanding of the vocal mechanism from a physiological aspect. There are some data on the human brain process for speaking. But the information is not trustworthy even at the forefront of science and technology. The author’s aim is to make a proposal for researching the brain for the process of singing because at present it is very difficult to get data on this subject. I believe singing is like an exaggerated form of speaking, so it is possible to develop a new research field such as musical data processing.

Off-key singing has given rise to serious and social problems because there are occasions when we sing in public, such as singing national anthems, music education, church singing, and in Asia “Karaoke.” In reality, off-key singing makes some people feel maladjusted to their social environment. In the worst cases, this becomes a serious problem for those who wish to choose a vocation involving music and may lead to psychosomatic problems.

My criteria for judging the success of my technique are based on the essential steps for singing, namely: the ability to sing a basic scale up and

The color version is in the following H.P.

<http://www.good-voice.com/vocal.html>

Figure 1 Mechanically, the cricothyroid muscle virtually determines the pitch like a guitar reel (spool). Its main function is to act as tensors, tilting the thyroid cartilage forward and downward, lengthening the vocal folds and making them thinner, resulting in raised pitch. Its relaxation lowers the pitch. The preponderance of this muscle against the closing muscle group makes a falsetto register made up of breathy sounds because it cannot close the glottis completely. On the other hand, the preponderance of the closing muscle group against the cricothyroid muscle makes a natural voice register, non-breathy sounds. The two compete with each other to determine the vibrating conditions on the vocal folds. Subtle control of this vibration is possible only when the vocal folds are being stretched properly. I solved this problem by correctly balancing these conditions and so improved my patients' singing ability.

1 . high pitch: stretching the vocal folds strongly

2 . low pitch: stretching the vocal folds weakly

There are two theories about the movement of the thyroid cartilage : the one, forward and downward (bibliography3) ; the other, backward and downward.

down, to sing an arpeggio up and down, to sing an octave jump, and to sing a simple song (e.g., the "Birthday Song") in tune. I established these standards during my work with approximately 220 patients taking on average 60 minutes to achieve my purpose. Why have I been successful ?

The reason is simple: in order to improve off-key singers' voice conditions, it is crucial to control the sound source level correctly. In short, the sound source of our voice is vibration on the vocal folds, and its pitch is determined by the frequency of that vibration. The quality of vibration of the vocal folds is determined by the balance of three factors: the

action of the cricothyroid muscle, stretching the vocal folds which elevates the pitch mainly (Figure 1), and that of the closing muscle group which closes the glottis; the pressure of expiration ; and the physical movement of articulation.

Of the above-mentioned three factors the first is the key to the solution. Intrinsic laryngeal muscles are skeletal structure muscles, classified as a group of voluntary muscles. But we cannot directly control them at our will, as shown in the typical phenomenon of vocal register break. They react to the environment : pitch, intensity, vowel, length, and sound quality. The preponderance of cricothyroid

The color version is in the following H.P.
<http://www.mg.net/yuba.gazou.html>

Figure 2 Singing “Happy birthday——”: first, in tune, followed by 8 types of off-key singing

Type A : Gaining correct pitch in the process of singing

Type B : Losing the pitch in the process of singing

Type C : Repeating off-key and on-key

Type D : Singing completely out of pitch but able to go higher and lower

Type E : Singing parallel to the correct key in higher than normal pitch is a form of distonation.
 But often this kind of off-key singer sings 1 octave lower, which may make singing partners uncomfortable.

Type F : Singing in a monotone, like speaking, losing the pitch or singing in a lower than normal pitch is a form of destonation.

Type G : Losing the pitch around the gap between the falsetto and natural voice

Type H : A composite of various problems from type A to G

These graphs illustrate my imitations of typical off-key singing patterns.

*Since off-key singing depends on a vertical structure (high or low) while off-tempo and/or off-rhythm singing depends on a horizontal one (fast or slow), they are essentially different.

muscle movement produces a falsetto voice and that of the closing muscle group movement makes a natural, or chest, voice. That is why we need to train the cricothyroid muscle by producing a falsetto voice, further we have to train the closing muscle group by producing a natural voice. Accordingly harnessing this reaction to environmental features is particularly effective in curing off-key singing. To that effect, it is crucial to correctly control the sound source level in order to improve the patient's voice condition.

I devised a series of musical figures based on physiological and mechanical researches. The following is the normal procedure to achieve this purpose. Distinguish between the falsetto voice (f.v.) and the natural voice (n.v.), sing some very simple songs in (f.v.) and (n.v.) respectively, sing from (f.v.) to (n.v.), and then sing from (n.v.) to (f.v.).

I classified off-key singing under 8 types (Figure 2), but it is possible to cure them all by the following three basic approaches. In the case of too low pitch, it is necessary to produce a breathy falsetto voice by increasing the amount of breathing to raise the pitch. In the case of too high pitch, it is necessary to produce a natural voice by decreasing the amount of breathing to lower the pitch. In the case of being out of tune at the register break, it is necessary to coordinate the two registers, the natural voice and the falsetto voice.

The special feature of the YUBA Method is its drastic and simultaneous elevations of cricothyroid muscle tension and of air pressure under the glottis while maintaining the stability of articulation. This is possible by a dog howling imitation which produces a high-pitched, breathy, falsetto voice.

We have used the phrase "tone deafness" throughout the 20th century. But since it has given rise to discrimination, it is preferable to use the more accurate term "off-key singing" or the politically correct "vocally challenged" in order for our offspring to meet a new and better century.

On a last note, training must be maintained to ensure sustained singing ability.

Reference materials: dictionary definitions

Tone-deaf

The New Oxford Dictionary of English (NODE)
unable to perceive differences of musical pitch accurately

The Oxford American Dictionary
unable to perceive accurately differences of musical pitch

The Longman Dictionary to Contemporary English
unable to tell the difference between different musical notes

Collins English Dictionary Millennium Edition
unable to distinguish subtle differences in musical pitch

Chambers English Dictionary
unable to appreciate or distinguish subtle differences in musical pitch

Chambers 21st Dictionary
unable to distinguish accurately between notes of different pitch

Collins Cobuild Learner's Dictionary
If you say someone is tone-deaf, you mean that they cannot sing in tune or recognize different tunes

The American Heritage Illustrated Encyclopedic Dictionary (1987)
incapable of perceiving subtle distinctions of musical pitch

Amusia

Dorland's Medical Dictionary (Edition 28, 1994)
a form of auditory agnosia in which a person has lost the ability to recognize or produce music ; cf. paramusia
instrumental amusia, that in which the patient has lost the power of playing a musical instrument. sensory amusia, loss of the ability to comprehend musical sounds ; called also tone deafness. vocal motor amusia, that in which the patient cannot sing in tune.

Taber's Cyclopedic Medical Dictionary (1997 F. A. Davis Company)
music deafness : inability to produce or appreciate musical sounds
motor amusia: inability to produce musical

sounds

sensory amusia: music deafness, inability to appreciate musical sounds

vocal amusia: inability to sing

The New Grove Dictionary of Music and Musicians (in 20 volumes, 1980 : same contents as 1994 Japanese version)

—correlating deficits in any of these related processes with particular brain structures is of great importance, just as the more extensive knowledge gained from clinical study of language-centers in the brain has illuminated understanding of the integrated components of speaking, listening to and remembering language. (only for sensory amusia)

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