

## THE SIMILARITIES AND DIFFERENCES BETWEEN AIT AND TOMATIS METHODS AND THEORIES.

**NOTE :-** *Dr Bernard Rimland* wrote an article on this topic which can be found at ...<http://www.autism.com/families/therapy/tomatis.htm>

*First allow me to present my credentials to set the scene for this description of these two systems.*

Dr Alfred de Tomatis came to the notice of the audiology community in South Africa in around 1972, when Professor Christie Roode from the psychology Department at the University of Potchefstroom began to showcase his successful work with stutterers using an adapted '*Oreille Electronique*', renamed in Afrikaans the '*Ourelle*' .

Prof Roode published several research papers detailing and comparing the outcomes for stutterers with the *Ourelle* and with Speech Therapy and with Psychotherapy. SLT came out bottom of the list of treatments that have good outcomes, the *Ourelle* on the top of that list. So the Speech Therapy Departments of the two only training Universities at the time... Pretoria and Witwatersrand... set about investigating this treatment.

Professor Roode was welcoming and hospitable, glad to share his information. However, it became apparent that the heads of those two departments seemed to prioritise the integrity of the '*sole domain*' of *Speech Therapy over stuttering* above the worth of the intervention to clients, and proceeded for the next 25 years to slander, misinform and attack this treatment and theory wherever they could, and persecute anyone attempting to practice it.

I know, I was there.

Prof Roode became Head of the Psychology Department of Rand Afrikaans University, and Dr van Jaarsveld took over the *Ourelle* at Potchefstroom. It seems that after a while the interest in this approach waned, so that by 1973 or so, when I attempted to purchase one of the *Oreille Electroniques* from Prof van Jaarsveld, I was informed it had been scrapped and nobody knew of its whereabouts. It seems that some time later Prof van Jaarsveld and now his son recommenced their activity with the Tomatis method and they continue until today.

The University of Stellenbosch Education Department invited Dr Tomatis and his wife to Cape Town for some lectures in 1973, and I was invited to interpret for these lectures, and so met Dr Tomatis in person. They graciously invited me to train with them cost-free. I was unable to accept this offer, as I married that December.

As far as I know , the only Tomatis Therapist for years other than van Jaarsveld was a Clinical Psychologist in Cape Town, Dr Beulah Levinson, and later also her daughter in Johannesburg.

In 1992 when I was working in the Vera School for Children with Autism, the media broke the story of Annabel Stehli and her daughter Georgie who had recovered from Autism after ten days of an auditory training method, so of course the school was interested. We were shown the 20/20 video programme of Georgie, in which the Bérard approach to Auditory Integration Training was mentioned.

*The Readers Digest* of March 1992 featured the story 'Fighting for Georgie' – their adaptation of Annabel Stehli's book 'The Sound of a Miracle' – as their 'book of the month'.

Then a teacher at the Vera School had the whole book sent over to her by her daughter who just 'happened' to be working as a special assistant for a child in Westport Connecticut , a few miles from where the Stehli's live. I borrowed the book, and in it recognised elements of the Tomatis Approach, but as a new effective system now going by the name 'Bérard.'

I made arrangements and arranged a loan to visit the conference in Toronto that September, at the Geneva Centre, at which Dr Gerard Binet would be presenting a lecture on Auditory Integration Training – the Bérard Method. After this lecture, I travelled by bus down to New York, and on to Westport , Connecticut, and phoned the Stehli's to ask if I might visit. So it was that I spent a day with them, discussing AIT, seeing the letters of satisfied parents and practitioners of AIT, and especially listening to the constant phone calls from parents discussing their children's breakthroughs as a result of AIT. It was this more than anything else that convinced me of the worth of AIT, and I left the Stehli's determined to train in AIT and bring it to South Africa for our children. This I did in 1993.

## **MY UNDERSTANDING OF THE SIMILARITIES AND DIFFERENCES.**

So, having

- read 'Education et Dyslexie' by Tomatis,
- read 'La Liberation d'Oedipe' by Tomatis
- read the articles and research by Roode and van Jaarsveld up to 1973
- studied with Bérard
- Become a trainer and written the training manual for AIT
- Supervised the creation of the Earducator
- Supervised the creation of Filtered Sound Training
- Been active in the IABP, then AIT Pro and AIT-IPF
- Read the research results for AIT, and the theories of how it works
- Done two research projects in AIT and Autism,
- Read the research of Tallal, Kraus, Merzenich, Woods and Courchesne

This is the way I see the similarities and differences between AIT and the Tomatis approach:

I will be making the comparison under the headings:-

- **Core Beliefs and Goals of treatment**
- **Application of Sound/ Music / Length of Sessions / Frequency of sessions**
- **Listening Tests**
- **Claimed Outcomes**
- **Comments**

<b>CORE BELIEFS</b>	
<p>Tomatis writes that the ear is the organising and cognitising sense of mankind.... That it is the ear that has a species-specific role in making man a thinking entity.</p> <p>Through evolution we became able to manipulate language due to the way our ear developed in its dual roles of balance and also hearing.</p>	<p>Bérard also holds that the ear is the key to the development of the human being , particularly to well-being and harmonious living.</p>
<p>The other core feature is the vagus nerve, the 10<sup>th</sup> cranial, with specifically its recurrent branch of n. laryngeus, which is longer on the left side as it loops under the aorta , whereas the right branch is shorter. This he says is the fundamental origin of our asymmetry and therefore specialisation of neurological development.</p>	<p>Bérard does not express an opinion on this – he took the stance that he would keep within his specialism, which was the ear.</p>
<p>Tomatis says it is essential to develop neurological asymmetry in order to fully become cognitively skilled. He specifically requires that the brain chooses the right end-organs as the 'lead' over the left, i.e. the brain must become left hemisphere dominant for receptive sensory as well as expressive action.</p>	<p>Bérard also holds this core belief relating to neurological asymmetry.</p>

<p>He was the first that I know of who wrote that the infant could hear within the womb for the final 5 to 6 months of gestation.</p>	<p>Bérard does not dispute this but it does not form part of the core of his approach.</p>
<p>He wrote that the infant is hearing the mothers voice during that time, but not as we would hear it, - filtered through the organs and fluids, thus with all the high frequencies intact, but the low frequencies filtered out.</p>	<p>Bérard does not directly dispute this but it does not impact on his approach.</p>
<p>When the baby is born, the fluid is still in his ear canals, and he recognises his mothers voice again, but still with the low frequencies somewhat filtered out. So this is his basis of infant-mother bonding. On the 7 to 10<sup>th</sup> day the fluid drains. Now he 'discovers' his mothers voice, but through the medium of air.. thus with all the frequencies intact. This is 'sonic birth'</p>	<p>As above</p>
<p>The infant develops close to the mother, and discovers 'motherese'... that kind of talk between a mother and a little baby. This is not very well-organise, it is left-hemispherical. So Tomatis talks of the 'mother ear' being the left ear, linking to the right hemisphere.</p>	<p>As above</p>
<p>In order to be ready to meet the world and succeed, the child must become more organised. He must improve his language to be understood by his teachers, outsiders, etc... this he achieves by having to make himself understood to his father. In order to do this, he must be more neurologically skilled, so he develops to a higher level of organisation... namely right sided dominance (ear hand, foot, mouth etc), or left hemisphere dominant... with the optimal organisation being dominant right ear / eye/mouth / nose / hand / foot / etc...</p>	<p>Bérard does not develop this notion of the <i>father</i> vs the <i>mother</i> ear.</p> <p>He resists laying any kind of 'blame' onto the parents, and does not hold an emotional or psycho-analytic approach to the origin of developmental disorders... but he takes a more mechanical approach to the role of the ear and of the developmental disorders.</p>

<p>So the right ear is the 'father ear'. The left-handed person , he says, is not as optimally organised, as with the ambidextrous person, or the person with mixed laterality.</p> <p>This he says is due to a problem with bonding with the father, which may in severe cases go back to poor bonding with the mother, even in utero.</p>	<p>Bérard discusses laterality and mixed laterality as representing inefficient neurological organisation,</p> <p>but does not link it to maternal or paternal bonding.</p>
<p>He makes this the cause of Dyslexia, of Autism and language disorders.</p>	<p>Bérard discusses inefficient neurological organisation (as in mixed laterality or right-hemispherical laterality ) as a fundamental to Dyslexia and other developmental difficulties.</p>
	<p>Bérard gives a more important role to <i>painful hearing</i> in the development of Autism .</p>
	<p>Bérard says that when a person's ear is out of 'tune', the middle-ear muscles over-contract continuously to protect the ear from the sound which is perceived to be too-loud. The two muscles of the ossicular chain become frozen in this 'blocked' position, but since they are in spasm they cause pain, which to Bérard is the pain of painful hearing.</p>
	<p>Hearing being 'out of tune' can be demonstrated by doing a listening test on audiogram-layout to discover whether there are certain frequencies which are heard more acutely than its neighbouring frequencies. These are called '<i>peaks</i>'.</p>
	<p>If there are peaks of a particular configuration, these can be so disruptive to the person's well-being that it can lead to severe mood disturbances and psychological problems , possibly as a result of the stress of hearing continually through this distorted hearing system.</p>

	Bérard says it is important to also discover through a listening test which frequencies have a more sensitive threshold, as seen by the graph in the minus dB ranges, even up to -20 dB. This would denote the probability of painful hearing.
<b>THERAPY GOALS</b>	
Through bathing, immersing the auditory system in 100 hours of 'mother-womb-sound', several times a year (e.g. 4 times) , one <u>regresses</u> the person with the disorder back to that uterine state where (the theory is) he was better integrated, at ease and functional.	Through intensive listening to music with rapidly and random alternating of high-low filters, to cause an 'aerobic ' workout of the hearing structures, the ossicles and muscles, to <u>tone</u> them and <u>relax spasms</u> that were causing painful hearing.
Then gradually through altering this mother-sound to re-introduce the 'father-sound' the low frequencies, the person is brought gently to a ' <u>sonic birth</u> ', hopefully more organised neurologically.	To establish improved left-hemispherical listening for language by giving boosted right ear stimulation
Tomatis therapy goes on to having the person himself produce sounds – chanting and reading – with auditory feedback so that his voice can begin to correct the deficient frequencies.	To <u>even the graph</u> and remove peaks of distortion and painful hearing by setting certain extra filters as indicated by the listening graph.

<b>APPLICATION OF THE MUSIC</b>	
At first Tomatis was using the mother's voice, recorded as she read or spoke to the person. The low frequencies were filtered out gradually, then a period with just the high frequencies... i.e. above 8000Hz ... then gradually bringing back the low frequencies.  During a listening session (three hours duration), there are changes in the loudness of the sound, as 'flashes'. These are less intense and	Bérard uses active, energetic music such as pop, reggae, jazz,...contemporary music. This is played through a device which filters out the low frequencies, and then the low frequencies, in random and rapid succession, providing the listener with an active sequence of 'auditory surprises' via headphones, for 30 minutes twice a day.

of less frequent occurrence than the Bérard AIT.	Through the use of a <i>variety</i> of music, and the <i>rapid high-low alternation</i> , the ear cannot anticipate the switching and this causes the 'aerobic workout' characteristic of AIT.
Mothers were not always available, able, or sometimes a wise origin in his view...so he looked to use music. This was where Mozart came to be used, since the music of Mozart is rich in frequencies above 8000Hz.	Classical music is rarely used, due to inadequate amount of the necessary sustained rhythm and volume.
Headphones are used, with a bone conductor in the headband so that the listener is using both air conduction and bone conduction listening.	High-frequency fidelity headphones are used without bone conduction.
High-quality tapes (reel to reel) were made by the Tomatis Institute and had to be bought from them alone, and played on high-quality reel-to-reel players.	CD's are played from a good-quality shuttle cd player, and are bought from a recommended list, and can include some cultural preferences and modern interest within limits.
Listeners spend three- hour sessions every day for three weeks, which make up the 100 hours of listening	Two thirty-minute sessions per day for ten days, possibly with a break after the first 5 days for a weekend. This totals 10 hours of listening.
Listeners could sleep, relax, or were encouraged to draw during sessions. They were encouraged to draw a house, their family, and themselves throughout sessions. These drawings were interpreted psychologically to chart the emotional progress of the listener.	Listeners may not read, write or do any visually intensive activity. Bérard preferred them to sit quietly and relax.
	Reactions to the daily listening sessions are typically recorded in a booklet or 'daily log of reactions'. These are seldom of profound significance, but are useful to chart the person's personal experience of the process of the ten-day AIT.
	The benefits of AIT are usually summarised around four months after the AIT completed. Research seems

	to support that this is when the changes can be best noted.
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<b>THE HEARING TESTS</b>	
Tomatis has a special computer made which could test both ears simultaneously, where most audiometers test one channel at a time. In this way he could check the 'favoured' listening ear for each sound, and chart a graph of audiological neurological organisation.	A screening audiometer with bone conduction could be used. Each ear is tested separately for the listening curve, and 'selectivity'. The bone conductor is used to find the preferential listening ear / hemisphere for the test of laterality.
The optimum hearing graph should give an arc... somewhat low in the low frequencies, rising to 0 or near-0dB in the midrange, and slightly falling away in the high frequencies. This represents the best listening 'position' of the ear.	The optimum hearing graph should be a straight line as close as possible to the 0dB line... ideally between 0 and 10 dB. (This is in line with mainstream paediatric audiological thinking... <i>Northern and Downs, Katz, etc.</i> )
Deviations from this are interpreted psychodynamically... i.e. Tomatis reads the graphs for indication of health and emotional issues, e.g. backache, gut disorders, headaches, etc... and depression, allergies, anxiety, anger, etc...	Deviations are interpreted according to the 'peaks' in the graph in each ear individually. Definition of significant peaks varies, and Berard did change his mind from time to time. Opinion differs amongst practitioners, but certain peak combinations were linked by Bérard to depression, suicidal tendency, or addictive personality.
	Depending on the peaks found in the listening test, additional settings could be adjusted for filters during AIT listening sessions to filter out troublesome peaks.
<i>The listening sessions may include favouring the right ear, this is unclear.</i>	As the sessions progress, the right or left ear might be boosted to enhance development in that ear... e.g. for dyslexia or stutterers, children with autism... these are given more right ear stimulation to develop the language listening centres in the left (language) areas of the brain.



<b>CLAIMED OUTCOMES</b>	
Supposedly improved bonding, social skills, and ease with language.	Improved Social skills and pragmatic behaviours.
The ear can be tuned for language learning to the sound types of that specific language.	Improved receptive skills for listening, language and learning.
Improved integration and improved learning.	Improved integration and learning, focus and attention
	Improved cognitive functions
Results are seen during sessions as the listener 'regresses' and then should be seen as the experience 'sonic birth'.	Results are seen within the commencement of sessions and continuing until even 6 months after the ten-day AIT.
Repeats are done quarterly.	Repeats only after 6 to 9 months, depending on severity.
Emergence from Dyslexia, Autism, and improvements in a range of developmental disorders, and also attention and focus.	Improvements in developmental disorders, recovery from painful hearing.
	<i>AUTHORS NOTE:</i> while emergence from Autism and developmental disorders is not promised as an outcome, there are many documented instances of such occurrences.

## COMMENTS

A comparison of researched outcomes for both the Tomatis approach and Bérard AIT is to be found elsewhere:  
<http://www.filteredsoundtraining.net/pages/home/about-ait/comparing-tomatis-with-berard.php>

I would like to add one further comment, that is to say that the approach of **Tomatis** is based on the premise that the infant is safe, contented and well 'in utero', and that it is when there is some disruption of this sense of security 'in utero' or during or shortly after the birthing process that developmental problems such as Dyslexia occur. Therefore the therapy aims to re-established this uterine auditory-wellness connection by bathing the auditory system in 'womb-sound' to restore the person to a state of wellness.

However, this is probably a mistaken premise. The infant is not necessarily so safe and well 'in utero'. Researchers have demonstrated that the brains of people with Dyslexia and Autism are *structurally* different from normal learners, not only *functionally* different. (Galaburda, Baumann).

The kinds of cell differences found in their brains are likely to have occurred within the first trimester of pregnancy, often before the mother even knew she was carrying the baby! So to 'regress' that person to their uterine state is hardly likely to lead to improved function.

Tomatis was undoubtedly the greatest mind who contributed to the understanding of the hearing system, the ear and its role in development in its dual roles of hearing and balance. Mainstream medicine and audiology and occupation therapy still lag in their full appreciation of the breakthrough of understanding that Tomatis introduced. This tardiness in appreciation of his work does a disservice to the clients whose progress could be accelerated, had the professionals a clearer idea of the issues in play.

However, in applying his concepts to the development of an effective 'therapy', **Tomatis** was hampered by his fundamental philosophy, coloured as it was by the psycho-analytical orientation of his culture and his time. Even in the present day the chief approach to Dyslexia, Autism and ADD in Europe is as to an emotional disorder.

The *breakthrough* that **Bérard** brought was of the 'nuts and bolts', practical kind. He found the *effective* way to apply the essences of the auditory approach, to intensify the filtering process and alternation, change the music, and approach the task as *one of exercise and mechanical 'therapy'*. In so doing, he created an auditory training protocol of simplicity and efficacy that delivers the outcomes that Tomatis promised but did not produce.

The advantage of this is that it is economical in terms of time spent, which impacts directly on the costs to parents and availability of assistance to the ones needing it.