

Abstract Light, sound and motion as therapy for learning, behavioral and post-traumatic dysfunctions is described.

Key Words Sensory Learning, light, sound, motion, sensory integration, vestibular system, limbic brain, syntonics

The limbic center of the brain has been identified as the monitor of everyday sensory function of the body — functions such as the immune system, emotions and the ability to learn. *Sensory Learning* uses light, sound and motion to stimulate and improve the sensory functions of the brain.

Sensory Learning began in 1974, studying how to help when a child or adult is struggling with learning or behavior problems. The best path to naturally improve learning abilities is through a complete sensory experience which nurtures and enhances all sensory processes.

According to John Lee, MD:

Feelings such as anger, love, hunger or depression emanate from the limbic brain, and represent unconscious, subconscious reactions of the brain. The limbic brain is also a center for learning. Sensory systems will modify or modulate the limbic brain, e.g., certain sights and sounds elicit memories. These responses cause a change in electrical activity of centers within the limbic brain. If one has a learning impairment, it is perfectly clear that if we can optimize the tuning of the limbic brain with certain lights, sounds and motions — and when these are done properly and the limbic brain is maximally in tune — then learning will reach its maximal value. This is the focus and goal of Sensory Learning.

Children's learning begins when they process their sensory experiences — the light, sound and motion of the environment. The way these are processed — efficiently or inefficiently — determines the ability to learn.

In Sensory Learning, the motion table creates a movement like rolling over or somersaulting, at a frequency of eleven cycles per minute, stimulating the inner ear. Looking passively at the light suspended above while the table rotates creates aerobic exercises for the extrinsic eye muscles. The colored light is created with glass filters which produce specially selected frequencies (magenta, ruby, red, yellow-green, blue green and violet) based on over 60 years of research in the College of Syntonic Optometry, founded by Dr. H.R. Spitler. The modality of filtered sound, in which music is accented randomly at different frequencies, was developed over 30 years ago by Guy Berard, MD.

Treatment consists of combined light, sound and motion for 30 minutes morning and afternoon for 12 consecutive days followed by light stimulation for 20 minutes morning and afternoon for 18 more days.

Theory

The underlying theory of *syntonics* is that selected frequencies of light, introduced by way of the eyes, can affect changes throughout the nervous system, especially relating to balance between the sympathetic and parasympathetic nervous systems, and can therefore be used to treat a wide variety of conditions. One of the two main diagnostic tools used in Sensory Learning, the charting of visual fields, is a staple within syntonic practice.

Jean Ayers, OT, developed the theory of *Sensory Integration*, based on the fact that every sensory system sends information to the *reticular activating formation* (RAF) in the brain stem, and asserting that integration of all senses *working together* along with specialization of each side of the body and brain depends of the function of the RAF. This is essential for normal neurological development in infancy. A poorly functioning RAF will cause problems involving concentration, organization, self-esteem, self-control, self-confidence, academic learning ability, abstract thought and reasoning. Improvement of structure, chemistry and function of the brain stem area is achieved by *vestibular stimulation*, a movement-induced sloshing of fluid within the inner ear.

The second diagnostic tool used in Sensory Learning is the *audiogram*, which charts frequency vs. decibels for each ear. Past traumas can imprint in the ear creating negative perceptual patterns of hearing, delays in auditory response and painful hearing. The latter is especially true in autism, where snow falling on the ground may sound like breaking glass. The sound therapy is also used to assure right ear dominance (i.e., the right ear should hear before the left and at a higher decibel level), to create a direct path from the right ear to the language center in the brain.

Although motion and sound are important, it is through the progression of colors that we are able to move through the *seven levels of the brain* (Christopher Hills), thereby affecting and integrating seven associated traits: physical, social, intellectual, conceptual, intuition and imagination, thus increasing the flexibility and balance of the individual.

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