

## **SOUND BASED THERAPIES: HELP FOR STROKE VICTIMS?**

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Sound based therapy: What is it? How can sound help someone who has had a stroke? Sound is a part of our everyday life and has also played an important role throughout history receiving little credit.

Cavemen realized sound was important to their survival. They could warn each other about danger by a vocalizing or by using man made instruments. Samurai warriors used sounds when attacking their opponents. We now know these sounds not only frightened but actually lowered the opponent's blood pressure, giving them a distinct advantage. Pythagorus, the mathematician and philosopher, instructed his medical students in the use of sound as an enhancement to their medical practice.

THE DAVIS CENTER specializes in sound based therapies for the improvement of auditory processing issues. Their clientele are typically children with learning problems. A one-of-a-kind center offering a variety of therapies to enhance hearing, listening, speech, learning, and well-being, THE DAVIS CENTER has also found a winning combination of therapies for stroke or brain injured people.

They offer therapies such as Auditory Integration Training for hypersensitivity to sound, the Tomatis® Method for integrating the processing of sound, Fast ForWord® for improving temporal sequencing of sound, BioAcoustics™ for improving one's well-being through a sound based protocol of sound, and others. Two of these therapies stand out significantly in helping people who have had strokes or brain injuries: the Tomatis Method and BioAcoustics.

### **TOMATIS® METHOD**

The Tomatis Method was founded by Dr. Alfred Tomatis, a French Ear, Nose, and Throat physician and psychologist. His research noted the importance of sound and how it impacts the general functioning of an individual. His original work was with opera singers who began losing the ability to sing in tune or reach certain notes. His expanded practice and research proved, that "the voice produces what the ear hears". He further developed a device called the Electronic Ear which helped to retrain the opera singer's voices and later helped their children become better overall students. Another discovery came from his work with monks, who had become depressed, lethargic, and lost their appetites when their abbot ordered that their chanting stop. Dr. Tomatis insisted that the chanting be renewed, in combination with their listening through his Electronic Ear, and the monks reverted back to their normal productive, and happy selves.

Dr. Billie Thompson, the founder of the Sound Listening and Learning Center in Phoenix Arizona brought the Tomatis Method to the United States approximately 12 years ago. She began using Dr. Tomatis' method with people of all ages to enhance their ability to process sound. The results dramatically improved learning, emotional, and physical skills.

The Tomatis Method stimulates the brain creating improved cortical changes. The body listens to sound via patented headphones that incorporate air and bone conduction of sound. The cochlea, which registers

and transmits sound to the brain via the eighth nerve, and the semicircular canals, (the vestibular system) are stimulated by Dr. Tomatis' headphones. The Vagus nerve, which lies close to the ear canal, is also stimulated. This nerve innervates many other parts of the body. Because of the air and bone conduction sound stimulation, the body makes changes cortically to stimulate weakened areas: the vestibular, proprioceptive, or auditory processing system. The ear is involved with movement, not just sound and its transmission. It also is involved with how one experiences their body in the time and space around them—the vestibular and proprioceptive systems.

The Tomatis Method uses classical music, filtered sound (used during passive and active phases), the mother's voice and Gregorian Chant. Dr. Tomatis believed that listening plays an important role in the processing of linguistic information. It works at 3 levels: functional, emotional, and relational. Auditory perceptual skills, motor skills, and comprehension are stimulated because sound is integrated throughout the body. Parents of children who have used the Tomatis Method report improved eye contact, social interaction, oral motor skills, vestibular issues, language skills, and behavior. Adults have used the Tomatis Method with various results. They feel more connected with their world, appear calmer, focus better, and can deal with issues easier. Stroke patients have also used the method with varying degrees of success. One gentleman, as reported on the TV show, "Sightings", started the Tomatis Method after having a stroke. His wife contacted Dr. Billie Thompson and a program was developed for him. The program involved filtered passive listening and active voice work. After a period of hard work, the gentleman developed the ability to communicate again. The method began to make some cortical connections to stimulate his linguistic center in the brain improving his oral motor skills. A connection between how the voice and the ear work together was made that helped him produce connected speech and language with enhanced oral motor skills. He was able to talk with complete sentences and better articulation. Connected discourse was also improved. Stroke patients have been helped with varying degrees but when used in combination with a speech pathologist, improvement has been seen in most cases. Oral motor and fine motor skills have also been improved, especially when combined with occupational therapy.

The program is a listening one. The minimal length program typically runs for 60 hours (15 days of 2 hours a day of listening, one month off, followed by 15 more days of 2 hours a day of listening). However, stroke patients usually need a continuation program which runs 5 to 15 days each depending upon the needs and skills of the patient. To determine eligibility an initial consultation is scheduled. Results vary from person to person.

### BIOACOUSTICS™

A second sound based therapy that has been helpful to stroke patients is a newly emerging field called BioAcoustics. BioAcoustics means "life sounds". Approximately 30 years ago, researchers discovered that the ear emits a sound, in addition to hearing sound. This sound is called an otoacoustic emission. At approximately the same time, Sharry Edwards, utilizing the research that the ear and voice are connected, as researched by Dr. Tomatis, along with her own unique capabilities created the science called BioAcoustics. It became the study of the frequencies produced by all living systems. Ms. Edwards discovered that the voice, through a vocal analysis, presents a "holographic" representation of the body in the form of a voiceprint. This voiceprint represents a person's "Signature Sound®", or set of frequencies specific to the individual. This voiceprint can be used to detect a variety of health issues. The person then

listens to specific formulated frequencies that stabilize those physical and psychological well-being issues.

The individual frequencies identified within the “Signature Sound” are influenced by a combination of genetic coding, geographic locale, brain and neural functions, biochemistry, emotions, physical structure and environmental influences. If a person’s “Signature Sound” becomes stressed, their body responds by becoming inefficient. Outside forces can interfere with the body’s ability to balance itself. BioAcoustics provides a detailed report listing the issues in stress in the person’s body. The report can be shared with a physician, nutritionist, or the client can choose to use sound to enhance their homeostasis.

In addition to identifying the person’s stressed notes and those individualized frequencies to enhance their general well-being, specific areas of stress can also be identified and enhanced. The areas of stress can be of too much or too little. For example, each muscle has its own frequency. So, if a person has a flaccid muscle (a muscle of too little strength) such as the adductor long muscle in the thigh, the specific frequency for that muscle is introduced in order to stabilize the functioning of that muscle. Over time, the muscle begins to function normally. Conversely, if the muscle is too tight, the frequency is introduced to release the tension, stabilize it, and allow it to regain normal function.

For stroke patients, both the general well-being and muscle applications are beneficial. The well-being sounds work on enhancing the total body’s health, while the muscle applications work on the specific muscles affected by the stroke.

#### EXAMPLE

March 1999: a DAVIS CENTER stroke patient presented with some speech and language skills but had limited ability in his use of speech in connected discourse without stammering or the ability to make his thoughts clear. His motor skills were also limited, requiring wheelchair or cane use. He had been a college professor and his goal was to return to teaching.

His wife reports: “On January 7, 1995 my husband suffered a major stroke. He was paralyzed on his right side and he lost almost all of his speech as well as his ability to read and write. Since then we have embarked on a rehab program that has included not only the traditional physical, occupational and speech therapies but has also included many alternative therapies as well. As a result, after five years he is still doing rehab full time (5 days a week) and is still improving. I’m always looking for anything that might help my husband. The most recent therapies that we’ve tried have been two different sound therapies. So far I’ve been pleased with the results. We started the Tomatis sound therapy first. Our main goal with this therapy was to help with his language even though I understood that the benefit would not be restricted to just language improvement. We started the program in March of 1999. Due to a car accident in April 1999, our completion of the basic program was delayed until September 1999 while my husband returned to inpatient rehab for 3 months due to several broken bones. I began to notice changes during the first half of the program. By the time we completed the basic program even his speech therapist, who could not see how this therapy could possibly help, noticed much improvement which she could only attribute to his doing this sound therapy. He could concentrate more, he was fatiguing less, he was catching on better, he was going through material quicker, and he was improving faster. She had to change her program after the therapy began to accommodate his more rapid improvement. It has affected

him in more subtle ways as well. His whole way of communicating, responding to and interacting with people changed for the better. He even started to do better in physical therapy. He also began to initiate more physical activities on his own—wanting less help, indicating that he was feeling more comfortable in his own physical abilities. Because our initial results were so positive, we will be continuing with follow up sessions.

With the second sound therapy we tried—the BioAcoustical sound therapy, our main goal was to help the physical—his ability to move and use his right side. After three months of continuous use I would say that there have been definite improvements from this therapy as well. His overall tone is improved. His foot drop, which has always been intermittent and more down than up, has improved to the point where he no longer wears his AFO brace to lift his foot when he walks. Now he only wears an aircast to support his ankle when he walks. His arm is also improving. He is starting to isolate his arm movements more and more and his arm is becoming stronger as well. I feel that his physical therapy sessions have become more productive and more effective so that he is improving at a faster rate. Even his coloring, his facial features and his posture are better.

There have been many subtle changes in my husband's behavior, his attitude and his abilities, that to me indicate improved brain function and mental ability. My husband still has a long way to go but his improvements from these two sound therapies have made them a worthwhile addition to our rehab program and we will continue to use them. I recommend that anybody who has had a stroke should consider including alternative modalities in their rehab program. Any anybody considering alternative modalities should consider these two sound therapies.

The significant success, in this case, using a combination of the Tomatis Method and BioAcoustics is encouraging and noteworthy.

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