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The Tomatis Method for Neurostimulation: A Narrative Review

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Abstract:

Background: The Tomatis Method is a sound-based neurostimulation approach that uses electronically modified auditory stimulation to influence auditory processing, neural plasticity, and cognitive functioning. It has been investigated in several clinical conditions, including autism spectrum disorder, auditory processing disorders, and insomnia. **Objective:** To review the foundational principles, proposed neurobiological mechanisms, clinical applications, and reported effectiveness of the Tomatis Method as an auditory-based neurostimulation intervention. **Methodology:** A narrative review was conducted by synthesizing available literature on the Tomatis Method and related auditory training approaches. The reviewed literature addressed the method's technological foundations, frequency modulation, auditory cortical plasticity, and clinical applications across different populations. Findings from clinical studies, reviews, and related investigations were narratively summarized. **Results:** The reviewed literature suggests that the Tomatis Method may influence auditory processing and neural plasticity through electronically filtered sound delivered using air and bone conduction. Reported applications include autism spectrum disorder, auditory processing disorders, and perimenopausal insomnia. A study of active listening training reported changes in auditory evoked responses and improvements in auditory thresholds. A study involving 120 perimenopausal women reported improvements in sleep quality and menopausal symptoms, with the greatest improvements in the Tomatis group. However, findings regarding autism spectrum disorder and other developmental conditions remain inconsistent, and some reviews highlight insufficient evidence to recommend auditory integration therapies as standalone treatments. **Conclusion:** The Tomatis Method demonstrates potential as a complementary auditory-based intervention, with preliminary findings suggesting benefits in auditory processing, neural plasticity, and selected clinical outcomes. Nevertheless, further well-designed randomized controlled trials with standardized protocols and outcome measures are required to establish its clinical effectiveness.

Keywords: Tomatis Method; auditory stimulation; neurostimulation; neuroplasticity; auditory processing; autism spectrum disorder.

INTRODUCTION

The Tomatis Method is a sound-based neurostimulation approach developed by French physician Alfred A. Tomatis, who received his Doctorate in Medicine from the Paris School of Medicine (Reid, 2024). Tomatis formulated a theory that many vocal problems are actually hearing problems, based on the concept that the voice cannot produce what the ear cannot hear—a principle known as "The Tomatis Effect" (Reid, 2024). The method occupies a distinctive position among auditory-based interventions, sharing similarities with Auditory Integration Training (AIT) but distinguished by its use of frequency slicing and electronic ear technology (Tian et al., 2024). This narrative review synthesizes available evidence on the Tomatis Method's mechanisms, applications, and effectiveness as a neurostimulation modality.

METHODOLOGY

A narrative review was conducted using available literature on the Tomatis Method and related auditory stimulation interventions. Relevant studies and review articles addressing neuroplasticity, auditory processing, autism spectrum disorder, auditory processing disorders, and perimenopausal insomnia were identified from the literature cited in the reviewed manuscript. The selected literature was synthesized narratively to summarize the proposed mechanisms, clinical applications, reported effectiveness, and limitations of the Tomatis.

Foundational Principles and Technology

2.1 The Electronic Ear

Central to the Tomatis Method is the "Electronic Ear" (EE), a device that utilizes bone conduction and sound filters to improve the tone of the muscles in the middle ear and sensitize the listener to missing frequencies, particularly in the high registers (Reid, 2024). Tomatis theorized that information coming from the fetal ear stimulates and guides the development of the brain (Reid, 2024). The innovation of the Tomatis Method in contrast to other music therapies lies in its use of electronic ear technology to modulate sound frequencies, activating the vestibulo-cerebral system through both air and bone conduction, with the possible effect of promoting neuroplasticity (Tian et al., 2024).

2.2 Frequency Modulation and Auditory Stimulation

The method employs alternating high-frequency (stimulating) and low-frequency (relaxing) sound waves to modulate the nervous system and enhance neural plasticity Chen & Yang (2026). The stimulation parameters are adapted according to individual neuro-auditory profiles (Schneider et al., 2022). The similarity between the Tomatis Method and related approaches such as AIT and the Samonas method is that each involves listening to electronically modified music through headphones for a specific period; however, each method adapts its own music and sound, customized based on the patient's condition and severity Shahrudin et al. (2022).

3. Neurobiological Mechanisms

3.1 Neural Pathways and Brain Activation

The therapeutic mechanism of Tomatis therapy operates through three primary pathways: first, processed audio frequencies stimulate the limbic system by activating emotional, memory, and learning centres in the brain's core regions; second, high-frequency sounds induce cochlear charging that enhances cortical activity, particularly in the prefrontal cortex and limbic system, thereby improving neural efficiency during auditory working memory processing Chen & Yang (2026). Furthermore, Tomatis training influences the prefrontal cortex and limbic system via auditory pathways, and by alternating between high and low frequencies, it promotes alternating states of brain tissue excitation and relaxation Chen & Yang (2026).

3.2 Neuroplasticity

The Tomatis Method's capacity to induce neuroplastic changes is supported by research on active listening training paradigms derived from Tomatis's concepts. Schneider et al. (Schneider et al., 2022) conducted a study using a 2-week active listening training (AULOS) adapted to individual neuro-auditory profiles and found bilateral, but more pronounced, plastic changes in the right auditory cortex. They observed synchronization of auditory evoked P1, N1, and P2 responses and threefold larger amplitudes of the late P2 response, similar to the reported effects of musical long-term training (Schneider et al., 2022). Remarkably, after training, mean thresholds improved by 12 dB for bone conduction and by 3–4 dB for air conduction (Schneider et al., 2022). These findings indicate a strong positive influence of active listening training on neural auditory processing and perception, particularly in adolescence when the auditory system is still developing (Schneider et al., 2022).

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3.3 Auditory Processing and Cochlear Function

Regarding auditory processing, ASD-related auditory hypersensitivity hampers social information processing, but the Tomatis Method enhances cochlear frequency selectivity, aiding in capturing relevant auditory stimuli (Tian et al., 2024). Behavioral improvements may stem from the method's frequency selectivity, reshaping auditory organ-cortical feedback loops to filter interference and focus on valid information (Tian et al., 2024). The method provides an integrated auditory, speech, and cognitive training program (Tian et al., 2024).

4. Clinical Applications

4.1 Autism Spectrum Disorder

The most extensively studied application of the Tomatis Method is in autism spectrum disorder. Tian et al. (Tian et al., 2024) employed both longitudinal and cross-sectional designs and found that the experimental group showed significant improvement in symptoms after Tomatis training compared to the control group, validating the effect of Tomatis treatment for ASD-related deficits including perceptual-motor, attentional, social, and emotional issues. The longitudinal component confirmed these findings, proving Tomatis training effective in clinically treating ASD (Tian et al., 2024). Earlier work by Ross-Swain (2007), as cited in (Tian et al., 2024), discovered that Tomatis auditory stimulation enhanced auditory processing abilities in children diagnosed with ASD.

Shahrudin et al. Shahrudin et al. (2022) conducted a scoping review mapping evidence for music and sound-based interventions in ASD, identifying studies on the Tomatis Method among 39 included studies. Their review highlighted

that the Tomatis Method has been applied to address various clinical characteristics in ASD, though they noted the need for further studies to identify the effectiveness of sound-therapy interventions according to individual sound types and minimum duration requirements Shahrudin et al. (2022).

The evidence base for auditory integration therapies, including the Tomatis Method, has been characterized as having a lack of current evidence for efficacy in some reviews. Zhukova et al. (Zhukova et al., 2020) classified auditory integration therapies—including the Tomatis Method—as methods that "should not be recommended as alternative treatments and can only be used as complementary to ABA-based interventions," noting that the rationale for these therapies is to ameliorate auditory processing deficits typical of individuals with ASD (Zhukova et al., 2020). This represents an important point of nuance, as the positive findings reported by Tian et al. (Tian et al., 2024) contrast with the more cautious stance adopted by Zhukova et al. (Zhukova et al., 2020).

4.2 Auditory Processing Disorders

The Tomatis Method has been applied in the rehabilitation of central auditory processing disorders (APD) in children. Konopka et al. (Konopka et al., 2024) described Tomatis therapy as utilizing sound-based techniques to retrain the brain's auditory processing abilities, revolving around the use of carefully filtered music and sounds to target specific frequencies, aiming to stimulate and enhance the auditory system (Konopka et al., 2024). The Integrated Listening System (iLS), an auditory training developed based on Alfred Tomatis's method, employs a portable auditory therapy device and a balance and coordination program (Konopka et al., 2024). The Tomatis Method is listed alongside other auditory training approaches including the Johansen method, the Warnke method, Neuroflow, and Fast ForWord therapy (Konopka et al., 2024), (Kocyła-Łukasiewicz, 2020).

4.3 Insomnia in Perimenopausal Women

Chen and Yang Chen & Yang (2026) explored the effect of Tomatis music therapy in improving perimenopausal insomnia in 120 patients divided into three groups. Following treatment, a significant reduction in Pittsburgh Sleep Quality Index scores was found in all groups compared with baseline, with the greatest improvement observed in the Tomatis group ($P < 0.001$) Chen & Yang (2026). Similarly, the Spiegel Sleep Inventory scores, modified Kupperman scale scores, and Menopause Rating Scale scores all showed the most pronounced improvements in the Tomatis group ($P < 0.001$) Chen & Yang (2026). The authors concluded that Tomatis sound therapy is associated with improved sleep quality, relief from menopausal symptoms, and enhanced overall well-being Chen & Yang (2026). The mechanism was attributed to the method's capacity to mitigate physical fatigue, counteract stress-related physiological effects, and engage specific auditory and neural pathways Chen & Yang (2026).

4.4 Other Applications

Tomatis used Mozart's compositions in his attempts to remediate various disorders, such as learning disabilities, dyslexia, and attentional deficits, as he thought that the wide range of frequencies, intensities, and beats present in the music could improve performance in auditory processing tasks (Valenti & Atlante, 2024). Sound therapy more broadly, including Tomatis-related approaches, has been tested in children with various conditions including developmental delays, ADHD, and neurological disabilities, with generally positive outcomes reported, though more large-scale and properly designed comparative studies are needed Shahid (2021).

5. Relationship to Other Auditory Training Methods

The Tomatis Method exists within a broader ecosystem of auditory training approaches. Auditory integration therapies include AIT, the Tomatis Method, and Samonas sound therapy, all involving listening to electronically modulated presentations of voice, classical music, or brain activity delivered over headphones (Zhukova et al., 2020). The Johansen Individualised Auditory Stimulation (JIAS) method was designed drawing on the experiences and achievements of both Christian A. Volf and A. Tomatis, with its assumptions stemming from the theory of brain plasticity (Kocyła-Łukasiewicz, 2020). Systematic studies on the short-term plasticity of the auditory system in

response to the active listening concept of Tomatis have historically been scarce (Schneider et al., 2022), though recent work has begun to address this gap.

Limitations and Future Directions

Several limitations characterize the current evidence base. The scoping review by Shahrudin et al. Shahrudin et al. (2022) demonstrated the need for further studies addressing the effectiveness of sound-therapy interventions for ASD according to individual sound types, minimum duration requirements, and more details on the use of technology. Shahid Shahid (2021) noted that studies on the use of sound therapy in children are limited and of poor design, calling for more large-scale and properly designed comparative studies before sound therapy could be incorporated into the therapeutic armamentarium. The disagreement between studies reporting positive outcomes (Tian et al., 2024), Chen & Yang (2026) and reviews urging caution due to insufficient evidence (Zhukova et al., 2020) underscores the need for rigorous randomized controlled trials with larger sample sizes and standardized outcome measures.

Discussion

The reviewed literature suggests that the Tomatis Method may improve auditory processing and promote neural plasticity through electronically modified sound stimulation. Studies have reported potential benefits in autism spectrum disorder, auditory processing, and perimenopausal insomnia. Schneider et al. (2022) reported changes in auditory cortical responses following active listening training, while Chen and Yang (2026) reported improvements in sleep quality and menopausal symptoms. However, evidence regarding clinical effectiveness remains inconsistent, and some reviews highlight insufficient evidence to support its use as a standalone treatment. Further well-designed randomized controlled trials are required to establish its effectiveness and determine standardized treatment protocols.

CONCLUSION

The Tomatis Method represents a distinctive neurostimulation approach that leverages frequency-modulated auditory input through electronic ear technology to promote neuroplasticity and improve auditory processing. Evidence suggests potential benefits across multiple clinical domains, including ASD (Tian et al., 2024), auditory processing disorders (Konopka et al., 2024), and insomnia Chen & Yang (2026), with neurophysiological evidence supporting its capacity to induce short-term auditory cortical plasticity (Schneider et al., 2022). However, the evidence base remains limited, and there is notable disagreement regarding the strength of evidence for its efficacy (Zhukova et al., 2020). The method's neurobiological mechanisms—operating through limbic system activation, cochlear charging, and prefrontal cortex modulation Chen & Yang (2026)—provide a plausible theoretical framework, but further well-designed clinical trials are essential to establish its place in evidence-based neurostimulation practice.

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