Katarzyna Suberlak Sonora – Sound Therapy and Massage Studio

Sonora Sound Tube as a Universal Therapeutic Instrument

Sonora Sound Tube (Sonora) is a musical instrument belonging to the group of plucked chordophones (see Photo 1). A contemporary category of instruments known as monochords has emerged, including instruments such as sound tube, overtone tube, monochord table, sound chair / monochord chair, sound bed / monochord bed, monoktagon, and soundwave. While these instruments are directly inspired by the Pythagorean monochord, they have a row of strings of the same length and tuning, making them polycords. These instruments were developed in the late 1980s and early 1990s, a period when the first vibroacoustic therapy devices began to be used in music therapy practices. It is believed that these instruments are the result of luthiers' search for natural sources of sound waves, similar to those produced by vibroacoustic devices.



Photo 1. "Sonora Sound Tube instrument." Photo by Anna Stachurka

The *Sonora Sound Tube* is shaped like a tube, measuring 2 meters in length and 76 cm in diameter. It is equipped with a movable bench, allowing one to enter directly into the resonating body. The tube is fitted with 56 strings of equal length and tuning. The instrument is tuned to a frequency of 64 Hz, corresponding to the pitch of C in a tuning system where A = 432 Hz. The vibration generated by gently plucking the Sonora's strings travels through the bridge, resonant body and bench to the body of the person lying inside. The strings are usually plucked one after another in a continuous motion, with both hands alternating, so that the tube resonates with a continuous, steady sound. In addition to the fundamental tone, the instrument also produces harmonic overtones, amplified by the resonating body. These overtones include the major third, perfect fifth, minor seventh, octave, ninth, and tenth (corresponding to the notes C, E, G, B, C, D, E in various octaves), giving the instrument a subtle, consonant sound.



Photograph 2. Jan Rosenberg lying inside the prototype of the Sonora Sound Tube. Reproduction from the author's personal collection.

The History of the Sonora Sound Tube Instrument

The creator of the Sonora Sound Tube is Czech luthier and multi-instrumentalist Jan Rosenberg (see Photograph 2). He began developing the concept for the instrument back in the 1990s. As he recalls, when playing the guitar, he often dreamed of being inside its resonating body. He was inspired by Hans Peter Klein's monochord, which resembles a bench with strings stretched underneath, as well as a large drum he saw during a trip to Nepal. In designing the instrument, Rosenberg drew upon the mathematical and musical theories of Pythagoras. The prototype, initially named the Sonarium, was created in 1999. Shortly afterward, enhanced versions of the instrument were produced, and its name evolved several times, taking forms such as the Overtone Tube, Sonachord, and finally, the Sonora Sound Tube.

Characteristics of Sonora's Sound and Vibrations

Due to the identical tuning of all strings, it is not possible to perform a musical piece on the Sonora. The sound produced by this instrument is uniform, monotone, steady in tempo, free of complex rhythms and abrupt mood shifts, and somewhat limited in melody. Nevertheless, its richness lies in its overtones. When a single string is plucked, a range of delicate sounds beyond the fundamental bass note can be heard, spanning several higher registers. This creates a spatial sound effect stemming from the broad frequency range of overtones. This spatial impression is intensified when all strings are struck simultaneously. The repetitive bass sound, through its monotony, aids in redirecting focus inward—from the external world to inner thoughts, images, bodily sensations, and emotions. The bass note brings the entire body of the instrument into resonance, generating vibrations that spread across its parts and into the body of the person inside. This causes tissues, muscles, the skeletal system, and bodily fluids to vibrate. Physiologically, these vibrations are experienced as a gentle, pleasant massage.

Perception of Sounds and Vibrations of the Sonora

The sound of the *Sonora Sound Tube* is often associated with the primal, tribal tones of ethnic instruments such as the Aboriginal didgeridoo, Nepalese singing bowls, or the Indian sitar. However, many people also connect its sound to the voices of angelic choirs, which has strong connotations with European church music. This demonstrates that each

person perceives music differently, depending on the culture they were raised in, as well as their musical preferences, education, social music habits, personal experiences, and current emotional states. The sound of the Sonora resonates with a subculture associated with Eastern traditions, yoga, meditation, and even shamanism.

Those who use the Sonora report a profound state of physical and mental relaxation and an overall improvement in well-being after a session inside the instrument. The vast majority fall asleep during the session or describe their state as daydreaming or deep meditation. Some people eagerly share the images that appeared in their imagination during the musical journey inside the instrument. These images often relate to their daily lives, childhood memories, dreams, or traumas they have experienced. They also share sensations from various parts of their bodies and sometimes report pain relief the day after the session, as well as improved sleep quality.

Participants who have experienced a massage with the Sonora described their impressions as follows: "Calmness, peace, relaxation, bliss," "I feel much better than before. I'm relaxed yet full of energy", "Mood improvement", "An intimate atmosphere [...]", "It's hard for me to relax—but I managed to in the Sonora", "I felt cared for", "Relaxation, my headache disappeared."

The Role of the Instrument and Therapist

Therapy using the *Sonora Sound Tube* requires active participation from the therapist in playing the instrument. The quality of live music and the direct interaction between the performer and the patient, facilitated by the open side walls at the end of the tube, are significant advantages of this therapeutic approach (see Photos 3 and 4). During a session, the therapist's role also includes guiding the patient into a state of relaxation, creating a safe and comfortable space conducive to the emergence of visualizations, and encouraging the patient to share these experiences. The therapist supports the patient in working through difficult experiences and oversees the search for solutions.

Depending on the chosen technique (such as visualization in music therapy, imagery techniques, or guided visualization with music), the therapist may either direct the patient's visualizations or follow the patient's experiences as they unfold.



Photo 3. *Therapist and patient during a relaxation session using the Sonora Sound Tube. Photo by Anna Stachurka.*



Photo 4. *Patient during a relaxation session using the Sonora Sound Tube. Photo by Anna Stachurka.*

Theoretical Foundations of Using the Sonora Sound Tube in Music Therapy

Therapy using the *Sonora Sound Tube* easily aligns with the definition of music therapy provided by the World Federation of Music Therapy:

"Music therapy is the use of music and/or its elements (sound, rhythm, melody, and harmony) by a music therapist and client or group in a process designed to facilitate communication, learning, mobilization, expression, physical, emotional, intellectual, and cognitive concentration to develop inner potential and enhance or restore function so that the individual can achieve better intra- and interpersonal integration, leading to an improved quality of life."

The principle of the *Sonora Sound Tube's* operation is the use of musical elements, such as sound and its vibration, in a process planned by the therapist to achieve various mentioned goals. Another definition is provided by Kenneth Bruscia, who considers music therapy to be *"a systematic process of intervention where the therapist helps the client achieve health using musical experiences and the relationships that develop through them as dynamic forces of change."* Using this definition, therapy involving the Sonora can also be considered music therapy, as it is conducted systematically, in an individualized manner, and with a specific purpose. This purpose is achieved through the development of a therapeutic relationship with the patient and the use of musical experiences, which in the case of the Sonora, means receptive listening to music and feeling the vibration of sound throughout the body.

When seeking theoretical foundations for the use of the Sonora in music therapy, one can refer to the therapeutic approaches highlighted by Elżbieta Galińska. The most representative of these are the psychagogic, psychophysical, and psychoanalytic approaches.

- *The Psychagogic Approach*: Drawing on ancient theories of ethos and catharsis, this approach assumes that music is part of a mathematically constructed, harmonious world and cosmos. Music, having divine origins, represents the language of the soul. The patient, by listening to it, should passively submit to the influence of "acoustic-harmonic platforms," which causes them to "resonate" harmoniously. Aleks Pontvik is among the proponents of this approach.

- *The Psychophysical Approach*: This approach posits that music can influence vegetative and neurophysiological processes, such as bioelectrical activity in the brain, respiration, or pulse. Appropriately selected music will either calm or activate the vegetative functions of the body.

- *The Psychoanalytic Approach*: This approach suggests that music can reach the subconscious and influence emotions, bringing repressed material to consciousness and facilitating catharsis.

Considering Barbara Wheeler's theoretical assumptions regarding levels of therapeutic work, therapy with the Sonora would represent insight-oriented music therapy with re-educational goals or insight-oriented music therapy with reconstructive goals. The relaxing nature of the sound and vibration productions created on the Sonora is also suitable for receptive forms of music therapy.

Vibroacoustic Therapy

The operation of the *Sonora Sound Tube* aligns with the principles of vibroacoustic therapy (VA/VAT), which originated in the 1980s in Scandinavia and North America. The main creator of this therapeutic method is considered to be Olav Skille, a Norwegian educator and therapist. During a therapeutic session conducted using Skille's vibroacoustic method, the patient lies on a specially designed bed equipped with built-in speakers along its entire length. These speakers emit simple sine wave tones within the frequency range of 30–120 Hz, with the most beneficial frequencies considered to be between 40–80 Hz. The tones within the 40–60 Hz range produce the most noticeable vibrations. These vibrations directly reach the human body and spread through its tissues, muscles, and bones. Simultaneously, these vibrations are accompanied by appropriately selected relaxation music, which the patient listens to through headphones.

As Skille himself explains:

"The therapy influences the physiology of the body by reducing the activity level of the sympathetic nervous system, improving blood circulation, delivering more oxygen to various organs, and enhancing the transport of harmful substances from cells and intercellular spaces. [...] The improvement in well-being and achieving a state of relaxation are commonly reported as positive therapeutic effects."

Skille's Findings in Vibroacoustic Therapy

Olav Skille discovered certain universal principles in vibroacoustic effects:

Tone Frequencies: High tones tend to cause stress and irritation, while low tones are more pleasant, helping to achieve a state of relaxation and providing pain relief.
Music Rhythm and Tempo: The more rhythmic and faster the music, the more energizing its effect—music with a neutral rhythm and slow tempo, therefore, has a soothing effect.

3. Volume: Loud music tends to activate, while quiet music promotes calmness.

Vibroacoustic therapy received positive reviews from Alex Pontvik, who noted that even minimal vibrations have a calming effect, both physically and mentally, reducing hyperactivity. The use of bodily perceptible vibrations also facilitates shifting the patient's consciousness from the external world to the internal one. Undoubtedly, music and vibration play equally important roles in achieving a state of relaxation and complement each other.

Clinical Outcomes and Effectiveness

Preliminary data from 1989, collected over 40,000 hours of Skille's vibroacoustic therapy sessions, suggest beneficial effects in treating conditions such as autism, migraines, muscle spasms, cerebral palsy, asthma, joint and muscle pain, circulatory deficiencies, and multiple sclerosis. However, Skille himself emphasized that the therapy cannot cure diseases but can alleviate their unpleasant symptoms.

Over the 30 years since the method's inception, numerous studies have confirmed its effectiveness. Today, the medical and therapeutic communities successfully use vibroacoustic therapy to improve both the physical and mental well-being of patients. Research results cited in a 2004 article on VAT published in *Holistic Nursing Practice* show that patient groups with various ailments who underwent vibroacoustic therapy combined with relaxation music achieved significantly better outcomes in terms of well-being, pain reduction, and stress relief than control groups that received only relaxation music therapy.

Synergistic Effects

Chris Boyd-Brewer and Ruth McCaffrey argue that the therapy works synergistically on two levels—psychological and physical—causing changes in the nervous system that lead to relaxation and reduction in the perception of pain, tension, fatigue, nausea, and low mood. This effect may be related to the stimulation of Pacinian corpuscles, which are responsible for sensations of pain and itching.

Proposals for the Use of the Sonora Sound Tube in Music Therapy and Musical Relaxation

The *Sonora Sound Tube* can be employed in various therapeutic contexts. Below are a few proposed applications, although the potential uses of this instrument in broader therapy may be much more extensive.

Stress Prevention and Psychosomatic Disease Prevention

Receptive music therapy, which involves listening to music, is an effective form of relaxation that can be used to prevent stress and psychosomatic diseases. Research indicates that listening to music reduces cortisol levels, a hormone produced in response to stress. Regular practice in achieving and maintaining relaxation can prevent excessive stress responses and somatic symptoms, halt the progression of existing diseases, and aid in bodily regeneration.

Olav Skille has reported positive effects of vibroacoustic therapy on reducing stress and anxiety, with improvements in well-being noted after just one session. This is supported by studies conducted by George Patrick, who found that a session of vibroacoustic therapy, preceded by brief relaxation, helped reduce tension, fatigue, pain, depression, and nausea among patients with cancer, heart rhythm disorders, circulatory issues, mood disorders, infections, and lung diseases. Similar conclusions were drawn from research by Chris Boyd-Brewer on patients undergoing chemotherapy.

Given these findings, it is reasonable to assume that the sound and vibration produced by the *Sonora Sound Tube* could also be effectively used in stress prevention and the prevention of psychosomatic diseases. The instrument's ability to induce deep relaxation

through its unique acoustic and vibrational properties makes it a valuable tool in these areas, contributing to the overall health and well-being of individuals.

Improvement of Mood in Patients with Depression

Music therapy for individuals with mood disorders using the Sonora Sound Tube focuses on inducing a state of relaxation that alleviates muscle tension and contributes to emotional balance. Music can alter nervous system activity, which is considered the biological foundation of mood. Additionally, it activates the release of neurotransmitters linked to depression and decreases cortisol levels while increasing endorphin production.

In a state of relaxation, patients may gain insight into themselves, leading to changes in their thinking and, consequently, their behavior. Improvements in mood and well-being can enhance self-esteem, reduce self-criticism and negativity toward the world, and positively influence the perceived quality of life. The sound productions created with the Sonora, characterized by their gentle, consonant tones, steady structure, slow tempo, and hint of melancholy, align with the "iso principle" and can be effectively used for patients experiencing low mood. This approach helps to resonate with the patient's current emotional state, gradually guiding them toward a more positive and balanced emotional outlook.

Supporting the Treatment of Patients with Mental Disorders

Music therapy using the *Sonora Sound Tube* for patients with neuroses, who experience intense anxiety and numerous accompanying somatic symptoms, will primarily focus on relaxation, mood improvement, and anxiety reduction. Due to the unique characteristics of the *Sonora Sound Tube*, a specific form of receptive music therapy known as "musical feeding" is particularly relevant for individuals with mental disorders. This method involves prolonged, continuous listening to calming music, usually in triple meter and lullaby-like rhythms, flowing gently without dynamic contrasts—resembling the nurturing experience of a mother feeding her infant.

This therapeutic approach is connected to the early stages of human development, where attitudes toward the world, others, and oneself are formed. The goal of such therapy is to allow patients to re-experience the mother-child bond, address any deficits in maternal affection, and rebuild a sense of security and trust in their environment. Through

verbalizing their experiences, patients learn to manage stress, and music helps alleviate the psychological tensions caused by psychotic symptoms.

The *Sonora Sound Tube's* smooth, consistent tones and the immersive experience of being inside the instrument create a sensation of being enveloped in sound within a warm, secure space, akin to the feeling of being in the womb. The soundscapes produced by the Sonora can also serve as a basis for applying projection and visualization techniques, where patients project their emotional states onto the music, allowing them to externalize their thoughts, experiences, and inner conflicts.

This process can lead to catharsis, helping patients purge conflicting emotions and restore a sense of inner harmony. Music, as an embodiment of order and structure, assists individuals with mental disorders in regaining a feeling of balance and well-being. By facilitating this emotional release and reconciliation, the *Sonora Sound Tube* becomes a powerful tool in the therapeutic journey of those struggling with mental health challenges.

Cardiac Rehabilitation

In cardiac rehabilitation, the *Sonora Sound Tube* can be utilized to help patients relax, calm their minds, and experience positive emotions. This is especially beneficial for individuals facing a new, often anxiety-inducing situation, who may also be dealing with depression. The sense of care and support that such sessions provide is crucial for their emotional well-being. Additionally, Sonora sessions may produce beneficial effects for those suffering from circulatory deficiencies.

Pilot studies have shown that vibroacoustic therapy can have long-lasting effects in regulating blood pressure and improving circulation, particularly in elderly patients. Research by George Patrick and Chris Boyd-Brewer confirmed the impact of vibration on blood circulation, heart function, and reducing tension, as well as enhancing overall well-being. Studies on the influence of multidirectional mechanical vibrations on peripheral circulation in humans have also reported improvements in local blood flow in muscles.

Further evidence of the effectiveness of vibration therapy in treating circulatory disorders comes from studies on individuals with type 2 diabetes. These studies observed increased blood flow in arteries, a rise in average blood velocity, and a related reduction in

abdominal and waist fat tissue. This suggests that the *Sonora Sound Tube* can be a valuable tool in cardiac rehabilitation, contributing not only to physical improvements but also to the emotional and psychological support that is vital in the recovery process.

Improving Functioning in Patients with Disabilities

The application of vibroacoustic therapy in individuals with spastic muscular paralysis, cerebral palsy, Parkinson's disease, and multiple sclerosis has been discussed by Skille as early as 1989. The positive impact of vibration on reducing muscle tension has been confirmed by various observations and studies, including those conducted by Olav Skille, Tony Wigram, Anthony Lewis Wigram, Ana Katušić, Vlatka Mejaški-Bošnjak, and researchers publishing in the *"Journal of Neurological Sciences."* Among patients with Parkinson's disease, improvements in motor function and better everyday functioning have been observed. Given that the vibration produced by the *Sonora Sound Tube* falls within the frequency range used in vibroacoustic therapy, it can be assumed that this instrument may also help reduce muscle spasticity in the aforementioned individuals.

Pain Relief

The effects of pain relief through vibroacoustic therapy are highlighted in studies presented in the article *"Vibroacoustic Sound Therapy Improves Pain Management and More"*, which includes research conducted on groups of patients with cancer, lung diseases, circulatory disorders, and women undergoing gynecological surgery. The studies concluded that vibroacoustic therapy alleviates postoperative pain and reduces the amount of medication needed by patients. Pain relief following vibroacoustic therapy has also been noted among patients after knee surgery, those with rheumatoid arthritis, and individuals post-cardiac surgery. Additionally, Skille recommends the use of vibration for muscle and joint pain, menstrual pain, headaches, abdominal pain and back pain.

The potential of the *Sonora Sound Tube* in these areas suggests it could be a valuable tool in both improving physical functioning and managing pain in patients with various disabilities. By combining the therapeutic effects of music and vibration, the *Sonora Sound Tube* offers a holistic approach to enhancing the quality of life for these individuals.

Combatting Insomnia

The therapeutic use of the *Sonora Sound Tube* can be beneficial for individuals struggling with insomnia. Research by Wojciech Pospiech highlights that music can aid in overcoming sleep difficulties by improving mood and energy levels upon waking. Similarly, Olav Skille's findings suggest that patients with sleep disorders often fall asleep during vibroacoustic therapy sessions and report fewer difficulties with falling asleep and longer sleep duration immediately afterward. Prolonged use of the *Sonora Sound Tube* may help individuals learn how to consciously relax different parts of their body and eliminate intrusive thoughts, ultimately alleviating insomnia.

Enhancing Quality of Life

In line with Aaron Antonovsky's salutogenesis theory, which views health as a holistic concept and emphasizes the importance of preventative actions and quality of life, the use of the *Sonora Sound Tube* in preventive music therapy can enhance human resilience. By engaging with the sound and vibrations of the Sonora, patients can evoke and recognize their emotions, leading to emotional growth and better emotional regulation. Therapeutic sessions with the instrument help reduce stress, release psychophysical tension, improve overall well-being and restore internal balance and harmony.

The *Sonora Sound Tube* also supports the development of a positive self-image and worldview, stimulates self-reflection, and encourages contemplation of the meaning of existence. Such therapeutic interactions can motivate individuals to make positive changes in their lives, contributing to an overall improvement in their quality of life.

Proposal for the Session Using the Sonora Sound Tube

A music therapy session using the Sonora Sound Tube should begin with a brief conversation with the patient to assess their psychophysical state on that day and determine if there are any contraindications for sound massage due to the patient's health conditions, such as pacemakers, prostheses, implants, high-risk pregnancies, certain mental disorders or acute psychoses. The therapist should identify the patient's issue, make a diagnosis, set goals and tailor the therapeutic plan to the specific case. The patient should be informed about the session's procedure and the instrument's operation.

It is important to ask the patient about their feelings after entering the Sonora. If the patient feels anxious about entering the instrument, the therapist may suggest starting the

first session in a comfortable position next to the instrument and encourage deeper immersion in the tube during subsequent sessions. The space where the session takes place should be quiet, softly lit and equipped with curtains to darken the room. The instrument comes with a thin mat, a blanket, a pillow and a leg roll.

Before beginning the play, the therapist may relax the patient using breathing exercises or techniques like Schultz's or Jacobson's training. They might also provide a theme for imagery relevant to the therapeutic work on the patient's issue. Therapy with the Sonora can be combined with other therapeutic techniques, such as chromotherapy, mindfulness techniques, affirmations or gentle stretching exercises.

The instrument play should be tailored to the individual patient's musical preferences and sensitivity to vibrations. The improvisation can be fast or slow, and can vary in rhythm and sound intensity. The tempo and manner of sound production determine the intensity of vibrations felt by the patient. More intense vibrations might be desirable for pain relief or reducing body tension. The therapist's sound production can be tense and relaxing or steady and monotonous. Varied play will have a more energizing effect, while calm play should lead to relaxation. Conversely, a play that is too fast, loud, or aggressive may be unpleasant for the patient and cause irritation. The therapist should avoid abrupt jerks and uncoordinated movements while playing. At the end of the session, the therapist's play should aim to calm the patient and the patient should be guided out of relaxation with a calm but firm voice. When the patient is ready to leave the instrument, the therapist should gently "pull" them out of the tube and start a conversation. This part of the session allows for sharing experiences, verbalizing imagery, or addressing revealed content. It is advisable to take notes or use questionnaires to monitor progress.

Conclusion

The *Sonora Sound Tube* is a new tool that can be used for therapeutic purposes to facilitate relaxation. The sound productions and vibrations it generates affect the autonomic functions of the body, promote mental relaxation and evoke emotions and imagery that can be further explored in therapy. However, the effectiveness of this instrument in addressing muscle tension, improving circulation, alleviating pain and anxiety, modulating mood and maintaining psychological balance has not yet been thoroughly examined.

Therefore, it is essential to conduct scientific research to assess the therapeutic benefits of the *Sonora Sound Tube* in these areas. Both scientific analysis and the expansion of clinical practice are needed, incorporating the use of this instrument into various therapeutic settings and monitoring its effectiveness. Such efforts could represent a significant advancement in the field of music therapy.

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Sonora Sound Tube as a versatile therapeutic instrument

Summary

The Sonora Sound Tube is the result of luthier experiments to invent instruments for therapeutic purposes. The use of the instrument is based on both its sound and vibration. The state of relaxation induced by music and vibration has a beneficial effect on well-being, elevates the mood, and regulates the body's vegetative functions. Music can evoke different images and help to bring out subconscious feelings in patients. The effect of the sound productions performed on the Sonora Sound Tube and of the instrument's vibrations fits in with the principles of vibroacoustic therapy and musical relaxation. On this basis, it is assumed that the instrument can be successfully used in the prevention of psychosomatic diseases, in the fight against insomnia, in cardiovascular diseases, mood disorders, and, in particular, in the reduction of excessive stress, pain, and muscular tension. The effectiveness of the Sonora Sound Tube has not yet been confirmed by clinical studies, and the aim of the article is to present the characteristics of the result of the against insormation – and to discuss its potential use in music therapy.

Keywords: musical instrument, music therapy, psychosomatics, relaxation, vibroacoustic therapy

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