

Sound Therapy

A non-pharmaceutical treatment for Dyslexia, ADD/ADHD, Delayed Speech, and Autistic Spectrum Disorders.



Today, more and more parents are looking for non-pharmaceutical treatments for the increasing levels of learning difficulties affecting their children. Creating a toxin-free environment is of vital importance so that growing children do not become overloaded with chemicals that the liver cannot process. Early exposure to chemicals is being linked to developmental delays and learning disorders.

In addition to good nutrition and assistance with detoxification, a very important aspect of treatment, too often overlooked by learning difficulty specialists, is treatment through auditory retraining, or Sound Therapy. This treatment is now available as a home-based therapeutic listening program which assists listening, brain function and language development. Evidence points to the potential benefit of Sound Therapy in counteracting today's environmental assaults on the developing child. Dr Veira Scheibner, who is well-known for her extensive research in the vaccination field, suggests that Sound Therapy is an important treatment to assist the child's brain to recover from the damage caused by vaccination or other environmental toxins.

Why the ear

Dr Tomatis, the ear specialist and originator of Sound Therapy, said, "We read with our ears". This theory is founded upon the fact that the ear is the only primary sense organ which is registered at all three levels of the brain; the brain stem, mid brain and cortex. In contrast, the visual sense is seated only in the cortex. It is for this reason that Tomatis believed that perceptual problems often need to be addressed through the auditory function.

Julia Dive, a tutor specialising in Sound Therapy, explains the importance of listening when a child

is learning to read: "If children can't hear the sounds, if they can't relate a sound to the symbol, then they have trouble having it register in their head and then relating that sound again to that symbol next time they see it. They need to be able to understand, see the letter, hear the letter and reproduce the sound of that letter next time they see it. And then they need to be able to blend that letter in with all the other letters that form a word and be able to reproduce that sound again. And Sound Therapy, I think actually helps that process of what happens after the sound goes into the head and then where it goes inside your brain and what your brain does with it and how it spits it back out again at the other side."

For this complex decoding process to occur, millions of brain connections are needed. Susan Greenfield, a leading educator on the human brain, explains that axons and dendrites, the tiny filaments which enable communication between the neurones, are created in response to stimulation of the brain. This stimulus could simply be from thinking about something of interest, or it could be a sound, particularly a high frequency sound. Dr Alfred Tomatis who developed the Sound Therapy program in the 1950s, made crucial discoveries on the neurological and psychological fronts. These included the fact that the brain needs a concentrated input of high frequency sound in order to function at maximum potential, and that the baby's brain develops much of its

basic structure from hearing language while still in utero. The growing foetus actually hears the mother's voice.

Dr Veira Scheibner explains that Sound Therapy creates new brain connections, restoring some of the damage done by vaccination. Once the nutritional and detoxification aspects have been addressed, many practitioners believe Sound Therapy is an important tool for restoring neurological functioning.

Other leading specialists have reached the same conclusions as Tomatis about the importance of the ear in learning. Dr Levinson, author of *Smart but Feeling Dumb* has specialised in the clinical treatment of dyslexia and ADD for several decades and, like Tomatis, concludes that these problems are somehow related to the ear. His approach, however, is to treat the ear with pharmaceutical remedies, while Dr Tomatis treated it with sound.

Conditions treated successfully with Sound Therapy

Dyslexia. Word reversal, one of the typical symptoms of dyslexia, is according to Tomatis's theory, linked to left ear dominance. Sound Therapy encourages right ear dominance, thereby improving the efficiency of the brain in delivering sounds directly to the left hemisphere which is primarily responsible for language.

ADD/ ADHD

Levinson found that ninety percent of children diagnosed with ADD/ADHD have inner ear related problems similar to dyslexics. He therefore concludes that both dyslexia and ADD originate from the same cause, but have been slightly differently defined, leading to different diagnoses. However, both have proved responsive to treatment with Sound Therapy, corroborating both Levinson and Tomatis' view that finely-tuned ear function is fundamental to learning.

Pre-Natal Listening

Dr Tomatis, made significant discoveries about the role of the ear and sound in the prenatal development of the brain. Sound is the first sense to develop fully in the womb. The foetus's ear is ready to perceive sound at four and a half months. The baby listens to its mother's heartbeat, respiration and digestive sounds. Dr. Tomatis believes that the baby can also hear the mother's voice and becomes familiar with this sound before birth.



The sound of the mother's voice with its familiar tone and rhythm is what provides continuity between the prenatal and post-natal worlds. The infant is particularly accustomed to the high frequency sounds of the voice as heard in the womb, and therefore is immediately reassured

when presented with high frequency sounds filtered to a similar level.

When the mother listens to Sound Therapy during her pregnancy, the benefits she receives is passed on to the infant. The effects of listening for the mother are a soothing of her whole system and stimulation to the cortex of the brain from the high frequency sound.

The hormonal shift experienced by the mother at birth sometimes causes post natal depression. This can be greatly alleviated by the continued use of Sound Therapy after giving birth, as well as by herbal treatment to balance the hormones.

Dyslexia

The left hemisphere of the brain is the main centre for processing language. In order for speech sounds to reach the brain efficiently, the right ear must take a leading role in listening because the right ear communicates most directly with the left brain hemisphere.

Dr. Tomatis contends that children with dyslexia have failed to achieve right ear dominance and that therefore, the order in which they hear sound becomes jumbled. The balance between the two hemispheres of the brain is of fundamental importance in overcoming dyslexia. Both hemispheres play a role in processing language, but the roles they play are different. The eye must combine with the power and the quality of the ear to make sense of the written sounds. This co-ordination happens easily when the left hemisphere deals primarily with audition and the right hemisphere deals primarily with vision. In dyslexia, the route which allows for phonic analysis has been damaged. Sound Therapy restores the functioning of this route and eliminates the cause of the problem.

Sound Therapy stimulates and exercises the ear, teaching it to receive and interpret sound in an efficient manner. Music is a highly organised series of sounds that the ear has to

analyse. Therefore, listening to music is an excellent way for a child to learn how to perceive sounds in an organised fashion, or in other words, to listen. The higher volume of sound to the right ear, which is built into all Sound Therapy recordings, means that the right ear is educated to be the directing ear. When this right ear dominance is achieved, the problem of reversal will frequently disappear.



Autism spectrum disorders

Many children with autism spectrum disorders exhibit extreme sensitivity to noise. Some frequencies are actually painful for them to hear. Dr. Tomatis suggests that in order to shut out painful sounds or other unwanted stimuli, the child closes down the hearing mechanism so that certain sounds cannot penetrate the consciousness. On a physiological level, this closing off of the ear is achieved by a relaxation of the muscles of the middle ear. Over time, these muscles lose their tonicity. Sounds are then imprecisely perceived and as a result incorrectly analysed.

Sound Therapy offers a child with autism the opportunity to re-open the listening capacity. The fluctuating sounds produced by the Electronic Ear gradually exercise and tone the ear muscles, teaching the ear to respond to and recognise the full range of frequencies. As this happens, communication takes on new meanings and the child begins to respond where before he or she was unreachable.

ADD/ADHD Sound Therapy improves attention by increasing high frequency perception, processing speed, and the ability to inhibit action and therefore decide on the appropriateness of an action before jumping in.

Autism is typified by hyperacusis or phonophobia (sensitivity to or fear of loud sounds.). Sound Therapy increases the resilience of the ear in accommodating the full range of frequencies. It also improves language integration and increases the ability for meaningful communication.

Speech problems such as stuttering and delayed speech development are frequently remedied by Sound Therapy. If there have been ear problems or emotional problems at a crucial stage of development, neural patterning may be interrupted. Sound Therapy stimulates the process of speech patterning and allows listeners to catch up with speech development.

Down's syndrome. Research in recent years has shown that hearing problems play a major role in the disabilities experienced by children with Down's syndrome. As both hearing and auditory processing are improved, children with Down's syndrome show significant social and learning improvements.

Pre-natal development. Dr Tomatis investigated the role of sound in the unborn foetus and demonstrated that much of the neuronal patterning of the brain is laid down as a result of the child listening to its mother's voice while in the womb. When the mother listens to high frequencies, her voice is stimulated, having a beneficial effect on the developing foetus.

Inner ear dysfunctions

The ear has been described as "the Rome of the body," because so many of the cranial nerves are linked to some part of the ear. The auditory nerve has branches surrounding the ocular motor nerve, indicating its

control of eye tracking. Dr Levinson says, "The inner ear system has been proven to direct and guide our eyes and tracking responses automatically during the reading process."

Through thousands of case studies Levinson came to the realisation that in every case of dyslexia the unifying factor was inner ear dysfunction. He realised that dyslexia affects every aspect of one's life; auditory and visual processing as well as motor coordination and balance, both waking and sleeping. Hence, he says: "I came to view the inner-ear system as a fine-tuner for the entire sensory input and motor output system." This led to understanding of the role of the cerebellum, which could be seen as the grand central station linking the local exchange of the inner ear to the final destination of the cortex.

The cerebellum

The cerebellum plays a significant role in sensory coordination, both visual and auditory, and has been dubbed by Susan Greenfield the 'autopilot of the brain.' Levinson believes that any learning difficulty associated with auditory processing problems is linked to the cerebellum.

The following graphic description of the cerebellum and its vital gate-keeping role in the human body is from a Scientific American article by R. Snider. With a group of outstanding neurophysiologists he reached these conclusions after completing a series of animal experiments.

"In the back of our skulls, perched upon the brain stem is a baseball sized, bean-bag shaped lump of grey and white brain tissue. This is the cerebellum, the "lesser brain." In contrast to the cerebrum, where men have sought and found the centres of so many vital mental activities, the cerebellum remains a region of subtle and tantalising mystery, its function hidden from investigators....Its elusive signals have begun to tell us that,

while the cerebellum itself directs no body functions, it operates as monitor and coordinator of the brain's other centres and as mediator between them and the body..."

Many other studies have corroborated the evidence for the inner ear dysfunction theory. When numerous dyslexics tested at four leading hospitals with electronystagmography (ENG), a special physiological inner-ear testing method, 90% showed definite evidence of inner-ear dysfunction.

Correspondence with Tomatis' views

Levinson analysed 35,000 dyslexics, the largest sample ever, he claims. He paid great and detailed attention to all symptoms he observed, and eventually wove the symptoms together into a new understanding of dyslexia. His conclusion was the same as Dr Tomatis' that dyslexia is caused by an inner ear dysfunction, which can affect capabilities in any or all of the following areas:

Reading, writing, spelling, mathematics, memory, direction, time, speech, hyperactivity, overactivity, impulsiveness, concentration and distractibility, ADD ADHD, phobias and related mental behavioural disorders, balance and coordination.

Autistic Spectrum Syndrome

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