VOCAL-AUDITORY IMBALANCED PROCESSING REFLECTIONS

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The passage of sound an individual makes, travels from the right ear to the left hemisphere auditory center faster via quicker crossed pathways to the left hemispheric auditory center, than the sound one makes and hears, from the left ear where it goes to the right hemisphere and then through the corpus collosum to the left hemisphere auditory center.

Therefore, our voice is often heard by our "leading" ear, our right ear, which often takes "aim" of the sounds made by us. The speaker takes "aim" at the sounds he or she emits, by turning the head slightly to the left, often using the right sternocleidomastoid and right pterygoid complex.

When one listens with the ears balanced, there is no change observed in the voice. Listening with the right ear one can hear subtle improvements in vocalization. Listening with the left ear, qualities of the voice can be lost. *(The Ear and the Voice, Alfred Tomatis)* In other-words, the course of voice control is poorer, the pitch is off, the rhythm can be off, movement of voice projection is usually off, and the level of volitional control is off, when one listens more with the left ear. *(Tomatis)*

The two ears are used differently in terms of audio-vocal processed control, and the two sides of the neck, throat and larynx are used differently in terms of vocal-auditory processed control.

The right ear, our dominant ear, "measures the higher frequencies" and the left ear is more attuned to the lower frequencies. The passage of nerve impulses from the cortex via the vagus nerve, to the lining of the left larynx has a longer route than the pathway from the cortex to the right larynx.

Everything that moves makes a sound. Therefore, all sounds are witnesses to events. If touch is the most personal of senses, then hearing, which is like touching at a distance, to our cortexes; is the most social of the senses.

The sound we make with our larynx is ambient. The impression we all get in some degree from sound waves bouncing off walls, trees, even people help us modulate the way we sound with this ambience reinforcing our effectiveness. This echolocation is one of our voice boxes greatest contribution to internal navigation.

The fibers of the human ear are made to bend, shake or oscillate. Depending on the frequency of the vibration, the shorter strands respond to higher wave-lengths and the longer strands to lower wave lengths. This oscillatory movement is translated into nerve impulses that are sent to the brain. Our voice will be modified accordingly, to match the desirable noise or sound made by the two strands of arytenoid cartilages in the larynx for cortical, hippocampal and amygdala personal 'satisfaction'.

Our voice in general, and emotional cues embedded in vocalizations in particular, receive enhanced decoding in sensory cortical areas of the auditory system. Our left amygdala is the only side of the amygdala that is responsible for auditory cortical processing of vocal emotions. *(Fruhholz S et al, 2014)*

Additionally, temporal regions specialize in processing voices very early in development. Infants between the age of 4 to 7 months of age, process emotions and differentially modulate voice processing off these emotions in the right hemisphere.

Our vocal cords have just the right tension when the larynx is free to move along the cervical spine and when the cervical spine is aligned with the vocal cords. “The larynx is under control of the labyrinth of the inner ear.” *(A. Tomatis)* The vestibulo-mesoencephalic nuclei of the mid brain regulate the motor nerve bundles of the pneumogastric or vagus nerve.

The sound going through the right ear, our dominant ear, reaches the auditory cortex on the left perhaps .0001 second before it reaches the left and many of our voices are programmed by this unilateral sound entering the right ear, which may be the reason many of us internally rotate our right temporal bone through turning our mandible and neck to the left to hear our voice with the same side of the brain that is responsible for our right-sided dominance.

Complex vocal pitch patterns are generally processed at the right temporal lobe, which are functionally “allocated” for use in the linguistic system, which is lateralized to the left hemisphere, hence another right ear advantage. *(Kreiman and Sidtis. Foundations of Voice Studies. 2011)*

We hear ourselves more than anything else that makes noise. Simply because we hear through air vibrations that strike your eardrums and through bone conduction, vibrations, transmitted directly to the inner ear through our skull. Such bone conduction explains why we hardly recognize a recording of our speech.

Many of the low-frequency tones that seem to us to give our voices resonance and power are conducted to our ears through the skull. In a recording of ourselves, this bone conduction is missing and our voices often strike us as thin and weak.

Our vocal and auditory systems work best when the neck and head are centered between the two halves of the body. The attributes of the left hemisphere (speech/language/verbal) balance the attributes of our right hemisphere (emotions/music awareness/art awareness).

Locate Your Center, and You Will Be Primed

To Move In Any Direction

To Speak and

To Hear