Is this the fastest way to personal performance and happiness?

It's called "Transformational Guided Imagery" or TGI. It goes WAY beyond positive thinking and just imaging. It's an electronic technology that can really mess with your mind… in the nicest POSSIBLE way, of course!

A white paper by Keith Scott-Mumby MD, MB ChB, PhD

Hey! This technology is so good and bio-friendly:

It blows away migraine and headaches!

It will double your learning speed!

Improve your memory!

Relaxes and lowers stress (living longer!)

It helps generate serotonin, the “happy” neuropeptide.

It creates feelings of well-being that can last for several days.

It can replicate the results of 30 years of meditation in just 7 minutes!

Dr. Gene W. Brockopp, in a Review of Research on Multi-Modal Sensory Stimulation with Clinical Implications and Research Proposals, 1984, said that this new brainwave technology is like a `lost and found office' for the subconscious!

Well, is it all an illusion? Hype maybe?

Not at all. There is a ton of science behind this new health breakthrough area. In this white paper, I'll share some of the science and proven benefits with you…

Transformational Guided Imagery (TGI) Technology

TGI, as it is called, has reached new heights with the New Reality NXTL System. It combines the PROVEN power of binaural beats to relax and change physiology and mental function (all for the better, of course) with flashing lights to take you down to theta brainwave levels: deep, deep relaxation, calm and well-being.

Combine that with a guiding voice to direct your thought processes along specific lines and the combined synergy of the two modalities is unbeatable. It works even for people who can't be hypnotized and is safe, it's not invasive (whereas hypnotism can be) and very enjoyable.

There is nothing to be apprehensive about. The sessions are a sheer delight!

What Can It Do For YOU?

Almost anything you want!

Over and over this new technology has been scientifically demonstrated to change physiology and your mental landscape. You can use it in whatever direction you wish:

- Weight loss
- Stress busting

- Giving up addictions
- Improved sexual prowess
- More reactivity
- Better behavior patterns
- Improved moods
- Lowering blood pressure
- Learning a language
- Busting out of study failures.
- Kids subjected to this technology can shed ADD and ADHD.
- Pain relief without drugs
- Coping with cancer and other stressful diseases

Some History

You don't need much background in this introductory paper. But it helps to know that this is not just a craze. It is a major medical breakthrough that has been decades in the making. Nothing faddy or "flash in the pan" here…

While working on the design of the pendulum clock in 1656, Dutch scientist Christian Huygens found that if he placed two unsynchronized clocks side by side on a wall, they would slowly synchronize to each other. In fact, the synchronization was so precise not even mechanical intervention could calibrate them more accurately.

A clock is a simple example of a non-biological system responding to entrainment, but the same rules apply to more complex systems such as the human brain.

In the 1940s researcher Gray Walter discovered that brainwave activity tends to **mirror** flickering light, particularly in the **alpha** and **theta** frequencies. A familiar example is the tendency to slip into a relaxed or dream-like state while gazing into a fire-the flicker rate of which often happens to fall in the alpha/theta range.

The New Reality portable accelerated learning device (NTXL) makes use of this "frequency following" effect by **combining light and sound** frequencies to **automatically** lead **brainwave** activity into **alpha and theta** states making them particularly **effective** tools for **relaxation and meditation.**

But What About The Science?

The first big step in science came with a ground-breaking paper entitled "Auditory Beats in the Brain" by Dr. Gerald Oster of Mt. Sinai Medical Center, published in the October 1973 issue of Scientific American.

Oster introduced the term binaural beats, which occurred in the brain when sounds of different frequencies were presented separately to each ear.

A “beat” is the difference between those two frequencies. Thus if one ear gets 440 cycles per second and the other ear get 444 cycles per second, the resulting beat (the difference between the two) is four beats per second.

What happens is that the entire brain then resonates at 4 cycles per second. That just happens to be theta brainwave frequency (4- 7 cycles per second) and is characteristic of deeply relaxed, trance-like states.

Good, huh?

When the brain copies an outside frequency in this way we call it "entrainment" of brain wave patterns.

Robert Monroe of the Monroe Institute of Applied Sciences was also investigating binaural beats, which he used to generate “out of body” experiences in himself and others.

In thousands of experiments, using an EEG machine to monitor subject's electrical brain wave patterns, Monroe verified that he could indeed entrain brain wave patterns using binaural beats. Most importantly, he showed that the response did not only happen in the area of the brain responsible for hearing, or only in one hemisphere or the other, but the entire brain responded in harmony, the wave forms of both hemispheres becoming identical in frequency, amplitude, phase, and coherence.

The brain response can be detected on an electro-encephalogram (EEG).

Many researchers have also verified this phenomenon. Language and speech pathologist Dr. Suzanne Evans Morris, Ph.D., says "Research supports the theory that different frequencies presented to each ear through stereo headphones...create a difference tone (or binaural beat) as the brain puts together the two tones it actually hears. Through EEG monitoring the difference tone is identified by a change in the electrical pattern produced by the brain. For example, frequencies of 200 Hz and 210 Hz produce a binaural beat frequency of 10 Hz. Monitoring of the brain's electricity (EEG) shows that the brain produces increased 10 Hz activity with equal frequency and amplitude of the wave form in both hemispheres." (2)

Many scientists working in the field have now confirmed, unequivocally, through brain-wave EEG monitoring, that binaural beats have a powerful regulatory effect.

We can turn this to an advantage by engineering suitable brain wave

frequencies. For example, Dr. Arthur Hastings, Ph.D., in a paper entitled "Tests of the Sleep Induction Technique" described the effects of subjects listening to a cassette tape specially engineered to slow the brain wave patterns from a normal waking "beta" brain wave pattern to a slower alpha pattern, then to a still slower theta pattern (the brain wave pattern of dreaming sleep), and finally to a delta pattern, the slowest of all, the brain-wave pattern of dreamless sleep.

Hastings says:

We were able to test the effects of the sleep tape on brain waves with an EEG machine through the courtesy of the researchers at the Langely-Porter Neuropsychiatric Institute, part of the University of California Medical School in San Francisco. Dr Joe Kaniya, Director of the Psychophysiology of Consciousness Laboratory, monitored the brain-wave frequencies of one subject as he listened to the sleep tape.

The chart recording showed a typical sleep onset pattern: initial alpha waves, then a slowing of the brain waves with sleep spindles, and finally a pattern of stage 2 and 3 sleep brain waves in the low theta range...the patterns in the various stages suggested that the tape was influencing the subject's state. (3)

Let’s Take A Look At Brainwave Frequencies

Beta

Highest is called beta. Generally considered to be around 15 - 20 cycles per second (let’s start calling that Hertz, so 15 – 20 Hertz). Beta is the brain rhythm in the normal wakeful state associated with thinking, conscious problem solving and active attention directed towards the outer world. You are almost certainly in the "beta state" while you are reading this.

Special note: High beta runs from 25 – 35 Hertz but at these levels, an individual, though awake and alert, would suffer increased agitation and be less and less able to relax. Too much caffeine or chronic anxiety/fear would run at high beta levels.

Not good!

Alpha

Below beta, we find alpha, at 9 - 14 Hertz. This is the gentle, relaxed, slightly introverted state that aids learning.

Creative energy begins to flow, fears vanish and you experience a liberating

sense of peace and well-being. The "alpha state" is where meditation starts and you begin to access the wealth of creativity that lies just below our conscious awareness. It is the first step towards deeper states of consciousness.

Characteristically, the individual in alpha remains aware of his her or her surroundings and can be aroused by the simple word or gesture.

Relaxation, stress relief, accelerated learning and boosting the immune system.

Alpha is the very accessible “stress-buster” condition.

Theta

Next down is theta, at 4 - 7 Hertz.

Theta is characteristic of trance and dreaming states. Real reverie. The individual is conscious but more or less oblivious to his or her surroundings. Nevertheless, he or she is conscious and can be soon aroused.

Theta means basically a meditation state.

Theta brings forward heightened sensitivity, sometimes even extra-sensory perception, visions of dreamlike imagery, creativity, and, at times, flashes of long-forgotten memories.

It can also give you a sensation of "floating", which often means extra-corporeal (out-of-body) travelling.

Theta is great for transformational imaging visualization, healing and mystical exercizes, such as meditation and deep memory recall.

We all pass through a theta sate on our passage into sleep and upon our return, when we awaken. But great things are often experienced in a theta state and we like being able to prolong it, using modern technology.

Delta

Finally, we have delta frequency, 1 - 3 Hertz. In this state the individual is asleep or unconscious. He or she would be difficult to rouse and require shaking or a loud noise to gain their attention.

Delta can be good for accelerated language learning and, surprisingly, releasing floods of growth hormone! (4) (some people pay $1,000s a month for growth hormone by injection, in an effort to beat aging).

Brain Synchronicity

As we use the new TGI machines to slow the brain wave patterns from beta to alpha to theta to delta, there is a corresponding increase in balance between the two hemispheres of the brain. This more balanced brain state is called brain synchrony, or brain synchronisation.

This balancing phenomena was noted in early EEG studies of experienced meditators in the 1970s. In deep meditative states, their brain waves shifted from the usual asymmetrical patterns, with one hemisphere dominant over the other, to a balanced state of whole-brain integration, with the same brain wave frequency throughout. As we shall see, there are various mental abilities and experiences that naturally happen in these different brain wave patterns, many of which are rather remarkable.

Robert Monroe reported that inducing brain wave patterns through the creation of binaural beats in the brain had a wide range of effects, including "focusing of attention, suggestibility, problem solving, creativity, memory, and learning...sleep induction, pain control...and enhanced learning..." (5)

Other scientists have noted that these slower brain wave patterns are accompanied by deep tranquillity, flashes of creative insight, euphoria, intensely focused attention, and enhanced learning abilities.

Dr. Lester Fehmi, director of the Princeton Biofeedback Research Institute has said that hemispheric synchronisation represents "the maximum efficiency of information transport through the whole brain" and "is correlated experientially with a union with experience, and 'into-it-ness'. Instead of feeling separate and narrow-focused, you tend to feel more into it -- that is, unified with the experience, you are the experience -- and the scope of your awareness is widened a great deal, so that you're including many more experiences at the same time. There's a whole-brain sensory integration going on, and it's as if you become less self-conscious and you function more intuitively." (6)

One of the observed effects of this type of sound-induced brain synchronisation is increased learning ability. What is now known as "super-learning" began in the late 1960s and early 1970s with the work of Bulgarian psychiatrist Georgi Lozanov. Lozanov used deep relaxation combined with synchronized rhythms in the brain to cause students to produce alpha waves. In this state, he found that students learned over five times as much information in less time per day, with greater retention. In some cases, as much as thirty times as much was learned.

The Possibilities

Many neuroscience researchers have expressed their excitement at the mind-boggling possibilities now being opened up by brain entrainment.

"It's difficult to try to responsibly convey some sense of excitement about what's going on," said UCLA neurophysiologist John Kiebeskind. "You find yourself sounding like people you don't respect. You try to be more conservative and not say such wild and intriguing things, but damn! The field is wild and intriguing. It's hard to avoid talking that way...We are at a frontier, and it's a terribly exciting time to be in this line of work."(7)

Neurochemist Candace Pert of the National Institute of Mental Health had this to say: "There's a revolution going on. There used to be two systems of knowledge: hard science „ chemistry, physics, biophysics -- on the one hand, and, on the other, a system of knowledge that included ethology, psychology and psychiatry. And now it's as if a lightning bolt had connected the two. It's all one system -- neuroscience...The present era in neuroscience is comparable to the time when Louis Pasteur first found out that germs cause disease." (8)

Michael Hutchison in his book Megabrain Power sums up this revolution in neuroscience:

...[New] breakthroughs in neuroscience and microelectronics have permitted scientists to 'map' the electrical and chemical activity of the brain in action. Scientists have used the new technology to monitor the brains of those meditators, artists, and other rare individuals who are able to enter peak domains at will and to map their brain activity during those peak states.

Their first findings were that those peak states are not mysterious and unpredictable phenomena, but are very clearly linked to very specific patterns of brain activity. These include dramatic changes in brain wave activity, hemispheric symmetry, and rapid alterations in the levels of various neurochemicals. If we could learn to produce these patterns of brain activity, they reasoned, we should be able to produce the peak states they are associated with.

...They found that by using types of mechanical stimulation, such as...precise combinations of pulsating sound waves...they could actually produce those same 'peak state' brain patterns in ordinary people... (9)

Just as we exercise our bodies to feel better and improve our physical health, stimulating the brain in this manner "exercises" the brain, bringing better mental and emotional health and increased intellectual functioning. Researcher Robert Cosgrove, Jr., Ph.D., M.D., an authority in pharmaceutics and biomedical engineering, noted that technologies that alter brain-wave patterns "with appropriately selected stimulation protocols [have] been observed by us to be an

excellent neuropathway exerciser. As such we believe it has great potential for use in promoting optimal cerebral performance...Furthermore, the long-term effects of regular use...on maintaining and improving cerebral performance throughout life and possibly delaying for decades the deterioration of the brain traditionally associated with ageing is very exciting." (10)

Accelerated Learning

Possibly one of the most exciting advances to come out of brainwave entrainment and the use of slower brain frequencies is the advanced ability to learn.

Speech-Language pathologist Suzanne Evans Morris, Ph.D. extensively describes the relationship between different brain-wave patterns and learning, as well as other related states such as concentration, problem solving, receptivity, and creativity. "Receptivity for learning is related to specific states of consciousness. Predominant brain-wave patterns are associated with different states of consciousness or awareness (Bruya 1984, Budzynski 1981, Funderburk 1977, Furman 1978, Goldberg 1983, Rama et al 1976). For example, beta frequencies ranging from 13-26 Hz are associated with concentration, and alert problem solving; alpha frequencies (8-13 Hz) occur when the eyes are closed and a state of alert relaxation is present; theta (4-7 Hz) is associated with deep relaxation with a high receptivity for new experiences and learning..." Morris also describes how cassette tapes containing binaural beat signals can be used to "create the ability to sustain this theta period of openness for learning." (11)

Morris goes on to say that "[the] introduction of theta signals...into the learning environment theoretically allows for a broader and deeper processing of the information provided by the teacher" and "increases...focus of attention and creates a mental set of open receptivity." She notes that in the use of such binaural beat signals in a classroom setting, children exhibited "improved focus of attention" and "a greater openness and enthusiasm for learning".

Morris further describes what happens in the brain that makes this type of accelerated learning so effective:

The presence of theta patterns (4-7 Hz) in the brain has been associated with states of increased receptivity for learning and reduced filtering of information by the left hemisphere. This state of awareness is available for relatively brief periods as the individual enters a state of reverie or passes in and out of the deep sleep phase of the 90 minute sleep cycle.

[Binaural beat] signals, however, can facilitate a prolonged state of theta to produce a relaxed receptivity for learning...[These signals] create a state of

coherence in the brain. Right and left hemispheres as well as subcortical areas become activated in harmony, reflected by equal frequency and amplitude of EEG patterns from both hemispheres.

This creates an internal physiological environment for learning which involves the whole brain. The linear, sequential style of problem solving preferred by the left hemisphere is brought into balance with the global, intuitive style of the right hemisphere and limbic system (subcortex). This allows the learner to have greater access to internal and external knowledge and provides a milieu for expanding intuition in problem solving. One of the by-products of hemispheric synchronisation appears to be a highly focused state of attending. The ability to reduce 'mind chatter' and focus the attention is critical for efficient learning.(12)

Binaural beat signals have been used in the classroom to enhance learning ability. Teachers in the Tacoma, Washington public schools, under the direction of psychologist Devon Edrington, used audio tapes containing a binaural beat sound technology to influence the learning ability of students. They found that students who were taught, studied, and took tests while these tapes were playing did significantly better than a control group not using the tapes. (13)

Belief Enhancer

The theta state also seems to be one where behavior and belief system changes can more easily be made, setting the path for future success. Suzanne Evans Morris discusses the work of neurotechnology and biofeedback researcher Thomas Budzynski (1981) in which he described the theta state as a transition zone between wakefulness and sleep in which one can absorb new information in an uncritical, non-analytical fashion."

Budzynski speculated that this allows new information to be considered by the right hemisphere through bypassing the critical filters of the left hemisphere. Thus, information leading to a change in self-concept would become more available; modification of habitual behaviors or consideration of one's belief system could occur more easily if alternatives were presented during a period of theta activity. (14)

Medical researcher Dr. Gene W. Brockopp also believes behavior modification is enhanced when the subject can be placed in slower, more receptive brain wave patterns. He speculates that using technology to induce brain wave changes can actively induce a state of deactivation in which the brain is passive, but not asleep; awake, but not involved with the 'clutter' of an ongoing existence. If this is true, then it may be a state in which new cognitive strategies could be designed and developed...[i]f we can help a person to experience different brain-wave states consciously through driving them with external stimulation, we may

facilitate the individuals ability to allow more variations in their functioning through breaking up patterns at the neural level. This may help them develop the ability to shift gears or 'shuttle' and move them away from habit patterns of behavior to become more flexible and creative, and to develop elegant strategies of functioning. (15)

Noted researchers Elmer and Alyce Green of the Meninger Foundation have also studied this phenomena, finding that memories experienced in a theta state "were not like going through a memory in one's mind but rather like an experience, a reliving." Those producing theta waves also had "new and valid ideas or synthesis of ideas, not primarily by deduction but springing by intuition from unconscious sources."

In their seminal book **Beyond Biofeedback**, the Greens further discussed many remarkable effects of the theta brain wave state. They found that those producing theta waves became highly creative. They had life-altering insights, what the Greens called "integrative experiences leading to feelings of psychological well-being". On psychological tests, subjects scored as being "psychologically healthier, had more social poise, were less rigid and conforming, and were more self-accepting and creative". Another remarkable effect was that these subjects became very healthy. Emotionally, these people had "improved relationships with other people as well as greater tolerance, understanding, and love of oneself and of one's world." (16)

Neuropeptides

How do these amazing mental and emotional changes take place? Many researchers believe different brain wave patterns are linked to the production in the brain of various neuropeptides associated with relaxation and stress release, increased learning and creativity, memory, and other desirable benefits. These neuropeptides include beta-endorphins, acetylcholine, vasopressin, and serotonin.

Dr. Margaret Patterson in collaboration with biochemist Dr. Ifor Capel at the Marie Curie Cancer Memorial Foundation Research Department in Surrey, England, has shown that certain frequencies in the brain dramatically speed up production of a variety of neurotransmitters, different frequencies triggering different brain chemicals. For instance, a 10 Hz (alpha) signal boosts the production and turnover rate of serotonin, a chemical messenger that increases relaxation and eases pain, while catecholamines, vital for memory and learning, respond at around 4 Hz (theta).

According to Capel, "as far as we can tell, each brain center generates impulses at a specific frequency based on the predominant neurotransmitter it secretes. In

other words, the brain's internal communication system -- its language, if you like -- is based on frequency...Presumably, when we send in waves of electrical energy at, say, 10 Hz, certain cells in the lower brain stem will respond because they normally fire within that frequency range." (17)

Dr. William Bauer, one of the foremost experts in the field of electromedicine, elaborates: "What I think is happening...is that by sending out the proper frequency, proper waveform and proper current...we tend to change the configuration of the cell membrane...Cells that are at sub-optimal levels are stimulated to 'turn on' and produce what they're supposed to produce, probably through DNA, which is stimulated through the cell membrane...You're charging the cells through a biochemical process that can possibly balance the acetylcholine or whatever neurotransmitter needs to be turned on..." (18)

The increased production of these different neuropeptides can greatly enhance memory and learning. A research team at the Veterans Administration Hospital in Palo Alto found that a group of normal human subjects, when given substances that increased acetylcholine production in the brain, showed great improvement in long-term memory, while at MIT, students taking acetylcholine enhancers had improved memory and increased ability to learn lists of words. (19)

Acetylcholine is an important neuropeptides for higher mental processes as learning and memory. Recent studies show that insufficient acetylcholine causes memory loss and reduces learning and intelligence, and confusion and memory loss in Alzheimer's disease have been linked in part to a lack of acetylcholine. (20,21)

Other studies have shown that when individuals are given substances that increase the amount of acetylcholine they show significant increases in scores on memory and intelligence tests. (22,23)

Acetylcholine has also been associated not only with a greater number of neurons in the cortex but also with greater brain size, with humans having the highest density of acetylcholine in the brain. UC Berkeley researcher Mark Rosenzweig has shown a direct connection between acetylcholine and intelligence. (24)

Relaxation Response

The production in the brain of alpha and theta patterns in the brain is also correlated to the "relaxation response" -- the counterpoint to the “fight or flight response." The fight or flight adrenalin response takes blood flow away from the brain and toward the periphery of the body, floods the bloodstream with sugar, and increases heart rate, blood pressure and breathing in order to prepare one

for defense or flight. In this state learning ability, as well as other mental functions including problem solving and reasoning ability, are markedly inhibited.

The ability to reconcile and resolve disputes is also impaired.

The relaxation response, on the other hand, mobilizes us for inward activity by reducing heart rate and blood pressure, relaxing muscles, and increasing the percentage of oxygen flow to the brain. As one might expect, the fight or flight response is accompanied by low amplitude, high frequency beta brain wave patterns in the brain, while the relaxation response so beneficial to learning and problem solving is accompanied by high amplitude, low frequency alpha and theta rhythms. (25,26) When we use sound technologies to induce these slower brain wave patterns, we also induce the relaxation response, another possible reason for the increases in learning ability noted by so many researchers.

A recent study (unpublished as of this writing) performed by Dr. Vincent Giampapa, M.D., of Longevity Institute International and vice president of the American Society of Anti-ageing Medicine, revealed that placing a listener in the alpha, theta, and delta brain wave patterns dramatically affects production of three important hormones related to both increased longevity and well-being: cortisol, DHEA, and melatonin.

Cortisol is a hormone naturally produced by the adrenal glands and is perhaps the #1 aging “stress” hormone. It also interferes with learning and memory and is, in general, bad news for your health and your well-being. High cortisol levels are what kill salmon after their exhausting journey upstream to spawn.

L DHEA is also produced by your adrenal glands. It is a precursor, or source ingredient, to virtually every hormone your body needs. DHEA levels are a key determinant of physiological age and resistance to disease. When DHEA levels are low, you're more susceptible to ageing and disease; when they're high, the body is at its peak -- vibrant, healthy, and able to combat disease effectively.

DHEA acts as a buffer against stress-related hormones (such as cortisol), which is why as you get older and make less DHEA you are more susceptible to stress and disease.

A study published in the New England Journal of Medicine (12/11/86) found that a 100 microgram per deciliter increase in DHEA blood levels corresponded with a 48% reduction in mortality due to cardiovascular disease -- and a 36% reduction in mortality for any reason.

Melatonin, everyone knows, is a hormone that helps to create restful sleep. We make less of it as we age, and since during sleep many important rejuvenating substances are created in the brain, the inability to sleep soundly can dramatically decrease the quality of your life and greatly accelerate the ageing

process.

Using binaural technology, a study quoted by Bill Harris of the Centerpointe Institute found the following results:

- In just three days, over 68% of participants had increases in DHEA levels, with an average increase of 43.77%! Several people had increases of 50, 60, even 90%!
- Cortisol was down an average of 46.47%, with positive changes in 68% of the people, and with several people having decreases of 70 or 80%!
- Melatonin levels increased an average of 97.77%, with positive changes happening in over 73% of the people! Many had improvements of 100, 200, even 300%!

Into The Light!

Ptolemy (90 – 168 AD), a mathematician, geographer and astronomer living in Alexandria, was the first known scientist to recognize and to document the light causing brainwave entrainment. While looking through a spinning spoked wheel toward the sun, he noticed that the wheel gave the impression of stopping moving when it reached a certain speed. Ptolomy reported experienced seeing patterns and colors as well, caused by the flickering sunlight.

In 1899, Pierre Marie Félix Janet (1859 - 1945) a French physician, psychiatrist, and philosopher, reported noticing a change in the mental state in some of his patients, after being subjected to entrainment. They experienced decreasing tension and hysteria as well as increasing relaxation when he exposed them to flickering light created by a rotating strobe-wheel illuminated by a kerosene lantern behind it.

As far as history records it, this is probably the first known clinical application of brainwave entrainment.

Today we call this the “flicker following” effect.

Janet’s discovery has been further validated by dozens of physiological outcome studies on FFR -the flicker following response- by many well respected scientific researchers (Bartley, 1934, 1937; Durup & Fessard, 1935; Jasper, 1936; Goldman, Segal, & Segalis, 1938; Jung, 1939; Toman, 1941).

In 1980, Dr. Inouye and associates at the Department of Neuropsychiatry in Osaka University Medical School in Japan, found that the photic stimulation in the alpha range produced hemispheric synchronization in the brain. Later, Dr. Norman Shealy confirmed the effect in more than 5,000 patients.

However, it took some time for scientists and therapists to recognize the full potential of photic stimulation (PS) over the brain, and therefore, over the mind.

Now we can combine binaural beat modality and flicker following photic stimulation in one highly effective package, using electronic technology.

This is done with headphones and a coupled set of flickering strobe glasses. The latter are usually darkened, to keep out environmental distractions. An array of LEDs (light-emitting diodes) provides the light and a small computerized device controls the flicker rate, usually alpha or theta.

Light passes easily through the eyelids, so there is no problem if the subject closes his or her eyes. In fact light, even when not very intense, passes directly through the skull.

Sometimes the subject sees an array of colors, even though the source light LEDs are transmitting only white light. In such circumstances, the color effect is being supplied by the subject's own sensorium.

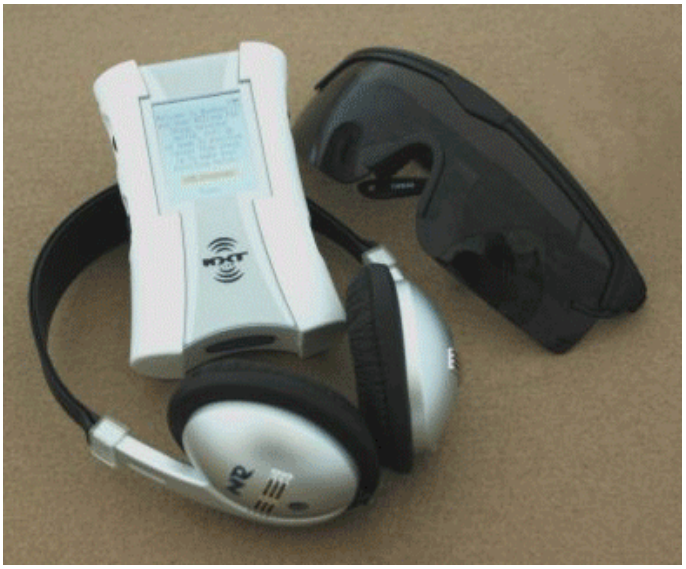
Interestingly, a constant, repetitive stimuli of sufficient strength is needed to excite the thalamus, thus achieving an effective brainwave entrainment. The thalamus then passes the stimuli onto the sensory-motor strip, the cortex in general and associated processing areas such as the visual and auditory cortexes.

The New Reality NXTL Portable Accelerated Learning Device.

To date, the best audio-photic brain entrainment equipment I have found has been the New Reality NXTL. Some scientific studies have been carried out on this exact machine, not just generic types. It's actually a "portable accelerated learning" device, or PAL, for short.

As well as good electronics, in an attractive and robust case, their "system" includes an online facility to download as many tracks as you feel like. There is a whole host of topics, from cancer control to visiting Atlantis!

Many masters and teachers are now posting tracks (programs) for New Reality, including myself, Dan Millman, Deepak Chopra, Bob Proctor and Dr Brenda Wade, Lisa Nicholls and Les Brown!



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Want more science? Here's a whole appendix for you!

Those of you who are already convinced that TGI technology will enhance and prolong your life, bringing more pleasure and quality, reduced stress, enhanced learning, better moods and delayed cognitive decline should go right away to http://www.newthoughthorizons.com/creative-mind-power

Rather than pay $100s for just binaural technology, brilliant though it is, invest the money in a **New Reality NTXL portable accelerated learning device**. Then you can get not just one program but literally hundreds of available

Appendix

Selected Clinical Research Studies

Creative visualization and stimulation of brain wave activity are among the most studied areas of psychiatry and psychology. For more than 35 years, scores of clinical research studies have been conducted and published in peer-review journals, and other psychology and related publications, as well as a wealth of unpublished studies.

The findings of these studies provide *definitive scientific proof* of the efficacy of devices similar to NXTlynk. In 2007, New Reality is adding to that body of research by conducting three university and independent laboratory-based clinical studies on NXTlynk TGI.

Abstracts of Relevant Clinical Studies:

Dr. Norman Shealy, Dr. Richard Cox In `Pain Reduction and Relaxation with Brain Wave Synchronization (Photo-Stimulation). Study performed by the Forest Institute of Professional Psychology, Springfield, Missouri, 1990, 9pp.

Cerebral synchronization was obtained with photic stimulation devices and tested on more than 5,000 patients suffering from chronic pain and stress-symptoms during the `80s. A detailed study on 92 patients indicated that 88 obtained relaxation results higher than 60% after 30- minute sessions at 10 hz. Thirty patients had sessions in Theta (5 hz) and experienced relaxation states of 50- 100% after five minutes as well as improved pain relief. Eight patients had blood tests

before and after the sessions and showed improved beta-endorphin levels of 10-50%. All of these relaxation results are improved when combining the photic stimulation with relaxation audio tapes.

Dr. Roger K. Cady, Dr. Norman Shealy in "Neurochemical Responses to Cranial Electrical Stimulation and Photo-Stimulation via Brain Wave Synchronization."Study performed by the Shealy Institute of Comprehensive Health Care, Springfield, Missouri, 1990, 11 pp.:

Eleven patients had peridural and blood analysis performed before and after the relaxation sessions using flash emitting goggles. An average increase of beta-endorphin levels of 25% and serotonin levels of 21% were registered. The beta-endorphin levels are comparative to those obtained by cranial electrical stimulation (CES). This indicates a potential decrease of depression related symptoms when using photic stimulation.

Dr. Thomas Budzynski in "Biofeedback and the Twilight States of Consciousness," in G.E. Schwartz and D. Shapiro eds., Consciousness and Self-Regulation, vol. 1, New York, Plenum 1976 and non- published studies at the Biofeedback Institute of Denver, 1980:

Using a first-generation prototype, Dr. Budzynski concluded that "these devices produce a distinct relaxation state. Programming the device between 3 and 7 hz, it takes about 10 to 15 minutes for the patients to enter--effortlessly-a state of hypnosis. They terminate the sessions relaxed and with a feeling of well-being."

Also, "the device has a calming effect on nervous or anxious patients. In a majority of cases the patients feel relaxed and calm during a period of three to four days after the session. It happens that the subjects have a reminiscence of childhood experiences, particularly when in Theta. They related their experiences which we incorporated into our psychotherapeutic program."

Dr. Gene W. Brockopp, Review of Research on Multi-Modal Sensory Stimulation with Clinical Implications and Research Proposals (non-published,1984):

Dr. Brockopp analyzed audio-visual Brain stimulation and in particular hemispheric synchronization during EEG monitoring. "By inducing hemispheric coherence the machine can contribute to improved intellectual functioning of the brain. Like children spending most of their time in Theta, the machine allows a reduction in learning time. With adults a return into Theta allows them to rediscover childhood experiences. The machine is like a `lost and found office' for the subconscious."

Dr. Brockopp conclusion is that dissipative structures allow the mind-via audio-visual stimulation-to abandon certain present neurological structures in order to

maintain a higher, more coherent and flexible state of consciousness, thus allowing for improved communication of neuro-entities.

Dr. Norman Thomas and David Siever, University of Alberta, Florida. Several publications, notably: The Effect of Repetitive Audio/Visual Stimulation in Skeletomotor and Vasomotor Activity, 1989:

"We stimulated one of two groups of 30 people with a brain- stimulation device to test relaxation levels, using 10 hz frequency while observing their muscular tension with an EMG and their index skin temperature. The second group had to relax without machines via traditional means of autosuggestion. Most of the people in the second group said they felt relaxed while demonstrating greater tension (EMG) and lower skin temperatures, both of which are stress and nervous tension indicators. The group using the machine obtained deep relaxation state going beyond the programmed 15 minutes. EMG curves confirmed relaxation of the cortex due to the frequency adoption response."

These findings were also verified by James Greene and Dr. E.J. Baukus of FOCUS Human Research Development in Bourdonnais, Illinois. The muscular tension curve of the trapezius muscle during a MindsEyeTM (audio-visual mind- machine) indicative of deep muscular relaxation.

Dr. Robert Cosgrove, Jr. of the anesthesia department of Stanford University School of Medicine, Stanford, California:

Dr. Cosgrove proceeded in 1988 with multiple experiences with the same devices and concluded that states of deep relaxation are obtained with these machines. "We are very optimistic about the possibilities of calming our patients before and after surgery. By the way, we already treat chronic stress affected patients. Thus, our EEG analysis shows that optimal cerebral functioning can be obtained with regular use of such audio-visual apparatus. The machines could eventually slow the decreasing cerebral performance with the elderly. This type of machine could 'revolutionize neurology and medicine.'"

Elisabeth Philipos, Pepperdine University, California, and James McGaugh, University of California, Irvine, have tested the effects of Theta frequencies on learning:

During their study a group of 20 students learned 1,800 words of Bulgarian in 120 hours while using Theta stimulation programs. In about 1/3 of normal time they spoke and wrote the new language.

Dale S. Foster of Memphis State University, "EEG and Subjective Correlates of Alpha Frequency Binaural Beats Stimulation Combined with Alpha Biofeedback," 1988:

Mr. Foster's conclusions indicate that the combination of binaural sounds with audio-visual stimulation machines allow access into Alpha states of consciousness much faster than with traditional biofeedback techniques.

D.J. Anderson, B.Sc., M.B., "The Treatment of Migraine with Variable Frequency Photo-Stimulation," in Headache, March 1989, pp 154-155:

D.J. Anderson used photo-stimulating goggles with variable frequency using red LEDs in order to stimulate the optic nerve, through closed eyes, right and left with frequencies between 0.5 and 50 hz. The study included seven patients who suffered a total of more than 50 migraines during the observation period. Forty- nine of these migraines were relieved (either by reducing the average duration or by increasing the frequency interval in between migraine crisis) and 36 other migraines could be stopped while using the goggles.

Dr. Glen D. Solomon, "Slow Wave Photic Stimulation in the Treatment of Headache-A Preliminary Report," in Headache, November 1985, pp 444-447:

Dr. Solomon works for the Department of Internal Medicine at the U.S. Air Force Medical Center in Scott, Illinois, where 24 patients with chronic headaches and migraines were treated with photic stimulation apparatus at 5-8 hz frequency. Fourteen of 15 patients with sustained headaches and 5 of 6 patients with chronic headaches noticed complete relief after the treatment. Four patients treated with the same photo- stimulation apparatus showed no reaction.

Bruce Harrah-Confort, Ph.D., Indiana University, "Alpha and Theta Response to the MindsEye Plus," 1990:

The study included 15 persons between the ages of 24 and 38 years old who were asked to relax via auto-suggestion with headphones dispensing a synthetic sound (100 cycles at 60 hz) and then to use the audio-visual stimulator MindsEye PlusTM. EEG graphic analysis showed that the first relaxation method did not alter the EEG-trace significantly vs. normal. MindsEye Plus users had, however, strongly improved Alpha and Theta tracings and experienced profound relaxation. There were also signs that would validate hemispheric synchronization during the experience.

Joseph Glickson, Department of Psychology, Tel Aviv University, "Photic Driving and Altered States of Consciousness: An Exploratory Study," in Imagination, Cognition and Personality, vol. 6(2), 1986-87, pp 167-182:

Four persons were exposed to photic stimulation in the 18, 10 and 6 hz ranges. A frequency response was established by two subjects during the initial session according to EEG measurements. These persons had an altered state of consciousness, and reported their visual and auditive experiences. The two other subjects had similar experiences during follow-on sessions. The study concludes

that photic entrainment provokes altered states of consciousness according to the applied frequencies.

Paul Williams and Michael West, Department of Psychological Medicine, University Hospital of Wales and University of Wales Institute of Science and Technology, Cardiff, Wales, "EEG Responses to Photic Stimulation in Persons Experienced in Meditation," in Electroencephalography and Clinical Neurophysiology, 1975, 39, pp 519-522:

Williams and West tested photic entrainment on two test groups of 10 people. The test group produced significantly more Alpha waves and has smaller Alpha blocking compared to the control group familiar with traditional meditation techniques. Alpha induction was realized faster and more frequently within the test vs. the control group.

Tsuyoshi Inouye, Noboru Sumitsuji and Kazuo Matsumoto, Department of Neuropsychiatry, Osaka University Medical School, Japan, "EEG Changes Induced by Light Stimuli Modulated with the Subject's Alpha Rhythm," in Electroencephalography and Clinical Neurophysiology, 1980, 49, pp 135-142:

Seven of nine persons undergoing the test obtained occipital Alpha of both hemispheres and concurrently coherence and phase between right and left occipital EEG. These results tend to confirm a hemispheric synchronization tendency by subjects using photic stimulation in the 10 hz (Alpha frequency) range.

Ronald Lesser, Hans Luders, G. Klem and Dudley Dinner, Department of Neurology, Cleveland Clinic Foundation, "Visual Potentials Evoked by Light-Emitting Diodes Mounted in Goggles," in Cleveland Clinic Quarterly, vol. 52, No. 2, Summer 1985, pp. 223-228:

A comparison of stimulation by strobiscopic lights and LED diodes shows that both methods have similar effects. LED stimulation may be preferable in intensive care units or during surgery because the type of stimulus is less disturbing.

Takeo Takahashi and Yasuo Tsukahara, Department of Neuropsychiatry of Tohoku University School of Medicine, Tohoku, Japan, "Influence of Red Light and Pattern on Photic Driving;' in Tohoku Journal of Experimental Medicine, 1979, 127, pp. 45-52:

With a study group of 108 persons the authors conclude that red LED generated luminescent impulses provoke better entrainment than white stroboscopic lights.

Richard E. Townsend, Ph.D. of Neuropsychiatric Research, U.S. Naval Hospital in San Diego, "A Device for Generation and Presentation of Modulated Light Stimuli," in Electroencephalography and Clinical Neurophysiology, 1973, 34, pp 97-99:

The author describes a system allowing generation and presentation of modulated light stimuli with variable frequencies and wave forms. He concludes the possibilities of stimulation and positive responses during sleep-preparation and insomnia troubles.

Dr. William Harris, Director of the Penwell Foundation, USA in 1990:

Preliminary studies with audio-visual brain stimulators used by patients with AIDS indicate that "the devices are extremely efficient in terms of providing mental clarity, improved sleeping patterns (for sleep preparation and sleep duration) allowing for better physical disintoxication by the liver. The apparatus also stimulates immunology functions through states of deep relaxation."

Alan Richardson and Fiona McAndrew, Department of Psychology, University of Western Australia, Nedlands, Australia, "The Effects of Photic Stimulation and Private Self-consciousness on the Complexity of Visual Imagination Imagery," in British Journal of Psychology, 1990, 81 pp. 381-394:

Three levels of photic stimulation (6, 10, 18 hz) were employed to induce visual imagination imagery in 40 female undergraduates, half of them with habitual interest in their own internal states and half without such interest. More complex images would be reported (1) under the averaged 6 to 10 hz condition, (2) under the 6 vs. the 10 hz condition, and (3) under the high PSC (Personal Self- Conscious scale) than under the low PSC condition. The study concludes that further studies on guided imagery will be undertaken.

Dr. Olivier Carreau, Saint-Louis Hospital in Paris, on "Efficiency of the MindsEye Plus audio-visual stimulator in treatment of the psoriasis during puvatherapy," study completed in January 1991:

Dr. Carreau analyzed 20 patients over a period of five months. Patients were treated one per week alternately via UVA and audio-visual stimulation (30- minute sessions) for psychosomatic skin disorders. All patients experienced deep relaxation during the sessions and had a feeling of well-being during the entire day. Five patients claimed that this feeling lasted for the following 2-3 days. Patients with combined therapy did better than with puvatherapy alone.

Other Studies Currently Underway:

University of Illinois: Sport performance, stress reduction and gerontologic research.

San Francisco State University: Effect of brain stimulation on toxicomania.
Massachusetts General Hospital, Boston: Audio-visual brain stimulation and anti-dependency.

University of Alberta: Pain reduction via audio-visual stimulation. University of Iowa: Accelerated learning and Alpha/Theta stimulation.
University of Vienna, Austria: Study realized by Dr. T. Wenzel of the Clinical Hospital for Psychiatry on the influence of audio-visual stimulation on psychosomatic problems.

University of Zurich, Switzerland: Professor Dr. Dittrich on theory and practice of audio-visual stimulation in therapy.

University of Giessen, Germany: Professor Dr. Prehn on neurological correlations of cerebral stimulation technology (measurements with SQUID).

Verein FOCUS, Vienna, Austria: Dr. Kapellner on the effects of deep relaxation and the access of subconsciousness during psychiatric treatment.

Dr. Jacques Puichaud, UPEA, La Rochelle, France: On the effects of MindsEye Plus relaxation sessions compared to other methods while treating adolescent depression.

University of Essen, Germany: Dr. Bittner on accelerated learning and Theta frequencies: effects on intelligence and relaxation.

Dr. Bernard Ferracci, psychiatrist, Paris, France: On brain-frequency stimulation with the CourierTM and insomnia.

Dr. Yann Rougier, neuropsychiatrist, Lyon, France: On audio-visual stimulation devices in therapeutic treatment.

Innerspace Therapy Center, Los Gatos, California: Dr. Ammon-Wexler on the efficiency of audio-visual stimulation in anti-drug treatments.

Julian Isaacs, Ph.D. and Megabrain, Inc., San Francisco are currently studying the effects of audio-visual brain stimulation with electronic 24- channel EEG.

Preliminary conclusions indicate that these devices are particularly efficient for Alpha state of consciousness entrainment, in particular with high-intensity LEDs (red or white).

More? You guys are really hungry for this stuff, huh? (or just cautious?)

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