

Incredible Horizons

Therapeutic Music

Music for Increased Well Being

We carry two brands of Therapeutic Music-

[Hemi Sync](#)

[Sound Health](#)

There are at least three neuro-physical healing processes which may be triggered by music.

1. Music is nonverbal so can move through the brain's auditory cortex directly to the center of the limbic system. This system governs emotional experiences and basic metabolic responses such as body temperature, blood pressure and heart rate. It can help create new neuropathways in the brain, as well.
2. Music can activate the flow of stored memory and imagined material across the corpus collosum (bridge between left and right hemispheres of the brain) helping the two work in harmony. This stimulates the immune system.
3. Music can excite peptides in the brain and stimulate the production of endorphins, which are natural opiates secreted by the hypothalamus, which produces a feeling of natural euphoria, shifting mood and emotion.

Psychoacoustics is essentially the study of the perception of sound. This includes how we listen, our psychological responses, and the physiological impact of music and sound on the human nervous system. In the realm of psychoacoustics, the terms music, sound, frequency, and vibration are interchangeable. **The study of psychoacoustics dissects the listening experience.**

An important distinction is the difference between a psychological and a neurological perception. **Slightly detuned tones can cause brain waves to speed up or slow down, for instance.** Additionally, soundtracks that are filtered and gated (this is a sophisticated engineering process) create a random sonic event. It triggers an active listening response and thus tonifies the auditory mechanism, including the tiny muscles of the middle ear. As a result, sounds are perceived more accurately, and speech and communication skills improve. While a psychological response may occur with filtered and gated sounds, or detuned tones, the primary effect is physiological, or neurological, in nature.

Research on the neurological component of sound is currently attracting many to the field of psychoacoustics. A growing school of thought - based on the teachings of the French doctor Alfred Tomatis - values the examination of both neurological and psychological effects of resonance and frequencies on the human body.

Dr. Alfred Tomatis is considered the Father of Psychoacoustics. Joshua Leeds expands and confirms the theories of Dr. Tomatis with the modern addition of computerized measurement of brainwaves, heart rates, and other body pulses. **Researchers like Joshua can now document specific uses and benefits of music for the body, mind, and psyche through neuro-feedback and other computer programs.** With the ability to measure comes specificity; and then the employment of sound and music can become more precise... Music can now be symptom-specific, application-specific, and environment-specific.

In the realm of application-specific music and sound, psychoacoustically-designed soundtracks revolve around the following concepts and techniques:

- **Resonance (tone)**
- **Entrainment (rhythm)**
- **Sonic Neurotechnologies (highly specialized sound processing)**
- **Intentionality (focused application for specific benefit).**

RESONANCE & ENTRAINMENT

- All atomic matter vibrates.
- Frequency is the speed at which matter vibrates.
- The frequency of vibration creates sound (sometimes inaudible).
- Sounds can be molded into music.

Resonance can be broadly defined as "the impact of one vibration on another." Literally, it means "to send again, to echo." To resonate is to "re-sound." Something external sets something else into motion, or changes its vibratory rate. This can have many different effects some subtle and some not so.

Another fascinating and important aspect of resonance is the process of entrainment.

Entrainment, in the context of psychoacoustics, concerns changing the rate of brain waves, breaths, or heartbeats from one speed to another through exposure to external, periodic rhythms.

The most common example of entrainment is tapping your feet to the external rhythm of music. Just try keeping your foot or your head still when you are around fun, up-tempo rhythms. You will see that it is almost an involuntary motor response. However, tapping your feet or bopping your head to external rhythms is just the tip of the iceberg. While your feet might be jitterbugging, your nervous system may be getting a terrible case of the jitters!

Rhythmic entrainment is contagious: If the brain doesn't resonate with a rhythm, neither will the breath or heart rate. In this context, rhythm takes on new meanings. Not only is it entertaining, but rhythmic entrainment is a potent sonic tool as well - be it for motor function or other autonomic processes such as brainwave, heart, and breath rates. Alter one pulse (such as brain waves) with music, and the other major pulses (heart and breath) will dutifully follow.

Music alters the performance of the nervous system primarily because of entrainment.

Entrainment is the rhythmic manifestation of resonance. With entrainment, a stronger external pulse does not just activate another pulse but actually causes the latter to move out of its own resonant frequency to match it.

Understanding the interlocking concepts of resonance and entrainment enables us to grasp the way external tone and rhythm can heal or create havoc. Sound affects glass and concrete as well as brain waves, motor response, and organic cells.

SONIC NEUROTECHNOLOGIES

Representing two distinct approaches to therapeutic sound, filtration/gating (F/G) and binaural beat frequencies (BBFs) currently define the growing field of "sonic neurotechnologies." This phrase was coined by Joshua Leeds to describe the arena of sound work that depends on the precise mechanical manipulation of sound waves to bring about desired changes in the psyche and physical body.

Filtration/gating (F/G) techniques have been honed in Tomatis clinics worldwide. By gradually gating and filtering out the lower range of music (sometimes up to 8000 Hz), and then adding the frequencies back in, a retraining of the auditory processing system occurs. The effects of filtration and gating are felt on a psychological, neurodevelopmental, and physical level. The application of sound stimulation has been effective in the remediation of many neurodevelopmental issues. Children and adults with learning/attention difficulties, developmental delays, auditory processing problems, sensory integration and perceptual challenges have experienced profound improvement. **F/G is used in our The Listening Program.**

Another approach to sound processing is the field of binaural beat frequencies (BBFs). By listening through stereo headphones to slightly detuned tones (i.e., sound frequencies that differ by a prescribed number of Hz), sonic brainwave entrainment takes place. Facilitating a specific range of brainwave states may assist in arenas such as pain reduction, enhanced creativity, or accelerated learning. **BBFs are used in our light and sound unit as well as our Hemi-Sync music.**

These two sonic neurotechnologies - used separately - have roots in neurology, physiology, and psychology. They must be used carefully and wisely. **BBFS and F/G soundtracks can be powerful tools.** Consequently, proper consideration must always be afforded.

Detailed information about sonic neurotechnologies can be found in the book, *The Power of Sound*, by Joshua

Leeds. It's available through our link to Amazon.com on the home page.

SOUND STIMULATION WITH FILTRATION/GATING

In the broadest definition, sound stimulation can be defined as the excitement of the nervous system by auditory information. Sound stimulation auditory retraining narrows the focus. In this context, a precise application of electronically processed sound, through headphones, can have the effect of retraining the auditory mechanism to take in a wider spectrum of sound frequencies. An ear that cannot process tone properly is a problem of great magnitude. As discussed in previous chapters, sufficient auditory tonal processing is a prerequisite to normal auditory sequential processing.

- Auditory tonal processing (ATP) may be defined as the ability to differentiate between the tones utilized in language.
- Auditory sequential processing (ASP) is the ability to link pieces of auditory information together.

Auditory tonal processing is a basis for more complex levels of auditory sequential processing. ASP is the ability to receive, hold, process, and utilize auditory information using our short-term memory. As the foundation for short-term memory, ASP is one of the building blocks of thinking.

Sequential processing functions are fundamental to speech, language, learning, and other perceptual skills. The ability to interpret sound efficiently provides the neurological foundation for these sequential functions. Per neurodevelopmental specialist Robert J. Doman Jr., "many people who have experienced auditory processing deficits have seen their sequential functions return and/or improve when proper tonal processing is restored."

The primary sound application used in the remediation of impaired tonal processing was created by Alfred Tomatis. Further discussions cannot take place without absolute acknowledgment of his pioneering research. The current field of sound stimulation auditory retraining evolves from Tomatis's discoveries of the powerful effect of filtration and gating of sound.

In the context of auditory retraining, let's summarize these terms:

- Filtration means the removal of specific frequencies from an existing sound recording, be that the music of Mozart or a recording of a voice. Through the use of sound processing equipment, it

is possible to isolate and mute certain frequency bandwidths. With filtration, any part of the low, mid, or high end of a recording can be withdrawn and reintroduced at will. On a visual level, imagine erasing the bottom part of a picture and then eventually drawing it back in. This is filtration.

- Gating refers to the creation of a random sonic event. This is accomplished by electronically processing a soundtrack so it unexpectedly jumps between the high and low frequencies. While not always pretty to listen to, the net effect of this sound treatment is an extensive exercising of the muscles of the middle ear. The combined process of filtration and gating creates a powerful auditory workout. And for good reason! The middle ear mechanism must work very hard to translate the complexity of the "treated" incoming sound.

Music is one of many things **that can help** those with attentional difficulties. There are several good interventions, ranging from medications to non-medication treatments. **We provide the best of the alternative treatments. They have been heavily researched and have a consistent record of accomplishment in aiding their users in obtaining optimum performance. Click on the Home page button to find out the benefits of our programs.**

Parts of "**Psychoacoustics**" is excerpted from The Power of Sound, published by Healing Arts Press. (c) 2001 Joshua Leeds.



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