

Breathing and motion - preparing the correct way of using the voice

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The holistic approach of the concept of Schlaffhorst-Andersen used in voice therapy and voice training takes advantage of the reciprocal effects of breathing – voice – movement, not only for improving single functions, but also for strengthening the patient's personality. The breathing function plays a key role, as it is understood as a link between the somatic and autonomic nervous systems.

The concept of Schlaffhorst-Andersen is based upon the correlation between breathing, voice, and movement or posture. The motor function of these three systems is of close interdependency to emotional processes and vegetative responses. Verbal and non-verbal communication is determined by posture and movement. Thus, any influence put on the person's physical features affects his or her personality.

Therefore, the therapy of people suffering from voice problems is based upon the utilization of those reciprocal effects. Any therapy program designed for curing a specific disorder includes this basic principle.

Breathing is at the top of all basic biological functions. Breathing is a vital function. Strength of breath means strength of life. Breath is not only a functional exchange of vital substances but it also paves the way to the person's relationship to his or her environment, links his or her internal and external worlds to each other. The Greek expression of "pneuma" means breath as well as mind and soul. Breath means life. Thus, it also creates a consciousness, a conscious "being". Breath as a carrier of vital energy and consciousness was even cultivated in ancient times.

Within voice and language therapy, breathing is of central significance. The stream of expiration serves as a carrier for forming sounds. Any sound deviation of a voice is accompanied by a changed respiratory behavior. More air (pressure) is necessary for increasing one's vocal strength. When speaking or singing, the expiration is substantially extended, whereas the inspiration is strongly shortened.

The interplay between respiratory and articulatory tonus is especially significant for the facilitation of sounds. All organs of the vocal tract used for sound production are dependent on the respiratory tonus. Thus, their function and their interplay is promoted by the respiratory tonus.

Respiratory onset, respiratory phrases and respiratory strength are prerequisites for a functioning, flowing, and sonorous voice.

Breathing happens involuntarily; it is a vegetative function. "It breathes". The involuntary aspect of the process is significant. But in breathing, speaking and singing voluntarily the vegetative component is activated more intensely as well.

Breathing happens in a three-phase-rhythm. After the two phases of inspiration and expiration a third phase follows, the pause, which is characterized by the relaxation of all respiratory muscles. An increased breathing (phonation) shortens the duration of this pause, the quality of relaxation, however, should remain.

There are a lot of vital processes in which an interplay of forces or reciprocal effects can be observed. There are reciprocal effects between body and mind, between breath and voice function, and between respiratory and motor activity. The impulsory strength of the breath shall be utilized for using movements voluntarily. Specific exercises can stimulate breathing. Respiratory exercises can improve posture and movement, voice and language, just as vocal exercises can improve the quality of breathing.

Additionally, there are breath-deepening exercises, which either directly affect the respiratory mechanism by movements or indirectly via the respiratory center leads towards a deeper breath by setting inspiration stimuli. Such an inspiration stimulus, for example, is set by an extended expiration, which results in an increased concentration of carbon dioxide in the blood, thus stimulating the respiratory center and setting an impulse for a deeper inspiration.

The extension of expiration can be achieved either by causing a resistance through articulation or by using of the voice (phonatory resistance).

Any tonus change occurring anywhere in the body affects the whole organism, since there are constant reciprocal effects between the body's different muscle groups.

Attention must be paid to the movement of the articulatory organs, since, when forming the single sounds, the effects of the feedback functions of articulatory, respiratory, vocal, and whole body tonus can be used for improving the flow of speech.

Eu-toned (well-toned) respiratory muscles directly lead towards a balanced tonus of the voice and the laryngeal muscles. During inspiration the diaphragm drops. Accordingly, the larynx also drops. The vocal cords are stretched and can swing more freely; the pharyngeal muscles are extended, which positively affects the resonance in the vocal tract.

A good nasal inspiration is desirable. The air is warmed, moistened, cleaned and through the nasal conchae led into a regular stream, but also - compared to oral inspiration - there is a stronger resistance set against the diaphragm, which strengthens it. Nasal inspiration causes a deeper inspiration by making the diaphragm pull more strongly downwards because of the narrowness within the respiratory tract. Additionally, this process is supported by consciously perceiving the air streaming in through the nose. This increased breathing improves the gaseous interchange. The blood receives more oxygen and thus can strengthen the functions of the organs and muscles.

Good static conditions are very important for the upright position of persons. With good posture, it is possible for the body to respond dynamically to external and internal impulses.

Thus, properly standing upright means, for example, that the feet are in good contact to the ground – in other words, that the person feels as if he or she were „embedded,, in the ground. But it is also important that the person can leave this place or can respond elastically to external influences. The person's body orientation towards the supporting ground, which is effected by the gravitational pull of the earth, is called ground contact.

The quality of the ground contact is decisive for the physiological respiratory process and the upright posture. The quality of the ground contact can also be the result or the expression of physiologically correct breathing. The properly balanced tonus and a correct position of the body's center of gravity also affect the quality of the ground contact. It is possible to influence the quality of the ground contact via the body's physiological feedback-control systems from different angles.

With an optimum utilization of the musculoskeletal system only relatively few skeletal muscles are necessary for holding the body aligned, so that the majority of the muscles are available for movement. However, if this construction is disturbed, the body's center of gravity is displaced; the stimulative effect of the ground setting a resistance and hence, aligning the body, is no longer continued through the whole body (transport reflex), and the skeletal muscles – in part – would have to take over the holding functions of the bones, which in most cases results in a tenseness of those muscles.

A functional entity is built by skeletal static, respiratory tonus, and the tonus of the striated muscles. If any of those factors is disturbed, this will most definitely have an effect on the whole postural alignment.

A good respiratory tonus paves the way to a lively posture, which is supported by the person's internal life. By means of this posture the person can develop a good relationship to the ground and to the space surrounding him or her, which enables the person to act freely.

Therefore, the aim of the breath-connected work on posture and movement should be finding the balance between acting and letting things happen, between (re-)finding the rhythm in breathing and movement, so that a regeneration – even if moving more intensely and increasing the performance – is possible.

In order to hold and to move, the muscles must work, that means they need energy. In order to gain energy, muscles need oxygen. Consequently, any movement influences breathing and the circulation and vice versa: breathing and circulation affect the condition and the activity of the skeletal muscles. Whether a movement promotes or disturbs breathing depends on how it is

performed. During the motor process and „in its shape“ it must be in touch with the internal movement, in order to be stimulating. If a person moves with attention and joy, the tonus of the skeletal muscles rises. The diaphragm responds and with its tonus determines the condition of all other muscles and the function of speech and voice.

The rotational moving, the pendulating moving, and the regularity movement – the so-called means of regeneration by Schlaffhorst-Andersen - plus breathing and sounding are used in order to train and cognitively embody a physical awareness for muscle tonus, posture, movement, voice, mood, and breathing, as well as for their reciprocal effects on each other.

Doing rotational moving is like playing with the equilibrium, like a “play around a center”. This balancing game constantly requires the use of different muscles. Thus, the muscle tonus is regulated, in other words, eu-toned. The main characteristic of the rotational moving is the regularly performed process. By circling around one’s own body axis the focus on the center of one’s body is intensified.

During this process, the gamma nervous system is activated. It innervates the muscle spindle of the alignment muscles. By constantly shifting the body’s gravity center, the muscles holding the person upright have to adjust again and again. Any point within the circle requires a different muscular interplay, thereby improper tensions are reduced, a lacking tonus is built up, since muscles must be flexible; otherwise it is impossible to hold the body erect while shifting one’s center of gravity.

In voice therapy, rotational exercises make sense whenever the muscle tone of the whole body should become eu-toned. As with any functional voice disorder, extending the resonance cavities as well as intensifying the respiratory movement for improving the quality of the voice, are important aims. Especially with hyperfunctional dysphonia, rotational moving can reduce tension.

Contrary to the rotational moving, the pendulating moving is bipolar directed (backwards and forwards or right and left). The pendulating moving is not a continuous movement. There are two poles with a swing out momentum, followed by the return moving.

The pendulating moving can be performed either with the whole body or with single limbs (arms and legs). Here, the aims are also a better posture and body alignment; by shifting the gravity center above the grounded feet, the muscles become eu-toned via the gamma nervous system. However, during pendulating moving there is one special dimension less, since the person either pendulates to the sides or backwards and forwards. Backward pendulating makes the tonus of the dorsum trunk muscles rise, whereas pendulating forward reduces it and vice versa.

If this two-phase movement is coordinated with the breathing process, the three-phase-rhythm is still included. When pendulating forward, the person exhales. When pendulating out, there is the breath pause, and when inhaling, the backwards moving is performed. Thus, the quality is different than with ignoring breathing. The phrases of the moving are performed more intensely. There is, for example, a correct pendulating out and not just only a „swaying backwards and forwards.., For assisting and improving the voice function sound-, syllable- and word exercises can be added when pendulating forward.

The regularity movement is directly parallel to the respiratory movement. It addresses with one’s individual three-phase rhythm of respiration and movement. It is aimed at finding one’s own, personal rhythm. After the two phases of inspiration and expiration there is a third one: the pause, which is characterized by the relaxation of all respiratory muscles. Although the pause is shortened with increased breathing activity, the quality of relaxation, however, usually should be maintained. The three phases contraction/inspiration, stretching/expiration, relaxation/pause shall be experienced during respiration without phonation, in order to be applied during phonatory breathing.

Regularity movement, for example, walking, ball-playing etc., can be applied in therapy whenever the goal is to build up the tonus. In voice therapy this may be necessary patients suffering from paresis or hypofunctional dysphonia, to mention a few.

Breathing, understood as one of the means of regeneration, most importantly means perceiving one's breathing and realizing its three-phase rhythm of inspiration, expiration, pause. When breathing, the contractile elements of the respiratory muscles alternate among their three functional states contraction, stretching and relaxation. This rhythmic, three-phase respiratory movement serves as an example for the training of the rest of the skeletal and articulatory muscles.

The increased breathing activity improves the gaseous interchange. The blood receives more oxygen and thus can strengthen the organs' and muscles' functions. By means of the respiratory movement the person experiences more vitality and "alertness" in the spiritual and mental sense. Sounding means setting a resistance against the exhaling air with assistance of the swinging vocal cords. The diaphragm is prevented from quickly moving upward. It has to stretch more slowly as soon as the sounding starts, which requires and results in a more differentiated and more intense detailed job of all respiratory muscles.

The whole body with its cavities, walls and bony elements is set into vibration by the vibrations originating from the vocal cords. Thus, the body receives a micromassage – with a different emphasis dependent on the different sound functions. This can address improper tensions of the body and eu-tone them. At the same time, the abdominal organs and the heart are massaged and vitalized in their function by the increased respiratory movement and the thorough movement of the diaphragm.

Preconditions for an optimum sounding are a physiological phonatory breathing, a properly balanced interplay of subglottic pressure and vocal cord closure, an upright posture carried by the freely flowing breath and a properly balanced muscle tone in a permeable body.

Consequently, a correct sounding, understood as a holistic function, is the result of the proper cooperation among the basic functions of muscle tone, breathing and voice.

The so called "Schwingen" in the concept of Schlaffhorst-Andersen means breath-stimulating and regenerative exercises, which train the sensory-motor skills. The goal is to perceive one's respiratory motions in a differentiated manner, in order to learn to deal economically with breathing, movement and voice. By means of rhythmically alternating between building-up, reducing and loosening the tonus, it is regulated. Improper tensions are reduced, a lacking tonus is built up. The musculature has to be flexible, otherwise it is impossible to hold the body upright during the swinging process of the body's gravity centre.

The "Schwingen", which is like playing with the equilibrium and thus, affecting muscle tone and breath function in a regulative and eu-toning manner, is the result of the interplay of the above-mentioned means of regeneration and can be applied in the forms of single swinging, partner swinging or group swinging. Additionally, training material like a swing strap, rubber bands like Deuser- or Thera bands, a wooden hoop or a rope can be used. The following aims shall be achieved by the "Schwingen":

- Properly balancing/eu-toning the muscle tone as a prerequisite for a good readiness tone and an optimum (vocal) performance
- Regeneration of the three-phase respiratory (and motor) rhythm with regards to the person and his or her life situation
- Improvement of the upright posture, training of the medium-body-part tonus (area between thorax and pelvis)
- Breath stimulation via an activation of the diaphragmatic muscle, better mobility, improved supply of oxygen, better circulation, maximizing of the vital capacity
- Rhythmisation of breath under special consideration of the pause serving as relaxation- and regeneration phase
- Swinging out pause
- Reflective replenishment of air
- Training awareness for different body functions and their interdependency
- Coordination of internal (respiratory) and external movement
- Economizing of respiratory-, vocal-, and motor functions in order to achieve a maximum performance with a minimum effort

- Eu-toning the muscles in order to improve the body's permeability for vocal vibrations
- Opening of resonance cavities, which is a prerequisite for a powerful, more sonorous voice, improving the vocal endurance

So the method of Schlaffhorst – Andersen uses the reciprocal effects between body and mind, between breath and voice function, and between respiratory and motor activity. On this base, the Schlaffhorst – Andersen concept, a holistic approach used both, in voice therapy and in voice training, develops the client's personality.