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THE HISTORY OF SOUND THERAPY

A Historical Review of the work of Dr Tomatis and Supporting Literature

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A Historical Review of the work of Dr Tomatis and Supporting Literature

By Rafaele Joudry BSW

Introduction

In the 1940s Dr Tomatis, a Paris based ear, nose and throat specialist conducted clinical trials with singers, aeroplane mechanics and others to determine how their hearing was affected and whether it could be improved.

He went on to develop a method of treatment which addresses hearing and listening from both the physical and the psychological aspects. His work was applied most extensively to children with learning disorders and in language learning centres. Extensive anecdotal data and survey results indicate improvement for certain hearing disorders. Through his experiments Tomatis also discovered that high frequency sounds, softly played stimulate and replenish brain energy. He believed that a regular dose of high frequency sound is essential for optimum functioning of the cortex. His method also appears to assist cerebellar integration, leading to improvement in numerous neurological disorders.

1 Background

Dr Tomatis was one of the remarkable pioneers of our time. An inventor, innovator and researcher, he gave us the practical application of Sound Therapy, a unique and valuable tool for healing and education.

Marilyn Ferguson, author of *The Aquarian Conspiracy*, called him an irrepressible pioneer. Others have called him a genius. Another great man, Buckminster Fuller, says "There is no such thing as a genius, some of us are just less damaged than others." If this is so, Ferguson suggests, Tomatis is one of the less damaged. To be so, after the trials and vicissitudes of his background is testament to the optimism and resilience of his inner nature.

Tomatis was born in Nice in 1919. His father was Nicoise and his mother Italian. His birth was apparently not wanted or anticipated. His mother was only 16 years old and had done everything to hide or suppress the growth of the baby, including wearing the restrictive corsets of the time. Tomatis was born two and a half months premature and weighed just under three pounds. The midwife took one look at him and immediately discarded him in a waste basket, believing he was dead.

Tomatis says that he owes his later work on the importance of prenatal life to his own painful beginning.¹ He believes this engendered his desire to search for and understand that lost nirvana of the womb from which he was ejected too soon.

Tomatis's relationship with his mother was fraught with difficulty and lack of rapport. Her family background was one of superstition and poor linguistic ability. Yet Tomatis, far from taking a victim stance in relation to this poor maternal bond, instead expresses gratitude for the insight this difficult relationship gave him and how it later fuelled and informed his pioneering work in the field of psychology.

Tomatis's first language was Nicoise, a fifteenth century language which had more in common with local Italian dialects than with French. He did not become fluent in French until his early teens. He did very poorly in his early schooling due to an unstable home life and repeated childhood illnesses. Tomatis's relationship with his mother was fraught with difficulty and lack of rapport. Her family background was one of superstition and poor linguistic ability. Her only area of excellence was her cooking. She saw Tomatis as an obstacle to her closeness with his father, as he restricted her ability to travel with her husband on his many tours as a celebrated singer. Yet Tomatis, far from taking a victim stance in relation to this poor maternal bond, instead expresses gratitude for the insight this difficult relationship gave him and how it later fuelled and informed his pioneering work in the field of psychology.

¹ Tomatis, A.A.The Conscious Ear. Station Hill Press. New York, 1991.

His father, on the other hand, who was a well known singer, was the source of many of Tomatis's exceptional character traits and the parent who gave him his sense of personal value as well as both the emotional and practical support to excel in life.

Perhaps it was the great contrast between one parent who could listen and one who could not that gave Tomatis his deep insights into the importance of listening.

Another great source of inspiration to Dr Tomatis was a doctor who was called to treat him during one of his many childhood illnesses. At the time he was suffering from three fevers, which he had contracted simultaneously, typhoid, Maltese fever and typhus murin. A parade of doctors had failed to diagnose his condition so finally the well-respected Dr Carpocino was called. After examining Tomatis he pronounced, "I don't know what is the matter with him. I must search for the answer." He did indeed search and succeeded in diagnosing and treating the small boy. It was his statement "I must search" which had the most profound effect on Tomatis's development and career choice, for from that moment on he decided to do the same. He would become a doctor so that he could search for answers to what he did not know. Tomatis pursued his education with his characteristic determination and succeeded eventually in being qualified in the specialty of ENT (Ear Nose and Throat surgery.)

2 Tomatis's research

After World war II Tomatis pursued his longstanding desire to enter the field of medical research. His choice of specialty was stimulated once again by his love and admiration for his father. He had observed singer friends of his father's who had vocal problems which mystified the doctors of the day. He hoped that he could help them so he decided to go into ear nose and throat medicine (ENT). His dream was to aid singers who had damaged or lost their voices.

On completing his ENT studies the only way that he could begin doing research was to acquire his own rooms and fund and set up his own clinical laboratory, which is exactly what he did. Operating on a shoestring, he started amassing clinical data on audiometric tests. He focused on aeroplane mechanics, many of whom had worked in highly detrimental sound environments during the war.

After testing in several different situations, Tomatis noticed that the same subjects produced different audiometric results depending on their beliefs about the possible implications for their career. In situations where they feared job loss, their hearing results came out quite well, but there was unprecedented change when they had heard news that hearing damage could result in a good pension. Tomatis writes, "I was surprised to discover that a perfectly sincere individual, but one who wanted to be diagnosed as deaf, was able to lower his auditory threshold by ten, twenty and even thirty decibels."² He was convinced from comparing these results with his interview experience that these motivations were entirely subconscious.

It was now that it struck him that in order to "find out what he did not know" in his medical field he would also have to investigate psychology. He was shocked to realise the huge lack of psychological content in his medical training.

Meanwhile Tomatis's father had begun referring singers to his son, and he began prodding around in the singing literature attempting to unravel the mysteries of the voice. At the time the prevailing theory was that the voice was controlled by the larynx and if the singer could not reach a particular note it was due to a malfunction of the larynx. Initially Tomatis prescribed strychnine, the standard medical treatment for overstretched vocal chords, and also male hormones, a favourite of wartime medicine. This appeared to be working until two of his patients "choked" on the stage. Now Tomatis had a flash of intuition which was the key to his first major discovery. He decided to subject the singers to audiometric tests, the same that he had been administering to those people with occupational deafness. He noticed a surprising similarity in the audiometric curves. Could it be, he asked, that the singers had deafened themselves with their own, loud voices? By measuring the intensity of their voices with a sonometer he established that powerful singers could reach 130 or 140 decibels, certainly enough to cause deafness with continued exposure! Especially since 130 decibels at a metre's distance represents 150 decibels inside ones skull!

In his study of psychology Tomatis developed his ideas on the wholistic nature of language as it represents our evolving consciousness within our environment.³ He was inspired by the work of Negus who determined that ducklings could recognise the sound of their mother's voice at birth, and from this deduced the fact that much of our neurology for language comprehension is laid down while still in utero.

Dr Agatha Sidlauskas, a psychologist and long time proponent of Tomatis's work has perhaps the best overall grasp of how the intricate physical involvement of he ear in the entire nervous system implicates its profound role at more psychic levels of our being. "The integration of the ear with the rest of the organism means that to be able to speak one must be able to

² Tomatis, A.A.The Conscious Ear. Station Hill Press. New York, 1991.

³ Sidlauskas A E, PhD, Director of Child Studies Centre, The University of Ottawa, The Phenomenon Of Language p 1 and Sidlauskas A E, PhD, Language the Ideas of Dr Alfred Tomatis, Revue Internationale D'audio-physcho-phonologie no 5 Special- April-May 1974

control posture, to direct his gaze, to be sure of inner dynamics and be capable of hearing sound and to analyze its intake."⁴

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Tomatis now began to investigate and compare the size of larynxes vis à vis the voice structure against the shape of the audiogram in relation to the voice. He had to conclude from the evidence he gathered that the voice was controlled not by the larynx but by the ear. He was able to verify from his test results that a scotoma (an absence of certain frequencies) in the audiogram exactly matches the same loss of frequencies in the voice. Thus in 1947 Tomatis came to the formulation of his first law: "the voice only contains those frequencies that the ear can hear," or as he likes to put it, "one sings with one's ear."⁵

Tomatis had married by this time but, as he freely admits, the relationship was completely unfulfilling as there was no rapport between him and his wife. As he states in his autobiography, The Conscious Ear, "There was no love because there was no communication; there was no communication because there was no love."

Tomatis therefore continued to lose himself in his work. He invented and manufactured a sonic analyser which enabled him to analyse the frequency distribution of a voice.

Tomatis's next major discovery was that self listening and voice production is controlled by the right ear. This is because the passage of nerve impulses connecting the ear to the larynx and to the cranium is more direct on the right side of the body. The recurrent laryngeal nerves (belonging to the tenth pair of cranial nerves, the vagus) have to cover a longer route on the left side for two reasons. One is that they have to go around the heart. The other is that the central laryngeal motor area is situated in the left brain. In other words, our main speech centre is in the left brain, and this is most directly reached via the right ear. Due to the cross-over of all nerve impulses between

⁴ Sidlauskas A E, PhD, Director of Child Studies Centre, The University of Ottawa, The Phenomenon Of Language p 16

⁵ Tomatis, The Conscious Ear p 44

the brain and the body, the left ear communicates directly with the right brain while the right ear is wired straight to the left brain.

This means that the right ear has the more efficient route on two counts: for language reception and vocal production. Therefore it must direct. Tomatis says categorically that all great singers and musicians are right-ear dominant. He also states, and other learning specialists confirm his findings, that it is a requirement for efficient processing of language for *any* person that the right ear must lead. We function more efficiently if the right ear directs our listening.

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Tomatis confirmed this discovery through experiments with singers. He found that when listening to their voices through the left ear, they lost a large part of their ability, were unable to follow the beat or to make their voice give out its true sound.

Tomatis discovered that Enrico Caruso, whom he considered the greatest singer of his time, owed his superb ability to a partial deafness in the right rear. Due to an operation that blocked his Eustacian tube, Caruso was deaf to the low frequencies in his own voice on the right side. The fact that he heard and reproduced only the high frequencies led to the superb and unique quality of his voice. As an experiment Tomatis decided to give this same listening structure to other singers. He was able to do this by retraining their self-listening with his special filtering device. Not only did it improve their voices but the patients unanimously declared that they felt much better after the treatment.

This led Tomatis to his realisation that we need to receive daily doses of high frequency sound in order to stimulate the cortex of the brain and replenish its energy stores. Tomatis said that we need to receive three thousand stimuli per second for four and a half hours per day in order for the brain to function at maximum potential. This is perhaps the most important of his discoveries. High frequency sounds stimulate the brain while low frequencies deplete and diminish brain energy. If we receive the necessary daily input of high frequency, charging sounds, Tomatis found that creativity and thinking ability are enhanced, energy rises and depression is often alleviated.

During this period, Tomatis was developing the device which he eventually called the Electronic Ear. This machine had the capacity to feed back the

subject's voice with the frequencies altered so that they could hear themselves in the correct way. Thus their ear was reconditioned to accurate hearing, and the voice was also corrected. Later Tomatis found that he could achieve the same result by playing music through the Electronic Ear, specifically the music of Mozart. He found that provided the subject experienced these altered sounds repeatedly for a certain period of time, the effects would last.

In later years Tomatis trained many different practitioners to use his method and so it became available in about two hundred centres around the world, in addition to his centre in Paris.

Distinctions awarded to Tomatis as recognition of his early work were as follows:

Chavalier of public health 1951

International Scientific Research Gold Medal at the Brussels World Fair (1959) awarded for the Tomatis Effect Electronic Ear.

International Scientific Research Bronze Medal at the Brussels World Fair (1959) for the Tomatis Automatic Audiometer.

Grande Medaille de Vermail of the City of Paris (1962)

Clemence Isaure Prize. March 1967

Arts, Science and Literature Gold medal. April 1968.

Tomatis always made a distinction between hearing and listening, being of the belief that the psychological predisposition or willingness of the subject had a profound impact on his ability to listen. The test used at the Tomatis centres is called a "listening" rather than a "hearing" test to qualify this distinction. Hearing, Tomatis explains, gives no indication of the engagement of consciousness.⁶

"The listening test is capable of integrating this information in the framework of a pshychological process which shows whether or not the subject wishes to make use of the material he has at his disposal on the perceptual level. We all know the old saying "They have ears and they don't hear; they hear but they wont listen." There are different levels of involvement in hearing and listening, and the listening test allows us to assess how much the subject is capable of making of his audition."⁷

⁶ Tomatis Dr AA, Introduction to the Listening Test, Observations made during the Third International Congress of Audio-Psycho-Phonlology (Anvers 1973) in a question and answer session with Dr AA Tomatis, translated by Mrs J T Williams for Dr A E Sidlaluskas, Director of the Child Study Centre, University of Ottawa, P7

⁷ Tomatis Dr AA, Introduction to the Listening Test, p7.

Recent brain research by Ted Carrick, an important pioneer in the field of chiropractic neurology, indicates that rather than simply psychological factors, brain function and in particular cerebellar integration, determine the essential listening and attending component needed to complete the act of hearing, particularly the ability to focus ones hearing in the face of other sensory inputs, distractions and background noise.⁸

3 Clinical Studies

In the last few decades there have been numerous controlled studies, clinical experiments and case histories, primarily in Canada, South Africa and Australia, which confirm benefits of the Tomatis method for a variety of conditions. These have been done firstly on the clinical Tomatis treatment and more recently on the portable treatment developed by Patricia and Rafaele Joudry. A brief summary of these studies follows.

4 Canada

Sandislands and Lethbridge, (Sandislands 1989⁹) compared 32 underachieving children with a control group of 40. The treated group showed greater improvements in listening, oral reading and behaviour.

Weiss (Weiss, 1985¹⁰) compared three theater students who, after seven months of Sound Therapy, showed a shift of vocal energy to the higher frequencies and better articulation.

Wilson (Wilson, 1982¹¹) found that a group of pre-school language disordered children after Tomatis therapy showed statistically significant improvement in their ability to express thoughts and feelings in words.

Gilmor (Gilmor, 1982¹²) found improvement in children and adolescents' self concept, social and family relations and certain language and motor skills.

Rourke and Russel (Rourke and Russel 1982¹³) compared experimental and control groups and found improvement in IQ of learning disabled children under Tomatis treatment.

⁸ Noone Dr Paul, Waking Up the Brain course notes, Ted Carrick Institute, Sydney 2003.

⁹ Sandislands, M, The Tomatis Listening Training Program: A Quasi Experimental Field Evaluation, International Journal of Special Education 1989

¹⁰ Cited in Stutt, Howard A, The Tomatis Method: A Review of Current Research. McGill University, 1983.

¹¹ Wilson, B.C., Iacoviello, J.M., Metlay W., Risucci D., Rosati, R. & Palmaccio, T., Tomatis Project Final Report. The Listening Centre, Ontario, 1992.

¹² Stutt Ibid.

Two doctoral theses on the effect of the Tomatis method on five dyslexic boys showed improved cognitive control and audio-vocal control in four of the subjects. (Roy and Roy,1980 14)

5 South Africa

Van Wyk, compared 20 stutterers with 20 normal speakers and found that more stutterers have left ear dominance, confirming Tomatis' hypothesis of the importance of right auditory laterality. (Van Wyk, 1974¹⁵) This was also confirmed by Badenhorst, who found that right eared people communicate more easily. (Badenhorst 1975¹⁶)

Jaarsveld (Jaarsveld 1974¹⁷) treated a group of 43 stutterers, in which 82% got significant relief from the treatment, and 54% retained the improvement for a year or more.

Peche, treated a group of 10 students and found that Sound Therapy helped to alleviate anxiety and remove psychic blocks. He concluded that it is beneficial in conjunction with psychotherapy. (Peche 1975¹⁸)

Botes found improved relationships and self concept in an in depth study of three clients with neurotic depression when treated with Tomatis therapy. (Botes, 1979^{19})

A long term study by Du Plesis over 14 months with subjects carefully selected from a survey of 424 people showed improved mental health and self actualization for both 10 anxious and 10 non anxious people who had Tomatis treatment, as compared to a control group. (Du Plesis 1982²⁰)

De Bruto, (De Bruto 1983²¹) found a statistically significant increase in the mental age of profoundly retarded children after Tomatis treatment.

¹³ Ibid

¹⁴ Ibid

¹⁵ Cited in Ivan Jaarsveld, P.E. and du Plessis, W.F. Audio-psycho-phonology at Potchefstroom: A review. Potchefstroom University of Higher Education, 1988.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Ibid.

²⁰ Ibid.

²¹ Ibid.

The following studies were done using Joudry's portable program of the Tomatis treatment method.

6 U.K.

The audiometrician, Eric Jordan, trialled the Sound Therapy tapes on an unspecified number of subjects and claimed he found that 90% of tinnitus sufferers got some relief as a result of Joudry Sound Therapy tapes.

Jordan reported that the majority of patients found that the therapy alleviated their tinnitus to the point where they were able to enjoy life a lot more. Some of the younger patients achieved total remission and as they were not on any medication there were no apparent contributing factors other than the Sound Therapy. A number of Jordan's patients also reported an improvement in their hearing.

Jordan attributes the success of Sound Therapy in part to the fact that the music soothes hyperactive brain cells which have been the cause of tinnitus. For this reason he surmised that Sound Therapy is more effective than tinnitus maskers.

7 Australia

Special education teacher, Elizabeth Rintel, used Joudry tapes for learning disabled children and found they advanced faster in reading, spelling and auditory discrimination compared to a control group. (Rintel, 1995.²²)

Sound Therapy Australia (Joudry 1994. ²³) undertook a three year survey of 388 respondents which showed 45% to 100% symptomatic improvement in subjects. The percentage who reported a positive outcome for each condition was as follows: tinnitus, 84%; hearing loss, 56%; stress, 86%; fatigue, 84%; sleep problems, 75%; communication, 78%; learning difficulties, 85%; speech problems, 64%; depression, 100%; headaches, 100%; jet lag 100%, and for general well being, 80%. 93% of subjects observed some positive results in at least one area.

Bell, undertook a case study using Joudry tapes on a year 2 boy with delayed development. As a result of the program and according to evaluations undertaken by his mother, the experimenter and his teacher, he showed improved social behaviour and began to read. (Bell 1991 ²⁴)

²² 4. Rintel, E and D. Sound Therapy for the Learning Disabled Child: The Effect of High Frequency Filtered Music on Listening and Learning Ability. Brisbane, 1994.

²³ Joudry, R, Sound Therapy Manual for Practitioners, Sound Therapy International, Sydney 2000

²⁴ Bell, E, An Ethnographic Report and Evaluation of the Implementation of Audio Psycho-Phonology (Sound Therapy) in the Support of Timothy, Griffith University Thesis 1991. Published in Background reading for Sound Therapy International Certificate Course, 2000.

Hearing Instrument Specialist, Paula Richards studied the effect of Sound Therapy on hearing environmental sounds while listening and found almost no impairment of the ability to hear surrounding noise while the tapes are playing, meaning that it is quite safe to use Sound Therapy during daily activities. (Richards 2001²⁵)

8 The portable program

Sound Therapy was adapted for cassette tape in the 1980s by Patricia Joudry and Rafaele Joudry, authors of *Sound Therapy: Music to Recharge Your Brain* and *Triumph Over Tinnitus*. This meant that thousands of people who did not have access or time to attend the lengthy and costly clinic process could now use the therapy during daily activities. Long term use brought to light more benefits in the areas of sleep, improved energy, reduced stress, relief of tinnitus, improved sound differentiation and in some cases better hearing.

Interestingly, the only studies to examine the effect on hearing and ear related problems were the ones using the portable method. It was only with the advent of the portable method that the effectiveness of Sound Therapy for hearing disorders became apparent, as it usually requires long term treatment to see effect in these areas. These studies however were not rigorously controlled and further research is needed to explore the anecdotal evidence which points to many incidences of improved hearing, reduction in tinnitus, improved ability to differentiate sound in a noisy environment, recovery from recurrent and intermittent ear blockage problems, infections, excess wax production and ear related balance disorders.

9 Conclusion

There is no doubt that Dr Tomatis is one of the most innovative and significant researchers in the field of Sound Therapy. His method is strikingly unique and has spawned several branches and offshoots of those wishing to emulate his results. The unique characteristics of the Tomatis approach are that it uses classical music filtered with a device that responds to the qualities within the music but augment its frequency variation. This device, called the Electronic Ear by Tomatis, has given rise to a number of similar variations. Tomatis's theories about the developmental importance of the mother's voice and the process of rebirth through sound are also unique, as is his assertion that high frequency sounds are inherently beneficial and recharging for the brain.

²⁵ Richards, Paula, An experimental paper to assess the effect of listening to Sound Therapy on background noise perception, submitted for Certificate Course Sound Therapy International 2001.

Tomatis was a deep and dedicated thinker and researcher, driven always by his desire to know, and was completely immersed in his clinical investigations and discoveries. He also had a tremendous rapport with his patients, some of whom reported an epiphany of awareness and a watershed moment in their hope and self esteem after meeting him. His understanding of the process by which sounds reach first the inner ear, and then the language centre in the brain, enabled him to bring relief to those who had previously mystified teachers: sufferers of dyslexia, stuttering and other more general language processing disorders.

No other method of sound therapy has reported the same fundamental changes in people's ability to process auditory information and therefore to function in life, and this leaves Tomatis as a shining example of what a true scientist can offer to the world. **REFERENCES:**

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