

## **Improve the Voice by Using the Ear and the Brain**

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Client History: VS1 was diagnosed with bilateral thyroid nodules at age 48. The nodules were growing rapidly. The left nodule was greater than the right. Her vocal cords continued to be mobile. Treatment was a total thyroidectomy. VS1 also had a history of chronic sinusitis. Although not related to the surgery, she reports physical and emotional abuse from her mother since childhood.

Post surgery, a vocal cord injury was noted. The nodules had been pulled off two nerves during surgery. The surgeon reported that the left vocal cord was clear and mobile and the left nerve was functioning well. Additionally the surgeon reported that the right nerve was not severed during surgery but was not supporting as much mobility as the left cord. Trauma to the recurrent laryngeal nerve was noted. One month post surgery, the right cord was noted as paralytic, but at four months post surgery, the right cord was moving without paralysis. The patient however, reported that her voice was fatiguing easily and would get soft after talking for awhile. Her voice quality was often so soft that it was difficult to hear her speak. Her voice often sounded 'hoarse'. Many w/r substitutions were noted. She sounded like a little child learning to speak and her speech patterns were not rhythmical.

At her 6 month post surgery visit, her ENT suggested that she had dysarthria with an inability to be heard and understood. Her speech pattern was halting. Eventually her voice slightly improved but her articulation did not. She continued to have hoarseness, vocal fatigue, and volume disturbances. The ENT's report suggested a reduced diadochokinesis and loss of articulation of the plosives as well as consonants. She had difficulty transitioning from consonants to sustained vowels. Tongue motion was limited. Vocal fold motion showed a slight, subtle right paresis. The physician's impressions suggested that VS1 appeared to have suffered dysarthria and dysphonia with subtle findings of palatal incompetence as well as laryngeal tongue involvement. A central neurological disorder and not a peripheral laryngeal nerve disorder was suggested. Subsequent MRI testing was normal. She was told that there was nothing else that could be done for her.

Seven months after surgery VS1 felt that she had made no significant change since the surgery. She was referred to The Davis Center which utilizes The Davis Model of Sound Intervention. This model incorporates a foundational premise that there is a connection between the voice, the ear and the brain as demonstrated by 5 laws: three within The Tomatis Effect which proposes that the voice produces what the ear hears, and two within The Davis Addendum to The Tomatis Effect which proposes that the ear emits the same stressed frequencies as the voice. For all 5 laws, when the correcting frequencies are provided to the ear, the brain supports the change and the voice regains coherence. VS1 was administered the initial Diagnostic Evaluation for Therapy Protocol (DETP®) which determines if, when, how long, and in what order any or all of the many different

sound-based therapies can be appropriately applied to make supportive change. A soundbased therapy uses the vibrational energy of sound with special equipment, specific programs, modified music and/or specific tones/beats, the need for which is identified with appropriate testing<sup>ii</sup>.

Within The Davis Model of Sound Intervention, The Tree of Sound Enhancement Therapy<sup>®iii</sup> is used to provide a developmental flow chart for the correct administration of any sound-based therapy as identified from the DETP. The tests include determining one's sense of hearing, sound processing skills, auditory processing skills, otoacoustic emissions, and a measurement of the person's vocal frequencies. The interpretation of the test results determines the protocol of therapies for balancing the connection between the voice, the ear, and the brain.

### Test Results

VS1's DETP results identified irregularities in how she used and processed sound within her connection between the voice, the ear, and the brain. Three different hypersensitivities to sound were identified. Sound processing issues impacting vestibular, language, and attention/focus skills and bone conduction vibration responses were also identified. She was unable to identify pitch differences between frequencies on the spectrum. Vocal analysis identified many frequency specific irregular patterns. The test results demonstrated that sound-based therapies could make foundational change in her ability to use her voice.

Three therapies were identified that would support her towards change in her voice skills: Auditory Integration Training, BioAcoustics<sup>™</sup>, and a Listening Training Program.

1. Auditory Integration Training (AIT) repatterns the acoustic reflex muscle in the middle ear so that sound is better received in the cochlea, vestibule and semi-circular canals of the ear. The issues addressed with this program are related to The Root level of The Tree of Sound Enhancement Therapy.<sup>iv</sup> Although there are many AIT programs, VS1 specifically used Berard Auditory Integration Training.
2. BioAcoustics addresses the specific wellness challenges associated with her vocal irregularities, not only as a result of the surgery but her wellness in general. This science introduces the patterns of the Frequency Equivalents<sup>™</sup> of the body's irregular vibrations identified through vocal analysis in order for the body to stabilize itself. The issues addressed with this program are related to The Surrounding Head of The Tree of Sound Enhancement Therapy.<sup>v</sup>
3. A Listening Training Program (LTP) enhances how the body processes sound with both air and bone conduction vibrational input while stabilizing how the ear supports vocal production. The issues addressed with this program are related to The Trunk level of The Tree of Sound Enhancement Therapy.<sup>vi</sup> The programs offered at this level are modeled after the work of Dr. Alfred Tomatis. The specific LTP used by VS1 was The Tomatis<sup>®</sup> Method.

### Therapy Results

VS1 started her protocol by using AIT first and immediately following that with BioAcoustics. The following changes were noted after AIT:

1. Her articulation skills improved
2. Her voice quality improved
3. Others understood her speech more easily
4. She could converse with others without tiring
5. Speech was easier to produce
6. She noticed she was less shy
7. Allergic reactions decreased
8. She could listen to music at a higher volume and did not need ear plugs.

After BioAcoustics, the following was noted:

1. The muscles of the tongue were identified as weak from the voiceprint. The Frequency Equivalents of the nutrients supporting the functioning of the tongue muscle and the tongue muscle itself were identified and presented as tones for VS1 to listen to. As a result articulation of speech sounds was clearer. An immediate change was clearer production of the /r/ and /l/ sounds. Tongue motion increased. She was better able to transition between consonants to vowels.
2. The orbicularis oris muscle of the mouth was stimulated because it showed up as a 'weak' muscle. The result was better support for articulation.
3. Leukotrienes, associated with her allergies, were high and out of balance on the voiceprint. They were decreased as a result of the tones presented. The result was that her allergic responses were fewer.

After AIT, and while she continued BioAcoustics, she started The Tomatis Method. Her changes were as follows:

1. She was able to hear her own voice better
2. She had fewer problems communicating her thoughts
3. Her voice was noticeably stronger
4. Her vocal range increased
5. She grasped new concepts more quickly
6. Her articulation was clearer.

At the end of the three basic therapies, her family and friends were able to converse with her again and understand her. The basic therapy protocol was accomplished within a three month period. She repeated both BioAcoustics and the Tomatis Method for maintenance sessions to ensure that her changes are maintained and enhanced. On her last visit, her articulation was precise and clearly understood. Her voice continues to be slightly breathy. She felt a release of her early emotional trauma. She restarted playing her violin, started to paint more, and reports that she is a happier person.

### Conclusion

VS1 made noticeable change in her vocal skills once the connection between her voice, ear, and brain was stabilized and enhanced. The Davis Model of Sound Intervention was utilized in order to determine if and how sound-based therapies could be used to make change. Three sound-based therapies were identified and implemented: AIT, BioAcoustics, and a Listening Training Program. After 6 months of using the therapies, VS1's vocal quality and stamina improved, her articulation was clearer, her tongue

muscle regained supportive movement, her breath control improved, and her overall voice production improved. She reported that she was an even happier person than before her surgical trauma. The outcome of VS1's positive changes opens the door for the possibility of using an alternative approach that stabilizes the connections between the voice, the ear, and the brain for other difficult voice cases.

i [http://www.thedaviscenter.com/evaluation\\_DETP.html](http://www.thedaviscenter.com/evaluation_DETP.html) 4/20/10

ii Davis D.S. *How sound-based therapy can help the Isodicentric 15 Individuals*. Schaumburg, IL: Isodicentric 15 and other Chromosomal Imbalances Conference. June 24, 2005.

iii [http://www.thedaviscenter.com/Tree\\_of\\_Sound.html](http://www.thedaviscenter.com/Tree_of_Sound.html) 4/20/10

iv <http://www.thedaviscenter.com/AIT.html>. 4/20/10

v <http://www.thedaviscenter.com/BioAcoustics.html> 4/20/10

vi [http://www.thedaviscenter.com/the\\_tomatis\\_method.html](http://www.thedaviscenter.com/the_tomatis_method.html) 4/20/10

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