The Tomatis Method for Auditory Retraining

What claims does the company make / what does the programme target?

On its website Tomatis (n.d.-b) claims its product "operates on the plasticity of the neural circuits involved in the decoding and analysis of sounds, as well as on those involved in motricity, balance, and coordination. As such, the Tomatis® Method can help children develop compensatory strategies to deal with and manage their learning difficulties and language disorders. The Tomatis® Method does not eliminate these problems altogether, but at least helps the person manage them better and thus effectively overcome them."

More specifically, Tomatis (n.d.-b) claims its product can improve:

- attention disorders, by improving selective attention;
- emotional disorders and stress, by acting on the prefrontal cortex, limbic system and cochlea;
- communication disorders;
- psychomotor difficulties, by improving function of the vestibule;
- pervasive developmental disorders, by improving functioning of mirror neurons; and
- one's ability to learn a foreign language, the voice and musicality generally, foetal development, and one's overall personal development and well-being.

Note, however, that Tomatis himself (1991, discussed in Neysmith-Roy, 2001) disclaimed that the Tomatis method could only appreciably improve the quality of life for approximately 60% of children with autism, and that it should not be marketed as a cure.

Tomatis is not entirely clear about the neural correlates of any improvements brought about by its programme. Gerritsen (2009) suggests that improvements may be due to increased myelination of neurons in auditory circuits improving their speed of conduction and processing, and to some kind of increased sensory integration or balance between sympathetic and para-sympathetic nervous systems.

Evidence for efficacy:

A number of studies are provided in support of the efficacy of the Tomatis intervention (Gerritsen, 2009; Tomatis Association, n.d.; Tomatis Developpement SA, n.d.-c;) in various clinical populations. Unfortunately, many of these are older unpublished theses or conference papers which were not readily available to us. Reported below is the available peer-reviewed research on the Tomatis programme, some of which (e.g., the Gilmor, 1999 meta-analysis) describes or analyses the unpublished data.

Gillis & Sidlauskas (1978):

Group: ten dyslexic children (mean age 8.1 years; 9 males).
Method: pre-treatment/post-treatment score comparison.

This study, published in *Neuropsychologia*, involved comparing the total number of words ten dyslexic children could read in five minute periods under various auditory feedback conditions, brought about using Tomatis equipment to modulate ear laterality and frequency. The conditions were:

Condition	Auditory Feedback to Right Ear (%)	Auditory Feedback to Left Ear (%)	Electronic Ear Frequency Modification
R + F	100	10	Yes
R	100	10	No
F	100	100	Yes
C	100	100	No

Testing was conducted twice weekly over a four-month period. On each testing occasion the children's reading was recorded under all four conditions, randomly ordered using a computer-generated schedule.

The researchers found a significant main effect for condition, with analysis using Scheffe's test revealing a significant difference ($p < 0.01$) between the right ear only (R) and control condition (C). They concluded that these results supported the theory that dyslexic children show abnormal auditory lateralisation and fail to make use of a 'right ear advantage'.

Limitations: this study does not provide strong support for or against the efficacy of the Tomatis method itself because although Tomatis equipment was used, what was being assessed was not closely in line with standard Tomatis theory or therapy. Further the fact there was no statistically significant difference between the R & F, R and F groups points away from the supposed importance of the Electronic Ear's frequency modulation. Note also the small sample size.

Gilmor (1999):

Group: children with learning and communication disorders.

Method: meta-analysis.

This meta-analysis, published in the *International Journal of Listening*, included data from five studies (some of which were unpublished, e.g. doctoral dissertations) investigating the efficacy of Tomatis Method procedures. These were (with some information from the unpublished studies filled in from the review of Gerritsen, 2009):

Study & Group	Methods	Key Findings
Gilmor (1984) An internal study conducted at the Tomatis Centre in Toronto. Group: 102 children (6 to 14 years).	Compared pre-treatment and post-treatment scores for tests of aptitude, achievement, and adjustment. *Limitations: no control group; not independent.*	Apparently supported improvements in learning and communication skills and general adjustment, although the original study is not readily accessible and is not well reported in the meta-analysis.

Rourke and Russell (1982) Group: 25 learning disabled children (9 to 14 years).	Participants allocated to either a Tomatis treatment (16) or a control group (9) and assessed their performance on various measures of general adjustment, problem-solving, reading and hand-eye coordination quarterly for one year.	Results directionally favoured the Tomatis treatment group. Only differences in WISC Full Scale and Performance IQ scores, the Personality Inventory for Children's adjustment score, the Wide Range Achievement Test (WRAT) standard score, and the Grooved Pegboard Test (GPT) score for the dominant hand were statistically significant.
Wilson, Iacoviello, Metlay, Risucci, Rosati, and Palmaccio (1982) Group: 26 language-impaired preschool children.	Participants allocated to either a Tomatis treatment (18) or a control group (8). The Tomatis treatment group received Tomatis therapy *and* the standard Wilson remedial programme, while the control group received only the standard Wilson remedial programme. After 9 months the researchers compared their auditory processing skills (using tests of sound mimicry and auditory closure) as well as parent and teacher ratings of their general communication ability.	Results (parent/teacher ratings, sound mimicry and auditory closure) directionally favoured the Tomatis treatment group. Only the difference in sound mimicry was statistically significant, although differences between the groups' parent/teacher ratings approached significance.
Mould (1985); Gilmor and Mould (1994) Group: 47 severely dyslexic boys (10 to 15 years).	Researchers conducted two related studies at Brickwall House, a publicly funded boarding school in East Sussex in England. Study 1: 23 severely dyslexic boys allocated to ether a Tomatis treatment group (12) or a control group (11). The treatment group missed 100 hours of normal class over six months to undertake Tomatis therapy while the control group remained in class as usual. Every six months for two years thereafter the boys were assessed using WRAT reading and spelling scores. Study 2: same design as Study 1, except that there were 12 boys in each of the Tomatis treatment and control groups, and the boys were additionally assessed on the Neale Analysis of Reading Ability's accuracy and comprehension scores, the British Picture Vocabulary Scale (BPVS) measure of receptive vocabulary, as well as a measure of verbal fluency.	Study 1: after two years, the Tomatis group showed statistically significantly improvements over the control group on their WRAT reading and spelling scores. Study 2: the Tomatis group improved more than the control group on all measures (WRAT reading and spelling, Neale accuracy and comprehension, BPVS, and verbal fluency) but improvements were only statistically significant for the BPVS and verbal fluency measure.

Kershner (1986); Kershner, Cummings, Clarke, Hadfield, and Kershner (1990) Group: 32 learning disabled children (8 to 14 years).	Students from a privately funded school for students with learning disabilities (whose usual curriculum was based on the Orton-Gillingham approach) were allocated to either a Tomatis treatment (16) or a control group (16). The treatment group were withdrawn from class for six hours per week for Tomatis therapy, up to 100 hours in total. Unlike other studies in this analysis, the control group was an active control. Students in this group were withdrawn for 80 minutes per week, and participated in audio-vocal feedback exercises somewhat similar to those found in Tomatis therapy (although sounds were amplified, they were not filtered, and no bone conductor was used). The control group — but not the treatment group — also received auditory memory training, relaxation training, and individualised reading training. The researchers collected academic and linguistic data (WISC-R, WRAT, Test of Written Language [TOWL], Verbal Fluency, Auditory Closure and Phoneme Blending, Coopersmith Self-Esteem Inventory [SEI]) for both groups over 20 months.	Both the treatment and control groups improved significantly from baseline to post-intervention testing on most measures. However, even though most results directionally favoured the Tomatis treatment group, there was no statistically significant advantage for the treatment group over the control group. The exception to this pattern was the Seashore Rhythm test, which is a test of auditory discrimination where students must distinguish between two rhythmic patterns presented sequentially. The control group performed significantly better than the treatment group on this measure at two-year follow up.

Gilmor argues that (due to there being few statistically significant findings, relatively small sample sizes, and methodological issues, particularly a lack of random assignment) on their own none of these studies provide good evidence for the effectiveness of the Tomatis' method in children learning and communication disorders. He therefore undertook a meta-analysis, assigning each outcome variable from the studies described above to one of five skill domains: auditory, cognitive, linguistic, personal and social adjustment, and psychomotor. Tomatis therapy was shown to significantly improve cognitive (d =.30), linguistic (d = .41), personal and social adjustment (d =.31) and psychomotor (d =.32) skills. Auditory processing skills were not significantly improved, however (d =.04). This due to the conflicting results from the Rourke and Russell and Wilson et al. (d = .47 and .23 respectively) and the Kershner et al. study (d = -.55).

Limitations: meta-analysis does not ameliorate the effects of poor methodology. Only one study in this meta-analysis used fully random assignment of participants to groups. Sample sizes were small, and one study did not have a control group at all.

Neysmith-Roy (2001):

Group: six severely autistic boys (4 years to 11 years).

Method: case studies of behavioural changes.

This article is published in the *South African Journal of Psychology* and details the progress of six boys diagnosed with autism using APA and WHO criteria who underwent Tomatis treatment. Each received Tomatis therapy according to an individualised programme, until either treatment was complete or parents and/or clinical staff decided to terminate it.

At completion of each *Intensive* block, two ten-minute video recordings were made of the boys' play activity. The first recording involved observation of solitary play in a room containing age-appropriate toys. The second involved play with a parent present in the same environment.

After treatment had ended, these video recordings were randomised and scored by two naïve research assistants using the Childhood Autism Rating Scale (CARS). This measure contains 15 subscales — relating to people, imitation, emotional response, body use, object use, adaptation to change, visual response, listening response, taste, smell and touch response, fear or nervousness, verbal communication, non verbal communication, activity level, consistency of intellectual response, and general impression. For each subscale, a child is rated from one to four — one denoting normal age-appropriate behaviour, two mildly abnormal behaviour, three moderately abnormal behaviour and four severely abnormal behaviour. Ratings halfway between points are acceptable as well. These are added together to produce a total CARS score. A total score of between 37 to 60 indicates severe autism, 30 to 36 mild to moderate autism, and 15 to 30 no autism.

Additionally, after each *Intensive* block, a clinical psychologist familiar with the Tomatis method interviewed each boy's parents to record behavioural changes. This data was (somewhat unfortunately) provided to the research assistants to assist in making their CARS determination (as opposed to them relying solely on the video recordings which, because of the randomisation, would not have been subject to an observer-expectancy effect).

The data were as follows:

Participant (Age Treatment Began)	**Treatment Description**	**Pre-intervention CARS Score**	**Post-intervention CARS Score**	**Notes**
A (around 5 y)	Completed treatment involving eight *intensives* over one year and nine months.	44 (Severely Autistic)	27 (Not Autistic)	Marked improvement in adaption to change, little improvement in verbal communication.
B (4 y 8 m)	Five *intensives* over one year, after which it was decided that there was insufficient progress to justify continuation of Tomatis therapy.	47 (Severely Autistic)	51 (Severely Autistic)	Use of taste, smell and touch markedly improved, but there were a number of other deteriorations – visual response markedly so.

Participant (Age Treatment Began)	Treatment Description	Pre-intervention CARS Score	Post-intervention CARS Score	Notes
C (5 y 5 m)	Completed treatment involving five *intensives* over nine months.	47 (Severely Autistic)	35 (Mildly to Moderately Autistic)	Marked improvement in the areas of relating to people, emotional response, object use, adaptation to change, visual response, listening response and nonverbal communication.
D (3 y 7 m)	Six *intensives* over nine months, after which family had to move to another province.	44 (Severely Autistic)	35 (Mildly to Moderately Autistic)	Marked improvement in adaptation to change, visual response, listening response, response to taste, smell and touch, fear or nervousness, and nonverbal communication.
E (7 y)	Withdrawn by parents following four *intensives*.	46 (Severely Autistic)	47 (Severely Autistic)	Reported that school teachers saw encouraging changes.
F (11 y)	Five *intensives* over six months, after which it was decided to terminate treatment due to a lack of any significant gains.	53 (Severely Autistic)	47 (Severely Autistic)	Some positive change in emotional response and activity level.

In summary, three out of six boys originally classified as severely autistic demonstrated noticeable overall positive changes at the end of Tomatis treatment. Participant A's post- intervention CARS score suggested he was no longer noticeably autistic, while the scores of participants C and D suggested a reduction of symptomatology post-intervention such that they could be classified as only mildly to moderately autistic. These boys were younger when the intervention took place, and changes were most noticeable in 'pre-linguistic' areas.

Limitations: changes were not observed in the remaining three boys. More broadly, it is not possible to draw any firm conclusions based on case studies like this, especially with such a small sample. It is also somewhat regrettable that the research assistants were provided with behavioural reports from parents and teachers as opposed to relying solely on the video recordings alone, which arguably would have provided a more objective measure.

Ross-Swain (2007):

Group: children with auditory processing disorder. Method: pre-treatment/post-treatment score comparison.

This study, published in the *International Journal of Listening*, assessed the efficacy of the Tomatis method in 41 children (4.3 to 19.8 years) diagnosed with auditory processing disorder. The children underwent 90 hours of Tomatis treatment divided into four blocks (fifteen days passive listening, ten days of active listening, ten days of mixed active and passive listening, then a further ten days of mixed active and passive listening, all separated by three-week breaks). They were not receiving any other therapies at the time. Ross-Swain

compared the children's pre-treatment and post-treatment scores on a number of measures, including the:

- Wide Range Achievement Test (WRAT);
- Lindamood Auditory Conceptualization Test (LACT);
- Token Test for Children (TTC), and
- Test of Auditory Perceptual Skills (TAPS).

Analysis revealed significant improvements post-treatment in all subtests of the TAPS and the TTC. No data relating to the WRAT or LACT seems to be reported.

Limitations: Ross-Swain is founder and owner of the Swain Centre which offers the Tomatis programme; unclear why data from the WRAT and LACT were not reported; no control group and so possible test–retest effects; unclear how sample was selected.

Vervoort, de Voigt, & Van den Bergh (2008):

Group: four severely neurologically impaired individuals.

Method: case studies with use of EEG.

This article, published in the *Journal of Neurotherapy*, presents four case studies to illustrate behavioural and neurological changes after Tomatis therapy. These are as follows:

Case 1: Lena

- History: retardation in psychomotor and speech development and autistic tendencies; very troubled pregnancy (including loss of amniotic fluid).
    - It is claimed that "the sound transfer of the mother's voice had been far from ideal, because of the diminished amniotic fluid and the enforced laying and resting of the mother". (pp. 41-42)
- Underwent Tomatis therapy from ages 2 to 7.
- Progress was slow at first. EEG at age 4 revealed normal θ rhythm but reduced α and βrhythm, and a weak N200 component in the AEP. Tomatis listening testing at age 5 revealed relatively good bone conduction compared with relatively poor air conduction.
- Retesting at age 7 revealed considerable improvements. The gap between bone conduction and air conduction had narrowed, speech had developed well and spatial errors had decreased. EEG revealed increased alpha activity, and increases in the amplitude of the N100, N200 and P300 components of the AEP.

Case 2: Johanna

- History: extensively retarded development — noticeably including an expressive aphasia, disturbance of observation, and lack of concentration; early birth (35 weeks) by Caesarean section; identified agenesis of the corpus callosum and some cortical atrophy; left hemisphere epileptic activity as identified by EEG. Possible diagnosis of Landau-Kleffner syndrome.
- Underwent Tomatis therapy for 2 years from age 5.
- Initial Tomatis testing suggested a gap between bone conduction and air conduction (which was weak and irregular) and distorted perception in all senses. This was said to be the cause of Johana's speech and concentration problems. EEG revealed strong δ activity and asymmetry in middle-latency AEPs, apparently indicative of language development disorder.
- Retesting at age 8 years 6 months showed more balanced bone and air conduction and more symmetrical middle-latency AEP amplitudes. Behaviourally she became more engaged, spoke better, could maintain eye contact and showed improvements in fine motor control.
- Note: Johanna was treated with medication (not specified) throughout this study.

Case 3: Francis

- History: diagnosis of autism, suffered from psychomotor retardation, hyperactivity and aggressive tendencies, did not talk; suffered from a shortage of oxygen at birth.
- Underwent intensive Tomatis therapy for 1.5 years.
- Initial testing showed a large gap between bone and air conduction with "strong and chaotic irregularities" (p. 45). Initial EEG results highlighted an asymmetry in middle-latency AEP amplitudes, showing left hemispheric dominance (like Johanna, although more severe).
- Retesting after the 1.5 years of therapy showed an improvement in the balance between Francis' bone and air conduction, although his bone conduction result was still higher than it apparently should have been. New EEG data suggested a normalisation of the middle-latency AEP asymmetry (in fact showing a stronger response on the right than the left). Behaviourally, Francis showed greater focus, alertness and speech.

Case 4: Ambroise

- History: extensive retarded development generally and was difficult to parent. Was born 1 month too early; suffered epileptic attacks from the age of 1.5 months; had suffered brain damage from a fall at age 2 including cerebral haemorrhaging affecting the frontal and left-temporal lobes.
- Began Tomatis therapy at age 2.
- Initial listening testing could not be undertaken. EEG data primarily showed abnormal δ activity and a lack of N100, N200 and P300 components.
- Retesting after six months showed "more harmony" (p. 46) in δ activity and newly developed (but still weak) N200 and P300 components. Behaviourally, Ambroise demonstrated improvements in the use of his limbs and began to babble. He also showed a reduction in epileptic tendencies (note, however, that he was on a dose of Epitomax [Topiramate]).

Limitations: the case study method does not provide credible evidence for a programme's efficacy (certainly nowhere near that of a clinical trial). In particular, given the length of time patients underwent therapy, maturational effects may account for many of the outcomes (especially those relating to theta and delta EEG activity). Also, some strange and seemingly non-scientific claims are made here, e.g. Lena's supposed improved balance between low and high frequencies is said to enable "a better coordination between body and spiritual processes, thus a more structural functioning" (p. 43) — quite what this claim means is not clear to us. Similarly, it is not clear what Ambroise's δ activity being in "more harmony" (p. 46) signifies.

Evidence against efficacy:

General comments:

Although there are a number of articles showing interesting improvements after Tomatis therapy, none convincingly shows that Tomatis therapy is more effective than placebo. There are some common methodological issues. A number of the articles where effects are seen use a case-study method (Gerritsen, 2010; Neysmith-Roy, 2001; Vervoort et al., 2008), which cannot provide convincing evidence of efficacy. Others fail to include a control group (Gillis & Sidlauskas, 1978; Gilmor, 1984; Ross-Swain, 2007), making it hard to disentangle any effect of Tomatis therapy from changes brought about by maturation and undergoing therapy generally. Where a control group is included it tends to be a no-contact control group, which cannot account for motivational/expectancy effects.

Studies where no effect of Tomatis therapy was found:

There are two reported studies of which we are aware where Tomatis therapy was tested experimentally and no effect was found. However, each has its own shortcomings which may provide alternative explanations as to why no effect was found and so they are of somewhat limited value.

The first is the *Kershner et al. (1990)* study (described above as one of the studies forming part of the Gilmor, 1999 meta-analysis) where no significant difference was found between children with learning disabilities who received Tomatis therapy and those who received a placebo treatment. Arguably, however, no difference between the groups was found primarily because the placebo — supposed to be an ineffective treatment used to control for expectancy effects — was itself quite effective (Gerritsen, 2009; Gilmor, 1999). Given that the placebo involved treatment similar to Tomatis training (amplified but unfiltered audio-vocal feedback) as well as auditory memory training, relaxation training, and individualised reading training which the Tomatis group did not receive this is not an argument that can be easily dismissed.

The second is the study of *Corbett, Shickman, & Ferrer (2008)*. This was a double-blind, placebo-controlled crossover study evaluating the efficacy of 90 hours' Tomatis therapy in 11 autistic boys. Each boy was randomly assigned to either Group 0 (placebo then treatment) or Group 1 (treatment then placebo). The placebo condition involved listening to Mozart and Gregorian chant CDs (as would be used in Tomatis treatment), but not filtering these through the electronic ear or doing any audio-vocal feedback exercises. Measures included the Autism Diagnostic Observation Schedule (Generic, ADOS-G), the Stanford-Binet Intelligence Scale (Fourth Edition, SB4), the Peabody Picture Vocabulary Test (Third Edition, PPVT-III) and the Expressive One Word Vocabulary Test (EOWVT), scored at baseline, and after the first and second rounds of treatment. ANOVA revealed no significant differences between the groups on language measures. All of the boys showed improvement over time

but this did not appear to be related to their treatment condition. The authors could not identify whether general developmental progress or some other variable was driving this improvement.

However, this study also suffers from its own limitations:

(1) A cross-over design is not appropriate given that Tomatis therapy may have a lasting or carry-over effect (Gerritsen, 2008, 2010) — i.e., it may work by laying a cognitive base which requires time and further environmental enrichment to produce behavioural changes. This may have contaminated the results for Group 1 who received Tomatis treatment first, then the placebo.

(2) In any case, the sample size was small, and so statistical power to detect an effect was low. Gerritsen (2010) goes so far as to argue that given previous data (Neysmith-Roy, 2001) had shown 40% of those with autism will not respond to Tomatis therapy, Corbett et al. should have separated responders from non- responders and analysed the data separately (although this is not necessarily a methodological suggestion we would endorse!).

(3) Some behavioural assessment data was collected but not reported — only data on language skills was reported (Gerritsen, 2008, 2009, 2010).

Gerritsen (2010) reanalysed Corbett et al.'s data as 11 case studies. Her reanalysis included the unreported data — which was data from the BASC (Behaviour Assessment System for Children, based on parents' ratings) and the VABS (Vineland Adaptive Behaviour Scales). She argues that a meaningful change in at least one measure was observed six of the 11 children. Still, the case study method does not provide the same rigor as an experimental trial. Further well-controlled experimental studies with adequate sample sizes are certainly needed.

Price:

Varies depending on provider and how many Intensives are required. Talk About Curing Autism (2003) reported the price at that time was USD 1,800 for the first (longer) intensive and 1,000 for the intensives thereafter.

What it involves:

Alfred Tomatis believed that the ear's function during foetal gestation was to "energize the developing nervous system" (Tomatis Developpement SA, n.d.-a, "Why use filtered music?"). As such, Tomatis therapy is developmental in nature, and is designed to remediate a disrupted ability to analyse sensory messages (sounds in particular). Unlike most other cognitive remediation programmes, however, Tomatis therapy focuses in particular on "two muscles located in the middle ear whose role is to enable the precise and harmonious integration of acoustic information into the inner ear, and from there to the brain" (Tomatis Colombia, n.d.) as opposed to the brain itself.

In practice, the Tomatis method involves filtering music (in most cases Mozart and Gregorian chant) and speech through a device known as an 'Electronic Ear' and then listening to this through headphones, attached to which is a 'bone conductor'. The Electronic Ear "attenuates low frequencies and amplifies higher frequencies that fall within the language area which allows the subject to gradually focus listening on the language frequencies" (Neysmith-Roy, 2001, p. 20). The bone conductor permits "the sounds to be heard through bone vibration as well as the usual air conduction" (p. 20).

There are two main types of therapy (Neysmith-Roy, 2001):

(1) *Passive*, in which the patient listens (using headphones and bone conductor) to classical music (Mozart) and recordings of their mother's voice filtered through the Electronic Ear.

(2) *Active*: in this phase, the patient repeats or reads words into a microphone, allowing their speech to be filtered through the Electronic Ear and played back to them through their headphones and bone conductor. This lets the patient hear his/her own voice with the 'correct' frequencies amplified, and gradually introduce these 'correct' frequencies into their speech (which, once treatment ends, continues to

reinforce their listening). As the programme progresses, treatment progressively focusses more on the right ear "which according to Tomatis theory and practice is better positioned to ensure good self-listening and clear articulation of vocal emission." (p. 20).

Treatment requires about 90 hours (Ross-Swain, 2007). One provider (LearningSmart, n.d.) indicates treatment takes places in blocks of 10-13 days for up to two hours each day. These are referred to as 'Intensives'. Intensives are separated by rest periods whose duration can vary between three and eight weeks (Neysmith-Roy, 2001).

Note:

There are a number of programmes which explicitly modify and incorporate components from Tomatis therapy. These include Berard's Auditory Integration Training (http://www.aithelps.com), the Integrated Listening Systems programme (http://integratedlistening.com), Joudry Sound Therapy (http://soundtherapy.com.au), Madaule's Listening Fitness (LiFT) programme (http://www.listeningfitness.com), Samonas Sound Therapy (http://www.samonas.com) and The Listening Program (http://a.advancedbrain.com/tlp/the_listening_program.jsp).

The research discussed above refers only to studies using Tomatis equipment/procedures. For a review of Berard's Auditory Integration Training — which is more popular than Tomatis therapy in the United States — see the American Speech-Language-Hearing Association's (2004) Technical Report, where its inclusion as a mainstream treatment for communication, behavioural, emotional, and learning disorders is rejected. For a review of Auditory Integration Training as it relates specifically to autism spectrum disorders, see the Cochrane review (Sinha, Silove, Hayen, & Williams, 2011). Finally, for a comparison of the contents of some of the Tomatis offshoots, see Thompson & Andrews (1999).

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Website / for more information see:

http://www.tomatis.com/ and http://www.tomatisassociation.org/.