Samedi, 26 octobre 2002, 18.00 h

Osteopathie

Laryngeal Manipulation

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Summary:

The presentation was divided into two parts.

The first part discussed the anatomy and the bio–mechanics of the growing spinal column that dictates the developing posture. Posture was then discussed in relation to voice production. The anatomical between the spinal column and voice production were discussed. Some aspects of the functional anatomy of the larynx were discussed, to show how the suspended larynx (voice box) is affected by posture.

The second presentation included a brief anatomy of the inner mechanism of the larynx and a demonstration of how all these elements working in concert (together).

The Lecture:

The development of spinal integration, movements and the resultant posture of the adult spine is a complex subject. The normal bio-mechanics of the spine is mainly derived from the shape of the vertebral joints (apophyseal joints). Other important factors are the size of the inter-vertebral disks, and the rib cage.

It was emphasized that the head movement (nodding) on the neck (cervical spine) and neck movements, comprise about 50% of total spinal movements.

The next mobile part of the spine is the lower back (lumbar spine) which consists of five (or six) vertebrae. This part is mostly moving in the flexion extension direction (forward and backwards curving).

The middle back, which is called the thoracic spine made of twelve vertebrae, is very limited by the rib cage, thus, most of it's capability to move, is lost in the adult spine.

The end result is that, in the adult posture, there is a good perception of movement of the head, neck and lower back, and very little movement in between,

This results in compensating and compromising the position of the head in relation to the rest of the spine.

It was emphasized that, while it is difficult to create objective criteria for "perfect" posture, it is possible to observe general postural patterns. For instance the posterior and anterior weight bearing were presented.

It was shown that, through anatomical connections, the general posture affects the habitual position of the head.

The larynx (voice box) is suspended by a few groups of muscles to the hyoid bone, floor of the mouth and other parts of the skull above, and to the clavicle and sternum below. This system is described as the suspensory system.

Head position thus, through the suspensory muscles of the larynx, affects the position of the larynx in the neck, the tension in these muscles and laryngeal movements.

It was demonstrated that the normal larynx follows the movements of the torso, e.g. rotation, but remains in the mid line when the head rotates and the muscles of the suspensory system are symmetrical and not over tight.

The position of the larynx in the neck compartment is important because laryngeal movement comprises part of the mechanisms that controls intonation and resonance. Laryngeal movements can be easily observed in normal speech.

It was mentioned that changing postural habits is a challenging subject, since the aim is to introduce more movements to the thoracic spine, where perception of movement is weak and the rib cage limiting existing movements.

After the discussion of posture and it's impact on voice production, the second level of vocal activity was discussed.

The physiology and movements of the vocal folds was discussed. The vocal folds act as the oscillator. They are capable of changing length and mass in order to control pitch.

The change in length of the vocal folds is controlled by the movement in the crico-thyroid joint. The mass of the vocal folds is controlled by vocalis muscle (an intrinsic muscle in the vocal folds). The system is more complex, but this can provide a simplistic view of the mechanism.

Above the vocal fold is the resonating chamber. The length and shape of the resonating chamber is controlled by using muscles that can change its position in the neck (up or down), it's length, it's diameter and shape.

Obviously the tongue is used profusely in the process of articulation and resonance.

The demonstration:

Two tapes were presented,

The first tape demonstrated the issues related to posture and voice, the difficulties in changing posture and the limitation of interfering with gross anatomical feature such as distortion in rib cage and the cervical hump.

It was shown that people drive movement only in part of the spine where they have a perception of movement and neuro-muscular habit. It was suggested that, without external interference, it might take a long time to mobilize these segments in the spine, in particular the upper thoracic spine. It was also shown that some corrections cannot take place and the practitioner's challenge is to try and resolving the clients difficulties within the given constrains.

The next part showed the links between external muscle activity in the singer and what she does internally in her larynx.

Finally the effects of laryngeal manipulation were presented.

The second tape showed the healthy larynx and different shapes of vocal folds of different type of voices.

Conclusion:

The aim of the presentation was to introduce the importance of clinical priorities in treating hyperfunction voice problems. It was suggested that posture can be regarded as a contributing factor to hyper function voice disorders.

Posture no doubt, affects the efficiency of breathing, it is important in energy consumption and feeling centered, balanced and integrated and it affects head position thus affecting the suspensory muscles of the larynx. Nevertheless, it is difficult to see how posture alone can cause inner vocal pathology, such as a bleed or a nodule.

Clinically, correction of posture is secondary to treating other hyper – function elements of voice production such as breathing, tight muscles and lack of movements in the crico-thyroid joint.

It was emphasized that for the professional voice user, breath support, the right use of muscles that control pitch and resonance, relaxation exercises AFTER performances and vocal hygiene should be first priority.

It is hopped that with the understanding of anatomy and physiology of voice production, the training of professional use of voice becomes safer efficient and fun.

Reference books for anatomy, accompanying lectures, presentations and courses:

1. Grays Anatomy, pub. Churchill Livingstone 37th Edition.
2. Grant's Atlas of Anatomy pub. Williams and Wilkins
3. A Text Book of Regional Anatomy by J Joseph.
4. Clemente Anatomy International Edition.
5. Anatomy palpation& surface markings by Derek Filed.
6. Anatomical &Physiological bases for Speech. by Dickson & Dickson.
7. A photographic atlas of the human body. Gerard Tortora.

Résumé en français

Ostéopathie, Dr Jacob Liebermann

La présentation était structurée en deux parties : la première partie a traité de l'anatomie et de la biomécanique de la colonne vertébrale durant la croissance, qui détermine le développement de la posture. La posture est en étroit rapport avec la production de la voix. Ainsi, le travail de la voix doit prendre en considération la colonne vertébrale. La position de la tête révèle la position de la colonne vertébrale, ainsi que celle du larynx. La posture peut donc influencer la position du larynx. En corrigeant la posture, on peut donc corriger la position du larynx et ainsi améliorer la phonation.

La deuxième partie de la présentation a traité de l'anatomie et du mécanisme interne du larynx, avec une démonstration pour montrer comment tous ces éléments travaillent. Les relations entre les mouvements musculaires et leurs effets sur le larynx ont été montrées à l'aide d'une vidéo avec des chanteurs. On a également pu voir les différents types de cordes vocales chez des chanteurs sains.

Le but de la présentation était de démontrer combien est important le traitement médical pour les problèmes vocaux. Il est cependant difficile de prouver si une mauvaise posture est la seule explication pour un nodule, par exemple. Pour une utilisation professionnelle de la voix, la détente et l'hygiène vocale sont une priorité.