THE Listening Journey

for Children

BOOSTING LEARNING, COMMUNICATION AND CONFIDENCE THROUGH SOUND

Presented by The International Association of Registered Certified Tomatis Consultants

Françoise Nicoloff, President IARCTC

Maude Le Roux

THE PRINCIPLES OF DR. TOMATIS

Jean Pierre Granier

The existence is a precarious state,
which allows a few people to meet with life.

—Alfred Tomatis

Jean Pierre Granier

Jean Pierre is a 47-year-old clinical psychologist with a PhD in visual word recognition. He trained in the Tomatis® Method under Dr. Alfred Tomatis and Simone Nicoloff, and has been a practicing registered Tomatis® consultant for 22 years. He is also trained in cognitive therapy (rational emotive behavior therapy) and uses this approach with some of his clients in conjunction with the Tomatis® Method.

Based in Marseille (France), he has been involved in an important research project in collaboration with the CNRS (Centre National de Recherche Scientifique—National Center for Scientific Research) on the effect of the Tomatis® Method on the regulation of stress and emotion. The first article written on this research has been recently published in the *Journal of Emotional Disorders* under the title: "Pure tone auditory thresholds are decreased in depressed people with post-traumatic stress disorders."

Jean Pierre has worked very actively with Tomatis® Développement SA to develop the Tomatis® Method by writing new training courses and curriculums, and aiding in the birth of a new generation of programs and services. Jean Pierre is one of the foundations of the Tomatis® international training team and he conducts Tomatis® training all over the world.

INTRODUCTION

The principles of Dr. Tomatis

Dr. Alfred Tomatis was undoubtedly an amazing pioneer, and a man ahead of his time in more ways than one.

The brain: the link between perception and action

In the late 1940s, Tomatis identified the principle that was to become the very foundation of his revolutionary new system. He intuitively understood that perception and action were functionally linked in the mechanics of the brain. For Tomatis, the perception and understanding of speech were deeply rooted in its activation by the sensory motor system.

The principle he identified states that the voice can only reproduce what the ear hears well—or rather, what the ear can listen to. For Tomatis, it was not only that the perceptual system (involved in understanding speech) was closely connected to the motor system through which speech is produced, but that the same motor system in turn greatly contributed to the perception and understanding of language on a phonological, semantic and syntactic level.

In other words, for Tomatis, the perception and understanding of speech were deeply rooted in its activation by the sensory motor system.

Data resulting from research in neuroscience and brain imaging has since confirmed this idea. Demonstrating, for example, that in conjunction with the prefrontal cortex and left premotor cortex, the auditory cortex is activated not only during the production of speech sounds, but also during their silent articulation, voluntary identification and differentiation—and even during purely passive exposure to these sounds.

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Time would prove him right—his intuitions have now been validated by research that has highlighted the existence of neuronal assemblies, both sensory and motor. These neurons are involved not only in the functioning of language processes, but more generally in the implementation of high-level cognitive functions, such as memory and attention, as well as in understanding the goals and intentions of another person.

These neurons, referred to as mirror neurons, are characterized by the fact that they are active both during the execution of a goal-directed action and while perceiving the same action being performed by another person. This is why the pedagogical system he developed is called audio-psycho-phonology, a name that refers to the three functions—sensory, cognitive and motor—that are functionally linked by the same neural network.

The importance of intrauterine life

Dr. Tomatis was also the first to claim that the fetus could hear its mother's voice, transmitted through bone conduction.

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Throughout the 1980s and 1990s, research in psycholinguistics on the role of the mother's voice in the development of the phonetic and prosodic aspects of language again confirmed Tomatis's theory. Briefly stated, this research showed that acoustic stimulation from the mother's voice leaves a particular linguistic imprint on the brain of the fetus. Exposure to the mother's voice *in utero* contributes to the shaping of sensory pathways, and allows for a calibration of perception in relation to the prosodic characteristics of the language to be learned after birth.

Additionally, this prosodic modeling will itself serve as a foundation for the fine mechanisms of perceptual discrimination necessary to correctly process the various phonetic contrasts found in a given language. Thus, the prosody conveyed by the mother's voice will orient the baby's listening to the sounds of the language to be learned.

The notion of listening

Tomatis's reflection on the nature of intrauterine life, and on a primary prenatal dialogue between mother and fetus, led him to develop the unique system of educational listening that now bears his name: the Tomatis® Method.

Listening can be defined as the ability to adapt to the constant changes in our acoustic environment by continuously readjusting the content and form of the messages we receive. At the same time we immediately verify the result of this adjustment for the purpose of learning, achieving a goal, or communicating. Thus, as Tomatis often liked to remind people, it is possible to have good hearing, but be a poor listener.

According to Tomatis, because it closely combines perception and action, listening is by definition sensory-motor: adapting to changes in our acoustic world is also about being able to adapt the body to these changes. The important contribution of the motor system in speech perception, itself essential to performing the function of listening, was fully explained for Tomatis by the particular way in which he conceived of the ear and its workings.

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Indeed, one of Tomatis's great merits was that he always considered the ear to be both a sensory and a motor system—that it is a sensory-motor system or, better yet, an auditory-motor system.

It is important to note that for Tomatis, the term "ear" refers not only to all the peripheral structures specializing in receiving acoustic or motor information, but also to the neural networks that connect these receptors to the central nervous system.

The auditory part of the ear, the cochlear, forms the foundation of the mechanisms of hearing. The auditory system is both afferent and efferent. This means that the auditory receptors located in the inner ear send messages to the brain (afference), and the brain, particularly under the influence of emotions, can send messages to the auditory receptors by ordering them to function more or less efficiently in return (efference).

This efferent aspect of the auditory system is one of the characteristics of listening, since it implies that the brain has a major influence on our ability

to use hearing for the purpose of communication and learning.

The vestibule is the motor part of the ear, but because it detects movement, it is also considered to be a sensory part of the ear. The vestibular system collects all kinesthetic information—in other words, all information relating to movement. It is therefore fundamentally involved in the mechanisms of balance and posture. Its primary role is to enable us to resist gravity and to keep us upright.

The vestibule's influence extends throughout the cerebral cortex and is also strongly and reciprocally connected with the cerebellum, a neural structure that is critical for motor coordination, as well as for the establishment of automation mechanisms during learning. Thus, in association with the cerebellum, the vestibule intervenes in the development of procedural memory, which is the memory of know-how ("doing" function or "how-to-do" function).

Furthermore, the vestibular system is also connected to the hippocampus, a key structure of the nervous system involved in the formation of episodic memory and spatial navigation. This part of the ear also plays a very important role in the formation of the body schema and in the construction of the body's relationship to space. Tomatis considered that these two parts, the cochlear and vestibule, were inseparable in terms of listening, because they remain in constant dialogue with each other through the activation of the vast neural circuits that connect them reciprocally.

This whole mechanism, which is formed by the vestibular and cochlear systems and their connections, is precisely what forms the listening integrators mentioned above. Tomatis linked these vast neural networks to perception, action and cognition. The integrators contain sensory-motor neurons, especially the mirror neurons, which research has brought to attention in the last few years.

The integrators are the basis for mechanisms as diverse as those involved in the perception and production of spoken and written language, in general motor skills, temporal organization, motivation, the regulation of emotions and stress, processes of attention, and verbal and visual-spatial memory.

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The integrators of the listening function help to elucidate a particularly important concept for Tomatis, the "embodiment" of language. What Tomatis meant was that a syllable, word or phrase, when uttered or heard, has a motor component on a cortical level, and that this motor component will in turn greatly contribute to the perception and understanding of speech.

Here, we return to the fundamental idea of the sensory-motor dimension of listening, which is at the basis of the audio-vocal counter-reaction phenomenon identified by Tomatis in the late 1940s: any modification perceived by a person in their voice during the act of speaking or singing automatically causes a rhythmic or spectral modification in the voice. The correspondence (perceived sound of speech/motor reaction) appears to be very fine and precise. For example, recent research has shown that the lateral premotor cortex is active both in the production and the reception of the sound "p," and that similarly, the lower premotor cortex is activated during the production or reception of the sound "t."

Conversely, the activation of the lateral part of the premotor cortex involved in the movement of the lips facilitates the identification of sounds such as "p" or "b," specifically implying the strong participation of the lips, although it hinders the identification of sounds such as "t" or "d," which involve the tip of the tongue.

The opposite pattern of results was found when stimulating the lower part of the premotor cortex, involved in the movement of the tip of the tongue: the identification of the sounds "t" or "d" is facilitated, while identification of the sounds "p" or "b" is decreased.

Today's research is therefore beginning to confirm what Tomatis claimed several decades ago—namely, the idea of a neurobiological model of

language linking perception and motor functions through the activation of vast neural networks (the listening integrators), the latter involving neurons of the recently discovered mirror neuron type.

The phenomenon of embodiment also applies on a semantic level. For example, it has been shown that the auditory perception of action verbs referring to a body part (for example, to push, to bite, to squeeze) stimulates the parts of the motor cortex involved in the muscular activations necessary for these actions.

The current research is thus establishing a proven somatic map of language, very close to that of the embodiment of language upheld by Tomatis.

An original pedagogical system

In order for the listening function to be efficient, our auditory system must not only be able to constantly adapt to the changes in the information it receives, but, based on the changes detected, must also be able to make predictions about the representation of the incoming acoustic message.

Therefore, in order to establish and develop the listening function, Tomatis created an original device called the Electronic Ear, the essential principle of which is based on the notion of "gating." Gating functions as a system of alternation between two sound sources distributing the same information, but with different timbres and intensities. Additionally, the gating is irregular in its temporal pattern.

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Gating engages our nervous system's adaptability and plasticity. The phenomenon of neural plasticity can be defined as a dynamic change of the functional and structural characteristics of neurons, which occurs in

response to modifications affecting the nature or meaning of the sensory message that activates these neurons. Gating has an effect on the two auditory muscles located in the middle ear, and Tomatis believed that the role of these muscles was not only to transmit sound to the cochlear, but also to regulate the movement in the liquids that were caused by the transmission, enabling the cochlear to quickly adapt to the incoming vibration.

If this adaptation is performed correctly, the cochlear can then begin to efficiently extract and analyze the relevant information, which is a necessary process for the accomplishment of the current action or goal that has been set. The irregularity of the alternation that characterizes gating causes the brain to trigger the adjustment mechanisms of auditory memory to the changes detected, as well as prediction mechanisms in relation to the sound information about to arrive. As a result, the gating causes the auditory system to extract patterns from the incoming sound messages and store this information for short periods in auditory memory, which is regularly updated.

It follows that the gating, by the very nature of its action, keeps the brain focused on the ever-changing information it receives. These successive phenomena of updating and prediction are the expression of the short-term auditory plasticity being implemented. Solicited repeatedly over time, the latter will lead to the establishment of a positive and lasting change of the listening function—that is, the workings of the auditory-motor circuits forming the integrators.

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In particular, on a cerebral level, the

triggering of the successive mechanisms of adjustment and prediction favors the development of selective attention, enabling the subject to focus on relevant information while dismissing information that is not relevant. In turn, enhanced selective attention will lead to improved processes of auditory perception, both centrally and peripherally, through the efferent action of the brain in relation to the hair cells of the inner ear. The principle of the gating action is therefore to involve both the mechanisms of sensory stimulation, working from the periphery of the ear to the brain (bottom up), and the mechanisms of auditory adaptation and adjustment, going from the brain to the ear (top down)—the latter mechanisms being responsible for the development and improvement of both auditory perception and attention.

The Tomatis® Method can positively impact the lives of children struggling with developmental and behavioral problems.

Thus, the purpose of the Tomatis® Method—through the gating system that is specific to the Electronic Ear developed by Tomatis® Développment SA—is to adapt a person to his or her acoustic environment by assisting in the development of active perception mechanisms. These are characterized by the activation of auditory-motor circuits that involve a vast vestibular-cochlear-cortical neural network containing mirror neurons. This is why the field of application for the educational listening system created by Tomatis is so broad. Indeed, it enhances the listening capability of diagnoses as varied as learning disabilities and impaired motor skills, through to major communication problems, such as autism.

The different cases presented in this book by experienced consultants illustrate the great effectiveness of this system, which, although already 60 years old, remains astonishingly modern. It is this modernity that ensures that the Tomatis® Method is an advanced methodology, conceived ahead of its time, which has assisted in many emotional and developmental situations in many countries over many years.

Dr. Alfred Tomatis was truly an incredible pioneer. In the pages that

follow, you will discover just some of what he achieved—and how the Tomatis® Method can positively impact the lives of children struggling with developmental and behavioral problems.

ARRESTED DEVELOPMENT— REMARKABLE GROWTH

Maude Le Roux

And He ... put His fingers into his ears ... and saith unto him, "Ephphata," that it, "Be opened." And straightaway his ears were opened, and his tongue loosed, and he spake plain.

—Mark 7:31-37, quoted in Alfred Tomatis, *The Ear and Language*

Maude Le Roux

Maude owns and directs A Total Approach, a therapy and education center just outside Philadelphia in the United States, and has several years of field and supervisory experience in a variety of occupational therapy fields. She is an experienced occupational therapist, holds a DIR® certificate (Floortime™), and has completed several sound therapy certifications, including Interactive Metronome. Maude is currently an elected board member of the International Association of Registered Certified Tomatis® Consultants (IARCTC) and also serves on the research and conference committee for the same organization. She works with a team of occupational therapists, speech language pathologists, physical therapists and mental health counselors in her practice, and she is well known for her experience and work with children who carry a diagnosis on the autism spectrum, sensory processing disorder, and dyslexia/learning disabilities. Maude believes in being a lifelong learner, and attends conferences on an almost-monthly basis. She is also a co-trainer of the Solisten®/Tomatis® training team for the USA and South Africa.

You can find out more about Maude's center—and her incredible work—at **www.atotalapproach.com**.

CHAPTER 1

Arrested development— remarkable growth

This is a story about Joey, a charming little boy with dark brown hair, the sweetest blue eyes, the most pleasant disposition and the cutest smile. Joey first came to us when he was three years and eight months of age.

Joey's mother's full-term pregnancy was largely uneventful, although she did experience a fever of undiagnosed origin around the time of birth, which both brought on the delivery and persisted afterwards. Joey's Apgar scores were excellent after birth and he was pronounced a healthy, seven-pound baby boy, to the delight of both parents. However, when he was just one week old, Joey was diagnosed with gastroesophageal reflux disorder (GERD). He gagged frequently, vomited often and experienced difficulty with feeding, which made natural feeding difficult and required him to transition to formula. The GERD persisted until he was about 11 months of age.

When he was six months old, the doctors questioned whether Joey was struggling with "failure to thrive," and the decision was made to transition him to solid foods. At the same time he began to struggle with fluid in his

ears, which required the placement of ear tubes in both of his ears at the age of two and a half, and then again when he was three. When Joey came to us, he continued to struggle with fluid in his ears. Joey had all his vaccinations on time and reached most of his developmental milestones within average time frames. The family had not involved any biomedical interventions at that time.

When Joey was two the family noted some delay in his speech development and he was evaluated to determine his eligibility for Early Intervention Services. In the United States, these services consist of different therapies such as occupational therapy, speech therapy, and physical therapy. The services are government funded for children up to three years of age, and are delivered in the family home. Joey qualified for occupational therapy services and specialized instruction (teaching services) until he was three years old.

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Between the ages of two and three he also experienced a traumatic event in a day care setting. Apparently he cried incessantly for a period of three and a half hours, and there was little intervention from the day care staff to console or placate him. It took the family three months to get Joey's schedule back to some semblance of order, as he experienced extreme anxiety following this incident.

When presenting Joey to our center, the family described him as, "happy, funny, patient, athletic, imaginative, great ability to memorize books, and quite musical, liking to sing and play guitar." But they were concerned about his conversational skills, his ability to pay attention in a conversation situation and his linguistic development. Other areas of concern discovered during the first parent interview were his difficulty in making appropriate eye contact, his tendency to make "odd" sounds, and his extensive trouble falling and staying asleep at night—the length of time for which he was able to remain

asleep was quite unpredictable. The family wanted to identify the possible impact of sensory processing systems on these concerns.

In the United States, occupational therapists are trained to work in a variety of rehabilitation settings and the primary function of an occupational therapist is to evaluate and treat possible causes preventing any person from enjoying their current occupation to the fullest degree possible. It is a very satisfying career and can be applied in multiple settings, including physical and mental rehabilitation. At our center we are mostly concerned with children from birth through to adolescence, and their ability to apply themselves to the occupation of early development, play and learning.

One of the primary researchers in the field of sensory processing is Lucy Jane Miller, PhD, OTR. In her book, *Sensational Kids,* she wrote that, "Sensory processing is a term that refers to the way the nervous system receives sensory messages and turns them into responses."[1] She further explained that, "Sensory Processing Disorder exists when sensory signals don't get organized into appropriate responses and a child's daily routines and activities are disrupted as a result."[2]

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When we evaluated Joey we used measures and clinical observations to assist us in understanding his early development. We aimed to understand not only how his sensory processing systems were discriminating information as individual systems, but also how these systems interacted with each other to allow efficient and healthy functioning. Joey presented with no diagnosis at the time of the evaluation and our work focused more on assessing his profile than on reaching a diagnosis.

Joey underwent several assessments and evaluations at our center. He was first evaluated in June 2007 and was then re-assessed in November 2007 so that we could check on his progress. During the period from June

to November 2007, Joey participated in occupational therapy services once a week for 60 minutes. The family elected to use a home-based listening program called Therapeutic Listening®, designed and developed by Sheila Frick, an exceptional occupational therapist. The family was given the option of completing Tomatis® training, but decided that this did not meet their needs at that time. However, after Joey was re-assessed in November 2007, they decided to enroll him in the Tomatis® training program. He was then re-assessed again in May 2008, post-Tomatis® training.

During his initial assessment in June 2007, Joey completed the Peabody Developmental Motor Scale—Second Edition (PDMS-2), specifically the fine motor section. This assessment analyzes a child's ability to grasp and release patterns, manipulation skills (such as using fasteners), pre-writing skills, visual perceptual skills (imitating block designs), and cutting skills. Joey achieved a grasping standard score of five, putting him in the fifth percentile rank when compared with peers of his age. His visual-motor integration standard score was nine, placing him in the sixth percentile. His fine motor quotient score reached a Z-score of -1.80 and a total fine motor quotient score of 73. For quotient scores, 70 to 79 are considered to indicate poor performance, 80 to 89 are considered below average, and 90 to 110 are considered average.

Joey also completed the DeGangi Berk Test of Sensory Integration. This assessment measures three areas: postural control (both antigravity positions of extension and flexion), bilateral motor integration, and two primitive reflexes—the asymmetrical tonic neck reflex (ATNR), which pertains to the development of both the left and the right side of the body, and symmetrical tonic neck reflex (STNR), which is mostly concerned with the development of the upper and lower body. Both these reflexes assist in the birthing process and are generally fully integrated by the fourth month of infant life. If children persist in utilizing these reflexes until later in life it serves as an indicator of arrested motor development. These three areas of development are considered to be of clinical significance in the development of sensory integrative functions in the preschool child.

For postural control the "normal" score is 20 to 30, the "at risk" score is 17 to 19, and the "deficient" score is 0 to 16. Joey achieved a score of 17, placing him in the "at risk" range.

For bilateral motor integration the "normal" score is 30 to 42, "at risk" is 26 to 29, and "deficient" is 0 to 25. Joey achieved a score of 20, placing him in the "deficient" range.

If children persist in utilizing these reflexes until later in life it serves as an indicator of arrested motor development.

The reflex integration score on this test is only used to determine the total test score, and Joey achieved a score of 15.

The "normal" range for the total test score is 52 to 88, "at risk" is 47 to 51, and 0 to 46 is "deficient." Joey scored 52, placing him in the "normal" range for his age. Considering the first two scores it was clear that his reflex integration score was high, overcoming the other areas of weakness and bumping his total test score up into the "normal" range.

Clinical observation of Joey during this time revealed that he had difficulty following directions and answering questions, repeating words and phrases, and reciting scripts. He had particular trouble when background noise was present, but the problem also persisted in ideal conditions. In terms of language Joey experienced difficulty pronouncing new words, relating ideas and holding conversations. He could not sustain eye contact and listen at the same time. He thoroughly enjoyed any movement activity, though he fatigued fairly quickly in antigravity positions. Prone extension (lying on the stomach while raising both arms and legs) was limited to three to four seconds.

With regard to his eating, Joey tended to stuff his mouth, although he would accept a wide variety of foods. Joey used a pacifier to help him sleep at night and he had difficulty coordinating oral movements pertaining to his tongue, lips and jaw. He also experienced considerable tactile sensitivity; for example, he needed the tags in his shirt to be cut out and he was reluctant to explore any messy media presented to him. Sitting still and sustaining

attention were extremely challenging for him, and his ability to "motor plan" through new motor actions appeared awkward. He was unable to build a tower comprised of ten blocks, use scissors to cut a piece of paper in two, or even to cut on a straight line. Joey experienced difficulty readily crossing the midline of his body. He also had trouble playing with peers at this time.

We had been adding Tomatis® sound training to our traditional therapies since 2003, and our experience was telling us that Joey would be an excellent candidate as most of his difficulties surrounded the effects of the vestibulo-cochlear system and, more specifically, the processing of cranial nerve eight, the vestibulo-cochlear nerve. Our goal is always to start intervention at the point of origin of a difficulty and then work our way from that point to increase fine discrimination and organizational tasks. Joey's family chose to complete the therapeutic listening program at home, and his once-a-week occupational therapy program included postural control work, oral motor control work, brushing and joint compression (using a program for tactile sensitivity designed by Pat and Julia Wilbarger). When we do this type of program the families also receive a home program (to be completed five times weekly) to complement the one-hour-a-week therapy.

Joey was re-assessed in November 2007. Now over the age of four, his scores compared him with his current age group. On the PDMS-2 his grasping scores remained the same, but his visual-motor integration decreased to a standard score of seven, putting him in the seventh percentile. His fine motor quotient increased slightly to 76, providing a still-deficient Z-score of -1.60. On the DeGangi Berk Test of Sensory Integration, his postural control improved to 20, which was considered to be right at the cutoff for "normal." His bilateral integration score improved slightly, though it was still deficient.

At this time, the therapist added another test called the Test of Visual-Motor Skills—Revised, which assesses a child's ability to draw or copy a figure that has been presented to them. Visual-motor integration is the ability to relate visual stimuli to motor responses with accuracy and Joey achieved a score equivalent to that of a child aged three years and one

month, which placed him in the 14th percentile rank when compared with his peers. His mother also completed the Greenspan Social-Emotional Growth Chart, and the highest level he achieved at this time was level three, with scattered skills to level six. Broadly speaking, level three equates to two-way communication skills, level four to simple, yet sequential, problem solving and expansion of own play ideas, level five to symbolic thinking and level six—the highest level—to logical thinking, negotiation, complex problem solving, and flexibly negotiating different solutions for single problems. In the book *Engaging Autism,* Dr. Stanley Greenspan and Dr. Serena Wieder explain the Developmental, Individual Differences, Relationship-based Model, or DIR®, in greater detail. Affectionately known as "Floortime™," DIR® is a specialized developmental framework that requires post-graduate certificate training.

The evaluating therapist felt that although Joey had gained some ground in clinical terms, he was still underperforming in several areas of development and struggled with following directions. He tended to shut down when required to listen, although he no longer repeated back everything that was said to him. His ability to pronounce new words and verbally express himself had improved, but pragmatic language still remained a problem. There was little to no improvement in eye contact when he was expected to listen. Prone extension (one postural control measure) had improved to six seconds, though this was still deficient for his age, and although the therapist had previously been unable to measure his balance at all, he was now able to stand on one foot for two seconds. His tactile sensitivity had decreased significantly and he had started to request tactile activities, such as playing with his hands in shaving cream.

His ability to pronounce new words and verbally express himself had improved, but pragmatic language still remained a problem.

Joey was able to attend to tabletop tasks for longer periods of time and his ability to transition from one activity to another had improved, although he still experienced difficulty with non-preferred tasks. Despite the fact that he was able to comply with testing for motor-

planning measures, he still indicated strong difficulties in this area, contributing to a tendency to avoid new and novel tasks. He was crossing his midline more readily. He was still observed to sometimes start drawing from right to left, but his pencil grasp was emerging into a more mature pattern and he was able to print the letters of his first name, although he still exhibited an awkward scissor grasp. He had become more assertive with family members and his interest in social interaction was increasingly active, but on the whole this remained an area of grave difficulty for him. During play he would repeat the same play themes and would not readily expand steps or create novel ideas.

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Joey's family decided to enroll him in the Tomatis® training program. In our program the child participates in an occupational therapy program with a child/therapist ratio of one to one. The two-hour therapy session takes place simultaneously with the two-hour listening program.

After the first 15 days of the program, Joey was striking up conversations with people he had not encountered before, and he was also making more conversation around the dinner table than he had previously. He had also started sleeping better, except for occasional nightmares. Joey was still shy around new peers, but had one friend with whom he played regularly.

Joey was indulging in regular arguments with his sister, talking non-stop through television and video games and also initiating family games. Not only was he able to speak in full sentences, he had also started correcting his mother, telling her to put her seatbelt on or to look left and right when crossing the street. The family noted that at this time Joey was able to tell sequential stories in full, lengthy sentences. He would comment on his own behavior: "Sorry I yelled at you, Daddy!" He was notably more in control of his environment and expressed a desire to control his sister. His teachers also noted that Joey was doing very well at school—he had started to memorize sight words and to spell words. He was also more emotionally sensitive, and

his feelings got hurt more.

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After his second intensive of eight days, his mother exclaimed, "He is coming into his own!"

Joey had started to initiate play with more than one peer and requested play dates. He was sleeping very well, demonstrated the ability to hold conversations for longer periods of time and used the names of both his peers and adults freely, although keeping him on topic when discussing non-preferred subjects remained difficult. Joey's interest in writing and reading increased and he also decided that he was going to help his mother cook. Joey was now asking to play and stay outside—he was riding his bike and standing on the pedals, and was practicing using rollerblades. While previously Joey seemed to prefer using his left hand in baseball, he had switched to consistently using his right hand.

Joey was settling into being a member of his family and was excited to go with his mother every day to pick up his sister from school and talk to her. His father was especially pleased that Joey would now run to him when he came home after work, expressing his happiness in seeing his daddy. His teacher was noting no concerns at this time, and stated that he was asking questions, had many ideas and initiated conversations. He liked to win the games he participated in, but was really good about losing too. Joey had almost completely ceased getting his mother to perform motor tasks for him, however his parents were still concerned about his attention span at this time.

Joey completed his third intensive in March 2008, totaling 62 hours of intensive work. He then completed a reassessment in June 2008. On the Test of Visual-Motor Skills—Revised Joey scored at four years of age, which showed significant improvement and placed him in the 30th percentile. On the PDMS-2 his grasping standard score was now eight, placing him in the 25th percentile. His visual-motor integration standard score was now ten, positioning him in the 50th percentile. His total fine motor quotient was now -0.40 placing him for the first time in the completely average range

His father was especially pleased that Joey would now run to him when he came home after work, expressing his happiness in seeing his daddy.

for his age. He achieved full mastery at level six on the Greenspan Social-Emotional Growth Chart, although clinical observations continued to note subtler motor-planning and related language difficulties. On the DeGangi Berk Test of Sensory Integration, his postural control remained in the normal range, with even more improvement in his score. His bilateral motor integration score improved to 27, which now placed him in the "at risk" category. His total test score improved to 66, which was right in the middle of the average range. His mother also completed a preschool version of a questionnaire called the Behavior Rating Inventory of Executive Function (BRIEF). No difficulties were reported in the area of executive functioning at this time.

Clinically, Joey was now able to participate fully in motor-planning (praxis) tasks and was also completing most of them to an average degree. He still had some difficulty with tasks that required him to close his eyes, but having been visually reliant for so long, this habit would take time to break. He had become consistently right-handed when using any utensils, such as for tasks like eating and writing. Joey still demonstrated difficulty with understanding laterality concepts such as "bottom" and "front" although he was consistently drawing from left to right. He was able to imitate all oral motor movements easily and flexibly, and could assume the prone extension position for ten seconds (with good quality and form), which is the expected norm for his age, and was able to balance on one foot for five seconds. Joey indicated increased distal control of his hands, suggesting improved scissor skills, though he still needed to work on quality. He was also demonstrating a mature pencil grasp and was printing and forming his letters appropriately.

Clinically, Joey was now able to participate fully in motor-planning (praxis) tasks and was also completing most of them to an average degree.

Though Joey still showed some sensitivity to sounds he was able to cope and function in multi-sensory environments, such as the busy preschool classroom setting. He was able to follow more complex directions most of the time, needed only occasional assistance and was able to follow two-step commands without difficulty. His verbal self-expression and pragmatic language skills had improved greatly, and therapy continued to also improve the quality of his pragmatic expression. Joey's eye contact showed great improvement and he would only avert his eyes in the face of challenging tasks.

Joey suddenly experienced a burst in his language and communication skills and a strong increase in his awareness of the world. This is the kind of difference we usually see when we add Tomatis® training to our clinical work.

Joey did make some gains in the six months between his first and second assessment, but most of these gains were in the sensory processing skills, not in the areas of communication and language, which were some of the family's primary concerns. The scores on his fine motor testing also did not improve to any significant degree, especially considering that he was now six months older.

Because occupational therapy treatment does not replace the work of speech language pathology (speech therapy), no additional language intervention took place. However, after the first 15 days (30 hours) of occupational therapy with Tomatis® sound training—with no speech/language intervention—Joey suddenly experienced a burst in his language and communication skills and a strong increase in his awareness of the world. This is the kind of difference we usually see when we add Tomatis® training to our clinical work. We have no doubt that the stimulatory effect of the complex mechanism of the Electronic Ear was the cause of his much-greater improvement during the latter program.

It would be ideal if we could receive sufficient funding to empirically prove the actual method without the use of additional therapies. But until

such time, we will continue to support families such as Joey's, and assist in the improvement of their lives. We continue to have contact with Joey's family and, wonderfully, he has never looked back. Once he was able to grasp the necessary foundation, he simply soared. We appreciate and thank his family for allowing us to share his story. He is one very special example among many other very special children at our center, who allow us to learn from them and grow in our clinical understanding of early development.

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NIGEL'S STORY: A MOTHER'S DIARY

Kay Distel

"... the skin is only a piece of differentiated ear,
not the other way around!"

—Alfred Tomatis

Explanation: the sound stimuli to the body come through the joints, the muscles. In other words. the body's posture is all tied to the ear's vestibular labyrinth. Tomatis believed that up to 60 per cent of this cortical charge came this way, and another 30 per cent came through the charge of the sounds themselves processed by the cochlear. Therefore he contended that the ear accounts for 90-95 per cent of the body's total energy charge.

—Tim Wilson, *About the Tomatis Method*

Kay Distel

Kay has practiced as a Tomatis® consultant for 15 years and finds the work continually exciting and challenging because of the diverse clients she can help. Coming from a background of body therapy, counseling and an attitude of inclusivity, she offers her clients practical awareness of auditory processing and the connection to health and learning. Outreach work with the elderly stimulated her interest to take Tomatis® ideas and experience into formal research. She is now completing a PhD, which uses her vast knowledge and specialized training in the context of facilitating adults in higher education with diverse learning needs. She runs a Tomatis® consultancy and practice in Brisbane, Australia.

You can find out more about Kay's practice at:
www.soundeducation.com.au.

CHAPTER 2

Nigel's story: a mother's diary

Nigel and his mother came to our center because he was struggling to settle into his preschool environment and had difficulty coping with his new baby brother. Nigel, aged five, appeared advanced in his use of language. He was an articulate, bright child, but he was unable to control his noisy, apparently hyperactive behavior.

The family was suffering. His mother was a trained nurse with excellent observation skills but felt like she was at her wits' end. She was becoming anxious and depressed, and feeling helpless as she found it increasingly difficult to control Nigel's dangerous activities—he was particularly prone to running without looking out for potential hazards. I admired Nigel's mother's resilience and her refusal to give up on her child. Nigel's father had been diagnosed with dyslexia during his early childhood and came from a family of medical practitioners, though he had pursued a career in banking. In the initial stages of our relationship, he appeared distant and frustrated at his son's seemingly uncontrolled behavior.

The first interview was very difficult. Nigel was unable to complete a listening test, his drawings were haphazard and much of the interview was spent containing him in the room while the therapist talked to his

mother. There was a general consensus that Nigel would benefit from a Tomatis® program and that the main goal of this program would be to prepare Nigel for school, enabling him to control his behavior within his environment so that he would be able to listen well enough to learn in a classroom situation.

Intervention

Mother and child completed the intervention together in order to strengthen their bond. Nigel's mother's diary reflects the experiences of herself, her son and her family over a ten-day program, which consisted of two hours of listening each day.

Day One

I was amazed at how centered I felt. At the completion of the two hours I felt like I had spent some time at the beach. The anxious feeling, which has become a daily issue, was reduced. The afternoon chaos didn't grab me as it usually does. Feeling very tired, but not exhausted as usual.

N. was very affectionate in the afternoon. Was initiating cuddles. Was easygoing with requests, such as, "Dinnertime now. Bath now." Became boisterous and argumentative after bath time. He put his whole head under the water. Unusual. At bedtime he was talking about his brother in an affectionate way: "I love Larry." Not usual. He wanted to cuddle me. Kissed me and looked me in the eyes when doing so. This is not usual. I felt overwhelmed with emotion. It was special to have N. initiate closeness. N. also seemed to be more aware of his surroundings or he was verbalizing it more: saying things like, "There are bugs on the pineapple," "L. needs a nappy changed."

Day Two

Feeling very exhausted, but calm. I am more organized. Dinner with the boys wasn't a stress for me. Everything just clicked. N. fell asleep after—a deep

sleep. Woke up full of beans. A little hyperactive and was tormenting L. I did my usual: "We are gentle to each other. I won't put up with not being gentle." N. looked at me in the eye, wept and cuddled for five minutes. He wouldn't let go. Very affectionate at bedtime. During therapy he was able to color in between squares and cut in a straight line. He held his crayon in the correct way. Not seen before.

Feeling very exhausted, but calm. I am more organized. Dinner with the boys wasn't a stress for me. Everything just clicked. N. fell asleep after—a deep sleep.

Day Three

Overwhelming tiredness, however calm. Sat in back garden and could not believe how alive the plants seemed. Went for a family walk and felt so peaceful and alert, while still being calm. The knot in my stomach just wasn't there. I cried because of an overwhelming joy. Life seems so beautiful.

My surroundings, children, just gorgeous! Even P. seems lovely. What have I been missing? I will look forward. It is too disturbing to reflect on the awful quality of life that has become normal. I have an enormous appreciation for my life.

N. ate his lunch voraciously, asking for more food. He was happy and engaging with all family members. More cuddles and kisses. Just amazingly wonderful. The beautiful N. I hope he stays with us!

The knot in my stomach just wasn't there. I cried because of an overwhelming joy. Life seems so beautiful.

I worked in the afternoon. Very calm and able to pick up errors that no one had noticed for five days. I was on fire. People I didn't know that well at work commented that I looked like I had done something different to myself. New haircut? More sleep? I didn't feel like I was acting any differently, maybe I was. I felt 25 again, before kids. Apparently N. ate a very big meal. Continued to be happy, engaging and cooperative. Is this what other families experience most of the time? I would love to see more of it. I hope these

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changes can be maintained.

Day Four

N. was obviously enjoying the music. Interactive with his environment. Relatively calm in the afternoon. Visited grandparents. They received kisses and cuddles. He was a delight for all.

Day Five

N. was interested in piecing a puzzle together. With a quiet, methodical approach, he happily did several puzzles. Very happy boy in the afternoon after a long nap. Both children were delightful. L. was very peaceful and happy and this obviously spilled over. P. commented on how happy everyone seemed!

Day Six

N. did another puzzle. Not very interested in drawing. Did some cutting well and pasting. N. tense in the afternoon. Slight change in routine. Both parents present. Didn't nap, visited P.'s mother. Still affectionate in the evening. Tempo of the household not as calm. I needed to work on being calm despite opposition.

Day Seven

N. restless and angry with me during therapy. I was obviously tense myself. Unable to center myself. Concerned about behavior of partner. N. calms down when interacting with Kay. Then both N. and I have a cry and a cuddle. A release of built-up tension from last day and evening. N. was an angel in the afternoon. Very interactive and caring with his cousins and grandparents. Became unsettled when father arrived home. Father very tense. I kept my cool and somehow kept N. together. A peaceful goodnight. I was able to calmly

interact with P. over dinner and a glass of wine. I used "I" language to express my disappointment in last day's events. P. responded in a non-aggressive manner, but put the blame on just being tired. A relief that his aggression didn't continue. A peaceful evening. Could have gone the other way if I had responded to his stress and initial presence with the family. I am proud of myself for being so centered and peaceful. Thank you, Dr. Tomatis, Mozart, Gregorian chant and, of course, Kay.

I am proud of myself for being so centered and peaceful. Thank you, Dr. Tomatis, Mozart, Gregorian chant and, of course, Kay.

Day Eight

N. happy in therapy. Built a cubby with Kay. Singing and dancing to children's songs. Able to balance on wood without any apprehension. Had a deep afternoon sleep. Not as affectionate in the evening as previous days. Played with enthusiasm in the backyard. Jumped off the table, kicking the ball, full of life. Ate well at lunch and dinner. I had been calm this afternoon. I have decided I won't live a life built on fear, but love. My children's wellbeing is paramount. I will not allow any human being to use them for their own selfish aims. What we/they deserve is peace not chaos. They deserve honesty and integrity from the adults in their home.

Day Nine

N. continued to happily play in the cubby house today. Very calm during children's music. Did a picture without too much prompting. Struggling with pencil and paper. However big change compared to the beginning of his trying to hold his pencil the correct way. Amazing!

N. was aggressive with L. in the evening. I am still not too sure how to approach this situation. When N. was told he was having a bath he went a little crazy. I verbally commented that his behavior was too crazy. He turned to me

I had been calm this afternoon. I have decided I won't live a life built on fear, but love. My children's wellbeing is paramount.

and apologized, cried and gave me a cuddle. I don't know if it is because he was aware of himself or because I insulted him. I'm not sure. N. was calm and relaxed thereafter.

Affectionate with plenty of eye contact. Listening to both parents. N. commented that he could hear clicking noises. I am not sure what that meant. All-and-all his behavior has changed remarkably compared to two weeks ago; he is the angel he once was.

P. is in a good mood tonight. The weekend is here for him. He commented about the changes in both of us. The most obvious were that we are calmer and more centered. I can't believe how happy I am, full of hope for a brighter, bigger future. The persistent nagging, negative erosion has no place with me and my abode. Not anymore, life begins at 35 not 40!

Day Ten: the last day of first intensive—a summary

- *In the beginning he was not keen to initiate affection, but is now very spontaneous.*
- *He now looks at you in the eye when giving and receiving cuddles.*
- *N. now apologizes for aggressive behavior and is now responding to simple requests, very different when compared to the level of chaos of before: for example, if I say, "It is time to go now. Please put your shoes on!" I walk away and his shoes are on.*
- *He is now sleeping soundly, with no night waking.*
- *N. is now eating all food on his plate: "More please!"*
- *N. is now interested in packing away toys—was on the way to doing it before but wasn't quite there.*
- *He can hold his pencil well, when focused and the opportunity is available.*
- *Is now holding scissors with more ease and cutting straighter.*
- *N. is not tripping over as much now and is more confident running and*

jumping.

- *He has more energy.*
- *N. is full of smiles, laughter, peace. Simply wonderful!*

ACTIVITIES OF DAILY LIVING

N. is:

- *trying more foods and asking for more food*
- *eating lettuce on sandwiches and not craving dairy as much*
- *not requiring a drink as much*
- *going to sleep quickly after reading books*
- *less sensitive when being towel-dried*
- *tolerating gentle massage, even enjoys it: "Can I have a massage?"*
- *keen to try and dress himself*
- *trying to work out left and right with shoes*
- *paying attention to buttons more, with less frustration*
- *brushing his teeth without distress*
- *independently washing his hands*
- *flushing the toilet*
- *happy to brush hair*
- *tolerating putting blockout on better*
- *willing to wear a hat and warm clothes*
- *still not happy to have hair washed—remains extremely distressed*
- *still needing a nappy at night*
- *attempting artwork—drawing, finger painting, playing with clay*
- *more interested on some days than others*

- *better when there has been no television*
- *following me to my workstation*
- *really good with scissors*
- *giving more cuddles to Nana and Poppy*
- *able to stay relatively calm.*

SOCIAL RELATIONSHIPS—AT THE PRESCHOOL

- *N.'s teacher no longer needs to use little reminders like, "We wait our turn," or "We don't hit each other."*
- *He isn't screaming or throwing his arms when frustrated.*
- *N. is showing more signs of being able to calm down quicker, and has shown interest in socializing with more than one person. Teacher is happy!*
- *He is attempting to draw and paint without frustration and/or refusing to try.*
- *N. is proud of his artwork.*
- *He is less disruptive at group time and more considerate of others' needs.*
- *He will carry his own bag without a fuss.*
- *N. now separates with ease, with no crying, instead running to the door: "Okay, Mum see you!"*
- *He has some favorite toys.*
- *He isn't mowing down towers anymore, but is building them with some amazing designs. They have been saved for me to see.*
- *N. is demonstrating more creative thinking. Some activities are built around his ideas.*
- *He now sits still while books are being read.*

The staff are extremely happy at the end of the day. Continual thumbs-up and smiles from all of us. Preschool teacher received lots of hugs. There is a great

rapport happening. I have mentioned I am doing Tomatis® therapy. The staff are amazed generally at the changes in N. I am maintaining an open dialogue with staff. They really care! Fabulous!

SOCIAL RELATIONSHIPS—AT THE MOVEMENT CLASS

- *N. is excited to go: "Is it today? Come on, let's go!"*
- *He is generally more aware of other members in the group.*
- *N. now less disruptive, occasionally will have an outburst and circle the room a few times and then settles. The teacher accepts this and calls it N.'s "vestibular exercises."*
- *He is keen to try more of the equipment and is coping with the challenges.*
- *N. is less frustrated when unable to master something.*
- *He is showing better balance and appears more coordinated.*
- *N. now attempts to cross the midline.*
- *He is able to listen to instructions and follow through without prompting.*
- *N. is laughing and enjoying himself more, is saying hello to the other children, and is friendlier.*

The staff are extremely happy at the end of the day. Continual thumbs-up and smiles from all of us. Preschool teacher received lots of hugs.

Conclusion

The Tomatis® Method is a whole-listening approach. It influences receptive and expressive listening, motor functioning, the balance between the right and left brain, and the emotional difficulties that translate to fight/flight/freeze behaviors. If we can activate and strengthen the pathways to the left brain, the dynamic integration of the

two hemispheres causes changes in the entire neural network.

The diary and eloquent feedback from Nigel's mother reflects many elements and the effect of the listening process. Nigel no longer needed prompting in the movement class, also indicating signs of improved motor functioning. To cross over from the left side of the body to the right, and vice versa (the midline crossing) is an important milestone on an educational level as it relates to the function of both reading and writing.

To cross over from the left side of the body to the right, and vice versa (the midline crossing) is an important milestone on an educational level as it relates to the function of both reading and writing.

The diary reflects daily examples of emotional changes. Nigel became less reactive, more reflective and he developed the possibility of being both centered and more grounded. This meant that he was more physically aware of himself and others in his surrounding area and was able to process environmental stimuli in a safe way. Nigel is now nine years old and while still "not perfect" he has settled in school and is learning well.

ANA LISA:
A JOURNEY OUT OF SILENCE

Eve Wiznitzer

When my son who has autism was eight years old and doing the Tomatis® program in Toronto (Canada) Dr. Tomatis told me that, "he would come out of his silence" ... today my son lives on his own and speaks two languages fluently.

—Eve Wiznitzer

Eve Wiznitzer

Eve was born in New York, raised in Miami, Florida, and has been a resident of the Republic of Panama for 37 years with her husband and partner, Leo. She graduated from Tulane University with a love for learning and a double major in 1973. When her eldest son was diagnosed with autism at two years of age she began a new career to help him reach his greatest potential. She participated and studied with Glenn Doman at the Institutes for the Development of Human Potential in Philadelphia for five years while learning how the central nervous system develops in a healthy child and what was needed to achieve these same milestones in a hurt child.

Eve's next step of study and learning was training in the Tomatis® Method under the direction of Dr. Alfred Tomatis, with an incredible team of professionals from Canada, Mexico and Paris. She opened a Tomatis® center in Panama in early 1991 as a private clinic. Noticing that many families did not have the resources to participate in the program she then began the long process to receive non-profit status. For the last four years Eve has run a non-profit center, reaching the neediest people in the country. FUNDET-TOMATIS® provides orientation to each family, nutritional guidelines, sensory integration strategies which can be completed at home, and classes to teach families how they can best help their child.

Eve's son Alex, diagnosed with autism so many years ago, has been living semi-independently in Coconut Creek, Florida, for the last ten years in his own apartment. He speaks, reads and writes English and Spanish perfectly, and is her inspiration for everything she does.

You can find out more about Eve and FUNDET-TOMATIS® at: **www.fundettomatispanama.org**.

CHAPTER 3

Ana Lisa: a journey out of silence

Mr. and Mrs. Hernandez brought their daughter, Ana Lisa, to our Tomatis® center to see if we could assist in her ability to develop language and improve her behavior and social skills. During the first interview with her parents, we learned that although she had been an unplanned baby, the pregnancy proceeded to full term without any complications. Ana Lisa weighed six pounds and six ounces at birth, and was delivered by caesarean section because she never entered the birth canal and was in a seated position. From a Tomatis® perspective, this is seen as a very important indicator, as the initial dialogue between mother and baby is established in the uterine world during pregnancy. It is preferable for the baby to enter the birth canal, as this provides optimum conduction, including bone conduction sound. Dr. Tomatis referred to this period in the womb as, "nine months in paradise." Ana Lisa experienced an initial loss of this process, which we believe strongly affected her communication.

It is preferable for the baby to enter the birth canal, as this provides optimum conduction, including bone-conduction sound. Dr. Tomatis referred to this period in the womb as, "nine months in paradise."

Ana Lisa was able to drink from a bottle well and she did not present problems of vomiting, but was extremely active both day and night and had sleeping difficulties. Ana Lisa underwent testing through an encephalogram at four months of age, though the results of the exam indicated no abnormalities. Her motor development was noted as being quite advanced; she started to crawl at four months of age and was able to turn from her back to stomach, and stomach to back. She was walking at ten months of age and established right-hand dominance before her first birthday. However, Ana Lisa was sickly and suffered from colds and viruses every 15 days and was given calcium and vitamin B-12 supplements to support her health. Her parents did not see significant changes from this support, and Ana Lisa underwent surgery to remove her adenoids and tonsils when she was two and a half years old. Her health improved after this treatment.

She was brought to our Tomatis® center two months after the operation, and was at this time already receiving speech therapy three times a week, with minimal results. She was also participating in occupational therapy twice a week and a behavior modification program for an hour every day. Before her operation her frequent bouts of illness made it difficult for her to attend her therapies, but she enjoyed good health when she underwent her program at our center.

We also felt that the use of Gregorian chants would help Ana Lisa regulate her breathing and perhaps help her begin to sleep easier.

During our first interview we learned that Ana Lisa was still using diapers during both the day and night. Her inability to sleep well at night may have been caused in part by not attaining sufficient rhythmic breathing, and also possibly indicated an underdeveloped neurological system. Ana Lisa exhibited sensory difficulties and it was determined that a sensory integration program would be of assistance to promote greater progress in all areas while doing the Tomatis® program. We also felt that the use of Gregorian chants would help Ana Lisa regulate her breathing and perhaps help her begin to sleep easier.

Initial assessment

A developmental scale questionnaire, which includes gross and fine motor control development, sensitivity to touch and textures, visual development and vestibular questions, was completed by Ana Lisa's parents for this initial process—Mrs. Hernandez is a dedicated full-time mother, and Mr. Hernandez works as a supervisor. We use this for comparison with what we observe in the therapy room, and also to indicate progress with each visit. This type of questionnaire also provides us with an indication of the parent's perception of their child, and what they believe the significant areas of developmental delays are.

During the initial assessment we noted that Ana Lisa did not babble or use language. She was very active and easily distracted and spent a significant amount of time focused on repeatedly opening and closing the windows. We also observed that she had great difficulty maintaining eye contact. Her pediatrician had recently mentioned that Ana Lisa may have been exhibiting a few autistic traits and her parents were advised to complete a full neurological evaluation. Mrs. Hernandez was unfamiliar with the term "autism" and so her search began.

We decided to implement the Tomatis® program for Ana Lisa, specifically targeting improving her language skills and her ability to pay attention. We also wanted to provide her parents with information regarding other activities that could be beneficial for her. Considering the types of difficulties that Ana Lisa had, we decided to complete a very slow program in order to give her time to relax and become more grounded, providing her with a greater foundation to open up her listening. Our goal was to improve her sleep patterns and decrease her irritability by reducing her stress and tension. We also decided to alleviate the effects of Ana Lisa's birth experience by using a high-pitched filter on a recording of her mother's

We decided to implement the Tomatis® program for Ana Lisa, specifically targeting improving her language skills and her ability to pay attention.

voice to re-create the sounds of the prenatal environment, which can assist in relieving stress and anxiety. From the outset of our treatment program we planned on delivering a longer program, with a fourth phase to provide the necessary time to work through the "sonic birth."

The importance of a good diet

It is our experience that the children arriving at our center all need to have healthier diets and we strongly encourage all families to begin a diet that limits processed foods, colorants, nitrates, chemicals, additives and sugar. We also recommend that they try a gluten-free diet for six to eight weeks, as we have noted over the last 20 years that it has a tremendous impact on children diagnosed with ADD, ADHD, autism and Asperger syndrome, as well as children who struggle with challenging behavior and impulsivity. We ask all the parents to try the gluten-free diet so that we can observe any and all changes in behavior due to the elimination of wheat and gluten, and about 80 per cent of the children we see respond positively to this diet.

We ask all the parents to try the gluten-free diet so that we can observe any and all changes in behavior due to the elimination of wheat and gluten, and about 80 per cent of the children we see respond positively to this diet.

Working together

In our efforts to inform and teach parents we also give the families various tactile-sensory exercises, vestibular exercises and sensory integration exercises that can be easily incorporated into their daily routine.

Behavior modification ideas

All parents are given guidelines to implement new "rules and regulations" to assist in establishing them as the authority figures in the home. Because we want to negotiate a platform through which children learn that they

cannot receive what they want through tantrums or negative behavior, we also assist parents with ideas that will support their children in new and novel situations, preparing them to react to more positive behavior. We also recommend that they use calendars to provide predictability and routine in their child's life.

Parents are advised to decrease their children's television-viewing time and use of computer and video games, as these have a hypnotic effect and are in many ways addictive, reinforcing exactly what we are aiming to change. Our goal is to have the children become more active, playful and communicative. Research is also indicating now that the extremely low frequencies and electromagnetic fields affect the way information is received in the brain—it's possible that the electronic fields surrounding us are scrambling messages sent to us. We live with 60,000 satellites, radio and cell phone towers sending signals and interfering with our thinking. We can only imagine how sensitive children become in our environment today as they are bombarded by these high-energy waves.

We also assist parents with ideas that will support their children in new and novel situations, preparing them to react to more positive behavior.

Beginning the therapy

During the first week of therapy we observed that Ana Lisa was a very fast learner. She adapted quickly to the headsets, and although she often knocked them off she allowed us to put them back on. While listening to the music we worked on her fine motor skills and sensory systems by doing puzzles, coloring with crayons, painting, tearing paper, using glue, making paper balls and playing with clay. Her reception of these activities became easier as the program progressed. During parts of her program we used flash cards to work on receptive language and useful daily vocabulary. We used a large Marsden ball as we worked on her vestibular exercises. We

helped her to build with blocks on the floor and worked with her on the floor applying various tactile, sensory and balance exercises. When Ana Lisa got upset during her first intensive she would throw herself, or whatever she had in her hand, onto the floor in anger. While listening to the children's songs her facial expressions became much happier and she began to try to sing along. Each day, Ana Lisa received two hours of listening stimulation. Over time, our little one began to listen to the instructions of the therapists and was more cooperative; when she got upset she was able to settle down faster and continue playing with another game or toy. She actually began to enjoy the tactile exercises of painting with her hands (or on her hands) and working with glue, and she easily completed many puzzles that were age appropriate.

Welcome back!

After a four-week break, Mrs. Hernandez reported to us that her daughter was using single words, such as mama, mine, and *tete* ("baby bottle" in Spanish). Amazingly, she was controlling her bowels almost totally! All the dietary recommendations had been implemented, as well as the other advice from the orientation. Her mother reported many things: that her daughter was now playing with a Barbie™ doll, was able to ride a tricycle, could walk down a staircase with better balance, and helped with getting dressed and undressed, which she had not done before.

Ana Lisa was very happy to return to Tomatis® to use the crayons, complete the puzzles, get sticky with glue and work with clay during her second intensive. This was a tremendous change since the beginning of her first program. During this second session of Tomatis®, Ana Lisa tried again to sing along with the children's songs, and while listening to the filtered recording of her mother's voice we could all see how hard she was concentrating as she tried to understand the words. Ana Lisa had managed to adapt to a full gluten-free and casein-free diet. Her behavior was less erratic and she was able to pay attention for longer periods of time.

Remarkable results

Ana Lisa turned three during her third intensive, and was going to preschool with a tutor by this stage. Mrs. Hernandez noted that she could take Ana Lisa to church, that she would play with the other children and was also tolerant when she took her to do daily errands. She commented that Ana Lisa now had a need to talk and that she had started using baby talk. Mrs. Hernandez had taken all the recommendations from our Tomatis® center very seriously—she had been completing a series of vestibular exercises every day, and was using a bathing routine that was provided during the first parent orientation. Not only had Mrs. Hernandez done everything we recommended, she had invented her own exercises as well. She told us that she would take her daughter to the kitchen and put something in the blender and then have Ana Lisa push the "on" switch—a great auditory conditioning exercise, which helped her overcome her fear of the sounds made by many of the appliances within the home. Additionally, the "big calendar," an activity that they had done daily for several months, showed that she had learned her numbers rapidly.

Her mother reported many things: that her daughter was now playing with a Barbie™ doll, was able to ride a tricycle, could walk down a staircase with better balance, and helped with getting dressed and undressed, which she had not done before.

Within the therapy room, Ana Lisa participated in all the activities and was attentive to the therapists, as well as the other children she was seated with. We were all very satisfied with her progress and asked Mrs. Hernandez to bring Ana Lisa for a fourth program, to do what Dr. Tomatis called a "sonic birth."

Great success!

Ana Lisa took a four-week break before returning for her fourth program and by then

She commented that Ana Lisa now had a need to talk and that she had started using baby talk.

her mother was completely satisfied with her progress. Amazingly, Ana Lisa was now completely diaper-free, using underpants day and night, and her mother said she did it all on her own. Mrs. Hernandez had not worked to achieve this goal by using a schedule of taking her to the toilet—Ana Lisa simply and spontaneously did not need her diapers anymore. At the same time she gave up her bottle and began to drink from a cup. She began to repeat words and the language therapist expressed pleasure at her progress. At this point, when Ana Lisa went with her mother to do errands she was more patient and was able to wait in line. She was also no longer isolated—she looked for other children and began to share with them. This is something we also worked on during her first three intensive programs in the therapy room, which is set up with tables where the children sit. Ana Lisa was learning to share her space, to take turns and to share the educational materials.

She was also no longer isolated—she looked for other children and began to share with them.

At the beginning of the fourth phase Ana Lisa's mother was going to start occupational therapy with her as they continued with the behavior modification therapy. Ana Lisa's parents said that her tantrums were shorter and less frequent and that she was paying much more attention to everything. Because of all of these changes in their daughter, Ana Lisa's parents' relationship had improved dramatically—they were able to go out together as a family, and even go to the movies. Ana Lisa also responded excellently to the casein-free and gluten-free diet and her parents continued to be vigilant about maintaining it.

Ana Lisa today

When Ana Lisa began the Tomatis® program our goals were to open up her listening in order to improve her attention and ability to use language. Looking at the results after the first four intensive programs we found that

we had made good progress in both areas. Today, Ana Lisa is using short phrases and is more independent, often making her own decisions. And when her mother gives her instructions to do something she is very cooperative. Mrs. Hernandez says that her daughter is very much like every other three-year-old child, and her grandparents, relatives, friends and teachers agree. We strongly feel that without the dedication of Mrs. Hernandez, Ana Lisa's progress would have been less. In this respect Ana Lisa is a lucky little girl. Ana Lisa's family is very satisfied with her progress and they continue working with her daily. Our little one keeps growing!

Today, Ana Lisa is using short phrases and is more independent, often making her own decisions. And when her mother gives her instructions to do something she is very cooperative.

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MULTIPLE DIAGNOSES, A STRUGGLING CHILD

Ellen (Len) Craver Young

As for listening, it is a unique and all-embracing faculty that commands the nervous system and the sensory organs in order to decipher this multiform energy ... Listening is, in a way, the most elaborate manifestation of the ensemble of our perceptions working in a synergistic manner under the control of the ear. We now know, after all that we have said about it, that the ear is not only man's most essential organ but is also his "neurological body."

—Alfred Tomatis, *The Ear and Language*

Ellen (Len) Craver Young

PhD, RCTC

Len has been a practicing Tomatis® consultant since 1996, and is a founding member of the International Association of Registered Certified Tomatis® Consultants (IARCTC). She serves as an active member of the IARCTC International Research Committee and is on the editorial board of *Ricochet-online* journal, the network's professional peer-reviewed journal.

Len worked originally with Billie Thompson, PhD, in Phoenix, AZ, and Pasadena, CA, to expand the Tomatis® Method throughout the United States. She then started her own company, Listening Clarity, Inc., in Arizona and South Carolina in 2003, offering the first portable generation of Tomatis®—the Mini-Electronic Ear. Her Tomatis® clients range from very young children to adolescents, adults and the elderly.

Len has a doctorate in mythological studies with an emphasis in depth psychology (Jungian psychology) from Pacifica Graduate Institute in California. For the past two years, while continuing her practice, Len has led the American introduction and training for the new small digital Tomatis® device called Solisten®.

You can find out more about Listening Clarity at:
www.listeningclarity.com.

CHAPTER 4

Multiple diagnoses, a struggling child

Peter was seven years old when his adoptive mother, Fran, contacted me. She was concerned with Peter's struggle to keep up in school—she thought he was very smart, but he was unable to stay focused in class and his grades were sliding. He was disruptive, and socializing was difficult for him. She was looking for a way to help Peter learn more easily.

Fran gave me Peter's history as she knew it so we could consider how his ears were working. Peter was adopted at birth. His adoptive parents said that his mother's pregnancy had been difficult because it was unwanted and stressful and the father had not been present. Peter's birth had been critical as he was born two and a half weeks pre-term, with the umbilical cord wrapped twice around his throat. His Apgar score was low (five to six) and his skin was blue.

Peter had a tough start—he required resuscitation at birth and experienced difficulty feeding; he was also given intravenous fluids, oxygen and needed antibiotics.

Peter's birth mother had taken medication for anxiety disorders and antibiotics during this, her sixth, pregnancy. She had a history of hyperactivity, mood swings and learning

challenges, smoked three to four cigarettes a day and suffered from viruses, fevers, a number of other medical concerns and gestational diabetes in her third trimester. Peter had a tough start—he required resuscitation at birth and experienced difficulty feeding; he was also given intravenous fluids, oxygen and needed antibiotics. Yes, Peter had a very difficult beginning to life.

Peter's early life

Peter was Fran and Jim's first child, and they were excited to have him. They were a prosperous, hardworking couple who were able to give Peter opportunities to learn and grow. They took control to help their new son.

Peter was colicky in his first three months, with gastroesophageal reflux and vomiting. He did not smile until his fourth month. Over a short period of time, Fran noticed that Peter was sensitive to touch—he would scream when a washcloth came in contact with his skin. Peter could not grasp items easily, indicating a delay in the development of fine motor skills. As a toddler, he was hyperactive and could not settle down for sleep, nor could he sleep through the night. He was also a picky eater. The best news as far as we were concerned was that he'd had only two ear infections.

At six years of age, Peter had been tested by private psychologists, a pediatrician and a psychiatrist, resulting in several diagnoses, including ADHD, oppositional behavior and anxiety. Central auditory processing disorder and dyslexia were also mentioned, but not diagnosed.

Fran was frazzled and felt that Peter's early years had been unbearable. At six years of age, Peter had been tested by private psychologists, a pediatrician and a psychiatrist, resulting in several diagnoses, including ADHD, oppositional behavior and anxiety. Central auditory processing disorder and dyslexia were also mentioned, but not diagnosed.

Following prescriptions from his doctors,

Peter was on four to five medications each day that were intended to address his behavior and sleep habits. They included a small dose of Dexedrine in the morning, a larger dose of sustained-release Dexedrine for the day; Zoloft® between three and four p.m., melatonin at six p.m. to prepare for bed; and cyproheptadine as needed.

A parent's drive to solve a situation for their child can be relentless, especially if they know that there must be a variety of possible solutions available. Fran contacted me in the process of seeking ways to solve their concerns regarding Peter's learning challenges. She and Jim were particularly concerned with Peter, as he showed clear signs of keen intelligence along with his multiple daily dysfunctions. He was a pleasant child, but unable to be a team player or blend into a group—in groups, he always took the lead and hogged it, so other children did not want to play with him.

A parent's drive to solve a situation for their child can be relentless, especially if they know that there must be a variety of possible solutions available.

Peter had a vivid imagination, and enjoyed designing and building things. He was partial to complex math and science projects and foreign languages. His voice was loud, and when he listened, it appeared that he was reading lips—he stared at my mouth. Generally, however, he seemed to be a happy child.

Prior Tests

Peter was evaluated at a prominent children's hospital outpatient center where he received the main diagnoses stated above. In this evaluation, the Behavioral Assessment System for Children, the Children's Interview for Psychiatric Syndrome, Disruptive Behavior Disorders Rating Scale and the Revised Children's Manifest Anxiety Scale were completed for this purpose. The actual results were not available to me; however, the diagnoses and referral to an occupational therapist for fine motor control were shown. His oppositional behavior was a concern to the testers and it was suggested the

family return for counseling if he worsened.

Peter's eating problems continued (he refused to eat); he threw temper tantrums; told of unusual fears; was difficult to discipline; displayed intense reactions and told lies. He was left out of playgroups.

In further testing conducted by two well-respected local psychologists, the Behavior and Temperament Profiles were completed. These examiners observed that Peter seemed to be unable to focus due to his own constant thoughts. They said he might have, "difficulty interpreting directions," even though he was cooperative—as each test began, Peter jumped into questions about what he could do before he could be given instructions.

Peter was shown pictures and scored for his responses based on visual input. His testing ranged from average-to-above-average to superior range in three areas: understanding directions presented verbally with pictures, story recall for stories read aloud to him, and listening comprehension for passages and single word expressive vocabulary. Without visual input, Peter's listening was much weaker.

Additional cognitive measures were given, and found to be in the average range. The examiners felt the scores might have been an underestimate of Peter's potential due to his extreme distractibility. He ranked in some learning abilities in the 94th, 89th and 93rd percentiles for reading, mathematics and math fluency. However, his handwriting was uneven and he was unable to follow directions for writing assignments.

Peter's initial assessment for the Tomatis® Method

Peter's parents brought him to meet me for an initial assessment as their first step in considering the Tomatis® Method for their son. I put him through the Tomatis® protocol listening test: the listening test for bone and air conduction, perceptual recognition of tonal scale high/low comparisons, and the laterality test. Peter was cooperative with the listening test and we

were able to get a good picture of how he received sound. The listening test indicated to me that Peter might be having hearing problems.

Although I am not trained in audiology, I can see areas where hearing might be poor because of my training in the Tomatis® testing protocols. Peter had not had a recent hearing test with an audiologist so I asked his parents to take him to one for testing. Because Peter was unable to understand the instructions for the laterality and tonal scale high/low perceptual comparisons, I could not complete those. Peter had extensive overproduction of earwax, and quiet voices disappeared for him.

Since most of his bone and air conduction relationship showed the air above the bone, I assumed that Peter would be able to learn in a one-on-one tutoring situation. Dr. Tomatis's beliefs about the functioning of the ear are what led me to make this assumption:

> Tomatis proposed (1974a, 1974b) a different view of the ear than Von Békésy (1960), who was awarded a Nobel Prize for his theory. Tomatis observed that too much distance separates the incus and stapes, and the presence of collagen there prevents the occurrence of sound with a human fidelity capability. Instead of conducting sound, Tomatis theorized that the ossicles protect the inner ear from damage by dampening the tympanic membrane vibratory energy via a feedback loop from the endolymph. The endolymph buffers the shearing potential of the vibrational force to protect the Corti cells. Bone conduction occurs even when the ossicles are removed, with a resultant flaccid contact between the tympanic membrane and tympanic sulcus causing air conduction hearing loss.
>
> Tomatis claimed bone conduction is the major route of sound conduction to the inner ear. He observed that the endochondral capsule is the only place in the human body where primitive bone, which developed from fetal cartilage, persists unchanged (no resorption) from before birth until after death. Thus, this static medium is the ideal conductor for vibratory energy. The cells of

> Corti are end organs rather than sensory cells, such that they play a role in cochlear mechanics. The stapedius muscle controls the stapes and regulates high-frequency audition and never rests; it is the only muscle of the human body to do this (Tomatis, 1974b).[1]

Instead of conducting sound, Tomatis theorized that the ossicles protect the inner ear from damage by dampening the tympanic membrane vibratory energy via a feedback loop from the endolymph.

At the end of the initial meeting, I asked Fran to ask the ear, nose and throat specialist if the medications Peter was taking were affecting his hearing. Peter's parents asked me to work with him, and I agreed to do so after he completed a hearing test; I wanted to understand what was causing his apparent hearing difficulties.

After a full examination, Peter's doctor found his ears were full of fluid and it took several months to clear up this problem. However, when he could hear better and his ears were clear, he still displayed many of the behaviors he had when he was tested by other professionals, and we agreed to start the Tomatis® Method.

Program

I recommended to Peter's parents that he undertake 60 hours of listening to see how the program would help him. If all went well, I suggested that they consider 30 additional hours to continue stimulating Peter's ears. I also recommended that Peter move to the front of the classroom at school, and that any softly spoken teacher be made aware of Peter's needs.

Susan Andrews, PhD, and Billie Thompson, PhD, in their article "The Emerging Field of Sound Training," summarized the Tomatis® Method. It is based on a number of assumptions about how people develop, process information and learn, including the following:

Hearing is different from listening.

- Hearing is different from listening.
- Listening plays the fundamental role in processing all language information.
- The motivational and emotional need for communication begins with listening.
- One role of the auditory system is to connect or relate self to self, to others and to the environment.

Listening is a skill that can be both lost and recovered.

- The brain needs sound energy to enable the thinking processes and the development of intelligences.
- Different professionals may use sound stimulation technology as a tool to help people of all ages improve their listening.
- Listening is a skill that can be both lost and recovered.[2]

It was clear from the prior tests, and the initial Tomatis® assessment, that Peter struggled with listening. As a result, he exhibited challenging behaviors and was unable to achieve his potential. Listening is disturbed when the two muscles of the middle ear are weakened as the result of a life experience. The role of the Electronic Ear (Dr. Tomatis's device) is to strengthen these two auditory muscles to their full working ability and reactivate a full listening potential. When this is accomplished, the ear functions as it is supposed to, and provides energy to the brain. You can find out more about how the Tomatis® Method works, and the role of the Electronic Ear, at **www.tomatis.com**.

Fran and Jim chose to use the portable Mini-Electronic Ear (Mini-EE) for Peter's program. This device was created in 2001 and was the first product designed by Tomatis® Développement SA to provide a program outside of centers. The Mini-EE is able to give both passive and active sessions using the microphone and, if available and appropriate, the mother's voice CD. This CD contains a recording of the mother's voice with the low and medium frequencies filtered out in order to reconstruct how a child hears a

mother's voice during pregnancy, re-creating the child's prenatal memories. The Tomatis® program was the only program Peter was undertaking in addition to his medications.

The mother's voice CD ... contains a recording of the mother's voice with the low and medium frequencies filtered out in order to reconstruct how a child hears a mother's voice during pregnancy, re-creating the child's prenatal memories.

I decided to focus first on strengthening the lower sounds in Peter's listening. These sounds tend to strengthen balance and bodily function. This emphasis in the lower tonal scale was between zero and 1,000 hertz. Next, Peter's language and phonics needed improvement, so tones in the language range were addressed in his second week, ranging up to 3,000 hertz.

After the first few days of listening, Fran wrote the following:

> The first thing that happened was that he asked to take a shower and wash his hair all by himself! He's always whined or cried from the water pressure on his head and face, but not anymore! He said he was ready, now!
>
> Imagine that! And he's been doing it since! Hooray! Also, he appears to be "thinking" before acting more ... specifically with regard to items he needs to remember to take to school. He's been able to control areas of impulsivity such as rushing through his classwork and turning it in without checking any of it. In the past two days during tests, instead of being the first as usual to turn in his paper, he began to get up, stopped himself, sat down again and looked over everything, caught his mistakes, corrected them, and then turned in his work! This is such a HUGE DEAL! It can make such a difference in his grade average!

Behavior change

Peter began to sleep better at night, but was still taking melatonin.

Fran wrote again, about three months after Peter completed his 60-hour program:

> I have many wonderful things to share with you!
>
> As of week 4 of school, Peter's grades are as follows:
>
> - Writing composition B+ (this involves creating complete sentences—a very big deal—previously couldn't do)
> - Spelling A+
> - English B
> - Vocabulary A
> - Geometry A
> - Social Studies B+
>
> His handwriting continues to improve and show evidence of smooth cursive lines and connections. His focus and attention appears to be very good throughout the day. We have now removed the melatonin vitamins for sleep completely from his daily regimen. His teacher is creative and passionate and very positive in her reinforcement methods. He is receiving NO special accommodations with regard to workload, NO Learning Center attendance, NO NEOSMART for handwriting ... and is the only student in his computer class who can type perfectly on the keyboard with eyes closed and have 0 mistakes! He continues to have improved short-term memory with regard to homework assignments and due dates.

> The first thing that happened was that he asked to take a shower and wash his hair all by himself! He's always whined or cried from the water pressure on his head and face, but not anymore! He said he was ready, now! Imagine that! And he's been doing it since!

Conclusion

Peter came to me with a critical listening issue. From the standpoint of the Tomatis® Method, birth trauma, adoption and health issues can challenge the development of the ear and human biology involved in listening. Once Peter's hearing issues were assessed by an audiologist and treated by his pediatrician, Peter completed the Tomatis® Method. His ability to listen improved and he was able to learn, remember, and make friends more easily than before he did the program. Peter became a leader. The Tomatis® Method helped improve Peter's ability to listen by strengthening his middle ear muscles, allowing his ears to receive sounds, which translated to energy in Peter's brain. Happily, after completing the program, learning *did* become easier for Peter.

Peter came to me with a critical listening issue. From the standpoint of the Tomatis® Method, birth trauma, adoption and health issues can challenge the development of the ear and human biology involved in listening.

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NIGHT AND DAY — TWO VERY DIFFERENT SISTERS, ONE VERY EFFECTIVE SOLUTION

Angela Mañosa (Gem)

Moreover, I am convinced that in this field no effort is made wholly in vain. Something *can always be done* if only to give the family love and help them better understand what is happening.

—Alfred Tomatis

Angela Mañosa (Gem)

Gem, together with her partners Ria Vecin and Joanne Pedrosa, launched the Tomatis® Method in the Philippines in 2007. Gem started out as an educator, teaching children in elementary and high school for ten years. She then completed her master's degree in family life and child development (specializing in special education) at the University of the Philippines, and trained as a Tomatis® consultant under Françoise Nicoloff. Gem has been administering the Tomatis® Method for the past four years, and she is the only registered certified Tomatis® consultant in Manila today. Along with her partners she owns and runs three centers in the Philippines.

Gem is married to Dino, and has three children, Sabina (15), Martin (ten) and Basti (five), all of whom have completed the Tomatis® Method at some point in their lives. She is also the owner of Sabina's Books, a publishing house that creates books for mothers and their children.

You can find out more about Gem, Ria and Joanne and their work in Manila at **www.tomatis.com.ph**.

CHAPTER 5

Night and day—two very different sisters, one very effective solution

TWO CASE STUDIES ILLUSTRATING THE EFFECTS OF THE TOMATIS® METHOD ON TWO VERY DIFFERENT LITTLE GIRLS

During September 2008, a single mother brought her two daughters, Erica and Luisa, to our Tomatis® center in Manila. She had heard about the Tomatis® Method from a lady whose son attended the same school as her daughters. On that recommendation she had attended a lecture delivered by my trainer and mentor, Françoise Nicoloff, and had become convinced that Tomatis® could help her girls. At the time, I had been a practicing Tomatis® consultant for a year, and we had just opened our second center. Françoise was present to attend our opening and evaluate my skills and competence as a consultant.

From the moment I met the girls, I was struck by the difference in their

behavior. Erica, the elder sister, seemed melancholic and uneasy. She was quiet and unsmiling during the meeting, keeping a tight hold on her book, and avoided looking anybody in the eye. By contrast, the younger sister, Luisa, was a burst of energy. She was constantly asking questions and touching the toys scattered around the room, and became uncooperative when asked to sit down. These sisters were as different as night and day, and this is their Tomatis® story.

From the moment I met the girls, I was struck by the difference in their behavior … These sisters were as different as night and day …

Erica: silent night

When Erica first came to visit our center, she was 11 years old and in year six at a school in Manila. Her family had moved to the Philippines when she was six—prior to this, they had lived in Australia. Her mother reported that Erica had been unhappy about the move and that it had taken her six months to adjust to her new situation.

Erica lived with her mother and sister. Her father, who was separated from her mother, lived in Sydney and was only able to visit his daughters every three months or so. According to her mother Erica had a very good relationship with her dad, despite their limited time together. They got along very well because they knew how to "communicate" with each other, and she regarded her father to be very much like a "big brother." However her relationship with her younger sister, Luisa, was very strained. She was very frustrated with her sister, and said that Luisa did things that embarrassed her.

Erica's mother brought her in for an assessment because she was very concerned about her daughter's poor performance at school, her immaturity, and low self-esteem. Erica was also prone to depression and had motor difficulties. When she was seven years old, a developmental pediatrician diagnosed her with ADD, and two years later a child

psychologist from her school detected dyslexia and dyspraxia. Erica was having difficulty in math and literacy, and struggling with spelling, reading and writing. She was unmotivated and had a negative attitude toward her schoolwork, and if she thought something was too complicated, she would just refuse to do it. Her father also had a history of learning disabilities.

Erica's mother brought her in for an assessment because she was very concerned about her daughter's poor performance at school, her immaturity, and low self-esteem.

Erica suffered from low self-confidence. She would speak in a very soft monotone around adults, and would not make eye contact. She was also extremely shy around new people and did not make acquaintances easily because she would never initiate a conversation with anyone. She was only comfortable with a familiar group of friends.

Erica was also a very clumsy child, with poor balance and coordination and a tendency to fall down or bump into things. She was awkward, had some trouble going up and down stairs and still had a tendency to confuse left and right. Erica had difficulty performing writing activities due to her poor grip and when she was five years old her mother had to employ an occupational therapist to help develop her fine motor skills, with a special focus on improving her pencil grip. She also saw a speech therapist for six months when she was four. Erica had several tactile sensory issues, including a dislike of being touched or held close, and discomfort with the feel of water or certain clothing textures.

Erica was also a very clumsy child, with poor balance and coordination and a tendency to fall down or bump into things.

Erica's mother said that her pregnancy had been stressful because she had been renovating her house at the time. Erica was delivered normally at full-term, although the doctor had needed to use forceps because she had been a big baby, weighing 4.1 kilos. As an infant, Erica was calm and peaceful,

spent most of her time sleeping, and was breastfed for 20 months. However, she did have several medical problems as a baby: she suffered from severe eczema when she was three months old, had two anaphylactic episodes at six months, and a burst eardrum at one and a half years of age. At the time we saw her, she still had severe allergies and recurrent ear infections. She was allergic to bananas (although her mother had craved the fruit during her pregnancy) and disliked cheese and yogurt. Other than that, Erica's diet and sleeping habits seemed normal.

Diagnosis

Based on Erica's personal history and listening test (see Image 1), I determined that she had auditory processing difficulties, as well as underdeveloped vestibular issues. The irregularity of both her air conduction curves, as well as the number of spatialization errors, indicated that she had difficulty locating the origin of sound, which affected her processing skills. The combination of her disharmonious bone conduction curves and these errors indicated that she was tense and anxious, prone to immature behavior, and greatly insecure about herself and her abilities.

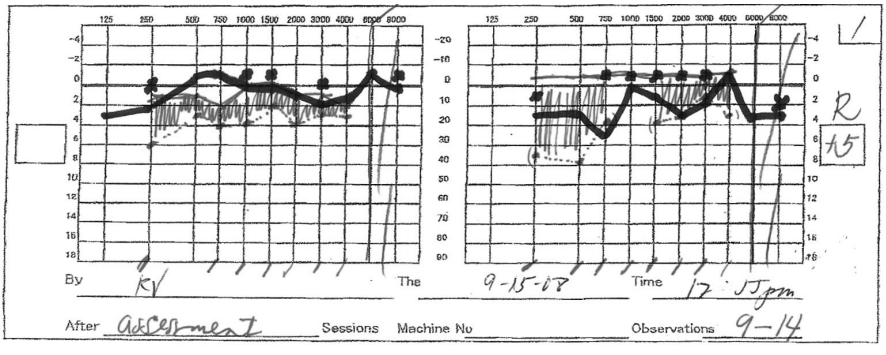

Image 1: Erica's listening test during assessment (15 September 2008)

Intervention

I recommended a 60-hour Tomatis® program for Erica, with the stipulation that she was to be re-assessed three months afterward to determine if she would require additional auditory training therapy. Erica's mother enrolled her in the Tomatis® Method, and did not have her daughter participate in other therapies or interventions during the process.

Erica underwent a 60-hour Tomatis® program, divided into three 20-hour phases. I emphasized the urgency to balance her ears, as well as address her vestibular issues.

The first treatment program was completed from 13 to 23 December 2008, when she was staying with her father who was in Manila for a visit. According to the listening trainer, Erica preferred to read on her own during the therapy, but she was very compliant and would draw or color and sometimes agree to play board games. In the beginning, she complained about the "bad music" and grumbled about the long sessions. However, towards the end she seemed to be in a better mood during the sessions and Erica's father shared that he felt very relaxed and happy to be spending the two hours at the center with his daughter. He said that since they were all on vacation, Erica was well behaved. He also shared that although his daughter did not want to go to the center initially, she enjoyed herself in the end.

The second treatment program was completed from 14 to 23 February 2009. The listening trainer reported that Erica was very compliant and interacting more. She would draw, cut, and color, and brought her scrapbooking materials in with her. When she did her microphone work, her voice sounded more animated than usual. Erica stayed with her mother during this phase of the program and would ask her opinion for her scrapbooking items: "What's your favorite, Mum?" or, "Do you like it, Mum?" Erica's mother said that during this phase,

Erica's father shared that he felt very relaxed and happy to be spending the two hours at the center with his daughter.

her daughter was more affectionate, opening up a little more and smiling more often. She also became more mature and responsible.

The third treatment program occurred from 13 to 23 April 2009. The listening trainer observed that Erica was more lighthearted and assertive, and would now initiate conversations. The quality of her microphone work also continued to improve—she developed better timing and enunciation. Erica's mother shared that her daughter's maturity and sense of responsibility continued to develop, that she was communicating more effectively, was more affectionate and even seemed to be calmer and more patient with her sister. But the most significant improvement was in her balance and coordination—Erica had learned to surf, and her mother was amazed at how well she balanced on the board.

But the most significant improvement was in her balance and coordination—Erica had learned to surf, and her mother was amazed at how well she balanced on the board.

After finishing her 60-hour Tomatis® program, Erica's mother brought her back for a listening test and requested that her daughter do a booster program. She told me that during the interval Erica had become more energetic, seemed happier and more confident and had broadened her social circle. She studied on her own and had received good marks in school, topping her science class. Her organization and balance were also greatly improved. However, Erica continued to struggle with her reading and writing—she still experienced difficulty getting her thoughts down on paper and her spelling was still a problem. She was also "fidgety."

The fourth program (16-hour booster program) occurred from 16 to 24 July 2009. The listening trainer observed that Erica had reverted to reading books during the session. Her speaking voice was soft and she had a "gloomy disposition."

Erica's mother brought her back to the center six months after she completed her booster. She shared that her daughter, although still shy around people, was definitely more affectionate. Erica also had more

confidence in completing her schoolwork and exhibited improved balance and coordination.

The fifth program took place from 16 to 22 February 2010. On 8 July 2010, Erica's mother brought her back for a listening test (see Image 2).

Erica also had more confidence in completing her schoolwork and exhibited improved balance and coordination.

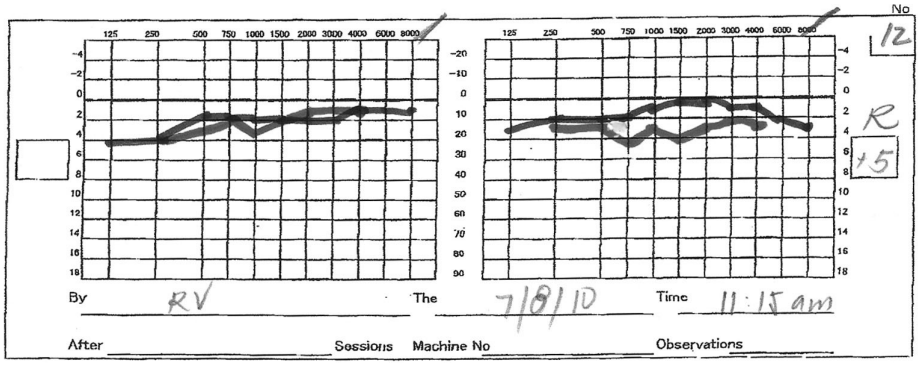

Image 2: Erica's latest listening test (8 July 2010)

Conclusion

Erica's last listening test shows a marked improvement from the first one she took. Her air and bone conduction curves were more harmonious and all the spatialization errors were gone. This indicated that her auditory processing skills had improved, as had her body awareness and control. Taken together with her mother's observations, we can say that Erica has definitively improved in her disposition towards others and herself, and in her balance and motor skills.

This indicated that her auditory processing skills had improved, as had her body awareness and control.

Erica continues to exhibit difficulty in regard to her learning, as she still has trouble with language and math concepts. Hopefully, once she has the time to integrate the changes that

the Tomatis® Method has introduced through re-patterning the connections in her ears, brain and body through her much-improved listening skills, changes should also become apparent in her behavior and fine and gross motor skills.

Luisa: high noon

Luisa was six years old when her mother brought her to our center. She was a year one student at a school in Manila, living with her mother and her older sister, Erica. Her father, who was separated from Luisa's mother, lived in Sydney.

Luisa's mother was concerned about her daughter's difficulty with focus and concentration—she had a hard time sitting still, and would never make eye contact when spoken to. Luisa struggled to put her thoughts into words and would often erupt in frustration when no one could understand her. She would often rely on her mother to convey what she wanted to say.

Luisa's mother was concerned about her daughter's difficulty with focus and concentration—she had a hard time sitting still, and would never make eye contact when spoken to.

Luisa also had a tendency to take things literally and misread social cues. She was unaware of how her behavior was perceived by others—she would walk naked in front of guests, blurt out inappropriate comments, and showed no fear of strangers. She reveled in chatting with adults, but would usually get over-excited and start talking loudly. Although she enjoyed being with her friends, she would get upset when they could not understand her, and at times she would become very aggressive and throw things or hit them. She enjoyed rough play, especially with boys.

Compared to her peers, Luisa lagged behind academically and was delayed in her reading and writing skills. At four years of age, she was diagnosed with mild autism by a developmental pediatrician and a child

psychologist. But despite her difficulties, she enjoyed going to school and was very motivated during her classes.

Luisa got along well with her mother, but had a more contentious relationship with her father. He had been absent for months at a time for most of her life, starting when he had to leave due to work for five months when she was just one year old. At the time of the assessment, Luisa's father was living in Australia and seeing his daughter every three months, and although he called every day, she disliked talking on the telephone. According to her mother, Luisa's father had not fully accepted his daughter's condition and would get very frustrated with her when they were together. Luisa and her sister did not get along very well as they had very different personalities, and Luisa would often resort to biting Erica in frustration.

Luisa's mother had suffered a miscarriage before she got pregnant with her. She related that at the time of her pregnancy with Luisa, her marriage had been very rocky, and she and her husband were on the verge of separating. She was stressed, depressed, and felt that, "the timing was not right." She also worked night shift as a medical technician and part of her job required her to handle radioactive materials. Despite wearing a lead apron, she feared that this may have contributed to Luisa's condition.

In spite of the difficult pregnancy, Luisa's mother had an easy delivery, but had to return to work after only one week of rest. As an infant, Luisa was very active and restless. She would also often drift into her own world, not interacting or even looking for interaction. Her mother was able to breastfeed her for one year, despite her busy schedule working and taking care of two children.

Luisa was generally a healthy child. The only time she had to be hospitalized was when she hurt her head and required stitches. Her mother described her as a fussy eater, who disliked trying new food and insisted on having the same dish every day—the family was in the process of changing Luisa's diet by removing sugar and giving her organic soy milk and omega oils.

Diagnosis

After seeing Luisa's initial listening test (see Image 3), I immediately understood the cause of the behavior her mother had described. Both air and bone conduction curves were irregular, indicating spatialization errors, which reflected her difficulty in learning. Most significant, however, was her closed selectivity, which meant that Luisa did not have the ability to analyze and differentiate sound. But more than this, it showed that she was in a state of confusion—Luisa was living in "survival mode" in her own world. Since she lacked the ability to properly filter or process information, she would communicate instinctively without realizing the consequences of her actions. Her extreme left-ear dominance also indicated that she was a highly emotional and self-involved individual.

It showed that she was in a state of confusion—Luisa was living in "survival mode" in her own world.

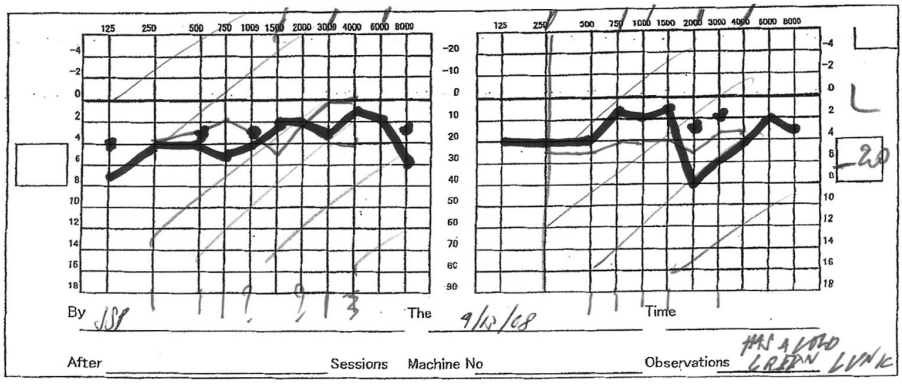

Image 3: Luisa's listening test during assessment (13 September 2008)

Intervention

I recommended a 60-hour Tomatis® program for Luisa, with the same proviso as Erica—that she be re-assessed three months after the program

to determine whether she required additional auditory training therapy. Luisa's mother enrolled her in the Tomatis® Method along with Erica, but we had the sisters participate in separate rooms so they would not interact with one another.

Her extreme left-ear dominance also indicated that she was a highly emotional and self-involved individual.

Luisa's Tomatis® program was divided into three 20-hour phases. I addressed the closed selectivity issue, while working on balancing her curves and removing the errors.

The first treatment period was from 13 to 23 December 2008. During the sessions, Luisa was very restless and asked the listening trainer to remove the headphones, saying that she couldn't hear or speak "properly" with them on. She would play on her own, but then throw the toys around when she became bored. At the end of the treatment period she became friendlier, and her father (who was visiting his daughters in Manila) said that he was glad that she could sit for two hours straight, and observed that she was well behaved.

The second treatment program took place from 14 to 23 February 2009. Luisa appeared more polite and compliant, however, she would suddenly become rude and belligerent. She enjoyed playing pretend with action figures and always had male protagonists. While Luisa would not automatically pack the toys away after playing, she would do so when asked. She completed her microphone work with success. Her mother observed that Luisa had calmed down somewhat—she was more compliant, affectionate and cooperative. According to her teachers, her concentration had improved and she was picking up on lessons more quickly, however, she still suffered from frustrated outbursts.

The third treatment program took place from 13 to 23 April 2009 and the listening trainer observed that Luisa was calmer and more focused. She enjoyed playing pretend and drawing, and was more patient while completing the listening sessions. However, she still acted up when she was not the center of attention. During microphone work, she became very

restless but was able to repeat the sounds well. Luisa's mother shared that her daughter was noticeably calmer, more compliant, and eager to please. Her concentration span had increased, she was more enthusiastic about reading and writing, and her outbursts had diminished.

Three months after finishing her 60-hour Tomatis® program, Luisa's mother brought her back for a listening test and requested that her daughter do a booster program. During the interval, Luisa had become very volatile when frustrated; her temper would escalate whenever she was overwhelmed. She would speak in a loud voice and try to get attention in a "negative" way. Although her mother observed that she had improved in self-expression and had moments of clarity, Luisa was still largely, "in her own world." In school, she lagged behind and her teacher had to slow down her lessons. She would participate more and sit longer during activities, but would fidget and talk to the children beside her. Luisa's mother also attributed her behavior to changes that occurred at home—the family moved into a new residence and several school activities that her daughter had been looking forward to had been suspended, disappointing Luisa.

The fourth treatment program (the 16-hour booster program) was carried out from 16 to 24 July 2009. The listening trainer remarked that while Luisa seemed to have low energy during the sessions she still did her pretend play and drawing, and was very affectionate with the listening trainer.

Luisa's mother brought her back to the center after six months. She said that her daughter was behind in her schoolwork despite an interest in reading and writing. She also noted that it was difficult to get Luisa's attention because she would "switch off" and pretend not to hear her mother. She would also occasionally "space out."

The fifth treatment program occurred from 16 to 22 February 2010 and Luisa's mother brought her back for a listening test on 8 July 2010 (see Image 4).

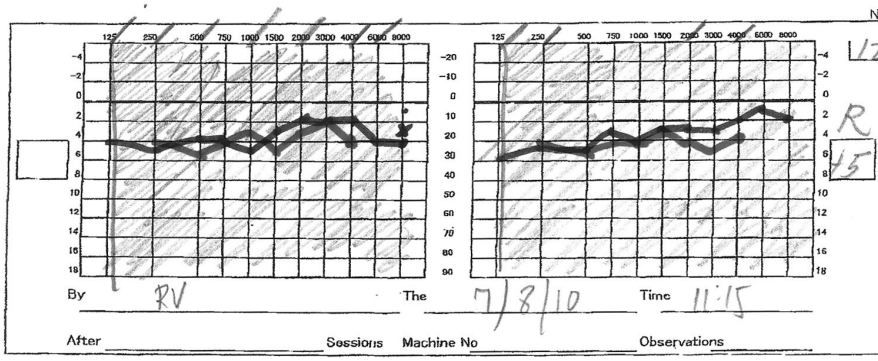

Image 4: Luisa's latest listening test (8 July 2010)

Conclusion

Luisa's last listening test shows more balance and regularity in the air and bone conduction curves. The spatialization errors disappeared, however her selectivity remained closed. The results of her test indicated improvements, as Luisa required less time to assimilate information, was able to focus and concentrate for longer periods of time, was less emotional and more self-aware.

Luisa required less time to assimilate information, was able to focus and concentrate for longer periods of time, and was less emotional and more self-aware.

However, Luisa was still largely withdrawn in "her own world." Due to her inability to properly filter or process information, she lacked the ability to communicate effectively and reach out to people. Thus she behaved as she pleased, especially when she became extremely frustrated. I would recommend that Luisa continue her auditory training therapy, because despite the many changes that occurred, she still needs more help to clear her selectivity and communicate better with others.

VICTOR: A JOURNEY THROUGH FEAR TO HAPPINESS

Hilde Tinkl and Barbara Thima

I think I had demonstrated that the human being was an ear in its entirety, but it is the phylogenetic evolution of all species that leads us to identical conclusions. In fact, all living organisms are engaged in a dynamic which takes place through a network destined to transfer information. Therefore, nothing that is in rapport with the vibratory world could exist without exercising an action on the whole human body.

—Alfred Tomatis, *Écouter l'Univers*

Hilde Tinkl

Hilde was born in Vienna in 1958 and is married with two children—Bernhard, born in 1985, and Gregor, born in 1988. After a pedagogic study, she spent ten years teaching at a general secondary school. Since then she has also been active working with children in several institutions in her spare time.

Hilde started a Tomatis® program in 1993 due to her own hearing problems and her son Gregor's severe handicap. Convinced by the effectiveness of the Tomatis® Method, Hilde completed a Tomatis® consultant training program in Paris and Germany in 1995, and opened a Tomatis® center in Vienna in the same year, which she leads together with Barbara Thima. In 1997 she opened a second center in Salzburg, in collaboration with her colleague Carla Sommerauer.

Hilde is a founding member of the International Association of Registered Certified Tomatis® Consultants, and she can be contacted at **www.tomatis.at**.

Barbara Thima

Barbara was born in Vienna in 1974. As a student, she worked in a youth center, giving lessons in English, German and mathematics to pupils between the ages of eight and 15; she also spent time taking care of children with special needs. While studying educational science and special education, she was required to complete work experience in several institutions. Consequently, she discovered the Tomatis® Method, and started working in Hilde Tinkl's center in 1997.

Barbara completed her Tomatis® consultant training in Germany in 2001, and she now specializes in depression, pregnancy, prenatal experiences, and children and their families. She also began studying to become a psychotherapist in September 2010.

Barbara is married with two children—a son born in 1996, and a daughter born in 2000.

CHAPTER 6

Victor: a journey through fear to happiness

Victor was two years old when he first came to our center with his mother. His father was Austrian and his mother was Egyptian, and although she spoke German very well, it was with a strong accent. His speech therapist had told his mother to speak only German (his father's language) with him, as being exposed to two languages may have been confusing him. Victor had great difficulties in speech and language and could not speak either Arabic or German clearly. But there was another reason they came to see us. Victor struggled with very severe hyperacusis—every noise frightened him, and he would react by hiding behind or near his mother and crying or shouting. This caused difficulty at home, because he could not bear the noise of the washing machine, kitchen appliances, or even the sound of someone stirring a pot. When his mother was cooking, Victor had to be taken to

Victor struggled with very severe hyperacusis—every noise frightened him, and he would react by hiding behind or near his mother and crying or shouting.

another room and the doors had to be kept closed.

When Victor entered our center, we immediately noticed the instability of his motor skills. Our waiting room is a hall, which is about nine meters long and two and a half meters wide, and Victor was unable to walk from the front door to our room without touching the wall. He required more than a meter's space on either side of him, because he walked like he was drunk. His mother was exhausted and distressed, her daily life was enormously restricted and she desperately wanted to talk to her son in her mother tongue, but had been forbidden to do so. She saw that her child was suffering and stressed, but felt helpless to aid him.

When Victor entered our center, we immediately noticed the instability of his motor skills.

We immediately told her to talk to Victor in her native language and explained to her why she should do so. As Tomatis® practitioners we often recommend that parents speak in their mother tongue, as it is common for them to have limited mastery of their second language in terms of pronunciation, grammar and accent. This can result in a child learning a distorted version of their second language, which has the potential to compromise his or her way of learning. In this case, it would be preferable for Victor's mother to speak in Arabic to help him learn Arabic correctly, and for his father to speak in his own mother tongue, which was German. In this way, Victor would be exposed to both languages and be able to learn both at the same time, using the right channels and proper characteristics of each language. Because the ear is completely developed by four and a half months gestation, we start to learn our "mother tongue" during prenatal life and it is therefore more comforting for us than any other language. We also can express ourselves better emotionally in our mother tongue, which is very important for the mother-child bond. Once Victor's mother began speaking to him in Arabic, they both began to feel better.

For the Tomatis® training we used a belt that we put around Victor's waist, which consisted of a small board with two bone conductors on it.

This board touched his spine and the music was transmitted to the bone conductors through the Electronic Ear. Victor was very shy and afraid of new situations, so his mother stayed in his treatment room and listened to her program simultaneously with her headphones. We started with non-filtered music for 30 minutes, as this was the maximum amount of stimulation that Victor could tolerate.

As Tomatis® practitioners we often recommend that parents speak in their mother tongue, as it is common for them to have limited mastery of their second language in terms of pronunciation, grammar and accent.

After the first two days we started to see enormous changes. Victor was able to walk straighter and did not bump into things as often. On the third day we were able to increase to two 30-minute sessions each day, adding slight slopes in the filters of the high- and low-frequency range. When five days (eight 30-minute sessions) had been completed, Victor's mother came into our center crying—she told us that he had walked up the stairs by himself.

We also noticed that his speech prosody had changed; his voice now contained more melody. Although he was speaking Arabic and we could not understand his words, it was clear that his voice contained the same tonality of his mother's language. This also corresponds to the first Tomatis® principle: that the voice can only reproduce what the ear hears or processes. Changing the way Victor was processing sounds produced immediate results in his voice and tone. His sounds became clearer and he started using sound groups for special people and objects, using more sounds and words every day. After ten days his mother told us that he did not react the way he used to in the presence of noise and he even stayed in the kitchen when she was cooking. Spending time with other children was also less stressful for both mother and child and overall, the whole family situation was much more relaxed.

After a break of four weeks we saw the family again. Victor was talking in two-word sentences in both languages and everybody was

When five days (eight 30-minute sessions) had been completed, Victor's mother came into our center crying—she told us that he had walked up the stairs by himself.

able to understand him. His motor skills had improved greatly and he appeared well balanced—he could play on a swing or a slide without feeling anxious, could jump on one leg, was playing with different objects and was less fearful of noises. If a sound was too loud, his mother could easily calm him with words. The second and third intensives of Tomatis® training also consisted of two one-hour sessions a day and we were able to use higher filters and more slopes in the low- and high-frequency ranges.

Two years passed before we saw Victor again. The family was under stress once more—Victor had been talking in both languages, had stopped experiencing difficulty with his motor skills and his hyperacusis had become non-existent. But a few months before returning to our center, his mother had given birth to a baby girl and Victor's old difficulties had resurfaced. During the pregnancy Victor had been fascinated by his mother's belly and was looking forward to meeting the baby, but over time he slowly stopped talking again. We initiated the Tomatis® training again, but felt we needed the support of a child psychologist to help us look into the family's situation. The psychologist discovered that Victor was intellectually gifted. He could write his name and other words backwards, but only if someone held his hand: he was not able to hold the pencil and guide it over the paper without assistance. It appeared that his refusal to talk and the regression in his motor skills indicated an emotional reaction to the birth of his sister. We continued with the Tomatis® program and also recommended occupational therapy for additional assistance, and Victor made good progress once again.

We wanted to share Victor's story because so many families become afraid in the face of what looks to them to be a "regression." But these instances are hardly ever actual regression—what is more likely is that growth is occurring, and the child is reapplying old coping strategies that outwardly look like regression as they work through this new

process. In Victor's case, he was going through a stage of emotional development that needed to catch up with his motor and speech development, and the birth of his sister had acted as a catalyst for the rebirth of his sense of self. This was an enormously healthy process for him and absolutely necessary for his continued independence. It was important that his parents returned to the center to discuss these changes, and it is vital that parents be involved in the process as it unfolds. The counseling in this case, as in many other cases, made all the difference in this family continuing with Tomatis® training, which allowed Victor to make great progress forward.

It appeared that his refusal to talk and the regression in his motor skills indicated an emotional reaction to the birth of his sister.

LIFTING THE VEIL OF AUTISM

Helga López, Catalina Soto De Gamboa,
Maria Claudia Guzmán López,
Silvia Carrasquilla de Londoño,
Patricia Garcia de Santaella and
Maria Cristina Lievano de Cabrera

The less one has mastered speech with one's body, the less gifted one is for silent reading ... It is a great mistake to continue teaching silent reading for there is a great risk of blocking all spontaneity and comprehension.

—Alfred Tomatis, *The Conscious Ear*

Helga López

Helga is the director of Centro Tomatis® Colombia and has 36 years of experience as a psychologist and educator in Bogotá, Colombia. She earned a master's degree in psychology, with an emphasis on child development and learning difficulties, from the University of Houston, is a master practitioner in neuro-linguistic programming (Colinde, Mexico), and was certified as a Tomatis® consultant by Christian Tomatis in 2000. Helga is proud to be a founding member of the International Association of Registered Certified Tomatis® Consultants (IARCTC) and is the Director of Project Winnie: Kindergarten in Bogotá—an educational institution that pioneers the use of the Tomatis® Method in the classroom. She is also a dedicated founding member of Preescolares Solidarios, a foundation dedicated to creating therapeutic play areas for low-income children.

Catalina Soto De Gamboa

Catalina is a phonoaudiologist. She obtained her degree from Universidad del Rosario in Bogotá, Colombia, and she has spent more than 20 years working with children from birth to 36 months in neurodevelopment programs. She has also helped school-aged children struggling with language, cognition and learning disabilities both in schools and in hospitals. Catalina was trained as a certified Tomatis® consultant by Gloria Assmar in Mexico City, Mexico, in 2002 and is a co-founder and consultant at Centro Tomatis® Colombia.

Maria Claudia Guzmán López

Maria Claudia is a phonoaudiologist with a degree from the University Museo Social Argentino de Buenos Aires. She has devoted 28 rewarding years to professional practice, both privately and with government institutions. She is an active founding member of the Research and Advisory Group Phonoaudiology, GUIA, and Group CONVOZ: Acoustic Analysis, in Bogotá, Colombia. She has also been a board member of the Colombian

Association of Audiology.

Maria Claudia was trained as a Tomatis® consultant in Mexico City by Gloria Assmar in 2002 and was a co-founder of Centro Tomatis® Colombia in 2004.

Silvia Carrasquilla de Londoño

Silvia has a degree in phonoaudiology from Universidad del Rosario and underwent postgraduate studies at the University Del Museo Social Argentino and University Salvador in Buenos Aires, Argentina. She has 30 years of experience in helping people with hearing problems and learning disorders both in government institutions and private practice. Silvia received her Tomatis® training from Gloria Assmar in Mexico City, Mexico, in 2002 and has been a devoted and active member and consultant at Centro Tomatis® Colombia since it was founded in 2004.

Patricia Garcia de Santaella

Patricia has a degree in phonoaudiology and a specialization in voice and speech development from Universidad del Rosario in Bogotá, Colombia. She was also trained in speech by Dr. Barbara Hudson. In addition to her 31 years in private practice as a phonoaudiologist, Patricia has dedicated her time to teaching others, both as a professor at the Phonoaudiology department at Universidad del Rosario from 1996-1999 and director of the Adult Community Practice: Vocal Promotion and Prevention Program from 1975-1980. She is an honorary founding member of the Colombian Association of Audiology and was certified as a Tomatis® consultant in Mexico in 2002 by Gloria Assmar. She is also a co-founder and consultant at Centro Tomatis® Colombia.

Maria Cristina Lievano de Cabrera

Maria Cristina is a speech pathologist at the Universidad del Rosario in Bogotá, Colombia, with 35 years of professional experience in clinical audiology. Maria Cristina is the founder of the Center for Adaptation and Rehabilitation of Deaf Children in Neiva, Colombia. She qualified as a certified Tomatis® consultant in Mexico City, Mexico in 2002, and is a co-founder of Centro Tomatis® Colombia.

You can find out more about the Tomatis® Method and Centro Tomatis® Colombia at: **www.tomatiscolombia.com**.

CHAPTER 7

Lifting the veil of autism

A five-year-old boy came to our Tomatis® center in Colombia, having been diagnosed with autism by a pediatric neurologist. His parents reported unsocial behavior, an inability to establish visual contact, a complete absence of language development and repetitive stereotyped behaviors, such as constant walking and producing a high-frequency sound. In kindergarten he was often sent out of the classroom and left without any structure to follow due to his frequent tantrums. The child underwent the listening training program with the Tomatis® Method for four months, completing a total of 62 hours of listening, divided into three phases.

One year later he returned to our center for a check-up and his parents reported entirely positive changes. The pediatric neurologist had re-evaluated his diagnosis, concluding that there was a delay in development, but

One year later he returned to our center for a check-up and his parents reported entirely positive changes. The pediatric neurologist had re-evaluated his diagnosis, concluding that there was a delay in development, but that it was not autism.

that it was not autism. The child had established social contact with his sisters and showed physical affection; he understood and followed simple orders; he spoke words and phrases, and greeted and thanked spontaneously. He also demonstrated bladder and bowel control, and was more organized at kindergarten; for example, he finished the tasks he was given.

What is autism?

"Autism is characterized by a distinctly abnormal and diminished development of social interaction and communication and a distinctly restrictive range of activities related to personal interests." [1]

Background

The boy was five years old when he first attended our center, and was the third child born in his family. At the time of his birth his father was 32 years old, and his mother was 39, with no important physical or emotional factors in either of their personal medical histories. However the pregnancy was under the threat of miscarriage due to bleeding during the first month, so it was recommended that the mother rest. The boy was born by caesarean section, after which he indicated suitable, immediate and spontaneous neonatal adaptation, by demonstrating appropriate responses to post-birth tests.

His psychomotor development had been delayed in general, and an absence of non-verbal behavior, which controls interaction, was observed, as well as a delay in the development of verbal language.

His psychomotor development had been delayed in general, and an absence of non-verbal behavior, which controls interaction, was observed, as well as a delay in the development of verbal language. When he started preschool at the age of two, before beginning with the Tomatis® Method, he would cry when entering the classroom.

Description of the presenting problem

The child clearly lacked social skills; he did not interact with adults or children or exhibit any social reciprocity; and did not answer when he was called by his name, or in response to almost any verbal language. In fact, he would respond only to the command, "Come to eat." He would not establish eye contact and explored his environment using only peripheral vision. He exhibited stereotypical behavior while walking: he would run up and down, producing a high-frequency sound as he did so.

Impression of the Tomatis® consultant

Following primary observation the child's consultant confirmed the description given by his parents—that his behavior was typical of autistic behavior[2]. A Tomatis® listening test was performed, achieving sporadic visual answers. The thresholds of the air and bone conduction were in the range of 20 to 40 decibels, and bone conduction appeared above the air conduction, as indicated by his listening graph (see Image 1).

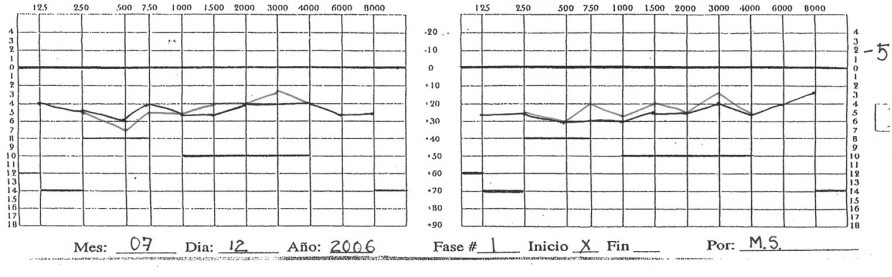

Image 1: Initial listening test

Intervention

The child underwent listening training according to the Tomatis® Method from 17 July through 1 November 2006, completing a total of 62 hours—30 hours in the first intensive period, 16 hours in the second intensive, and 16 hours in the third intensive. The program was based on

Joachim Kunze and Valerie Dejean's criteria.

Results

The results obtained through the use of the Tomatis® Method were successful. Progress was recorded through interviews with his parents and through clinical observation of the child.

Result of the implementation after the first intensive period

SOCIO-EMOTIONAL ASSOCIATION

The child's parents reported that he started to express affection physically within his family group. His grandmother had stated previously that when the child came to her house, "It was as if nobody had come into the house." While doing the Tomatis® program, he started to look at her, made eye contact and greeted her with a kiss.

His grandmother had stated previously that when the child came to her house, "It was as if nobody had come into the house." While doing the Tomatis® program, he started to look at her, made eye contact and greeted her with a kiss.

He also cooperated more in his daily routine, and started to eat on his own. At kindergarten, he began to participate in tasks, and stopped crying upon entering his classroom.

COMMUNICATION

Occasional eye contact was observed, as was an increased desire to communicate and a sustained improvement in his attention span. He also began to imitate sounds and play activities and was taking part in games. The child also started to understand simple instructions and began

to use words repetitively for the purpose of communication. When listening to songs he started to hum tunes.

SENSORY MOTOR

He tolerated physical contact better, it was no longer necessary to puree his food, and the frequency of his stereotypical behavior diminished.

Results of the implementation after the second intensive period

SOCIO-EMOTIONAL ASSOCIATION

In general he was more independent in basic daily activities. He asked to go to the toilet and when he was familiar with the center, he went on his own. At kindergarten he continued to have tantrums, although they were of a lower intensity.

COMMUNICATION

He played with objects according to their functionality, produced onomatopoeic sounds and increased his vocabulary. He also developed different communicative skills such as complaining/rejecting, and asking for actions, objects and attention.

Results of the implementation after the third intensive period

SOCIO-EMOTIONAL ASSOCIATION

The child was taking part and playing games with both his sisters (aged nine and ten), though he interacted more with his nine-year-old sister. He became aware when a member of his family stayed away and expressed it both through verbal and non-verbal behavior. He cooperated during bath time and tried to dress himself alone, although he was still

reluctant to brush his teeth. He ate by himself, and his tantrums were less frequent.

COMMUNICATION

Eye contact improved significantly. He was using words, such as greetings and farewells, to interact, also employing the right syntax. He was asking for objects, actions and attention and imitated new words.

SENSORY MOTOR

He performed sequences of movements that required physical planning in a faster and livelier way.

He performed sequences of movements that required physical planning in a faster and livelier way. Stereotypical behaviors were observed only sporadically, and then only when he was confronted with an anxiety-provoking situation that required too much multitasking from him.

Conclusion

Progress in all areas of development was attributed to using the Tomatis® Method as the primary therapeutic process. Speech/language pathology and occupational therapy were canceled before starting with the Tomatis® Method, although these were resumed seven months after he finished his Tomatis® program.

Progress in all areas of development was attributed to using the Tomatis® Method as the primary therapeutic process.

The child's progress cannot be attributed to maturing, as before using the Tomatis® Method there were no variations in his behavior in the socio-emotional context or in his communication skills. Eight months after his listening training with the Tomatis® Method, his acquired social, emotional and

communicative skills not only remained, but kept evolving positively.

His eye contact also continued to improve. In his kindergarten classroom he worked for more operational periods of time and he was independent in his dressing skills. The stereotypical behavior kept decreasing, and it only appeared when the child was left alone and without any direction regarding activity. He started to use simple phrases and began spontaneous communication for social purposes, such as greeting and being grateful. All of which were remarkable results, because, as his grandma used to say: "Before it was as if nobody was there."

Eight months after his listening training with the Tomatis® Method, his acquired social, emotional and communicative skills not only remained, but kept evolving positively.

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ONE CONDITION, MANY DIFFERENT CHALLENGES — A STORY OF TWO ADOPTED BROTHERS

Dorinne Davis

The ear is "the royal road" not only for speech but also for all the processes of man's adaptation to self and environment.

—Alfred Tomatis, *The Conscious Ear*

Dorinne Davis
MA, CCC-A, FAAA, RCTC, BARA

Dorinne is the president and founder of The Davis Center, Succasunna, NJ. She is the author of four books including *Sound Bodies Through Sound Therapy* and *Every Day a Miracle: Success Stories with Sound Therapy*. She has demonstrated the scientific principles behind the voice-ear-brain connection in *The Davis Addendum to the Tomatis Effect,* and established *The Tree of Sound Enhancement Therapy* from which her Diagnostic Evaluation for Therapy Protocol (DETP) provides the correct administration of any sound-based therapy.

Dorinne is credentialed in 20 different sound-based therapies and her background as an audiologist, educator and sound therapist provides the foundation to The Davis Center's unique "total person" approach, called The Davis Model of Sound Intervention. The Davis Center is considered the world's foremost sound therapy center and Dorinne is recognized as the world's leading sound-based therapist. She has worked with thousands of people, young and old—both with and without learning challenges—making changes in their response to sound using sound-based therapies. Dorinne is an international speaker in the field of sound therapy. Her AutismOne.org radio program is called *Sound Effects with Dorinne Davis: Discussing How Sound Affects the Person with Autism*.

You can find out more about The Davis Center at **www.thedaviscenter.com**.

CHAPTER 8

One condition, many different challenges— a story of two adopted brothers

Mrs. C. brought her two adopted children to our center for testing. At The Davis Center we use the Diagnostic Evaluation for Therapy Protocol (DETP) to determine if sound-based therapy could be beneficial for a client, and which sound-based therapy, or therapies, will be most supportive. The two adopted children received this battery of tests and it was determined that both children would benefit from the Tomatis® Method.

The two adopted children received this battery of tests and it was determined that both children would benefit from the Tomatis® Method.

EC was six years old and had been classified as autistic when he was first brought to our center for testing. He had also been diagnosed with ODD, ADD and fetal alcohol syndrome disorder, and at the time he was close to being diagnosed with bipolar disorder. He was removed from his birth mother's home at

EC was six years old and had been classified as autistic when he was first brought to our center for testing ... His biological brother, TC, was three years old and had been diagnosed with pervasive developmental disorder and fetal alcohol syndrome disorder when he was first seen for testing.

three months of age after physical, drug and alcohol abuse was reported and placed in a foster home. The foster parents eventually adopted EC.

His biological brother, TC, was three years old and had been diagnosed with pervasive developmental disorder and fetal alcohol syndrome disorder when he was first seen for testing. TC had also been removed from the birth mother's home after physical, drug and alcohol abuse was reported in the family home. He was placed in the same foster home as EC, and was also eventually adopted by the foster family.

This is their Tomatis® story.

EC

EC's presenting problem

EC was delivered by caesarian section as his heart rate was low and he had become distressed *in utero*. During his first two years of life he demonstrated delays in physical and speech development, although his speech and language did begin to develop slowly, with initial speech sound production beginning at around 12 months of age, and his first word at 14 months, however, he then lost all of his speech skills, and began speech therapy. He began putting words together at age three. At the time of initial testing his speech and language skills were understandable, but not age appropriate. His reading skills were good, but his behavior at school could be difficult. He tried very hard socially, but he lacked most of the non-verbal skills of others, and was very shy around adults. He was easily distracted, had a short attention span, used avoidance behavior, overreacted, had temper tantrums,

and was aggressive. He also demonstrated sensitivity to odor and sound—he would become sensitive in noisy places, cover his ears in response to loud sounds and become over-stimulated easily. His mother reported that, "he hears everything," and that he would also try to smell everything. He was on Adderall, to help him focus and reduce his aggression, and Bromfenex for allergy relief.

Everything was a saga for EC. He would be overly dramatic in most situations, and knowing that he needed to behave would set him off. Everything was "stupid" or people were "morons." He would typically shout out a verbal reaction to a situation, but if he was touched he became very physical in response. Transitions were very difficult.

Overall, his parents believed his strengths were in academics and being kind; his weaknesses were his temper and his aggression with his siblings and parents.

Overall, his parents believed his strengths were in academics and being kind; his weaknesses were his temper and his aggression with his siblings and parents.

His initial DETP demonstrated normal hearing sensitivity levels and normal tympanograms, and also presented acoustic reflex muscles at a screened level. His uncomfortable listening levels were borderline. Listening test results demonstrated better bone conduction responses than air conduction responses in all areas of the test overall. On the average, the difference between air conduction and bone conduction responses was 20 decibels across the frequencies bilaterally. Most of the bone conduction responses demonstrated hypersensitive responses bilaterally. No localization or selectivity was obtained due to the difficulty he experienced in listening to sound in general. A voiceprint was also obtained to determine other irregularities between the voice, the ear and the brain.

Diagnosis

The diagnosis from the DETP advises the appropriate sound-based therapy, or therapies, that should be used, and in this instance, the

A Tomatis® laterality test was administered to EC. He was a left-eared listener, showed mixed responses for designation of the facial features for self and others and had mixed hand responses for precision, strength, and spontaneity.

Tomatis® Method was determined to be the most appropriate initial intervention. A second intervention, known as Human BioAcoustics, was also identified as necessary to maximally support the changes produced by the Tomatis® Method.

A Tomatis® laterality test was administered to EC. He was a left-eared listener, showed mixed responses for designation of the facial features for self and others and had mixed hand responses for precision, strength, and spontaneity. There was little difference in trees drawn with his right or left hand, and his personal family drawing showed a happy family overall. His responses on a listening questionnaire for children showed his greatest areas of weakness were in receptive auditory skills, and receptive and expressive body processing skills.

Intervention and response

EC undertook a basic Tomatis® program, with a schedule of listening for two hours a day for a period of 15 days, followed by a break of four weeks, and two further listening programs of ten and five days respectively, which were also separated by rest periods. He began at a low level of listening; slowly building up to highly filtered sounds, and had a sonic birth to reintroduce the full sonic spectrum at the end of the ten-day segment. He advanced to a level four language level during the last five days, and received an additional five-day segment four months later at a level five communication level.

The program aimed to improve EC's abilities in the areas of attention and concentration, behavior, socialization and relationships, movement, sports and rhythm. Overall, his mother indicated that she wanted to see his behavior change and that she wanted him to develop better self-care skills and improve his gross motor skills.

As he began the process, his mother reported gradual change. He seemed to be "smoothing out" a little bit and was sleeping longer. There also seemed to be huge variations in his behavior throughout the day; for example, one morning he had a huge burst of anger and tried to break some windows, yet later that same day he was very sweet and offered to share with his brother. Overall, though, he was becoming less aggressive.

The program aimed to improve EC's abilities in the areas of attention and concentration, behavior, socialization and relationships, movement, sports and rhythm.

Toward the end of the first 15 days he appeared to have a better understanding of words in context. When he heard new words he wanted to know what they meant; he had the ability to ask what the words meant, and would then try to use them. He was able to have his training wheels removed and ride his bike without them for the first time. Emotionally he was able to recognize when he was going "out of control," and was able to calm down in a shorter period of time and to say "sorry"—he was also able to recognize that he truly *was* sorry. He was better able to wait to use the computer. Finally, he was able to stay with his younger brother and get along with him, which was very unusual.

EC and his family moved during the break between his first and second session. This created chaos for him, and his aggression was triggered more easily. He then stayed with his grandparents, which he enjoyed, and also attended summer camp, where his counselor had no problems to report. Toward the end of the five-day segment of the basic program, his mother observed that mornings were still hard for him—he was in no hurry to do much of anything and needed to be motivated to get dressed—but that things were better than they had been. Additionally, no regression was reported. The additional five-day segment resulted in a better ability to read, a sense of feeling calmer within himself and with others, and an improved ability to play, both alone and with others. He

Toward the end of the first 15 days he appeared to have a better understanding of words in context.

His attention and concentration improved—he was able to pay attention for longer periods of time in school and at home. His behavior, socialization and relationships improved and he began taking responsibility for self-dressing and bathing.

was no longer hypersensitive to sound, nor overreacting to smell, and although he still got over-stimulated when in large groups of people, he was a happier boy overall.

EC's final listening test at the end of the additional five-day segment resulted in very good responses and connections within the language area of the test, good responses and connections in the attention/focus/creativity area of the test, and imbalanced responses between ears within the body area of the test. Due to financial constraints, further sessions were impossible and the repeat voiceprint was unable to be added.

EC improved in all the targeted ability areas. His attention and concentration improved—he was able to pay attention for longer periods of time in school and at home. His behavior, socialization and relationships improved and he began taking responsibility for self-dressing and bathing. He began to play better with his brother in particular, but also with others in general, and did not get into fights very often anymore. His movement, sports and rhythm skills improved—he became better able to participate in sports and was integrating his sensory input more effectively.

TC

TC's presenting problem

There is little information about TC's gestation, except that his birth mother was 23, with reported physical, drug and alcohol abuse during her pregnancy. His adoptive mother reported that his health had been excellent overall. During the first two years of life, his language was severely delayed, his gross motor skills were slightly delayed and he had many tantrums and

sensory-related issues. He used speech-like sounds at 12 months of age, spoke his first word at around 18 months of age and began putting words together at 24 months. But he did not seem to hear certain speech sounds, and tended to ignore people if they called his name. At the time of initial testing he had a tendency to repeat sounds or words and his mother reported a slight echolalia. He could communicate but would often get confused and frustrated, and if he was unable to communicate with people he would immediately go into a tantrum.

At the time of initial testing he had a tendency to repeat sounds or words and his mother reported a slight echolalia.

At age three, TC became a very difficult child. He refused to sit and do anything, and became angry about most things. He would not follow directions, would throw things, hit his head, gouge his eyes, and be self-injurious. His play skills were not developed—he could not understand the concept of taking turns and if he could not figure out how to play with others, he would hurt them. He could not tolerate clothing touching his skin. During the first few months of preschool, he seemed overwhelmed by those around him and would only whisper. His behavior became destructive and aggressive and he started to smell everything.

His mother reported that his strength was that he was very social, and that his weaknesses were his communication skills and low frustration threshold.

His mother reported that his strength was that he was very social, and that his weaknesses were his communication skills and low frustration threshold.

His initial DETP demonstrated normal hearing sensitivity levels, but showed hypersensitive hearing levels at two frequencies in the right ear and one frequency in the left ear. His uncomfortable listening levels were normal, tympanograms were normal, and acoustic reflexes were present when screened. His listening test results demonstrated that his bone conduction responses were almost entirely within the hypersensitive range

(-10 to 0 decibels) bilaterally. Air conduction responses ranged between 20 to 25 decibels in the right ear, and 20 to 40 decibels in the left ear, with fairly flat responses. No localization or selectivity was demonstrated. A voiceprint was also obtained to determine other irregularities between the voice, the ear, and the brain.

Diagnosis

As previously stated, the diagnosis from the DETP simply advises which sound-based therapy, or therapies, should be used, and the Tomatis® Method and Human BioAcoustics were again identified as appropriate. Because TC also had hypersensitive hearing threshold responses, a repeat hearing sensitivity test was recommended to determine if auditory integration training would be needed as a secondary approach for developmental changes later on.

TC also received a Tomatis® laterality test. He demonstrated that he was a borderline right-eared listener. He pointed to his own body parts with his left hand to his left side, but when pointing to other people's body parts, he did not cross the midline, but saw them as a mirror image of himself. His vision responses were left-eyed. He was mostly left-handed for all skills except drawing, hitting something with a fist and eating, for which he used his right hand. His drawing was simply scribbling lines on paper. His responses on a listening questionnaire for children showed that his most pronounced areas of weakness were receptive auditory, receptive processing, receptive sound processing, and expressive processing.

Intervention and response

TC also began with a basic Tomatis® schedule, with the same structure of listening as his brother. However, his program started more slowly than his brother's, and more time was spent working on developing his response in his body before moving into pre-language skills. Microphone use was not introduced until the first five-day segment. He underwent another

five-day segment four months later, which incorporated heavy language communication work. No sonic birth was administered, and subsequent sessions were not possible due to the family's financial constraints.

The program focused on improving TC's abilities in the areas of thinking and learning, attention and concentration, behavior, socialization and relationships, and listening and speech.

When TC began his listening program, his mother started noticing some major changes. On the fifth day, she reported that he had allowed her to brush his hair for the first time ever, once before bed and once again the next morning. He did not squirm, scream or ask her to stop the brushing. In the middle of the first 15-day segment, his mother said, "I realize that I finally like being with him. He can play now." This is something the mother had not previously said—that she did not like being with this son. She also said that, "He's a little boy now." TC also began to explain why he was getting mad. At school, the teachers reported that he was doing much better in groups and that he was trying very hard to fit in and was attempting to imitate the other kids. However, he still needed instruction on a one-to-one basis, as he didn't understand things that were explained in group situations.

By the end of the first 15-day segment, he let his mother read a story to him and did a puzzle with her. He was very well behaved on a visit to the library. He watched while other children used a computer, and did not randomly take books off the shelf and throw them on the floor or run around the library as he had in the past. When they left the library and got into their car, he said, "The car is very hot in here!" Previously he would not have been able to construct such a long and appropriate sentence. He was playing more nicely overall—when he asked his family to play with him, he wanted to play "with" them, not just have them do what he wanted, when he wanted. He began to actually try to ride his

When TC began his listening program, his mother started noticing some major changes. On the fifth day, she reported that he had allowed her to brush his hair for the first time ever ...

tricycle, sitting on it and using a helmet, whereas previously he would just run beside it. However, his teachers said he was more tired and cranky than usual, and his mother reported that he was reverting to being very sleepy again. When he was put in "time-out" during this listening segment, he actually understood what time-out was and why he was there. Additionally, when he had a meltdown, he was able to tell his mother why—he was hungry.

After the break between the 15-day and ten-day segments, his verbal ability increased greatly. His speech was easier to understand, he chose his words better, responded more appropriately to questions and used less gibberish. However, after the break between the ten-day and five-day segments, he began stammering and had word retrieval difficulties. He began to say, "I can't say that," when trying to remember a word. He could, however, repeat a word when prompted. By the end of the five-day segment he was using his voice differently, trying new ways to make vocalizations and playing with his voice and having fun. The stammering disappeared, he was putting words together more appropriately and was able to say what he needed or wanted before having a temper tantrum. At this time he was also able to control his behavior better. Overall, he was a happy young man.

When he returned after four months the child study team reported, "He's a new kid. He's communicating!" They were pleased with his changes and discussed reviewing his progress to decide which classroom would now be most appropriate for him. At home, his mother reported that he would ask to go to the potty and when they encouraged him to try going on his own, he would.

When he returned after four months the child study team reported, "He's a new kid. He's communicating!"

His final listening test at the end of all of his sessions showed significant improvement. His air conduction and bone conduction responses made some connections in all areas, but demonstrated that attention, focus and creativity needed additional support. It was suggested

that a repeat listening test and voiceprint be performed after four months to determine if other issues were present with his connection between the voice, the ear, and the brain, and a repeat hearing sensitivity test was also recommended. Unfortunately, due to financial constraints, the parents were unable to return, but reported that they were very comfortable and happy about all of the changes seen with both boys.

TC improved in all ability areas. His thinking and learning skills showed improvement and his teachers were greatly impressed with the overall changes seen within a relatively short period of time. His attention and concentration improved—he was able to follow directions quickly and could stay with a task for a much longer period of time. His behavior also improved—his parents were pleased that they could take him places outside of the home without disturbances and temper tantrums. He could play with his brother more appropriately and did not have meltdowns so easily, and his socialization and relationship skills improved. As his mother said, she liked being with him now. He reacted and related to other people more appropriately and his listening and speech skills improved. The changes were many and remarkable, and perhaps the child study team said it best: "He's a new kid. He's communicating!"

Conclusion

The DETP determined the appropriate sound-based therapy for these brothers, indicating that the Tomatis® Method was the most suitable to address many of their familial and developmental issues. TC was placed with his future adoptive family at birth and EC was placed with them at three months of age, meaning that although TC had an advantage of three months of nurturing, he still had relationship issues and because of the three-year difference in their ages when the boys started Tomatis®, EC's defense mechanisms were more highly developed than TC's and his socialization skills were more aggressive, because that was how he connected with those around him. After the Tomatis® Method, EC no longer needed to

TC had begun to develop a connection with his adoptive mother from birth, but it wasn't until he began the Tomatis® Method that his adoptive mother "felt the bond" with this child. She noticed it almost immediately, and began enjoying being his mother ...

push, shove, hit, or kick those around him to accomplish a task. He did continue to raise his voice and yell in frustration, but only when things were really out of hand for him and when many people were involved in the situation. He also started to understand what triggered these episodes and tried to handle them better or remove himself from the situation. He was better able to take charge of his own body, although his final listening test indicated that the "body" was still an area that needed support and if he had returned, this area would have continued to receive additional stimulation for balancing his responses. He was no longer being considered for a bipolar diagnosis.

TC had begun to develop a connection with his adoptive mother from birth, but it wasn't until he began the Tomatis® Method that his adoptive mother "felt the bond" with this child. She noticed it almost immediately, and began enjoying being his mother. In addition, because TC began the therapy at a younger age, his changes were faster and more noticeable immediately. The connections for language were established, and the things people outside the family all noticed first were his ability to communicate, understand others, and express his own needs and desires, even before they realized that his behaviors had all improved. He was connecting better with the world around him and he felt alive. I would have liked to have the opportunity to re-test TC, and although it's been two years since they were last at our center, hopefully we will be able to see them for a follow-up in the near future.

As a Tomatis® practitioner I have found that many of my clients with significant problems have many ways of expressing their gratitude following their program, for example, doing things like asking for The Davis Center as their Christmas present, telling their parents that they

need headphones, drawing pictures with happy listeners and more. In this instance, I happened to see EC and TC out at a large gathering one day and TC saw me from across the room, came up to me and threw his arms around me and said, "It's my teacher that helped my ears. I love you!" When you hear something like that, you know you have chosen the right profession!

"It's my teacher that helped my ears. I love you!" When you hear something like that, you know you have chosen the right profession!

A VERY SLOW START—
A HAPPY ENDING



Yolanda Carrillo Vázquez,
Vanessa León Carrillo and
Leticia T. Varela Ruiz

On the road of life I am forever moving ahead of myself and forever running after myself. I am a seeker till I die, and beyond death I feel that I shall not be lost.

—Alfred Tomatis, *The Conscious Ear*

Yolanda Carrillo Vázquez

When Yolanda was a child, the most important piece of furniture in the family home was the bookcase. Her father, sometimes compromising the family budget, bought many books—and she was his accomplice. The love of books that her father instilled in her led her to study Hispanic letters and philosophy at the Universidad de Sonora. Her father also encouraged her to pursue the arts, and so she learned flamenco and folk dances, and later engaged in music, singing and cinema studies, giving her a remarkably rounded artistic background that celebrates the beauty that the human spirit is capable of expressing.

She has combined her exceptionally creative and joyous nature, and her profound respect for knowledge, in the educational materials she has created under the brand Viento Blance™, which aim to aid the development of linguistic skills and reading comprehension.

The loving influence of children—the "little ones" in her life—has moved her to write stories for them, and she has compiled a volume of works, published in both Mexico and the US, called *When the Earth Was Still Soft*.

As a teacher, she brings a wealth of experience and academic strength to her daily work as a Tomatis® consultant, which allows her to guide and assist parents as they take their children through the listening process. Her love for children has helped her build a therapeutic atmosphere in Centro Tomatis® de Sonora that is invaluable to the process. Yolanda believes that there is no doubt she is on the right path in life—she feels completely at home as a Tomatis® consultant, and her work brings great joy to her life.

Vanessa León Carrillo

Vanessa grew up in an extended family, living with both her parents and her grandparents, and this close contact with them made her appreciate and cherish older people. When she grew up she wanted to learn how to help older people enjoy the best life experience possible, so she channeled her energy into obtaining a bachelor's degree in clinical psychology from the Universidad

de Sonora, followed by a postgraduate course in gerontology at the University of Manitoba in Canada. Vanessa also completed a variety of other courses in psychology and elderly health care in order to better understand and work with older people.

She believes that her educational background, combined with her musical and drama studies, have all been very important to her development as a person, and that her Tomatis® training has had a groundbreaking effect on her life and career.

In her work at Centro Tomatis® de Sonora, Vanessa takes particular pride in writing individual programs for her clients—being part of their recovery gives her great joy and has a deep, positive impact on her life, which she celebrates every day.

Leticia T. Varela Ruiz

Leticia has loved and studied music since childhood: she participated in her school choir, took piano lessons, and enjoyed listening to her father play the violin. After studying music at the University of Sonora, she was then offered a scholarship for a PhD in musicology at the University of Cologne in Germany. When she encountered the Tomatis® Method in her reading it had such a profound impact on her that she closed the music school she was then running and began studying the Tomatis® Method. She received her certification as a Tomatis® consultant in Paris, and has since devoted her time to helping people through Tomatis®. She has written and translated a variety of works, both on music and related subjects and on the Tomatis® Method particularly. When working with clients, Leticia makes a particular effort to assist them during their active session in order to help them improve their voices as much as possible—because, as Dr. Tomatis wrote in *Écouter l'Univers,* "It is God who speaks through the human being. And it is also God who listens when man is being his instrument."

You can contact Centro Tomatis® de Sonora at **tomatisson@yahoo.com.mx**.

CHAPTER 9

A very slow start— a happy ending

Ana Laura was three years old when she came to our center in Hermosillo for the first time. Ana Laura did not speak, but communicated through sign language, and if she was unable to get her message across, she would burst out in anger and cry. She frequently hit her head with her hands and she was also unable to demonstrate sphincter control.

Ana Laura did not speak, but communicated through sign language, and if she was unable to get her message across, she would burst out in anger and cry.

However, Ana Laura's real story was much more dramatic than what her symptoms were telling us. Her mother suffered pre-eclampsia in the fifth and sixth months of pregnancy and was hospitalized twice. Consequently, Ana Laura was born shortly after six months gestation and was placed in an incubator. In her first month, Ana Laura—being a pre-term infant—suffered from cerebral hemorrhage, convulsions, respiratory arrest and severe pulmonary hemorrhage. The doctors did not expect her to live but they continued giving her medical care and intensive therapy for a month. She finally overcame her critical condition and was taken home, although she was still in need of nebulizers and special

In her first month, Ana Laura—being a pre-term infant—suffered from cerebral hemorrhage, convulsions, respiratory arrest and severe pulmonary hemorrhage.

care due to her breathing problems. She was given early motor stimulation that enabled her to stand upright when she was between 13 and 15 months of age, and she walked before the age of 20 months.

Diagnosis

Ana Laura was evaluated during the enrollment process for nursery school, and was subsequently diagnosed with a language delay associated with a possible autistic spectrum disorder. This brought the family to our Tomatis® center. In addition to this, we observed that she kept her fists tightly clenched and was also exhibiting limitations in her use of language. Nevertheless, she put great effort into her attempts to communicate.

Ana Laura used her flexor muscular system as if it were a strong shield of protection against her environment. Due to the inner working of the tiny muscles of the middle ear, this tightness in her flexor system also kept her eardrums too tense, making it difficult for her to listen to low-pitched sounds, as well as the average frequencies of the linguistic area, which contributed to her difficulty with speech. We considered that Ana Laura had the potential to respond well to the Tomatis® Method and we also felt that she did not fit all the criteria of a child on the autistic spectrum.

Tomatis® intervention

At first we focused on muscular and emotional relaxation, using non-filtered music by Mozart, low passing bands, and Gregorian chant. We designed a slow but firm stimulation program, enabling the middle ear muscles to respond and adapt slowly and gently while also necessitating the strain to focus her listening towards the typical Spanish frequencies (low and medium-low frequencies).

Later in her program we stimulated her flow of rhythmic movement with Strauss waltzes, as well as her correct understanding of language through the use of filters and mid-frequency passing bands, nursery rhymes and stories. Her affective needs were treated with filtered music in the medium to high frequencies, together with listening to her mother's voice, which was also filtered. Ana Laura underwent a slow but quite solid program with a total of 150 hours of listening training, which was distributed over three 30-hour sessions and three 20-hour sessions, undertaken between 11 February 2008 and 26 January 2010.

At first we focused on muscular and emotional relaxation, using non-filtered music by Mozart, low passing bands, and Gregorian chant.

During the listening sessions Ana Laura participated in occupational therapy to develop her fine and gross motor skills, such as ball games, playing with Lego® (working first with larger pieces and gradually progressing to the smaller ones), wooden jigsaw puzzles with shapes and letters, wooden shapes with holes to insert strings, dominoes, and drawing and coloring, both on paper and on a magic board. She was encouraged to socialize with other children, which she did successfully. She slept on some occasions. Her speech was encouraged through repetition of onomatopoeia, words, phrases and songs. She managed to learn colors, numbers and vowels, as well as the gender and the different roles of the members of the family: dad, mom, brother, sister, grandfather and grandmother.

The first time Ana Laura exhibited the ability to produce single words was at a birthday party. She was given a cake and when she ate it she turned around to her mother and said to her clearly: "Mmmm … what a delicious cake!" These were her first

The first time Ana Laura exhibited the ability to produce single words was at a birthday party. She was given a cake and when she ate it she turned around to her mother and said to her clearly: "Mmmm … what a delicious cake!"

words! During her last 20-hour session, Ana Laura was always happy and enthusiastic, and socialized with other children spontaneously, as well as with the therapists. She shared toys and their pieces, and chatted nicely with everybody, proving to be a tolerant and patient girl when necessary.

Results

Ana Laura is currently a lively and affectionate five-year-old girl, who controls her mobility perfectly well. She has already completed the two first grades of preschool and will join the third grade next term. She likes running, jumping, swimming, talking, singing and being the leader in her games with other children. She exhibits good, fluent speech, although the use of spontaneous and creative verbal language is still in an early stage.

The Tomatis® program reinforced the relationship between mother and daughter, with the embedding of the filtered maternal voice strengthening the effects of the programmed stimulation.

We think that the main ingredient in her amazing recovery was the outstanding relationship with her mother during her intrauterine life, which allowed her to keep her incredible communication desire alive, despite the dramatic circumstances in which her gestation process ended and her postnatal life started. The Tomatis® program reinforced the relationship between mother and daughter, with the embedding of the filtered maternal voice strengthening the effects of the programmed stimulation. This, together with working on reinforcing the muscles of the middle ear and physically engaging her in therapeutic activities, certainly brought about the little miracle that is Ana Laura today.

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FROM THE "NAUGHTY CHAIR" TO HAPPY CHESS PLAYER

Françoise Nicoloff

Does one know that man is an ear designed to listen to the universe? More than that, that he is entirely an ear? Does one suspect that he is the fruit of a slow evolutionary process, which makes him a communicator with the cosmos *par excellence*?

—Alfred Tomatis, *Écouter l'Univers*

Françoise Nicoloff

Françoise, the founder and director of the Australian Tomatis® Method, is a renowned psychologist with over three decades' experience in applying the Tomatis® Method around the world. Françoise was trained by Dr. Tomatis in the late 1970s, and since 1983 has been involved in the training of Tomatis® consultants in France, Spain, Italy, Japan, Australia, and, lately, the Philippines.

Françoise has worked in four continents, helping thousands of people of all ages (from infants to the elderly) with challenges ranging from auditory processing to learning and communication difficulties to improving pitch for singers and energizing elderly people. Her passion is helping people to reach their potential or recover lost abilities, to bring a new level of joy and happiness in their lives. She was part of the group who founded the International Association of Registered Certified Tomatis® Consultants in 2001, and has been its president since 2004. She has lectured in many countries around the world and is also a life coach and painter.

Françoise is happily married with a 20-year-old daughter and two stepsons. She lives in Sydney and travels both in Australia and overseas to share her knowledge and skills.

Françoise can be contacted at **fnicoloff@tomatis.com.au**, and you can find out more about her work at **www.tomatis.com.au** or **www.solisten.com.au**.

CHAPTER 10

From the "naughty chair" to happy chess player

AUDITORY PROCESSING DISORDER AND THE TOMATIS® METHOD

"Sarah, John, do you hear me? Can you please pay a bit more attention? I have to repeat the same things every day: go and brush your teeth, get your lunch bag, grab your hat!" Does this sound familiar to you, reader?

Auditory processing disorder (APD) is still a new concept for many professionals in the education and medical fields, and the literature is still slim, although the research and information available on the subject are increasing rapidly. As yet, there is no agreement between associations such as the American Speech-Language-Hearing Association (ASHA) or the Committee of UK Medical Professionals regarding the definition of APD and its apparently multimodal facets.

The number of research projects on the subject is increasing, and

there are many sound training programs and speech/language programs designed to assist with overcoming APD. At the Bruton Conference in Texas in 2000 it was concluded that auditory processing deficits go hand in hand with listening, language and behavioral difficulties. Not only are auditory processing disorders specific to the auditory modality, but they may also involve higher order neuro-cognitive factors, such as memory, motivation, cooperation and attention, all of which interfere with performance.

There are various definitions of APD, one example of which appeared in a recent study: "APD is a complex and heterogeneous disorder that has only recently begun to be studied by systematic, experimental investigation."[1]

Children with an auditory processing problem generally register a normal hearing test, but have difficulties processing sound, including perceiving spoken language, interpreting it and retaining it.

Children with an auditory processing problem generally register a normal hearing test, but have difficulties processing sound, including perceiving spoken language, interpreting it and retaining it. They present difficulties with auditory memory and auditory attention, and take time to process auditory information before answering a question, often misinterpreting oral messages, misunderstanding what has been said or having trouble remembering directions. These children have difficulties in understanding messages with complex sentences, have trouble paying attention to—and remembering—information presented orally, and have problems carrying out multistep instructions.

They might also have low academic performance, weak attention and memory skills, and language difficulties, such as syllable sequence confusion and/or developing vocabulary, and understanding their own mother tongue. They are easily distracted and often unmotivated, tend to have low self-esteem and confidence and have impaired peer relationships (they don't have friends, or they stay on their own in the playground). Even though they seem bright, their answers are not always appropriate

and they are often uncomfortable in a noisy environment. Some can become disruptive, engaging in risk-taking or thrill-seeking behavior to prevent themselves from feeling incompetent and bored; some of them can become argumentative and even aggressive when challenged, and seem to be defiant.

"APD is also referred to as central auditory processing disorder or auditory perception problem, auditory comprehension deficit, central auditory dysfunction, central deafness and so-called 'word deafness'."[2]

APD is one of the more difficult information processing disorders to detect and diagnose—it may sometimes be misdiagnosed as ADD/ADHD, Asperger syndrome and other forms of autism. APD shares common symptoms with dyslexia, learning difficulties, language delay and behavior difficulties. People with APD have difficulty processing auditory information within the brain, and will often make guesses to compensate for the gaps in their processing—they may not even be aware that they have misunderstood something.

APD is one of the more difficult information processing disorders to detect and diagnose—it may sometimes be misdiagnosed as ADD/ADHD, Asperger syndrome and other forms of autism.

The causes of auditory processing difficulty have not yet been clearly established. In my own experience I have often worked with children diagnosed with autism or ADD who responded very quickly and positively to the auditory stimulation program developed with the Tomatis® Method. With regard to my clinical experience and understanding, I suggest that these children were misdiagnosed, and that the alternative diagnosis should have been one of severe, moderate or mild APD.

The current literature suggests that APD can be hereditary, however it can also be the result of a difficult pregnancy or lack of oxygen at birth, acquired from a head injury, or due to chronic ear infections or "glue ear" during infancy. When infants or toddlers suffer from recurrent ear

infections, or otitis media, during critical development times the maturity of the auditory processing and language pathways can become compromised, as their brains are unable to be trained with the proper information in terms of language imprint at that stage. "APD may also be present as a result of neuro-maturational delays."[3]

When there is fluid present in the ear, the child perceives sound as though it is being transmitted through water and the information is muffled, therefore the child will likely not develop a full and integrated auditory system. If this occurs during the first two years of life, when language is developing and becoming integrated, this development will be hindered by the initial distorted imprint. The symptoms will present quite subtly at first, but develop more strongly as greater comprehension is expected of the child. Later, the child will tend to need constant repetitions of commands, become easily distracted and use distorted expressive language (the sounds will be unclear, confused and vague).

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Children experiencing APD tend to say, "What?" or, "Huh?" often, or skip over some of the sounds in words. They sometimes miss the end of the words or skip whole words in sentences—for instance, when asked, "How old are you?" they might hear, "How are you?" They mishear, therefore they misunderstand. It happens weekly in my clinic. A child can be told, "Please do not jump in the puddle," but will hear, "Jump in the puddle," and as a result will be seem to be disobedient and could mistakenly be considered defiant. Consequently, children with APD will often become frustrated, both with their own confusion regarding what is going on, and with other people's inability to understand them. They are prone to emotional meltdowns, showing signs of anxiety, insecurity or discomfort in situations where it is expected that they will speak or behave in a certain way, or even when it is expected that they will simply adapt to being in a noisy environment.

Dr. Tomatis made a clear distinction between hearing and listening—hearing being a passive function of receiving sounds, while listening is an active process of focusing on sounds. Hearing is a function of the ear, while listening is a function of the brain, and auditory processing relates to, "what the brain does with what the ear hears."[4] Following Dr. Tomatis's discoveries in regard to listening and its development, he highlighted the importance of its development during the prenatal period. The inner ear is the first sensory system to fully develop *in utero*—the fetus learns to mainly tune in to the sounds of its mother's voice and during the prenatal period the unborn baby learns to recognize the specific sounds that make up its mother tongue. This early listening in the womb can play a crucial role in the later development of auditory processing and language.

Dr. Tomatis made a clear distinction between hearing and listening—hearing being a passive function of receiving sounds, while listening is an active process of focusing on sounds.

From the "naughty chair" to a happy, chess-playing five year old

Ben is a beautiful, blond, blue-eyed Australian boy, who came to see me in Perth (Western Australia) in June 2009, when he was five years old. At our first meeting he seemed to be a free wanderer in his own world, not really following instructions at school. He tended to rush off to do things on his own terms or to walk away when he did not want to do what he had been asked. During the assessment, Ben needed to explore the place and touch everything, and he ran around,

During the assessment, Ben needed to explore the place and touch everything, and he ran around, showing signs of defiance when his mother asked him to sit or listen.

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Ben is the youngest in a family of four boys, with two much-older brothers and another who is just a year older than him. Ben's mother fell pregnant with him when her third son was three months old and when she was three months pregnant she went to the United States for six months, as her husband had to complete a contract obligation. Ben was born naturally in the States, and was brought home to Perth when he was five days old.

Ben was breastfed, experienced mild to moderate colic for eight weeks, and suffered from constipation for a short time, but overall was a happy and content baby. He developed nicely and reached his milestones on time, walking at 12 months and developing speech. By two, he had begun to use short sentences.

Ben's parents started to be concerned with his behavior ... He had a tendency to have a bad temper and his answers to questions were often irrelevant to what had been asked.

Ben was sleeping well in his own room and eating very healthily on a gluten-free and dairy-free diet, as he struggled with celiac disease like his dad. Neither Ben nor his brothers watched television as it was against the family rules for the children to do so.

At about the age of two, Ben had grommets (ear tubes) placed in his ears after suffering a few ear infections and a burst eardrum when he was 18 months old. Ben's parents started to be concerned with his behavior when he started to go to school as he was not following instructions and not sitting still. He had a tendency to have a bad temper and his answers to questions were often irrelevant to what had been asked. Ben was very active on the property where the family spent their weekends, often walking up to three kilometers around the property.

In August 2009, Ben started a home-based Tomatis® program. The portable listening device (Electronic Ear) was sent to the family home to allow Ben and his father to complete the Tomatis® listening

program together.

Within the first 30 hours of the program, positive progress was observed both at home and at school. He calmed down, there was much less need to repeat instructions to him, and his teachers and parents were already pleased with Ben's improvement.

At the completion of the first program, the speech therapist said to Ben's mother, "We had a fantastic session with Ben today. His listening skills and the amount of language he used were amazing." His occupational therapist said, "Ben was more focused, listening to instructions and cutting very well." His schoolteacher reported that Ben was sitting at the front of the class of his own accord, had been able to follow a sequence, and had remembered to bring a shoebox to school for one of the activities. He was not playing the clown at school anymore.

Six weeks later, Ben underwent another 30 hours of the program. I saw him with his father in early December when I went back to Perth.

At the completion of the first program, the speech therapist said to Ben's mother, "We had a fantastic session with Ben today. His listening skills and the amount of language he used were amazing."

And what a difference I saw! Ben's listening test registered normal, whereas initially it had shown considerable immaturity and a lot of confusion at the level of bone and air conduction. He was originally very left-ear dominant, but had started to make more use of his right ear. His father reported that he and his wife were quite happy with the outcome of the Tomatis® program. Ben was much calmer, more mature, much more focused and attentive, far less naughty, more compliant, and was following instructions more easily. He was having more fun and now loved to join the family in games and activities. Dad had taught Ben to play chess, and he could play for 30 to 40 minutes with great concentration. Ben's old pattern of, "I'm not good enough" or, "I can't do it," followed by throwing everything on the floor in a meltdown had disappeared. Ben's speech had improved dramatically, and overall his communication was much better.

Dad had taught Ben to play chess, and he could play for 30 to 40 minutes with great concentration.

At school he had developed a group of friends, and while previously he used to spend days and weeks on "the naughty chair," this was no longer required at all. He was keen to learn and enjoyed it, and was due to start Year One in primary school in January 2010. His occupational therapist was amazed by his ability to focus and listen, his level of comprehension and his maturity.

Ben's listening, communication skills, and maturity had improved dramatically in less than four months. What a relief for his parents!

Ben's old pattern of, "I'm not good enough" or, "I can't do it," followed by throwing everything on the floor in a meltdown had disappeared.

Ben's case is a classic story for me as a Tomatis® consultant; many children with auditory processing difficulties suffer from behavioral issues as well as learning difficulties. The first Tomatis® principle is that, "the voice can only reproduce what the ear hears or processes" and the Tomatis® ear re-training program helps to re-pattern the connections between the ear, brain, body and soul through activating and stimulating the complex network of the nervous system through the ear.

It is always great to see a child awakening to his or her potential at an early age, before they experience the pain, frustration and despair that unsatisfactory progress at school can inflict. Parents who are concerned by their child's behavior or listening ability should start a consultation process quickly, so the child can get on the path of realizing his or her potential as soon as possible. This leads to relaxed, confident and happy parents too—as well as the professionals accompanying a child on his or her learning journey.

Ben benefited greatly from the Tomatis® home-based program, which changed the way he experienced his environment forever. It allowed him to enter school emotionally, mentally and physically fit, and it saved him and

his dedicated parents from a great deal of frustration and despair. We are confident in Ben's future, both at school and in his family life.

Ben's story is similar to thousands that my colleagues around the world could have written—it could have been the story of Sarah, John, Pierre, Leo, Juliette, Patrick, Maria, Kalina, Kevin or many more. We see results such as these every day in our clinic and home-based programs, which are available in many countries around the world. There is always hope when issues and difficulties are addressed properly and it is important that parents, educators, and teachers address any issues they perceive in a child as soon as they become concerned. Earlier is always better, and with the Tomatis® Method we can certainly start to improve the lives of children—and their parents—from very early stages of development.

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ALIX: A LITTLE GIRL WITH A BIG DISEASE

Valérie Gas and Sonia Montoya

The phenomenon of language thus occurs between two poles of silence. At one end is the muteness of one who knows nothing and can say nothing, whose main concern is to hide his lack of desire to communicate lest it betray his low humanization level. At the other end is the silent pinnacle of meditation of one whose power and refinement of language take him to the utmost heights of the word of man.

—Alfred Tomatis, *L'Oreille et le Langage*

Valérie Gas

Valérie is a clinical psychologist who was trained in the Tomatis® Method by Dr. Alfred Tomatis. She has spent over 20 years as a Tomatis® consultant, using all of the fields of application of the Method to help her clients. Valérie holds a DESS in psychopathology and a DESS in psychology and justice. She is also trained in systemic family therapy.

She worked on Dr. Tomatis's team for eight years before opening a Tomatis® center in Tours, France, which she ran for five years. Following this, she returned to Paris, where she managed the Tomatis® Children's Center for ten years. She is now living in Lorient, Brittany, where she has opened a new Tomatis® center and a center of systemic family therapy.

Valérie is a founding member of the International Association of Registered Certified Tomatis® Consultants, where she held the position of secretary until she was elected as vice-president in Dublin in 2009. She has been a member of the Tomatis training team for many years, and travels around Europe and the United States to train new professionals in both the Tomatis® Method and Solisten®.

You can contact Valérie at **gas.v@wanadoo.fr** or **tomatislorient@gmail.com**.

Sonia Montoya

Born in Colombia, Sonia relocated to France, where she studied developmental psychology at the University of Paris VIII, and linguistics and language acquisition at the University of La Sorbonne Paris IV between 1973 and 1984. She then went on to conduct research on epilepsy with dyspraxia in collaboration with Miss Leman, director of the psycho-pedagogical Valadon school. Sonia began developing her own method of teaching reading, writing and grammar in an effort to change the institutional approach to the study of school failure.

From 1990 to 1997 she worked with sick children at the Institut Curie, and between 1996 and 2009 she did a pedagogical follow-up of children with learning difficulties at the psycho-pedagogical center Tomatis® Écoute Communication in Paris. Her work takes a psycholinguistic perspective more involved in the development of language acquisition in children and in the process of professional self-efficacy.

CHAPTER 11

Alix: a little girl with a big disease

A CASE STUDY IN RETT SYNDROME

We met Alix for the first time at Écoute et Communication (the Paris Tomatis® Center for Children) when she was three years and ten months old. Alix's walking pattern was weak, looking almost "duck-like," and she had severe posture and balance problems. She had flat feet, walked on the outside of her feet and was very unstable, with a tendency to lean forwards. She was also unable to keep her head straight. She could mount stairs with the help of an adult, but could not descend them. She could touch objects, but could not hold them with her hands as she had almost no sensation of touch. And while she was a child who smiled frequently, she made no eye contact.

Alix's walking pattern was weak, looking almost "duck-like," and she had severe posture and balance problems.

Alix also had a tendency toward self-mutilation, as was demonstrated by her banging her head and pulling her hair out. She was very sensitive to noise and would

She was very sensitive to noise and would react fearfully to it. There was no verbal communication—although she would moan or laugh in an inappropriate way.

react fearfully to it. There was no verbal communication—although she would moan or laugh in an inappropriate way. She had a few ways of communicating non-verbally; she occasionally gave hugs and reacted to music and different pictures when she watched a videotape. She had a tendency to neither obey nor react to instructions.

Diagnosis

At the time of her arrival at our center, Alix had already been diagnosed with autism by the hospital. She was diagnosed with Rett syndrome one year and seven months after we first met. "Rett syndrome is a severe neuro-developmental encephalopathy that essentially affects girls and is characterized by a global deceleration in the psychomotor development followed by a loss in cognitive and motor skills. This occurs after a period of normal development." [1]

Alix was also diagnosed with trichotillomania (hair loss as a result of her continually pulling out her hair), digestive problems and sleeping problems due to bruxism (excessive clenching or grinding of the teeth). She was taking medication for epileptic attacks, was astigmatic and wore glasses. She was undergoing psychoanalysis to stimulate her language skills through play, which she particularly liked, and during the week she also attended a physiotherapy center.

Intervention

We decided at the onset of the treatment to limit her program to a total of 90 hours of Tomatis® training, spread over five sessions. The intervention plan consisted of a first session of 30 hours followed by four sessions of 15 hours. The intervention sessions were spaced at intervals

of four to six weeks.

We first used the Tomatis® stimulation with corporal and vestibular work. This enabled Alix to integrate her corporal image in order to later develop her gross and fine motor functions. The stimulation was equally aimed at boosting cortical energy, which provided Alix with more energy so she could find the drive necessary to advance, evolve, and fight her condition. In general, every acquired skill requires a certain amount of effort to obtain and sustain—even more so when one is also struggling with development. It is for this reason that even a small amount of increased energy can help in advancing a little further down the trajectory of development.

During the next stages of her intervention plan we focused on Alix's language and communication abilities. The Tomatis® training program combined with physiotherapy produced tremendous results for Alix. So much so that it was decided to continue working with her beyond the 90 hours that were initially planned—and in fact, we followed Alix for a period of eight years, on the basis of six Tomatis® training and physiotherapy intervention sessions per year. The physiotherapy portion of her program consisted of exercises in strengthening, orientation, spatialization, lateralization, and language stimulation (reading and listening to stories).

Results

The results started to appear very quickly. After the first session of 30 hours, Alix's mother started seeing improvements in her eye contact, communication, posture and muscle tone. The family decided to continue with Tomatis® training, as they observed changes with each intensive. Alix became quite calm, turning into a happy, warm and very affectionate young girl who needed a stimulatory and reassuring presence on a daily basis. She cooperated a great deal and her

After the first session of 30 hours, Alix's mother started seeing improvements in her eye contact, communication, posture and muscle tone.

approach to various tests was reflective of growth. Her resistance to fatigue was quite improved, and her concentration capabilities became normal in a quiet environment. Alix became able to express herself through visual media and non-verbal gesturing, and memorized caregivers, objects, pictures, places and people. She also manifested adaptive skills and exhibited no affective problems. Her family environment continued to be a great support.

Alix improved in her ability to walk and exhibit motor control in a variety of activities. She also gained an improved understanding of herself, her body and her space-time environment. Once Alix started walking we introduced activities that promoted her ability to form a mental representation of her body, before continuing on to lateralization, spatial structure and, finally, temporal structure. This work required much effort on Alix's part, as we started with a general warm-up before commencing the exercises to enable the integration of various body parts and their position within space.

Today, Alix derives great pleasure from going for a walk. She has acquired the ability to grip items and is very aware of what is going on around her. We used books to stimulate language and enable her to express her feelings and respond in an appropriate manner to different affective stimulations. We also used poetry to work on her language rhythms.

Today, Alix derives great pleasure from going for a walk.

Her sleep difficulties have improved, as have her digestive problems, and the trichotillomania has disappeared. However, the bruxism, although decreased, has not completely disappeared. She communicates more and more through visual and physical contact—she will come looking for you, will show her interest in something and tap you on the shoulder to make sure you understand her. She is capable of performing several actions in sequence to obtain something. She obeys and responds in a non-verbal manner to recommendations. She is very lively, full of energy and takes great joy in her life.

The work accomplished with Alix during these eight years—and the

incredible results she has achieved—only confirms our theory that the Tomatis® Method is an excellent way of supporting children in their development and their maturation (at the motor control, autonomy and communication levels). It is clear that, in cases such as Alix's, this method forms one of various necessary programs, with each separate group of listening training enabling gradual progress toward improving the wellbeing of Alix and her family.

The Tomatis® Method is an excellent way of supporting children in their development and their maturation (at the motor control, autonomy and communication levels).

But the essential element is having all professionals work together to support each child along their individual evolutionary path, and in a diagnosis as degenerative as Rett syndrome, this kind of progress has been truly amazing to watch.

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THE LIGHT AT THE END OF THE TUNNEL

Françoise Nicoloff

It is not improper to compare language to a melody, no more so than to maintain that the area destined to receive sounds—and especially musical sounds—on the left temporal area of the brain is precisely the one on which the sensory control of speech is grafted.

—Alfred Tomatis, *Écouter l'Univers*

Françoise Nicoloff

Françoise is the founder and director of the Australian Tomatis® Method in Sydney, Australia, and is a registered psychologist. Françoise was trained by Dr. Tomatis in the late 1970s and has been involved in expanding the Tomatis® Method around the world ever since. She has extensive experience in auditory processing, learning and communication difficulties and is considered to be an expert in those fields. Françoise is also becoming an expert in the field of autism as she follows regular training sessions in biomedicine in Sydney with Mindd.org and works with other DAN (Defeat Autism Now) practitioners. Françoise initially began using the Tomatis® Method in France 33 years ago, and she initiated the training and development of the Japanese Center in 1993 while living and working in Tahiti, and, more recently, for the center in Manila (in the Philippines) in 2007.

Françoise has assisted thousands of families in four continents, helping children with emotional and communication problems and learning disabilities. She also works with adults, and has had very positive results in helping them to recover from stress and depression, and in keeping their mental and emotional state at a positive level. She also helps singers with their pitch and shows them how to access the full potential of their voice. She introduced the Tomatis® Method to Australia over 15 years ago to further develop Tomatis's work. Françoise has been president of the International Association of Registered Certified Tomatis® Consultants since 2004 and she is passionate about her work, lecturing all over the world. Her passion is helping people to unlock their abilities and potential.

Françoise is the mother of Segolene, her 20-year-old daughter who was born in Tahiti, and stepmother to two sons. She is married to James, a French *pâtissier*, loves traveling and discovering new countries and people, and enjoys singing and painting.

Françoise can be contacted at **fnicoloff@tomatis.com.au**, and you can find out more about her work at **www.tomatis.com.au** or **www.solisten.com.au**.

CHAPTER 12

The light at the end of the tunnel

A MOTHER'S STORY ABOUT HER SIX-YEAR-OLD AUTISTIC SON

Michael's story began on 17 July 2002, when my wonderful little boy was born. We thought he was a beautiful little angel, who was very good natured, and other people around us saw him the same way.

Michael started walking very early, would slip out of his bed very easily and started saying a few words at a young age. Nevertheless, I noticed that there was something repetitive in his games and gestures. He was a tough little boy with a sturdy character and was headstrong, which all seemed very normal to us. We often found ourselves saying, "He's got a temper!" but the truth was that his behavior was becoming difficult. He refused to make, and avoided, eye contact when his name was called out.

We often found ourselves saying, "He's got a temper!" but the truth was that his behavior was becoming difficult.

He kept hitting the ground with toys, often making so much noise that it was unbearable

We became increasingly worried ... By 20 months it was clear he was lagging behind developmentally.

to our ears, although he seemed oblivious to the racket. But on the other hand, he screamed when the vacuum was on. He stayed alone, not seeking the presence of any other child, and we justified this by saying, "He's probably a lone wolf, that's his right. After all not everybody has to like the company of others."

Then came the day when we really started wondering about him. Michael was 18 months old by that stage and he'd stopped speaking. The first words he had started to pronounce, like "daddy" and "mummy," had vanished as if they had never existed. And all the deviant behaviors he had been showing were becoming more blatant.

We became increasingly worried. Michael started hurting himself. We thought it was strange, but always put this down to his strong personality. Sometimes he cried endlessly, with no evident reason, and was inconsolable. He started eating yogurt in huge quantities and refused to eat anything else. He didn't respond to us and wouldn't turn his head to face us, though he was still a very smiley, laughing boy most of the time. At other times though, he would be anxious for no obvious reason.

By 20 months it was clear he was lagging behind developmentally, so we started seeing a speech therapist. Those sessions clearly showed that Michael hardly communicated, and his deficiency was not only verbal, it was non-verbal as well.

By now it was clear to us that Michael was autistic. I remember crying so much as I realized the enormity of the task ahead.

By now it was clear to us that Michael was autistic. I remember crying so much as I realized the enormity of the task ahead. As for my husband, he just couldn't accept the diagnosis at all.

At three years old, the age when most children are playing every day, Michael was very different. He was still cut off from other

people, he cried a lot and slept poorly. He'd fall asleep very late, as if he wanted to postpone the moment for as long as possible, and he'd wake up several times a night. I was totally exhausted and would cry with despair and exhaustion. I couldn't see a way out of this problem, and still refused to accept Michael's condition as something that was irreversible. The very idea of it shattered me.

We were being progressively cut off from any social life, as going out with Michael had become such an ordeal. And this wasn't the only obstacle. Making him go to the toilet was very difficult, although, paradoxically, potty training was very easy and natural and had been achieved in just one week—it turned out that Michael was desperately scared of the noise of the toilet flushing. Giving him a shampoo was also a nightmare as Michael couldn't bear water running along his face … and there were so many other things that upset him as well! To let me know that he wanted to eat or drink, he would start screaming in front of the fridge, and rolled around on the ground.

I couldn't see a way out of this problem, and still refused to accept Michael's condition as something that was irreversible.

Michael eventually learned to repeat the therapist's words during his speech therapy sessions, so I tried to teach him the same way. Step by step, he became more familiar with the process.

In 2006, Michael went to preschool for the first time. At the beginning it was terribly difficult. He needed over a term to adapt, and didn't say a word for more than six months. Even after this his speech remained scarce and sporadic.

In 2006, Michael went to preschool for the first time. At the beginning it was terribly difficult. He needed over a term to adapt, and didn't say a word for more than six months.

Michael's second year at preschool was just as difficult. He made some progress—for instance he managed to control his fits of anger to some degree—but his language was

still delayed. Even with some signs of progress we could see he was still closed to the world. We tried taking him horse riding once a week, which helped, but he still couldn't build any relationships or even interact with other people with any success. We felt that everything we had tried had only limited success, and we needed something else for him.

Then came the day that we heard about Tomatis®. I remember that moment as if it were yesterday—I had been crying and telling someone how sad I was, because I'd tried my best for Michael, but I wasn't getting anywhere. This person told me that actually I hadn't tried everything; that there was one thing left, something called the Tomatis® Method.

As soon as I got home I rushed to my computer to look it up on the internet. What I read filled me with hope and I immediately had a gut feeling that I was onto something good. Tomatis® might be the answer we'd been looking for. I immediately wrote a long email to the practitioner I found, Françoise Nicoloff, in Australia. Her answer came back to me the next day—Françoise said she would be happy and willing to work with Michael, and that she'd successfully treated many other children with similar symptoms. I cried with relief, hope and happiness.

Françoise said she would be happy and willing to work with Michael, and that she'd successfully treated many other children with similar symptoms. I cried with relief, hope and happiness.

By November 2007, Michael was five and a half. We traveled from New Caledonia to Australia for our first session of 20 hours at the Tomatis® center in Sydney. Traveling was hard with my boy—he panicked and struggled on the plane, and it was the same just taking the lift up to Françoise's office in Surry Hills.

The first two days were very hard. Michael resisted wearing the headphones. We kept telling him firmly that he had to keep them on and that there was no other choice, and finally he resigned himself to wearing them.

From the third day I started seeing improvements in his behavior. He

became calmer and more serene. After a few days, his speech started improving—it became more accurate, and he even started initiating bits of sentences. To us, this was amazing. I soon noticed more creativity in his games. My son was happy, and so was I!

We decided to come back two months later for two sessions of 30 hours each. Traveling on the plane was still a problem, but the results were so good we were willing to go through the pain of getting to the center.

Eventually we completed 90 hours of Tomatis® listening, and so many changes occurred! People who know him well say that there is literally a "before Tomatis®" Michael and an "after Tomatis®" Michael.

At the end of those 90 hours, I had a completely different little boy. To start with, his speech had transformed. He previously had a very "copy and paste" speech pattern, but following Tomatis® he had developed his own voice. He could even communicate in the abstract, saying things like, "I miss Sydney," "I like," "I dislike." The use of "I" came more and more naturally to him.

When we returned home, we decided to set up activities in order to help his socialization and integration with other people, so we had him pony riding, enjoying music, swimming … whatever we could think of.

People who know him well say that there is literally a "before Tomatis®" Michael and an "after Tomatis®" Michael.

In January 2009 we returned to Françoise at the Tomatis® center in Sydney for a 30-hour booster session, and after that Michael's assessment was excellent. His tests and behavior showed great improvements.

2009 update

Michael's echolalia (the habit of constantly repeating the same sounds, words or phrases) has totally vanished. Michael has opened up to the world

around him and shows real curiosity about everything. He has become very talkative and often sings or hums.

For his birthday in July, when I suggested to him (with no real expectations) that we could invite some friends over to celebrate, he surprised me by giving me a list of names! How happy was I? Again, more tears of happiness!

Michael has opened up to the world around him and shows real curiosity about everything. He has become very talkative and often sings or hums.

Concerning his verbal skills, he is now able to make himself understood completely, even if he still produces sentences that are a bit awkward. He can correct himself, and he even questions us!

Michael doesn't resort to fits of anger to express himself when he's frustrated anymore. His anxiety is still present but he handles it very well. He's now better able to face new or stressful situations, and the way he copes with his fears now has led to small miracles! He used to be so scared of having a shampoo, because his head would be under flowing water, but he is now calm and remarkably confident in the water. He is learning freestyle and backstroke swimming, and even loves being in competition with others. Michael also used to be terrified of diving—he'd love watching others do it but he'd never try it himself. Today, he'll be the first one to take the plunge and can dive more than five feet underwater!

All these little victories keep coming and each one strengthens Michael's sense of success. All the barriers he had set up out of fear have now been dismantled. He tries new food more easily. He's learned to give in at times. He's more self-sufficient, initiating things on his own, dealing with changes and the unexpected very well. He's now more comfortable in planes and the way he controls his anxiety is remarkable.

Michael communicates well now. He is no longer in his own world, and seeks out other children's friendship. The most important thing for me is that we have very good communication between us. He understands everything

I say and he answers my questions! Françoise told me: "I've opened all his channels. Now you should flood him with words. Don't stop talking and keep explaining everything to him." And that's what I've done!

Michael communicates well now. He is no longer in his own world, and seeks out other children's friendship.

And the result? Michael's vocabulary is very good; he keeps learning more words, and always uses them again appropriately. This process has been going on since his first sessions of Tomatis®, and now it's become a positive habit for him. He's always on the lookout for new words and uses them as soon as he can. We first noticed him doing this when he began taking phrases from his favorite cartoons—and the remarkable thing is that he always uses them in context.

October 2010 update

Michael is finishing year two and is the top student in his class. His report is quite surprising and excellent. He achieves straight "A"s, and is especially talented in mathematics—he is quite gifted in math and his level of calculating mentally is quite incredible for his age. He is very social, has lots of friends, and is always being invited to parties—in fact, children are attracted to him because of his paradox. He still can show some delays in his reactions, however he works very quickly and very well. He is a high achiever. He is also learning judo and enjoying it. I am looking now to have Michael assessed for Asperger syndrome, as there are still some paradoxes in his behavior and his love for numbers is quite astonishing. His life revolves around figures and numbers and he creates games with them—at night if he cannot sleep, there is no point in telling him stories, but counting will do the trick! However, as his symptoms have been taken care of at an early stage, he is more able to fit into society, even with his incongruence.

I know that the Tomatis® Method revealed what was deeply buried

at the core of Michael's personality. The Tomatis® Method—and Françoise—helped Michael go through a rebirth. He is totally transformed and his inner self continues to blossom. Mozart's music, and Françoise's great skills and talents, have allowed his deeply sleeping consciousness to emerge. Michael used to be constantly afraid, but now he is a happy little boy full of *joie de vivre*. These days, he laughs, his eyes sparkle and he is very creative. He is into games and will even initiate jokes! Françoise's guidance has been priceless!

The Tomatis® Method—and Françoise—helped Michael go through a rebirth. He is totally transformed and his inner self continues to blossom. Mozart's music, and Françoise's great skills and talents, have allowed his deeply sleeping consciousness to emerge.

Today, we can see light at the end of the tunnel; we have found our way out of the darkness. Of course, there is still a lot of work ahead, but we now have solid ground to work from. We believe that the Tomatis® Method has been a huge contributor to this wonderful improvement in the quality of our lives. Thank you to Dr. Tomatis and Françoise Nicoloff!

CONCLUSION

The best way to observe things with success is to see them follow their course from their point of origin.

—Aristotle

Dr. Tomatis was indeed a wonderful pioneer, inventor and insightful man. He has inspired the field of sound training to a degree that every program existing in the world today acknowledges him as the father of their specific type of auditory training. He was a thought-provoking man, a visionary who was not afraid to take the risk of leaving his professional training behind to venture into an unknown field that he believed in. He did his research based on scientific fact, and added to it in a way that has forever changed the way we look at the ear. His critics in the science world remain skeptical due to what is considered today to be a lack of empirical and rigorously controlled studies, and most Tomatis® consultants across the world today would like to see these studies completed as well. Part of the reason behind creating this book, and the others to come in The Listening Journey series, is to attract scientists to assist us in our quest to "prove" to the world of science what we clinicians see every day!

He has inspired the field of sound training to a degree that every program existing in the world today acknowledges him as the father of their specific type of auditory training.

Some other research has also looked at aspects related to what we see when applying the Tomatis® Method to our work: Parbery-Clark, Skoe and Kraus looked at the effects of musical experience to limit the degradative effects of background noise on the neural processing of sound. They found that musicians have a more robust subcortical representation of the acoustic stimulus in the presence of noise. Even more than this they found that, "Musicians demonstrated faster neural timing, enhanced representation of speech harmonics and less degraded response morphology in noise … These findings suggested that musical experience limits the effects of competing background noise."[1]

One of the chief complaints we have at our center is the effect of the multisensory classroom environment on the ability of the child to maintain their attention during a teaching situation. We see over and over again how the exposure to sound training, specifically the Tomatis® Method, decreases this distorted neural adaptation to multisensory stimuli in these situations. Granted, the Parbery-Clark, Skoe and Kraus research contained subjects with long-term exposure to music, and the study does not prove the work completed through the Tomatis® Method to any extent at all. It is simply very interesting that the study does make a clear implication that the exposure to music training over extended periods of time enhances the specific neural timing and ability to apply oneself in a "noise" situation. Dr. Tomatis did not believe in short-term listening stimulation—he believed in completing listening over extended periods of time. After many different applications he concluded that 60 to 62 hours was an initial "magic" number of listening hours—a schedule that we still use today.

They found that musicians have a more robust subcortical representation of the acoustic stimulus in the presence of noise.

In a similar vein, Thompson, Schellenberg and Husain looked at music lessons and their effect on sensitivity to emotions and how this was conveyed through speech prosody. The authors conducted three experiments to discover whether music lessons enhanced an individual's ability to decode emotions expressed through speech and found:

Dr. Tomatis did not believe in short-term listening stimulation—he believed in completing listening over extended periods of time.

> In **Experiment 1**, adults who took music lessons in childhood were better than untrained adults at identifying the emotions conveyed by tone sequences that mimicked the prosody of spoken utterances. In **Experiment 2**, musically trained adults were better than untrained adults at identifying sadness and fear conveyed by utterances spoken in both familiar (English) and unfamiliar

> (Tagalog Filipino) languages, and by prosody mimicking tone sequences. Musically trained adults were also better at identifying spoken utterances with emotionally neutral prosody. In **Experiment 3**, 7-year olds were asked to identify the emotions conveyed in speech or in tone sequences that mimicked speech. For fearful–angry comparisons, children who took keyboard lessons during the previous year performed better than children with no arts lessons and equivalently to children with drama lessons. The equivalence between keyboard and drama lessons is particularly noteworthy because the drama lessons focused specifically on training the speaking voice and the use of prosody.[2]

Once again the effect of training the ear to music was instrumental in improving one's ability to attach emotion to the speaking voice, and was perhaps also case in point when thinking of Tomatis's first principle: "the voice can only reproduce what the ear hears." We frequently observe the changes in voices of the children we treat, and we see how they are more able to follow non-verbal social cues as they are more attuned to listen with their internal ear. In one case that I presented in Dublin at the international conference in 2009, we clearly "heard" on video the beautiful change in laughter across the full spectrum of sound in a girl, who was considered mentally deficient and could only make one shrill, piercing sound before commencing her Tomatis® training.

Once again the effect of training the ear to music was instrumental in improving one's ability to attach emotion to the speaking voice ...

In *Awakening Ashley*, Sharon Ruben wrote the remarkable story of her child on the autism spectrum, which sent the critics soaring as this was again but one account of remarkable recovery. Much research was completed on the Mozart effect alone, without the Electronic Ear that we use in the Tomatis® Method. Most research does not support findings beyond a short-term effect, but we must also remember that most research was completed under conditions where subjects were exposed to the music of

Mozart for maximum periods of only ten to 20 minutes.

A small research study of the Tomatis® Method was submitted by Neysmith-Roy and published in the *South African Journal of Psychology*. It involved six severely autistic boys ranging in age from four to 11. The author found:

> Three (50%) of the boys demonstrated positive behavioral changes by the end of the treatment. One boy was no longer considered to be autistic; two boys showed mild symptoms of autism and three boys remained within the severely autistic range. Of particular interest were the changes that occurred in pre-linguistic areas for five of the six boys. These included Adaptation to Change, Listening Response, Non Verbal Communication, Emotional Response and Activity Level. These behaviors are considered prerequisites for successful verbal communication. The children who demonstrated behavioral change were 6 years of age or younger at the beginning of treatment. The author suggested that the Tomatis® Method might be helpful in making pre-linguistic behaviors manageable and thus help prepare the child to learn basic skills necessary for the development of language and learning.[3]

Very frequently during application of the Tomatis® Method in our work, families become concerned about their children "regressing" as they seemingly go "back" in their development and start to investigate pre-verbal language again. Children who had started to use one- or two-word phrases may start to speak nonsensically again and appear not to make any sense to their listeners. As Tomatis® consultants, we rejoice in this seeming "regression," as we know this is in fact a phase of restructuring what the ear is hearing in their own voices—similar to the babble we hear in babies as they start to stroke their own ears with sensory stimulation from their own voices when they prepare their ears for the use of language. We would like to see more research in this area, as many children diagnosed with autism demonstrate this very interesting

and important process. The outcome of this period of "restructuring" results is observed in an improved use of language.

In January 2009, an article appeared in *ScienceDaily* in regard to our ability to "feel" our words—in other words to "hear with our face." The article referred to "the movement of facial skin and muscles around the mouth playing an important role not only in the way the sounds of speech are made, but also in the way they are heard." This was in reference to research being completed by scientists at Haskins Laboratories, a Yale-affiliated research laboratory:

> These effects of facial skin stretch indicate the involvement of the somatosensory system in the neural processing of speech sounds. This finding contributes in an important way to our understanding of the relationship between speech perception and production. It shows that there is a broad, non-auditory basis for "hearing" and that speech perception has important neural links to the mechanisms of speech production.[4]

As Tomatis® consultants, this article was of great interest to us, because we so frequently observe facial changes in children we treat using the Tomatis® Method. Dr. Tomatis wrote a great deal about audio-lingual loops in *The Ear and the Voice*. He makes clear neuro-anatomical links between the stapedius and temper tympani muscles of the middle ear and their nerve enervations connecting to our facial musculature. Many times our families hear neighbors and other acquaintances say, "But he (or she) just *looks* different!" This connection is so frequently overlooked in children diagnosed with apraxia, albeit apraxia of speech, or whole body apraxia. They are frequently taught in cognitive ways with a "top down" approach (cognitive centers first, to apply to more primal areas of development), whereas development occurs "bottom up" and creates the automaticity and foundation needed for cognitive and other "higher-center" skills to develop more evenly.

Another interesting study was submitted by King et al, which focused on deficits in the auditory brainstem pathway encoding of speech sounds. The

data from this study suggests that:

> Certain learning deficits may originate from a disorder in auditory neural timing at the brainstem level. Measures of auditory brainstem synchrony could be used to identify which children with learning problems will likely benefit from training programs that target deficits in the neural representation of the acoustic aspects of auditory input. In addition … one can envision identifying those children at risk for acoustic-phonetic-based learning problems before they reach school age. Thus, intervention and rehabilitation could begin at an earlier age.[5]

This was interesting work to follow, as we see so many children who struggle with these types of learning differences that include the auditory system and we propose that the prevalence of this type of learning-based difference is actually quite high. At our center specifically, we serve many children struggling with learning differences in their school environment—most of them based on reading difficulties. We find that even when a child learns to read later in their elementary school career and seemingly appears to read fluently, the child still does not flourish in school, because the child's struggle with hidden auditory difficulties causes the need for greater compensation in the cognitive skills area of the brain, which overtaxes the working memory. As Tomatis® consultants we would love to see more research in this early detection, as referenced above, as this could prevent an enormous amount of heartache with regard to unnecessary self-esteem issues and decreased self-identity conceptualization.

As Tomatis® consultants we would love to see more research in this early detection, as referenced above, since this could stop so much heartache with regard to unnecessary self-esteem issues and decreased self-identity conceptualization.

There are so many interesting studies, and we have only but touched the tip of the iceberg in this discussion! But I would like to leave this section of our discussion with one

study on delayed auditory evoked responses in autism spectrum disorders by Roberts et al. The authors compared 25 children diagnosed with autism spectrum disorder, having a mean age of ten years, to 17 age-matched typically developing children. The children on the autism spectrum had an average delay of 11 milliseconds (about 1/100 of a second) in their brain responses to sounds, compared to the control children. Among the group with autism spectrum disorder, the delays were similar, whether or not the children had language impairments. An 11-millisecond delay is brief, but it means that a child with ASD, on hearing the word "elephant" (for instance) is still processing the "el" sound while other children have moved on. The delays may cascade as a conversation progresses, and the child may lag behind typically developing peers.

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Studies that did involve the Tomatis® Method with children did deliver some interesting preliminary findings. The Gilmore Meta–Analysis was based on a study of 225 children with learning and communication difficulties. The analysis showed that the Tomatis® listening sessions had an impact on language, cognitive and psychomotor development, and social/personal behavior, although there has been much criticism related to this analysis.

Wilson et al studied 26 children suffering from a language disorder. Eighteen children received the Tomatis® Method listening training and eight were assigned to the control group. The Tomatis® participants indicated more progress in the areas of communication, openness of hearing and ability to produce sound.

In England, Mould and Gilmore, through the Brickwall House Institute, studied 47 dyslexic children suffering from a delay in reading of four to five years. Twenty-four of these children underwent Tomatis® listening sessions, and the remaining 23 children were assigned to the control group.

The results were significantly in favor of the Tomatis® group in terms of reading ability and expression.

Tomatis® consultants all over the world tell of the changes they noted after they introduced the Tomatis® Method to their own work.

Yes, we need more empirical data in a world built upon science and scientific measures, and we are steadily working our way toward gaining more ground in this arena. Tomatis® consultants all over the world tell of the changes they noted after they introduced the Tomatis® Method to their own work. The results achieved are faster, and closing the developmental and learning deficiency gap takes less time, saving the child from additional anxiety, anguish and decreased self-esteem. As Tomatis® consultants, who believe in our work, we owe it to the public at large to become more actively involved in research, and we are hoping to use this first book in our series as a discussion point with researchers to obtain the necessary funding to complete the data needed. Until then, clinicians across the world will keep adding this work to their repertoire of tools, children will continue to benefit and flourish, and parents will continue to believe!

Maude Le Roux

November 2010

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FOREWORD

And what is man? I will gladly say that he is the receiving antenna of a creation that persistently questions. He is an ear in search of all that can be perceived, from the audible all the way to the imperceptible. To be an ear is to listen, this seems to me to be the culmination of human development.

—Alfred Tomatis, *Pourquoi Mozart?*

Another dream comes true! Publishing a book on the Tomatis® Method and the success stories of some of the children who have experienced it has been a long-cherished dream for me and it has finally come to life. This book is presented by the International Association of Registered Certified Tomatis® Consultants (IARCTC), which was launched in Paris in November 2001, some ten years ago. My mother and I were so pleased to be able to follow the direction of Christian Tomatis and Thierry Gaujarengues (CEO of Tomatis® Développement SA) in their wish that we organize our profession and gather all our colleagues around the world into one official professional body.

I first encountered Dr. Tomatis's work in 1977 through my family, and more particularly through the positive results that the Tomatis® Method achieved with my grandmother, who struggled with bipolar disorder. At the same time, one of my brothers was suffering from post-traumatic stress disorder, and my other brother was dyslexic and facing drastic decisions at work and in his private life. All three of them returned from Paris (we were living in the south of France at the time) totally transformed after listening to Mozart and Gregorian chant for many hours through the "Electronic Ear." This triggered my interest greatly, and I made an appointment with Dr. Tomatis to complete an assessment with him. Both of my parents registered for the training, however my father passed away unexpectedly just before it began. My mother was devastated but we strongly encouraged her to continue with the project, and through her work I was exposed to many more stories. My fascination grew and eventually led me to embark on my own Tomatis® listening journey.

For the last 33 years I have been able to witness firsthand the smiles on parents' faces as they are finally able to trust in their own belief in their child's future and potential. I have seen children change rapidly, overcoming their difficulties in speech, in learning, in confidence, and in using their

body. Some parents and family members call it, "The miracle of Tomatis® and Mozart," and the effect is like turning a key in a lock— the foundation of a child's abilities are finally present and able to be used to their full potential. The desire to see that light spring into children's eyes has taken me on an exceptional journey around the world, and now brought me back to Australia to make another dream come true.

Let me share one of my favorite stories with you …

"Why would you be interested in a book of stories?"

The Magician looked at the Young Apprentice and replied, "What is magic?"

"The art of transformation and change!"

"Good. And what is the role of a Magician?"

"The Magician's role is to assist people to make useful and beneficial changes in their lives."

"And how can this be achieved?"

"By developing greater awareness that all things have a structure, that change is always possible, that there is always more than one perspective, and that the essence of useful change lies in having both creativity and access to a greater number of choices …"

"And what are the key principles?"

It is here that I always imagine the Apprentice looking up and replying to the Magician, who so-listens …

"A Magician must think systematically and look for the connections between things that are not always apparent. For this reason a Magician must always treat information in its wider context, for nothing exists or makes sense in a vacuum.

A Magician must always be aware that her knowledge is provisional, that there is always something more to discover, and that there is always more than one way to achieve any outcome.

A Magician shares her knowledge, for this is an enlightened pathway to empowering others and to achieving immortality …

A true Magician believes that none of the above are true, but acts as if they are true. She trusts the evidence of her senses to interpret the responses she gets to whatever she does; and she always considers which next choice will be the most appropriate in that particular situation."

"You have learned well," said the Magician. "And these are some of the reasons why a Magician collects and uses stories."[1]

And **this** is what this book is about—stories coming from Tomatis® consultants around the world, celebrating how the Tomatis® Method has helped to change children's and parents' lives and giving hope to people who think that they have run out of options. Here, the Magician is Dr. Tomatis, a French ear, nose and throat specialist who dedicated his life to understanding the intricate connections between the ear, the brain, the body and the soul, and he trained many professionals around the world. Although he passed away in 2001, his work still continues to evolve through his Apprentices, as we continue to train new consultants around the world.

Dr. Tomatis had a profound effect on my life. He gave my life a new purpose and set the course for the journey that I am still happily pursuing today—and it was under his influence that I decided to study psychology. I was fascinated by Dr. Tomatis's ability to retain information—what he read and the experiences he shared—but what I was equally amazed by was his skill for synthesizing things that most people would never think of linking together. And he was incredibly erudite and very intuitive (which, in the scientific world, was not considered to be his best trait!). That was where his true Magic existed.

As a person, he was very approachable and I could talk with him about

many subjects. I remember being totally mesmerized by his knowledge at Carboneras (his summer villa in Spain, where he held trainings) during my first professional training. Sitting next to him during dinner at one of our group outings at the end of the training I told him, "Vous êtes une bibliothèque ambulante!" (You are a mobile library!) He had so much knowledge and so much intuition in understanding the human being.

Over the years, I have discovered many different "universes" thanks to Dr. Tomatis, the countries he sent me to, and the ones I decided to go to in order to initiate his Method and his principles. Dr. Tomatis is now acknowledged as a pioneer in many fields—which you can read more about in my friend Jean Pierre Granier's introductory chapter in this book. Dr. Tomatis already knew about brain plasticity over 30 years before it became part of science, as we know it today. In my very early work with him we were witnessing it as we saw changes in communication, adaptation and learning skills in most of our clients, long before it became proven by science.

Dr. Tomatis was also very interested in understanding how and when listening starts during the cycle of life. His observations and knowledge about embryology and phylogenesis made him believe that prenatal life is incredibly important in the development of the baby to come. He also realized that listening starts in the womb. As a result, when I was pregnant with my daughter I completed the Tomatis® program to give my baby the best possible chance. And in fact, when she was born in Tahiti we discovered that she had an atresia of the esophagus after her first breastfeed and we learned that we would need to travel to Auckland in New Zealand to have surgery done. But I will tell more about her in one of the next books in The Listening Journey series.

Dr. Tomatis was always questioning his work and his observations. Over 20 years of working with him, I saw him constantly investigating new ways of programming: using air and bone conduction, trying some delays between the two, changing the kind of filters he used, and altering the range of frequencies, the quality of the music, and the settings of the Electronic Ear. After trying many different types of music, Tomatis

discovered that Mozart's music delivered the best results. The violin concertos of Mozart are rich in high-pitched sounds and Tomatis realized that the high-frequency sounds were "food for the brain." And apparently not only for the human brain—research shows that the music of Mozart helps plants to grow better, helps cows to produce more milk, and even, as I saw in the news last week, the micro-organisms in sewerage to break down more effectively.

Dr. Tomatis was the first person to recognize the powerful effect that the music of Mozart has on people of all ages—something that Tomatis® consultants observe clinically, and clients experience personally, on a day-to-day basis. After trying many kinds of music and many different composers, Tomatis realised that the music of Mozart, combined with the use of the Electronic Ear and its "gating" effect, was helping people to sustain attention, release tensions and blocked emotions, energize the brain, balance the whole ear-brain-body-spirit connection, and tone the body and the mind. He also introduced Gregorian chant in the auditory training programs, as he found that this authentic form of chanting is based on a rhythm involving the longest breath and the slowest heartbeat, while at the same time it is energizing and creates more flexibility in the body. Over the last three decades I have observed in countless people the lasting effects that the use of the modulation of Mozart and Gregorian chant processed through the Electronic Ear creates.

The Tomatis® Method is now delivered in over 400 centers in more than 40 countries across the world, and the equipment we use has evolved strongly in the digital era. The program can now also be delivered as a home-based program with the new digital Solisten® equipment. The Tomatis® Method programs are usually applied as intensive programs of eight to 15 days of listening for two hours a day. A minimum of 60 to 62 hours of listening training is recommended over two or three intensives with a break of four to six weeks between each group of listening training sessions. The program requires the use of special headphones equipped with air and bone conduction. I still remember when Dr. Tomatis first introduced bone conduction into the programs in the late 70s and early 80s. The addition of

bone conduction assisted in shortening the length of programs greatly, both in overall duration and in the number of listening hours per day. We used to listen for three hours a day for 21 days, (which was the way I completed my first program in 1977), and then it became two hours a day for 15 days. Now, depending on individual needs and profiles, the program can vary in the number of intensives that need to be administered—some children need the intervention for years, as you will read in Alix's story, and some will only need 60 to 62 hours, as you will read in Ben's story. It is the responsibility of the Tomatis® consultant to decide what is necessary, and to match the program to the child's progress.

I encourage you to enjoy all of our stories—two of them are testimonials from mothers (one from the mother of a child with learning difficulties and the other the mother of a child diagnosed with autism), in others our colleagues from around the world share their stories about helping children and their families to face autism, Rett syndrome, ADD, auditory processing disorder, global developmental delay, speech delay, sensory integration difficulties, learning difficulties, behavioral difficulties and many other challenges. This book is intended to be flexible—the stories are designed to be read in whatever order you please, depending on your interest and inclination. But no matter which order you read them in, do not be surprised if you feel a tug at your heart and a tear in your eye as you read them—I certainly did, even after spending so many years witnessing how the Tomatis® Method has transformed the lives of so many children and their loving families. So sit back and let the discovery of the power of the ear, good listening and great music fill your heart and mind through these beautiful, heartfelt stories.

There is a chance that you may recognize the stories of Ana Lisa, Victor, Ben, Ana Laura, Alix or Michael as similar to those of your own child, grandchild, nephew or niece, or even the child of your next-door neighbor. If you do, you now know that there is light at the end of the tunnel and I hope that this book inspires you to find your closest certified Tomatis® consultant: **www.tomatisassociation.org** and **www.tomatis.com** will help you to connect with professionals from all around the world in order to

find the Tomatis® consultant closest to you.

Dr. Tomatis is no longer with us, but I continue to thank him, especially for fulfilling my dream of helping people to change their lives and giving them the hope that their dream can also become true. After reading this book you might want to learn or read more, so visit **www.thelisteningjourney.com** to discover when the next books in The Listening Journey series will be printed.

I love to travel, and I now invite you to sit back in your most comfortable chair and travel with us on a journey of discovery, of learning, of socio-emotional growth and of human potential.

So listen to the words from the heart and enjoy the journey!

Françoise Nicoloff

22 November 2010, Sydney, Australia

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