



Neuro-Acoustic Sound Therapy

“The experience of sound is at the very core of human consciousness, and it can be a powerful tool for healing”, Jeffrey Thompson, DC, Founder and Director, Center for Neuroacoustic Research.

For more than 40 years, Dr. Thompson has been exploring neuro-acoustics and the therapeutic application of sound. His research has led to the development of precise protocols for using sound to modulate brainwave patterns, affect sympathetic-parasympathetic balance, and synchronize the activity of the right and left hemispheres of the brain.

Neuro-Acoustic Sound Therapy involves direct application of specific sound combinations—unique to each patient, but precise and measurable—to entrain beneficial physiologic responses. ***“It is akin to the picking of a lock on the neurophysiologic processes that the body already uses to heal itself,”*** says Dr. Thompson.

Elements of Neuro-Acoustic Sound Therapy

Primordial Sounds and Self-Awareness

Perception of sound begins in the womb, and it begins very early. At 16 weeks gestation, we become aware of vibration, and life begins to filter into us. The eardrums and the skin—sensors of vibration—are the first sense organs to become active. For a developing foetus, the intrauterine world is largely a world of sound. Sound travels 5 times more efficiently through water than through air, and a mother’s stretched abdominal wall is an ideal membrane for transmitting sound.

In many respects, it is through sound that a gestating human becomes aware of itself. In applying sound to healing, certain types of sounds, for example, the heartbeat, respiratory sounds, passage of blood through vessels, organic bodily sounds—register deeply in the human nervous system. These “primordial sounds” are immediately recognizable to any person.

Recordings of primordial sounds can be used therapeutically to access aspects of consciousness and memory to which an individual is typically unconscious.

Physical Resonance

There are two key principles underpinning Neuroacoustic Sound Therapy. Firstly, that every tissue, just like every physical object, will resonate to very specific sound frequencies. Secondly, that there are mechanisms within the nervous system that synchronize neurophysiologic functions and cycles with coherent rhythmic pulsations from the external world.

Almost everyone has seen images of a wine glass being exploded by sound. The important point in such experiments is that only a certain frequency will explode a particular wine glass. It is not only a question of volume. Every physical substance has specific frequencies at which it will become excited to a higher vibratory state.

Similar principles operate in the tissues of the body. Every organ, every bone, has a unique size, density and mass, and therefore, a unique resonant frequency. One aspect of our approach is to identify resonant frequencies of various tissues, particularly the brain and spinal column.



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Coupled Oscillation and Bio-synchronization

The principle of coupled oscillation reflects a property in all things to fall into step together. It was initially described in 1665 by Dutch physicist Christiaan Huygens. In observing the movement of pendulum clocks, Huygens found that when two similar clocks were in close proximity, their pendulums, no matter how they started swinging initially, would soon fall into a precise anti-synchrony (swinging precisely in the same rhythm, but in exactly opposite directions). This synchronized pattern of movement would emerge within a half hour and remain stable indefinitely.

The significance of Huygens' observations was not recognized for several centuries, and physicists today are still working out the mathematics to describe coupled oscillation. But the principle has been observed in the movement of subatomic particles, intergalactic nebulae, and on all scales in between, including biological systems.

On the biological plane, the principle is known as bio-synchronization. Examples include circadian rhythms governing metabolism, synchronization of menstrual cycles among women who live closely together, and movements of fish schools and flocks of migratory birds. Essentially, it is about saving energy: when part of a coherent group momentum, an individual conserves energy.

Sound is one of the most powerful means of entraining brainwave patterns. Brainwaves will time themselves to external sound pulses if those pulses are at specific brainwave speeds.

Binaural Beats and Hemispheric Synchronization

In 1973, Dr. Gerald Oster, a biophysicist at Mount Sinai Medical Center, New York, started a minor revolution when Scientific American published his paper called, "Auditory Beats in the Brain." Dr. Oster was exploring the neurologic implications of a phenomenon called "beating tones" or "difference tones," long recognized by musicians and physicists. Beating tones occur when two tones are closely, but not precisely tuned to one another. The difference between the frequencies of the two tones becomes audible as a pulse.

In other words, if the left ear is given a tone of 100 Hz, and the right ear is given a tone at 105 Hz, the brain will perceive a "binaural" beat of 5 Hz.

The most provocative of Dr. Oster's findings was that the brains of his subjects would entrain to these binaural pulses, producing mild alterations in consciousness. For example, binaural beats in the Delta (1 to 4 Hz) and Theta (4 to 8 Hz) brainwave ranges are associated with relaxed, meditative, and creative states and can also induce restful sleep while those in the Beta frequencies (16 to 24 Hz) have been associated with reports of increased concentration or alertness and improved memory.

Beyond just entraining brainwave patterns, Dr. Oster also found that binaural beats invariably induced synchronization of electrical activity in the right and left hemispheres, something that rarely occurs in ordinary waking consciousness. By entraining brainwaves with binaural beats using headphones, it is possible to float the brain in this state of hemispheric synchronization for prolonged periods.



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Finding Autonomic Balance

One of the most important aspects of our approach is in using sound to balance a client's autonomic nervous system (ANS) activity. We use heart rate variability (HRV) monitoring, a form of spectral analysis of cardiovascular activity, to provide an accurate assessment of autonomic function. It is now possible to assess HRV in real time allowing us to correlate changes in sympathetic and parasympathetic tone with changes in brainwave activity. For example, we often see overly stressed clients show sympathetic dominance as they are unable to relax, cannot wind down, and have difficulty sleeping. Whereas clients with clinical depression show a different pattern, characterized by high levels of both anxiety and inhibition. They usually show both high sympathetic and high parasympathetic tone, "like having your feet on the accelerator and the brake at the same time".

In working with a client, the first step is to find specific resonant frequencies that affect shifts in autonomic activity and brainwave patterning. We do this by playing a slow sound sweep, from very low to very high frequencies, while the client is lying on a specially designed sound table. The table contains transducers able to produce low-frequency sound vibrations in the range of 20-500 Hz. The sound table delivers sound not only to the ears but to the spinal column, muscles and skeletal elements as well. Bearing in mind that the entire posterior one-third of the spinal cord consists of nerve tract bundles whose sole purpose is transmission of vibrational sense data to the brainstem, cerebellum, pons, medulla, hippocampus/limbic system (emotional processing areas) and various areas of the cerebral cortex. The sound table allows us to deliver sound directly through the body, and an entirely different aspect of the nervous system is brought into play, with the possibility of a much deeper response.

There is a direct relationship between the fundamental sound frequency that causes a balancing of one's ANS and various specific brainwave states of consciousness. There are five brainwave frequencies for healing which can be calculated as octaves of a patient's fundamental healing tone. We will also at a later visit record the client's voice and incorporate that into the sound recording. We believe it is important to use a client's own voice because it is entirely unique and thoroughly innate to that person. There is something deeply recognizable about one's own voice to the unconscious mind.

After identifying the client's key frequencies, we then create a therapeutic plan using particular combinations of frequencies for physical symptoms and others for emotional work, stress reduction and sleep. In addition to the weekly clinic-based sessions and sound table work, we also give clients recordings for at-home daily entrainment practice.

Neuro-Acoustic Sound Therapy can help clients with Anxiety, Depression, PTSD, ADHD, ADD, Chronic Pain, Poor Sleep and more. Please make contact for a free consultation to discuss how we can help.

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