

Occupational diseases of the Opera singer: Connection and therapy through the breathing technique

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Abstract: *This article addresses both professional singers in the midst of their career and those who study the art of singing and prepare themselves for this path in life. I bring to the attention and awareness that a minor disorder of the phonatory apparatus, if ignored and not treated on time, can sometimes lead to irreversible damage. Therefore, I stress the importance of a phonatory physician and voice therapy prevention that should be maintained through the entire career of a professional singer, mentioning the main factors that lead to the occurrence of these disorders and the connection of healing through conscious breathing.*

Key-words: *conscious breathing, voice therapy, opera singer, stress, dysphonia.*

1. Voice – the most frail instrument

“Singing, this supreme act of human intelligence conducted at the limit between matter and spirit”³ is one of the fields researched from times immemorial and yet, in 1987, Dr. Johan Sundberg⁴ would say about the human voice that “it seems that we know precisely what we understand by the word voice, as long as we do not try to define it”.

If we ask a professional singer what defines or what represents him or her – the answer will certainly be the Voice, to which many refer as to an alter ego, for at the moment an illness or a feeling of discomfort occurs, they identify with the

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affected instrument and conclude tempestuously: “who am I if I cannot sing any longer?”

Unlike instrumentalists, whose artistic act develops by a symbiosis with an exterior and relatively constantly tuned instrument, the voice of a singer is presented by the human body in its anatomical-physiological entirety. A multitude of intrinsic and extrinsic factors related to the psycho-somatic hygiene of human life permanently act upon the voice and influence it, so that no day resembles the previous one and we do not have the guarantee that the instrument we successfully used today will identically respond the following day. Some believe that if we master voice technique, problems can be overcome. We must not forget that our instrument gets older day by day along with the body to which it belongs, and besides accepting this process, we must always have alternate solutions. Through all that it is (intensity, colour, pitch, duration of sound), the voice follows the organism to which it belongs, and we have to adapt daily to its new requirements. This is the difficulty of this career – a successful interpreter is an inventive one, adaptable, and versatile, who through an intellect put to the service of emotional intelligence provides the elasticity and mental force to adapt both to environmental variations – from atmospheric pressure, temperature, humidity, and food to psycho-affective occurring in the social environment.

2. Stages of the career – between prudence and stardom

We live in a century of speed, in an era of technology in which media and audio-visual effects fly over the imagination of spectators, so that the expectations in the opera room are completely different from those in the previous century, the characters imposing themselves primordially through stage truthfulness, the vocal side following it and not the other way round. In this whirlpool of the daily world, young singers leap directly from preparing stages to all sorts of contracts, more or less spectacular, searching artistic confirmation at any price, mainly aiming for stardom and material riches. Neglecting the natural stages in the evolution of a voice and skipping natural development in repertoires characteristic to one's age, there occur gaps in the construction of a voice edifice that will lead to flaws manifested first at the level of trust in one's own abilities, and then the muscles involved in phonation and vocal cords will be affected. It is like when one would like to get to the 10th floor of a building, without passing through the other nine. Their voice and psyche not being mature for a wide repertoire, even the most promising youth can create the sensation of insufficiency, exposing them to the danger of pushing the voice to dangerous boundaries. Forcing the voice, beyond its

natural limits, leads in time to a premature wear and tear, loss of brightness and flexibility, as well as to the occurrence of an annoying balancing through the loss of control of the vibrato. Also, it can lead to disorders and diseases more or less reversible (from various forms of dysphonia, chronic laryngitis, to nodules and vocal cord paresis).

Even for a professional singer, frequent changes in styles and vocality are not recommended for voice longevity, because they can fatigue and affect the muscles, the nerves, and the technique. The early decline of Maria Callas is attributed to the fact that she sang mixed roles from the creations of Verdi, Wagner and Belcanto (Fleming 2004, 117). Mirella Freni, the soprano with one of the longest careers, used to say that the most important word in the vocabulary of a singer has to be “no”.

3. Factors leading to the occurrence of voice disorders

The two persons who determine the path of an artist (professor and impresario) are joined by a third one, whose role is that of supervising a good route for a voice, namely a phonatory physician, specialised in voice recovery (voice therapist). A disciplined singer will pay a periodical visit to a phonatory clinic to control and treat beforehand any voice disorder. Prevention is the key to a long career and leads to avoiding the aggravating of some symptoms that can seem minor, but which over time can cause irreversible damage.

Cooperation and collaboration between the canto professor and the phonatory physician would be ideal, to establish with precision the muscle groups affected and their corroboration with the images associated to the singing technique. A singer will accept with difficulty that muscle tension and emotional stress have led to voice loss. He or she rather accepts any sort of disease than the news of an occurrence of a severe dysphonia or voice nodule. As previously mentioned, the very special nature between an artist and his or her voice makes one live under permanent pressure and a responsibility sometimes hard to manage, performing with an invisible instrument in continuous change, subjected to hormone and neuro-psychic transformations. It is difficult to describe the stress and the terror of an evening in which the voice apparatus does not respond to usual stimuli and reflexes.

Stress (a concept introduced into medicine in 1936 by the Canadian physiologist Hans Selye) determines in the organism nervous and hormone biological reactions and its management has an essential importance in the life of an interpreter artist. Stress determines the death of cells – states the neurologist doctor Constantin Dulcan, and fear is the most obnoxious feeling, its installation

leading to the inhibition of chemical secretions from the inside of a cell, determining its death⁵. Also, the hormones loaded in the organism in excess by adrenal glands – adrenalin, norepinephrine, and cortisol – are liable for the occurrence of inflammation in the organism, which in time leads to the suppression of the immune system, loss of memory, chronic fatigue, anxiety, and depression. The occurrence of autoimmune diseases is only a consequence of stress in excess; any disorder of the thyroid (hypothyroidism – Hashimoto’s disease or hyperthyroidism - Basedow-Graves’ disease) requires an immediate diagnosis, a change in the way of addressing events, diet restrictions, and a re-evaluation of the emotions that determined this lack of balance. For a singer, any disorder of the thyroid is the beginning of the end of a career.

Fatigue, that can become chronic, is another enemy of the body and it sometimes has disastrous effects. Along with the diminishing of muscle tone and vitality, the air support that produces sound diminishes, and it becomes inconsistent. Exhaling becomes uncertain and it will lead to a break of voice or to a faded, dim, not piercing, and sonority without brightness (Truiculescu 2011, 52). The incapacity of the organism to support the column of air is the main cause for functional dysphonia (Bogdan 2001, 136).

Anxiety caused by various risk factors (too many contracts simultaneously, the variety of roles, technical and musical uncertainties, show savings) as well as season illnesses untreated on time (sinusitis and rhino-sinusitis) lead to an accentuation of voice disorders.

Menstruation periods in women is one in which exaggerated voice effort should be avoided, as the cords are oedematous and the blood vessels are dilated. The colour of the voice is influenced and it is very important not to force study during this time⁶.

Pregnancy and related hormones or hormones from contraceptive pills affect the colour and the voice register. The increase of the water retention in the organism as well as gaining weight affect the body posture and change abdominal support. The risk of voice haemorrhages also increases.

Throat and backaches as well as **great variations in weight**⁷ lead to changes in posture and implicitly, to changes of the air support, which influences the voice

⁵ There is a famous experiment conducted by Avicenna in 1000AD, in which a lamb was put in a cage near the cage of a wolf. The lamb simply died out of fear.

⁶ Important theatres used to demand the calendar of the artists involved in the shows of the season so that they were not scheduled.

⁷ The cases of great singers that lost their voice qualities that acknowledged them are well-known – one of them Cheryl Studer (Grammy prize for the best opera recording) following a gastric sleeve surgery, suddenly losing over 20 kg. The psycho-somatic balance of the body is lost, the abdominal support is lost and all the resonate cavities change.

quality and colour. Searching for comfortable sensations, the singer will force the voice apparatus by involving the muscles adjacent to the neck. Dysphonia is the first consequence.

Asthma and allergies, frequent diseases of contemporary society, affect the optimum oxygenation of the body and therefore, also the quantity of air that will be exhaled. Avoiding stage dust, microorganisms from dusty costumes, the smoke from special machines and air conditioning is an utopia, so what can save a singer with such disorders is *permanent hydration* and *correct breathing*.

In case voice discomfort occurs, it is recommended to urgently contact a specialist who deals with the voice of the singer. The bad habit of self-treatment can be more dangerous than the disorder itself. The same danger occurs with ignoring the altered state with the hope of autogenously healing.

The most frequent disorders are functional dysphonia (hypo/hyper) that, if not treated on time, can complicate and result in chorditis and then in beginnings of nodules and even voice nodules.

It is very important that the physician who treats a singer be specialised in phoniatriy to understand the gravity of a dysphonia in his or her life and treat it accordingly.

4. Breathing – importance in therapy and voice re-education

“Breathing is the bridge that ties life to consciousness, that binds the body to thoughts”⁸.

Breathing is the most important phenomenon to be understood. The moment in human conscious that clarifies that this body is only a channel of the manifestation of universal energy and that sound occurs in the body but comes from the Universe, being entirely its expression, then we get to live in awareness. When one wants to control the mind, the body, emotions, posture, or behaviour, one begins by controlling breathing. By changing breathing style, we modify the information that is sent to the brain (Brulé 2017, 45). Specialised studies have shown that using breathing techniques, we can influence the activity of the neuro-vegetative system (SNS and SNP), and a change in breathing style leads to a change of messages from the inside, that start from the breathing system to the centre of the brain that processes and regulates emotions, perceptions, judgements, thoughts, and behaviour (Brown&Gernbach 2012). According to Dr. Gernbach:

⁸ Titch Nhat Hanh-Buddhist Vietnamese monk and activist for peace

“Breathing is a gate through which we can send messages by means of our nervous system, to ease our conscious mind and to access the subconscious, for well-being and it allows us to feel closer, more loving and more loved”.

Correct breathing activates enthusiasm. This leads to the activation of the limbic system – of the subconscious, to the unloading of the hormones of happiness – serotonin, melatonin, dopamine, oxytocin, and endorphins, determining the state of well-being and balance of the body. In ancient Greek, *enthousiasmos* was a religious term and it meant divine inspiration, and this should be found in each artistic performance, leading to a well-being of the organism. Being conscious of breathing is the most efficient instrument of stress reduction, the stage is the lion pit, and without control of emotions and breathing, the performance of the evening will be compromised. 100% control of breathing under normal circumstances, without stress, is needed, in order to manage to master 80% at the moment of the performance.

The professional singer must discover what the elite athletes, the martial arts champions and yogis have always known – that by controlling breathing, one actually controls well-being and the level of performance. *“The work with breathing consists in using Conscious Breathing for healing and growing, personal awakening, and the transformation of the spirit, mind and body”* (Brulé 2017, 22). It is a self-healing method that succeeds where medication can fail.

5. Voice therapy – techniques and exercises

A sick singer is more than a patient... he or she is a case. There are no illnesses, there are sick people.... we cannot treat dysphonia without entering the inner universe of a sick person and without empathising with him or her. A detailed anamnesis is necessary, carried out with patience over several days, depending on the psychic state. Any voice recovery clinic works simultaneously with a voice therapist and a psychologist.

Besides a complete voice repose – of short duration, but extremely important, and the medication taken upon the recommendation of a specialist and under supervised control, the therapy of dysphonia and their complications consists in breathing exercises and of correcting body posture, to which phonatory exercises are gradually added – through which the singer starts again to speak and sing, pursuing the coming back to the base physiological movements of the body, to the mental and physical relaxation. Everything has to be done under a careful supervision of specialised staff (the voice therapist), as there are not improper

exercises, but only incorrectly executed. The one who recuperates a voice has a morale boost similar to that of an artist at the end of a successful performance.

5.1. Conscious breathing exercises

- Exercises of balancing inhaling with exhaling – a number of six breathings per minute, that is inspirations/expiration of five seconds. This exercise is called heart coherence exercise. Studies show incredible benefits, quantifiable after only five minutes of rhythmic breathing (coherent), of six breathings per minute, three times a day. The level of blood pressure and cortisol (stress hormone) is reduced by up to 20% and the pulse is adapted depending on the needs of the organism.

- Exercises of prolonging the breath – we inhale one time, we exhale two times – progressively increasing the ratio (2/4, 4/8), which prepares the singer for a phonatory act.

- Exercise of breath holding – entering apnoea after inhaling or exhaling until the diaphragm starts to tremble and an urgent need to inspire or expire is felt. The exercise is done combined with the relaxation of the muscles of the throat and back. This means an open and relaxed throat – prepared for phonation.

- The exercise of consciously yawning and in accordance with breathing, freeing the air through a sigh. The throat opens in a special way and the breath acquires a light, round, and open sound. The benefits are felt immediately at a physical, emotional, and mental level.

- Exercise of abdominal breathing is the base element for an optimum health and top performance. It has to become a second nature of the singer.

- Exercise of breathing Rebirth - active inspiration and passive expiration, without breaks or gaps between breathings. One breathes in a continuous and circular way, remembering that we inhale energy that we subsequently turn into sound. It is an exercise in which exhaling is not controlled, but it is thought of as a continuation of the inspiration, the entire process becoming one through which the energy runs uninterruptedly through the organism.

All these exercises of conscious breathing share the goal of relaxing the body, of inducing well-being and presence in one's own consciousness, preparing the singer to progressively resume phonation.

5.2. Exercises of correlating body posture with phonation

Specialised studies (Lagier/Vaogoyeau, 2010, 195-201) conclude that a tight correlation between body posture and phonation is not only a consequence of voice effort, they being coordinated during communication, each body segment

having a well-defined role in its realisation. Movement associated to voice effort involves the whole organism, it grows proportionally with it and it also anticipates phonation. The movement of the head muscles can be involved in the increase of efficiency of voice effort, and that of the trunk, in conveying the communicated message. Anticipating phonation, these muscles should not be strained at all to allow a good and relaxed passage of the column of air through the phonatory apparatus.

These exercises pursue correcting incorrect positions of the body, which also led to a wrong voice projection, integrating the notion of body verticality corroborated with the phonatory breathing in the daily behaviour of the singer.

“During singing, our body position should be right, the head up (normally), the chin up (not to keep the chin inclined towards the chest in a small sharp angle; for easiness in singing, it is preferable the angle that is formed between the column of sound and the roof of the mouth be as big as possible.” (Truiculescu, 2011, 142)

5.3. Voice recovery exercises

All voice recovery exercises are done progressively and in a personal rhythm of the patient, adapting to the necessities and flaws that need to be corrected by correlating muscle relaxation with conscious abdominal breathing, during exercises.

These exercises should be done in a clinic under the close supervision of a voice therapist, aiming first for a relaxed position of the head and neck and then a minimal use of the column of air projected directly into the resonators.

Without detailing here all the ways through which a voice passes towards recovery-nasal speech, the lowering of the sound, counting, uniformity of vowels, monotonous reading and with intonation, and sudden and stressed phonations (Bogdan 2001, 216-222), I underline that their essence consists in dosing the quantity of air used during exhaling. When we manage to utter various vowels or groups of vowels using a minimum quantity of air that makes the phonatory apparatus vibrate and the vocal cords perfectly unite along their entire length without letting air escape, we can talk about a recovered apparatus, capable of subsequently being subjected to an effort of great extent for an opera show. These exercises are extremely useful and can be kept in a singer’s schedule of voice hygiene, constituting a means of improving voice performance.

6. Conclusion

Being hospitalised in a voice recovery clinic means for a professional singer to pass the threshold and the barrier that were between him or her and his or her own voice, providing, through painful experience, self-knowledge and the differentiated perception of the mistakes of voice technique, of incompletely assimilated information, as well as eliminating excesses from customs and attitudes. What does not conquer one, makes one stronger, matures one spiritually and re-orientates the soul and the mind towards the belief that in the universe nothing happens at random, sounding the alarm towards changing life patterns that led to the state of illness, or a lack of balance in energy.

“For a singer to achieve a career, he or she must strictly obey four rules: never sing too much, too loud, too high, and too often... the cords are a complex of muscle levers that get tired; they are some piles with bio-currents that need to be recharged... they can get cord paresis, vasomotor disorders, or laryngeal nodules. These four rules are a *sine qua non* for maintaining and valuing the voice asset” (Constantinescu 2001, 49)⁹.

I would add that to understand the principles of singing is not *sine qua non* with immediately applying them, sometimes years are needed, until the body and the mind can integrate and apply what can be explained in ten minutes (Fleming 2004, 41) and that conscious breathing improves the state of consciousness of brains, allowing, thus, access to the subconscious and triggering of enthusiasm. This leads to the unloading of the hormones of happiness, and the singer can enter the state of divine inspiration, transmitted by means of the air that goes through him, a feeling of connection with the Universe. A healthy voice supposes therefore, besides a rigorous technique that comes from a minimal use of a column of air, a synchronisation of the hormones, and a neuro-psychic and spiritual balance.

“When breathing wanders about, the mind flies too. But when breathing eases, the mind will also be stable and life will be long. Therefore, man should learn to control breathing” (Svatmarama, Hatha Yoga Pradipika).

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