

# **YOUR VOICE IS A BAROMETER OF YOUR HEALTH**

## **A Short Introduction to the Tomatis Listening Therapy**

Not everybody has the knowledge of Dr. Alfred Tomatis to diagnose an internal problem just by listening to the sound of a voice, but we should realise that vocal characteristics such as croakiness, shrillness, lack of timbre, nasal tones, weakness and mumbling are all clues of a listening disorder in the ears and that the ears in



turn are linked to various organs of the body. According to Tomatis, the entire nervous system is under the control of the ears because the fifth, seventh and ninth cranial nerves together with the tenth cranial or vagus nerve; which are each connected to our sense of hearing, also connect with all the muscles and organs of the body. “This suggests”, in Don Campbell’s words, “that auditory vibrations from the eardrum interact with parasympathetic nerves to regulate, control and ‘sculpt’ all the major organs of the body”<sup>1</sup>. It follows that disorders in listening reflect disorders in the body.

Like many therapies on offer today the listening therapy known as “Tomatis Therapy” is named after its founder. As in many of the other therapies, the life story of the founder is intimately linked to the discovery of the therapy and hence it is appropriate to sketch in the significant events that lead a young medical student from the south of France to formulation of concepts and practical solutions in the treatment of a number of communication disorders.

### **The Background**

Born two and a half months prematurely in 1919 in Nice Alfred A. Tomatis was pronounced dead by the midwife who lifted him up by his right ear and dropped him

in a basket. Fortunately his maternal grandmother had enough love and instinct to revive him. Significantly in view of his later discoveries, his mother was Italian, his



father French and the language spoken at home was Nicois- “the few rare old Nicois who also spoke French had to learn it like a foreign language”.<sup>2</sup> Communication with the mother was poor, she never mastered French or Nicois and “she gradually lost the mastery of her native tongue”.<sup>3</sup> His father was an internationally renowned bass baritone and this early exposure to the tradition of classical music was also to be very significant in view of his later research. Finally it was during a childhood illness that young Alfred decided to become a medical practitioner. A Dr. Carcopino after examining him said, “I don’t know what’s the matter

with him. **I must search** for the answer.”<sup>4</sup> These words left an indelible impression on his young mind.

Tomatis undertook his medical studies during and just after the Second World War in Paris. Towards the end of the war he rejoined the army and served in the medical corps whilst continuing his studies. He was attracted from the start to Otolaryngology (ENT), not least because, “Very early I became aware of certain difficulties encountered by singers who were my father’s friends, and though I very much wanted to solve their problems, the medicine of that era was slow to find a solution.”<sup>5</sup>



Following the war Tomatis worked in Bretonneau and it was whilst undertaking research into occupational deafness at an armaments factory that he made the observation that listening is dependent on psychological factors - intent and will.

Initially workers at the plant had mistrusted the auditory tests in the mistaken belief that those with defective hearing would be weeded out and sacked. Once Tomatis had gained their trust, the results were radically different. “I had a lofty premonition of the importance of psychotherapy in healing not only psychological problems but also physical ailments.”<sup>6</sup> The results of his research confirmed that vocal deficiency always accompanied an auditory deficiency. He continued his researches throughout the following years and through his father’s contacts he was able to examine many singers and analyse the quality of their vocal production. It was during a conversation with the great tenor Gigli, in which they discussed Caruso’s vocal technique, that the idea first came to him of what has come to be known as the “Electronic Ear”. He observed that Caruso operated a sort of switching by passing from a low pitched to brilliant sound. This in effect is the gating system of the electronic ear, in its natural form. The way a particular singer produced sounds was a response to a particular auditory phenomenon operating in the ear. The first Electronic Ear was made in 1954 and these devices have been a regularly updated and improved feature of the therapy ever since. In 1957 the French Academy of Science and Medicine formally recognised the “Tomatis Effect”, also known in the English-speaking world as the three laws of Tomatis. The “Effect” or “Laws” are as follows:

1. The voice contains only those frequencies that the ear hears.
2. If a defective ear is given the capability of hearing the lost or impaired frequencies correctly, these are instantly and unconsciously restored to the vocal emission.
3. Sufficient auditory stimulation maintained for a determined period of time modifies, by retention, the self-listening faculty of the subject and consequently his phonation.



In the following years Tomatis has continued to research and develop his ideas and practice and today there are Listening Centres throughout the world where the Tomatis Therapy is practised.

## The Therapy

At the outset the fundamental difference between hearing and listening must be recognised. Hearing is essentially a passive, indiscriminate response to sound. Listening on the other hand is an active response to the phenomena of sound; it focuses in on certain sounds to the exclusion of others. It involves the will as well as a neurological process and the effectiveness of one's listening plays a role in the effectiveness of one's communication with the rest of the world. Through stress and anxiety, whether emotional or physical we tune out from certain frequencies as a defence mechanism, thus losing our ability to tune in to them again. Listening itself can be further divided into; external listening, that is focussing on the sounds outside of us, the sounds of play, work, travel, etc.; internal listening, the sounds of our own speech and phonation and vestibular listening, deriving from the vestibule of the inner ear which controls our sense of balance and co-ordination particularly with respect to our verticality. All three aspects of listening can be improved by undergoing a course of listening therapy.

“The human ear is the first sensory organ to develop”<sup>7</sup> and from four and a half months before birth the ears of a child are fully functional. In view of this it is now generally accepted that a child hears in the womb and it already recognises and indeed **listens** for its mothers voice before and after birth. Tomatis has always emphasised the vital role that the mother plays in listening and in therapy involving children with listening problems a recording of the mothers voice is desirable. It is self-evident from this that of all our senses hearing is the primary one. “In the beginning was the Word...”

The course of treatment with the electronic listening device is intensive and tailored to suit the requirements of the individual client. In a “normal” course of treatment the client will first listen to sounds that are gradually filtered until it eventually reproduces the sounds of the womb. The sounds are filtered by two electronically controlled “gates” of the listening device, which successively relax and stimulate the ear. In particular, the hammer and stirrup muscles of the middle ear are contracted by this process. “The former acts as on the convexity imposed upon the eardrum, which behaves like an acoustic lens...The latter muscle...regulates the activity of the inner

ear which acts in the manner of a prism, displaying the range of sounds in an acoustic spectrum or rather more poetically, in a sound rainbow.”<sup>8</sup> Apart from the mother’s voice the music of Mozart and Gregorian chant are used exclusively. Tomatis observed that of all music used in the therapy these two produced the most significant and dramatic results.<sup>9</sup> The reasons for this are clear. Gregorian chant follows the beating of the human heart and breath more closely than any other musical form. Furthermore Gregorian chant produces consistently more high frequencies than any other form of sacred chant from around the world. The music of Mozart too, is particularly rich in these high frequencies, which charge the cortex of the brain. In effect it provides an auditory diet of high-energy foods with the minimum of digestion - a vitamin bomb for the brain if you will. In addition to this Tomatis states that “even before his birth Mozart was saturated with music....Even while listening in his mother’s womb, he created neuronc musical ‘engrams’ and adjusted his listening posture accordingly. It is not inappropriate to say that musical expression was the true mother tongue which enabled Mozart to communicate with the entire universe.”<sup>10</sup> It follows from this listening “precocity” that in the case of the mother’s voice being not readily available for certain types of therapy, the music of Mozart is the ideal substitute. As implied above, this initial stage is designed to stimulate memory traces of an earlier foetal stage of existence, a stage in which sounds were heard through a liquid barrier of amniotic fluid.



Following this initial phase, the client undergoes a so-called “Sonic Birth”. This takes place in imitation of the transfer from liquid to airborne sounds. “Several sessions are needed to accomplish this transition.”<sup>11</sup> Little by little the sound is de-filtered. The experience will be “a sort of sonic blur- just like the one experienced by the newborn child when the middle ear is emptied of amniotic fluid and filled with air”.<sup>12</sup>

The third stage is active and involves not only the listening to filtered music but also participation by the listener. Reading aloud, chanting and singing are used to bring about the rhythms of language. From this a full stage of language integration follows.

Several factors make the Tomatis method unique from other listening based therapies. The most noticeable for the layman is the fact that the treatment must take place at a listening centre. The listening device is set with various parameters that must be controlled and progress of the client monitored to adapt to the changes that take place. Less obvious, but of supreme importance is the treatment of sound through bone conduction. In Tomatis’s view listening through bone conduction is what “**all** great listeners”<sup>13</sup> use. Further, “The listening function does not affect only the ear. It mobilises the entire nervous system by means of the vestibular apparatus...In fact, the vestibular apparatus controls everything to do with posture and gesture.” Tomatis goes on to explain that, “Now the function of the vestibule is set off by bone conduction which, in this context, precedes air conduction.”<sup>14</sup> Sound travels not only through the air, it also travels ten times as fast through dense material like bone.<sup>15</sup> Therefore, bone conduction is important not only for imitation of the intrauterine mode of listening but also for improvements associated with co-ordination, balance and sense of rhythm. Furthermore, as Bradford S. Weeks records the mastery of ritual chant in Tibetan Chant for instance is intimately bound up with bone conduction. “Speaking technically the goal for the monks is to make their bones sing, thus sparing their throats”.<sup>16</sup> Without this mastery of bone conduction the chanter risks damaging his larynx and body. This ties in perfectly with Tomatis’s claim that “it is the intuitive technique that all great singers possess”<sup>17</sup> that is, it is the skeleton that sings whilst the larynx remains in a totally relaxed condition. As a practical example of this lack of bone conduction at 2000 hertz, Tomatis has observed that when most Westerners make an “OM” they make “a flat sound that is without timbre...that doesn’t lead



anywhere and on the contrary tires the subject”, which is the opposite of the desired purpose of the exercise.

Equally important is the precession between the two modes of hearing, that is, the respective delay in listening response between the two media through which the sound passes. If the bone does not precede the air conduction then the auditory reactions are distorted and blocked – like putting the cart before the horse. Tomatis also places great emphasis on the leading or dominant ear. The right ear should be the dominant ear, but problems can occur if there is mixed dominance, in other words there is a confusion in the messages received and the analysing of sounds, e.g., dyslexia, obsessional behaviour, timidity, loss of vocal control (singing out of tune).



The audiometric tests that the client undergoes at regular intervals in the course of the treatment record the changes in both airborne and bone conducted sound, the selectivity (the ability to analyse sound over twelve octaves and the preference that the ear has for certain frequencies) and laterality (ear dominance).

## **Applications**

Clients undertake a course of therapy for a variety of reasons. In the case of children, perhaps the most frequent reasons for undergoing a treatment are with respect to learning disabilities, auditory processing problems, dyslexia and autism.

Adults are motivated to participate in the therapy for a wider variety of reasons. For instance, learning a foreign language,<sup>18</sup> in which tuning in to the frequencies of a particular language help in assimilating the language more quickly and with a greater degree of vocal confidence and skill.<sup>19</sup> Accent and comprehension are improved in a shorter amount of time and with less effort. Business people, those that rely on good vocal communication skills can benefit enormously because an improved vocal

production makes the voice more vibrant, expressing confidence and conviction. The auditory re-training spontaneously releases and relaxes the jaw and improves posture. As related above the charging of the cortex has the effect of increasing energy levels – meaning that the subject has more concentration over longer periods of time and less sleep requirements.

Singers and musicians can also benefit in their professional work. In my studies on classical singers, many of them are dyslexic or at least display dyslexic tendencies. I believe that this is a major factor in their choice of career because they are naturally drawn more to the intuitive hemisphere of their brain than the analytical/logical. By undergoing the therapy they are able to negotiate their own careers better without the constant need of back-up support in the way of teachers and coaches, love and approval.

The above instances are by no means exhaustive of the benefits that may be gained.<sup>20</sup> Much depends on the willingness of the client to change. Listening is a voluntary activity. Fortunately, in the early phases the therapy does not require concentration or active responses—indeed even sleeping during listening is just as effective as being awake and alert to the music.

## **Case Studies**

**No.1.** The subject is a male of 47 years. He reported that he could not sing in tune and wished to gain more tonal control and musical appreciation. His initial listening assessment showed that his left ear had been damaged diving 15 years ago; and ever since then his voice has sounded to himself, as if he had a head full of water. His right ear showed a scotoma<sup>21</sup> between the frequencies of 1000 and 2000 hertz, indicating the lack of tonal control and pitch. In other respects the curve did reveal great natural musicality. His selectivity was closed from mid to high frequencies. After receiving listening therapy he reports that tension has been released from his neck; his sinuses have cleared around the eyes and nasal passages; he feels his ears to be no longer foggy as if under water and that although he has regularly practised yoga for over 15 years he had never experienced such deep and natural breathing as during the chanting sessions. His voice is now richer and more resonant and he feels he has



much more control over his voice in giving presentations. His listening assessment shows that his selectivity has opened up in both ears, he has regained some hearing loss in the left ear and has harmonised his listening curve in the right ear.

**No.2** The subject is a female of 40 years and a professional classical singer. She initially reported an inability to be independent from teachers over a long period of time and the subsequent distress before performing when in foreign countries and away from her “security blanket” back-up team. She also reported that her voice was often a victim of her allergies. Her initial listening assessment showed closed selectivity in the high frequency band; a scotoma in the right ear between 1000 and 2000 hertz and a rather low threshold of sound in the left ear. After the initial two weeks she reported that her peripheral vision had opened up, indicating the “tunnel vision” she had suffered from before. In addition to this her posture had straightened itself, her breathing was diaphragmatic and relaxed, and that her stress level had dropped dramatically. The listening curve had indicated completely open selectivity in both ears, restoration of the dipped frequencies between 1000 and 2000 hertz in the right ear and a 15 to 20 decibel increase in her weakened left ear. After completing the further sessions of the therapy she has gained total self-control over her vocal dependency, that is, she no longer requires a teacher to support her wherever she performs. The warmth and vibrancy of her vocal output has increased and regular listeners now are moved on a different level. Her allergic reactions have decreased slightly but no longer affect her voice, which retains its freshness from early morning to evening. Six months on, she reports that she has never known such an energy level and zest for life and feels there is no longer a defensive blanket between herself and the world; that she can communicate directly and honestly.

**No.3** The subject is a male of 35 years and a classical pianist who has played extensively throughout Europe and America, both as a child prodigy and adult. He came to the centre because although he has consistently achieved critical and professional acclaim, “nothing has been quite so easy” as when he was a young prodigy. His initial listening assessment showed that his left ear was exceptionally musical but suffered a loss of frequencies from 2000 hertz upwards. His selectivity was open and his right ear had a scotoma from 750 to 1500 hertz. During his first few days of re-training he reported feeling taller and his back had straightened from

“pianist’s slouch”. After several weeks he reported that his constant internal dialogue of self-doubt and purposelessness had left him, he felt he heard sound in 360 degrees, that he could hear equally well in his left ear and that his energy level had increased dramatically allowing him to wake up fresh and invigorated each morning. His listening curve shows total restoration of the high frequencies in the left ear and the right ear now shows a matching musicality as in the left ear. In view of his experience as a child prodigy this last point is particularly interesting as the left ear represents the past and the right ear the present moment.

**No.4** The subject is a male of 41 years and works in the visual arts. His reason for taking the therapy was to improve his presentation skills and energy levels, having to work very long hours. In addition to this, his motor skill responses were erratic. His listening curve showed totally closed selectivity in both ears and scotomas in both ears between 1000 and 2000 hertz. The lower frequencies in the left ear indicated that he was out of touch with his body image. (Body image is the feeling one has of one’s body in three dimensions; up, down, right, left ; the feeling of whether one is tall or short, etc. Good body image is an accurate self-appraisal with the reality of the situation and accurately interpreting bodily messages). After taking the complete course of basic therapy, that is two weeks followed by three weeks rest and a further week of listening at the centre the selectivity had opened in both ears, the lower frequencies had been harmonised restoring the proportions between air and bone conduction curves giving a realistic body image, the middle range scotomas had been lifted and there was a fifteen decibel improvement in the higher frequency threshold. He reports greater bodily co-ordination and mixes more easily with his colleagues and clients. His speaking voice has gained in resonance and strength. His wife



who has always refused to dance with him because of his inability to move to simple three-four rhythm is now suggesting they should go off to ballroom dance classes together.

# Conclusion

Except for the case of pathological abnormalities, everyone is born with perfect ears. Stress and anxiety lead us away from our full potential. The Tomatis method gives us a second chance, freeing us from our redundant defence mechanisms.

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<sup>1</sup> Campbell D. *The Mozart Effect*. Hodder and Stoughton. Rydalmere NSW. 1997. p53.  
<sup>2</sup> . Tomatis Alfred A. *The Conscious Ear*. Station Hill Press. Barrytown New York 1991.  
p. 3. (Originally published in French as *L'oreille et la Vie*. Editiones Robert Laffont, S.A.) For the reader interested in a comprehensive account of Tomatis's life and discoveries in his own words this autobiography is naturally indispensable. It is also a good introduction to the method.)

<sup>3</sup> *ibid.* p.4

<sup>4</sup> *ibid.* p.10

<sup>5</sup> *ibid.* p.34

<sup>6</sup> *ibid.* p.39

<sup>7</sup> Minson M.D.R., *A Sonic Birth*. In Campbell D. ed. *Music and Miracles*. Theosophical Publishing House. Wheaton IL. 1992.p93.

<sup>8</sup> Tomatis Alfred A. *We Are All Born Linguists*. n.d.

<sup>9</sup> *ibid.* p.150

<sup>10</sup> *ibid.* pp.159-160

<sup>11</sup> *ibid.* p.153

<sup>12</sup> *ibid.* p.154

<sup>13</sup> *ibid.* p.54

<sup>14</sup> *ibid.* p.206

<sup>15</sup> Lide D.R. *Handbook of Chemistry and Physics*. Boca Raton. CRC Press.1993. Sound transmission through air is at 353 metres per second. Through bone it is at 3,380 metres per second.

<sup>16</sup> Weeks M.D., Bradford S. *The Physician, the Ear and Sacred Music*. In Campbell D., *Music, Physician for Times to Come*. Theosophical Publishing House. Wheaton IL. 1991.pp.49-50.

<sup>17</sup> *ibid.* p.54

<sup>18</sup> It is beyond the scope of this introduction to the therapy, which is for a medical journal, but each language has its own frequency band and listening curve which has developed over time and due to acoustic impedance of the atmosphere. As we grow older our ability to tune in to the frequencies of other languages becomes lost. By retraining the ear to listen in to these lost frequencies we again find the ability to vocalise them. Consider the ease with which young children assimilate a new language and the ponderous attempts of many adults!

<sup>19</sup> For more information about the language aspects of the therapy the reader is referred to the following works. Tomatis A.A. *Nous Sommes tous nes polyglottes*. Fixot. Paris. 1991. and *The Ear and Language*. Moulin Publishing. Norval Ontario. 1993.

<sup>20</sup> Belk Judith B., *The Tomatis Method*. in Campbell D., *Music, Physician for Times to Come*. Theosophical Publishing House. Wheaton IL. 1991.pp.49-50.

<sup>21</sup> A scotoma is a dip in the listening frequency band.