

Rehabilitation of selected disorders of voice and speech by playing the overblown flute

Technique of directive musical therapy

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I/ Basic philosophy

General base:

Musical therapy: We are working on specific therapeutic objectives by means of musical elements.

Musical therapy is divided into: 1) directive and non-directive intervention, 2) causal and symptomatic intervention, 3) supporting and reconstructive intervention (Kratochvíl 2002, Kantor/Lipský/Weber 2009).

Directive way of musical therapy: The therapeutic process is given by the therapist – it has clear direction, structure and borders. The therapist determines how to use musical element or instrument. The correct exercise starts and leads the therapeutic process.

Health and illness depend on the balance of three equal levels of the individual: biological (physical), mental and social.

In our life we create stabilized patterns of „behaviour“ at the level of body, psyche and social links. These are fixed – we talk about „body memory“ and „emotional memory“, when a certain stereotype is fixed in the sense of norm, compensation and pathology (e.g. inappropriate tension of some muscle groups during regular activities which were accompanied by higher mental or social stress = functional blockades of backbone muscles, etc.).

Changes at one level always induce changes at the other levels, both in heading for illness/disorder and for health/compensation.

We perceive illness/disorder/visible symptom as inappropriate tension (higher, lower, non-coordinated) at individual levels (bio, psycho, socio).

Norm and physiology are always individual – they are patterned on the individual and the context of their existence.

Therapeutic principles

Involuntary practice, targeted exercise lead to adjustment/compensation of the impaired function. While playing the flute, patients has one goal: to change the intensity or height of the tone. They don't meditate how the body is going to do it – the body is looking for the way itself.

The right stimulation leads to „self-adjustment/self-treatment“, the body knows best how to improve the condition or function if possible. Directed will to treat the damaged function/tension (postural and respiratory muscles, etc.) from the therapist's as well as patient's side mostly leads to another accumulation or discoordination of the problematic functional or organic handicap.

Targeted work with a musical instrument (the overblown flute) starts changes of muscular tension and coordination of involvement of muscle groups which influence posture, breathing, phonation and articulation.

Method of gradual profits: from the easiest to a more difficult task. The load is not the same for all patients.

The body needs natural „working“ tension for its proper function (movement, voice, articulation, etc.). It is the most effective way how to cope with a long-lasting stress.

The therapist must be able to use the technique actively.

Physiological notes

No striated muscle or a muscle group can decrease or increase their tension separately. The surrounding muscles are always affected in the same way. During natural movement of the body (walking, running, phonation, etc.) the muscle tension is gradually spreading from the centre to the periphery. Centre of the locomotor system is at the waist level. If the tension doesn't spread in this direction, some muscle group becomes tonic earlier or, on the contrary, it is hypotonic, the given activity is affected. It is suitable to perceive the hypertonus and hypotonia as blockades in order to sense the disorders of voice, articulation and speech fluency. For simplification of the situation we can see them at four levels which influence each other and are fully connected: 1. abdomen (respiratory and postural muscles) 2. chest (respiratory and postural muscles) 3. larynx and throat (swallowing, respiratory, phonation and postural muscles) 4. facial and articulation muscles (mimic, respiratory and swallowing muscles). A special form of higher tension is discoordination caused by parallel involvement of antagonistic muscle groups, which leads to escalated spasticity and tremor (adductors with abductors of vocal cords, e.g. psychogenic aphony, inspiration and expiration muscles – stammer...).

(Simple tests: when clenching the fist, tension of muscles of the neck, larynx and abdominal wall is significantly stimulated... such a posture never enables us free breathing in, freely produced voice...)

While huddling in a sitting position and simultaneous automatic phonation, a non-trained person creates a deep and quiet sound. When straightening, standing on tiptoes and holding arms up, the voice is higher and louder during automatic phonation.

Creation of a tono-clonic non-fluency of speech, only pure simulation of acoustic effect is not credible. Expiration from the „abdomen“, in inspirational position of the chest, produces an „intensive-natural“ non-fluency. If we try to speak and open and close our mouth at the same time, we enable a similar process at the level of articulation muscles, etc...)

II/ Rehabilitation by playing the overblown flute

About the musical instrument

The overblown flute is an archaic musical instrument of pastoral people from the Carpathian region. It is a flute without holes. The tone height is not changed by means of grips like in a common flute – there are no holes for grips here. It can be changed in two ways: The first, and essential way for therapeutic work, is the change of expiration intensity. The stronger the expiration, the higher and louder the tone. A fine expiration produces a low and quiet tone. In this way, according to the quality of the instrument, we can create a line of 9-12 tones corresponding to the aliquot line from the basic tone of the given key, i.e. the deepest tone (e.g. instrument in G major...G-g-d-g-c-d..., instrument in C major...C-c-g-c-f-g...). The second way how to change the tone height is to cover the lower end of the flute – the original, openly created tone is lowered by a certain interval which decreases in direction to higher tones. Connection of these two ways of tone change enables to play in the lydical scale. Covering of the lower end partly leads to a decrease by semi- up to quarter-tone and enables to approach oriental scales.

Open end A...a...e...a...cis...e...g...a...b...cis...

lydical scale

Closed end E...cis...g...b...dis...fis...gis.....

The instrument enables you to play intuitively and to learn quickly to play it. You can't play out of tune – it is tuned to a certain key in which it is in tune with other keys. You can't either change the key, or play in other scales than mentioned above.



Opened

Closed



Rehabilitative use of the overblown flute

Neither deep nor higher tones can be played without naturally created support at the level of postural and respiratory muscles. If we look at the individual four degrees of blockades (hypotony/hypertony at the level of abdomen, chest, larynx and facial + articulation muscles), these areas are always parts of respiratory or postural muscles, and thus functionally connected. When playing the overblown flute, we always stimulate the activity of all these areas – you have to straighten naturally, breathe in and out adequately. We can't breathe in adequately without straightening, we can't straighten adequately without breathing in.

Patients work only with the target sound, involvement of postural and respiratory muscles is involuntary. Repeated involvement leads to creation of a new stereotype and rebuilding of the „muscle memory of the body“.

Suitable instrument

For rehabilitation work, a longer instrument in A key is the most suitable for tall adults. A shorter instrument in C key is appropriate for women and children. These are keys which enable very well the necessary range of use. The right instrument must be able to produce a clear deep tone as well as a high sharp overblow. Some producers prefer instruments designed only for impressive high overblows which don't have the depths necessary for training of soft expiration, etc...

Basic rehabilitation set

Point 1 should be always used, in other points the therapist is choosing individual options and variants of practice according to the therapeutic target.

- 1) Testing the capabilities of the flute
- 2) Maintaining of one tone – middle – deep – single higher tones. The aim is to maintain the same tone as long as possible. It is good to repeat the same tone twice after each other.

- 3) Transitions between tones (from deep to high, from high to low, from deep to deep, from high to deep and back to high)
 - separately (to play in one inspiration several tones with a pause in expiration between individual tones)
 - fixed (to play in one inspiration several tones in one fluent expiration, i.e. without a pause between individual tones)
- 4) Staccato playing t...t...t...t – to maintain one tone, gradually in all tones
- 5) A long tone finished with ...t – „t“ in a higher tone
 - „t“ in the same tone as a long tone
- 6) Intonation of voice with the flute (to sing into the flute, voice mostly begins – at least roughly – to copy the changes of tone heights of the flute)
- 7) Simulation of spasticity – non-fluency – articulation and respiratory muscles
- 8) Awareness of articulation – directing of expiration work (individual sounds are realized into the flute)

Final effect (numbers mean the most important exercises, the others may be used as well)

- 1) Putting the abdominal wall in motion for breathing (ex. 1,3,4)
- 2) Training of abdominal breathing – natural diaphragmatic support (ex. 2,5)
- 3) Soft beginning of expiration (ex. 2,4,5)
- 4) Improvement of the function of some muscles involved in articulation (ex. 2,4,5,6)
- 5) Natural tonization of trunk muscles from centre to periphery – posture (ex. 3,4)
- 6) Training of voice intonation (ex. 6)
- 7) Simulation of impairment of coordination and muscle tension (ex. 7,8)
 - phase: controlled pathology, simulation in a physiological way = coordination
 - volitional managing of targeted worsening and improvement
 - understanding of impairment principle at a fixed level...
 - loss of fear of problems
 - influencing of real pathology

Survey of basic indications

Functional voice disorders, organic voice disorders from overloading, conditions after CMP (with nervus facialis handicap, with oral and phonic apraxy), pronunciation disorders with necessary tonization of articulation muscles and with directing of expiration work (voicedness – non-voicedness, training of vibrants, etc... according to phonetic specifications of the language), fluency disorders.

Position of working with the flute in the context of techniques used during voice disorders treatment in our department

Working with the flute is mostly part of other techniques – it is very effective in children with disorders of voice and vocal cords from overloading. In selected cases it is sufficient to work successfully only with this technique.

1. Working with the body

A) volitional, targeted working with local tension (technique of muscle simultaneity, controlled breathing exercises, resonance exercises – head, chest, connected, etc...)

B) involuntary, working with global tension

Working with imagination - „Tree“

- „I am a head taller“

- „Gunman – fighter“

(exercise when physical posture influences mental posture – the aim is natural straightening of man according to their individual norm)

Working with natural movement - stick swing

- attack (martial arts, fencing, etc...)

- archery

- balance exercises

- **playing the overblown flute**

(These activities can't be carried out without the right distribution of muscle tension, physical activity itself regulates natural tension of the body – involuntarily. But initial directing of the activity by a therapist is necessary.)

2. Psychotherapy + social work

Contact to producers of high-quality instruments:

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