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1. Disclaimer

All research and information published herein is for informational purposes only. Readers are encouraged to confirm or verify information contained herein with other sources. The present document consists of a technical overview of BrainTap Technologies and is not in any way intended to be a complete and definite review on the matter, recognizing that the underlying information may not be current, complete or exhaustive. We strive for accuracy and completeness to support our opinions, however all information is presented “as is” without warranty of any kind – express or implied.

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2. Introduction - Audio-Visual Brain Entrainment

Human brain waves, measured by an electroencephalogram (EEG), are rhythmic or repetitive patterns of neural activity in Central Nervous System (CNS) neurons. It is through these electrical signals that the brain communicates within itself and with other organ systems (Tatum 2014). Coherent and functional brainwave patterns are required for the successful processing, execution and completion of a task, whether physical (such as walking) or mental (solving an algebra problem, for instance) (Tang et al., 2016).

It is well known that brain oscillatory rhythms that fall in the 1-30Hz frequency range can be modulated or entrained¹ by an external stimulus (Thut et al., 2011). More specifically, entrainment occurs if a population of neurons in a stimulated region adopts the phase of an entraining stimulus. The entraining stimulus has two effects on population activity: (i) an increase in signal intensity (or power) as more and more

¹ To entrain means “to determine or modify the phase or period of something” (Merriam Webster online dictionary - <https://www.merriam-webster.com>).

neurons become phase aligned to the entraining stimulus, and (ii) phase alignment of the population activity to the entraining stimulus (Hanslmayr et al., 2019).

In healthy individuals, specific brainwave patterns are associated with various mental states. Five common brainwave frequency bands or patterns (delta, theta, alpha, beta and gamma) and related mental activities have been described (Thompson and Thompson 2003). Brainwave or Neural entrainment, may provide an almost instantaneous increase in power of the stimulated oscillatory frequency (Chaieb et al., 2015), and can be achieved with minimal effort from the participant through rhythmic auditory (Isochronic tones, Binaural beats) or visual stimulation to entrain neural oscillations.

The development of Audiovisual Brain Entrainment (AVBE), also called Audio-Visual Neurostimulation (AVN), began with the observation of the effects of light in everyday life. Historically, the effect of flashing lights on humans dates back to 125 A.D., when Apuleius observed that the flickering light produced by a potter's wheel induced a physical response associated with epilepsy (Hutchison, 1990). Formal studies on optical stimulation by light began in the early 1900s, when French psychologist Pierre Janet observed that his patients were experiencing a reduction in psychological strain when looking at flickering lights generated by a rotating wheel spinning in front of a paraffin lamp (Tang et al., 2015). With the development of the EEG, Adrian and Matthews (1934) documented the impact of photic stimulation on brain activity. In 1949, the British neuroscientist W. Gray Walter first documented the effect of photic stimulation on both brain activity changes and subjective sensory perceptions in a study with several hundred participants. To his apparent surprise, he also found that the photic flickering stimulation evoked brain activity changes in the overall cortex and not just in the visual cortex. This observation of the “flickering phenomenon” was described in an article that has become a classic in the AVS scientific literature (Timmermann et al., 1999). Visual entrainment consists of using flashing or pulsing lights through specially designed glasses to entrain brain wave activity (Notbohm et al., 2016). Entrainment through visual stimulations such as flashing light primarily affects the primary visual cortex in occipital lobe of the brain, although, as previously mentioned, it has been shown to elicit changes in cortical activity widely distributed throughout the cortex (Timmermann et al., 1999).

Until 1960, researchers focused primarily on the influence of optical stimulation on brain activity. Beginning in 1960, a study by Gian Emilio Chatrian reported changes in brainwave voltage potential in response to auditory stimulation (clicking sounds),

regardless of visual input (Chatrian et al. 1960). Then, in 1973, Oster's research on binaural beats advanced the understanding of acoustic stimulation (Oster, 1973). These are considered the beginning of auditory brain entrainment stimulation through isochronic tones and binaural beats.

Isochronic tones are consistent regular beats of a single tone (the frequency at which the tone is presented is measured in Hertz - Hz). The distinct and repetitive beat of isochronic tones produce an evoked potential, or evoked response in the brain (Radeloff et al., 2014). Frequency following response (FFR) occurs when brainwaves become entrained (synchronized) with the frequency of an isochronic beat (Pandya and Krishnan, 2004).

Binaural beats, on the other hand, represent the auditory experience of an oscillating sound that occurs when two sounds with neighboring frequencies are presented to one's left and right ear separately. This procedure produces a third phantom beat, whose frequency is equal to the difference of the two presented tones and which can be manipulated for non-invasive brain stimulation (Beauchene et al., 2016). For example, when a 400 Hz sound frequency is delivered to the left ear, while a 405 Hz is delivered to the right ear, the brain processes and interprets the two frequencies as a 5 Hz frequency. Frequency following response (FFR) occurs at the 5Hz frequency, producing brainwaves at the same rate of 5 Hz (Brain Entrainment), which can be used to “modulate” brainwave activity.

Although the exact underlying mechanisms are not well understood, audio-visual brainwave entrainment has been shown to positively affect cognition (Derner et al., 2018; Colzato et al., 2017; Hommel et al., 2016; Chaieb et al., 2015; Reedijk et al., 2013; Huang & Charyton, 2008), reduce anxiety levels (Garcia-Argibay et al., 2019; Chaieb et al., 2017; Wahbeh et al., 2007b; Padmanabhan et al., 2005; Le Scouarnec et al., 2001); affect psychomotor performance and mood (Lane et al., 1998; Wahbeh et al., 2007); improve sleep quality (Tang et al., 2015; Abeln et al., 2014); as well as induce analgesia (Ecsy et al., 2018; Ecsy et al., 2017; Tang et al., 2015) and modulate pain perception (Garcia-Argibay et al., 2019; Ecsy et al., 2017; Zampi, 2016).

3. BrainTap Research Data

3.1. Primary Research Outcomes

- In a 2-week pilot study with university students, Braintap sessions effectively improved quality of sleep as assessed by the Pittsburgh Quality of Sleep Index (Study #1);
- A single BrainTap session with the headset significantly increased Heart Rate Variability and parasympathetic activity, as well as decreased stress index and heart rate in a clinical trial with 100 individuals (Study #2).
- Although results did not achieve statistical significant when compared to baseline, ABE positively affected scores related to anxiety, general health, stress, quality of sleep, as well as work productivity and activity impairment of telemarketers. A larger sample size study is necessary to statistically confirm the effects of ABE (Study #3).

The outcomes summarized above are direct results from BrainTap research. Translation of these outcomes into consumer-based claims requires the creation of an accurate lexicon that expresses these results into meaningful and accurate representations. This is done on an individual basis.

3.2. Studies - Design Principles

The studies with BrainTap Technologies outlined below were conducted in accordance with the following principals:

- Pilot clinical trial;
- Randomized;
- Sample size large enough to allow for statistical significance (95% confidence interval and a *P value* ≤ 0.05).

3.3. Study #1 - Presented at the 2020 International Congress on Integrative Medicine and Health. Published at Global Advances in Health and Medicine Volume 9, 2020. DOI: 10.1177/2164956120912849

Title: Effect of Audio-Visual Brain Entrainment on Mood and Quality of Sleep: A Pilot Trial With University Students

Authors: Daiana Cristina Salm¹, Luiz Augusto Belmonte¹, Bruna Hoffmann de Oliveira¹, Luana Meneghini Belmonte¹, Francisco J Cidral-Filho¹, Patrick Porter², and Daniel Fernandes Martins¹

Affiliation:

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²Quantum University, Honolulu, Hawaii

Purpose: The study objective was to investigate the effect of the Audio-Visual Brain Entrainment (ABE) on Mood and Quality of Sleep of university students.

Methods: The study was conducted at the Laboratory of Experimental Neuroscience, University of Southern Santa Catarina, Brazil, and the protocol was approved by the Institutions Ethics committee. Informed consent forms were obtained during patient screening phase of the study at the site of the tests. Sample size consisted of 7 university students (4 males and 3 females. Ages between 20 and 58 years who were not making use of analgesics, anti- inflammatories, or sleep aids 7 days prior to, as well as during the study, and who had no hearing disabilities. ABE was delivered with a BrainTap headset (New Bern, North Carolina) in 20-minute sessions 3 times a week for 6 weeks. Session consists of binaural beats at 18 to 0.5 Hz, isochronic tones at 18 to 0.5 Hz and visual Entrainment through light- emitting diode lights at 470 nm flickering at 18 to 0.5 Hz. The following questionnaires were applied at baseline and after 6weeks: Epworth Sleepiness Scale-Daytime sleepiness, Insomnia Severity Index (ISI), Pittsburgh Quality of Sleep Index (PQSI), Depression Anxiety and Stress Scale (DASS-21), and Perceived Stress Scale (EPS-10).

Results: ABE effectively reduced ISI (data not statistically significant), PQSI ($P < .05$), DASS-21 (data not statistically significant), and EPS-10 (data not statistically significant). The participants reported feeling very relaxed during the sessions.

Conclusion: Despite the reduced sample size (n1/47), results indicate that ABE significantly increased quality of Sleep of university students (PQSI P <.05). A lager sample size study is necessary to confirm and extend the effects of ABE on mood.

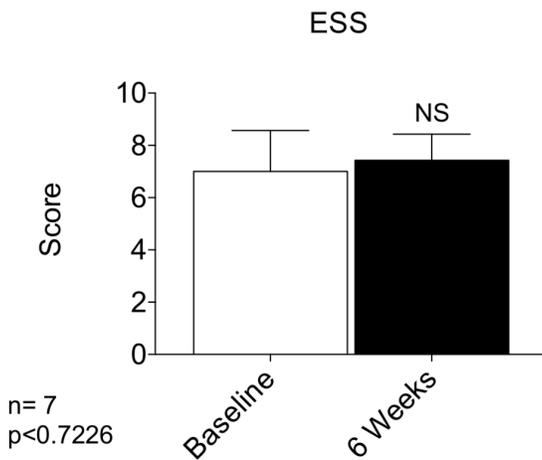


Figure 1. Epworth Sleepiness Scale - Daytime sleepiness. The score is interpreted as follows:> 10 points = individuals with a high possibility of mild somnolence, while> 16 points are indicative of severe somnolence. The low scores are indicative of patients with low propensity to sleep and relax. NS: Not statistically significant. Paired t-test (prism graphpad 7, USA).

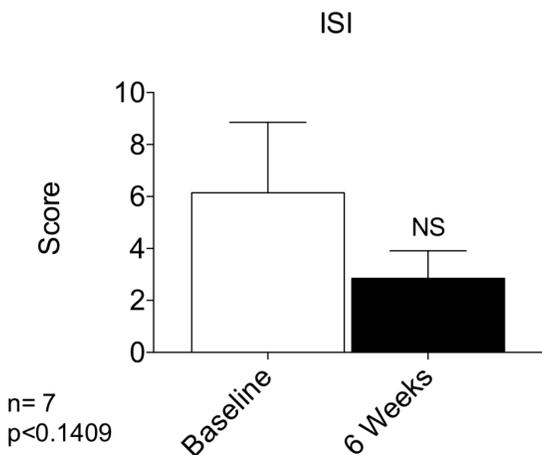


Figure 2. Insomnia Severity Index. Classification is as follows: (0-7) absence of insomnia; (8-14) lower limit for insomnia; (15-21) moderate clinical insomnia; (22-28) severe clinical insomnia. NS: Not statistically significant. Paired t-test (prism graphpad 7, USA).

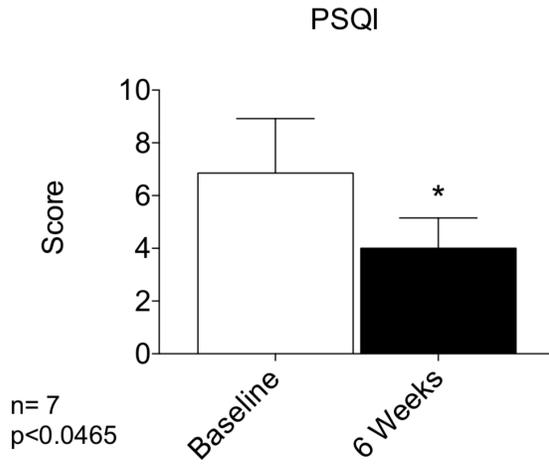


Figure 3. Pittsburgh Quality of Sleep Index. Seven components (from 0 to 21 items) are evaluated, which will generate a final score. The classification is according to the score: (0-4 points) good quality of sleep; (5 to 10 points) poor quality of sleep and (> 10 points) presence of sleep disorder. *p<0.05 when compared to baseline evaluation. Paired t-test (prism graphpad 7, USA).

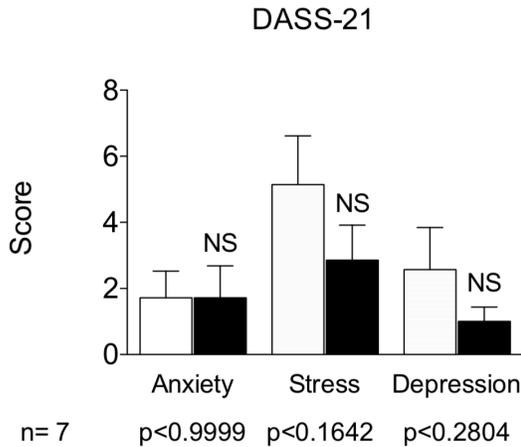


Figure 4. Depression Anxiety and Stress Scale. In this scale, 21 items are evaluated into 3 categories (anxiety, stress and depression) and for each category there are 7 associated items. The higher the score, the greater the impairment in the evaluated category. NS: Not statistically significant. Paired t-test (prism graphpad 7, USA).

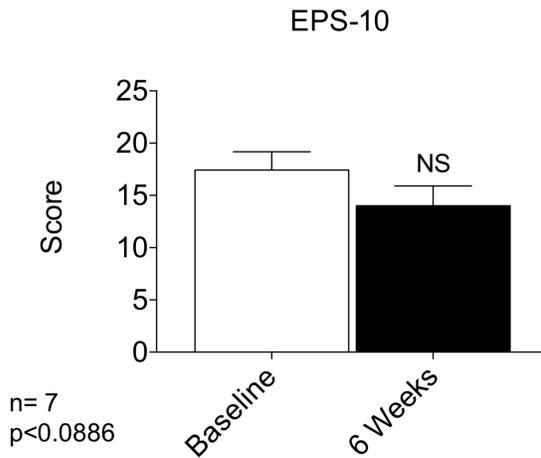


Figure 5. Perceived Stress Scale. The higher the score the higher the stress. NS: Not statistically significant. Paired t-test (prism graphpad 7, USA).

3.4. Study #2 - Presented at the 2020 International Congress on Integrative Medicine and Health. Published at Global Advances in Health and Medicine Volume 9, 2020. DOI: 10.1177/2164956120912849

Title: Effect of a single Audio-Visual Brain Entrainment session on Heart Rate Variability: a clinical trial with 100 adult volunteers.

Authors: Michael Porter¹, Patrick Porter^{1,2}, Afonso Inoue Shiguemi Salgado¹ and Francisco J Cidral-Filho¹

Affiliation:

1Integrative Physical Therapy Residency - Salgado Institute of Integrative Health, Londrina, PR - Brazil.

2Quantum University, Honolulu, HI - USA.

Objective: The objective of this study was to investigate the effect of the Audio-Visual Brain Entrainment (ABE) on Heart Rate Variability.

Methods: Sample size consisted of 100 adult volunteers (50 males and 50 females) with no hearing disabilities. ABE was delivered with a BrainTap headset (New Bern - NC - USA) in a 20-minute session. Session consists of Binaural beats at 18 to 0.5 HZ, Isochronic Tones at 18 to .0.5 HZ and visual Entrainment through light-emitting diode lights at 470 nanometers (nm) flickering at 18 to 0.5 HZ. Heart rate Variability (Dinamika HRV - Advanced Heart Rate Variability Test System, Moscow, Russia) was assessed at baseline and after ABE session.

Results: ABE significantly (1) increased Heart Rate Variability: HRV Index (A low HRV is associated with an increased risk of cardiovascular disease - $p < 0.001$, 21.8%) and RRNN (RR normal-to-normal intervals; a marker of overall HRV activity - $p < 0.001$, 6.8%); (2) increased Parasympathetic activity markers: RMSSD (Root Mean Square of the Successive RR interval Differences - $p < 0.0001$, 32.2%), NN50 (The number of pairs of successive NN (R-R) intervals that differ by more than 50 ms - $p < 0.0001$, 50.6%), pNN50% (The proportion of NN50 divided by the total number of NN (R-R) intervals - $p < 0.001$, 51.6%), HFnu (High Frequency Band: index of modulation of the parasympathetic branch of the autonomic nervous system - $p < 0.0336$, 37.1%), and LFnu: (Low Frequency Band: general indicator of aggregate modulation of both the

sympathetic and parasympathetic branches of the Autonomic Nervous System - $p < 0.0048$, 45.1%); and (3) decreased Stress Index ($p < 0.001$, 38.4%) and Heart Rate ($p < 0.0001$, 6.2%).

Conclusion: A single Audio-Visual Brain Entrainment session with the BrainTap Headset significantly increased heart rate variability and parasympathetic activity, as well as decreased stress index and heart rate.

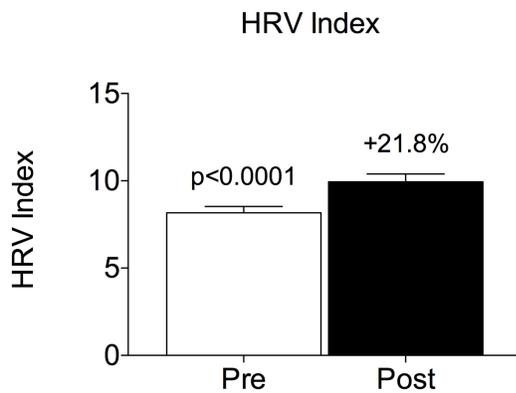


Figure 1. Heart Rate Variability Index (HRV Index). A low HRV is associated with an increased risk of cardiovascular disease.

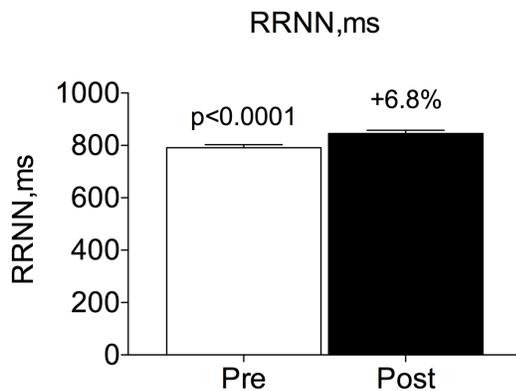


Figure 2. RR normal-to-normal intervals (RRNN). A marker of overall HRV activity.

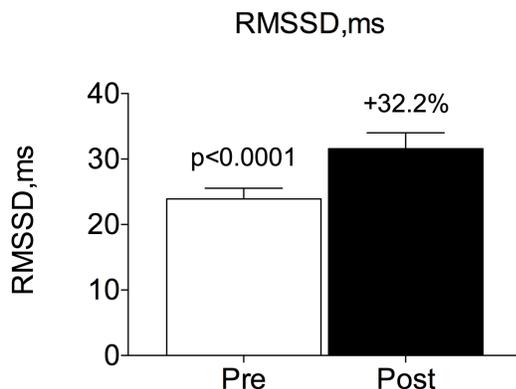


Figure 3. Root Mean Square of the Successive RR interval Differences (RMSSD). A marker of Parasympathetic activity.

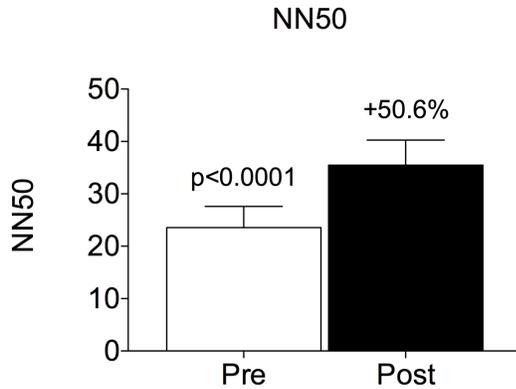


Figure 4. The number of pairs of successive NN (R-R) intervals that differ by more than 50 ms (NN50). A marker of Parasympathetic activity.

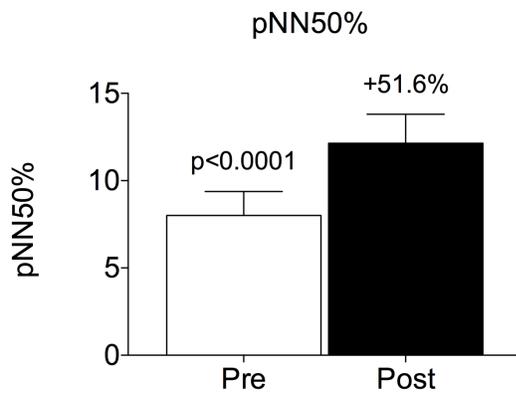


Figure 5. The proportion of NN50 divided by the total number of NN (R-R) intervals (pNN50%). A marker of Parasympathetic activity.

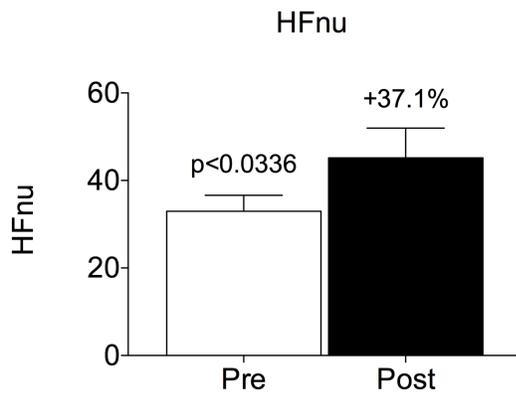


Figure 6. High Frequency Band (HFnu). Index of modulation of the parasympathetic branch of the autonomic nervous system.

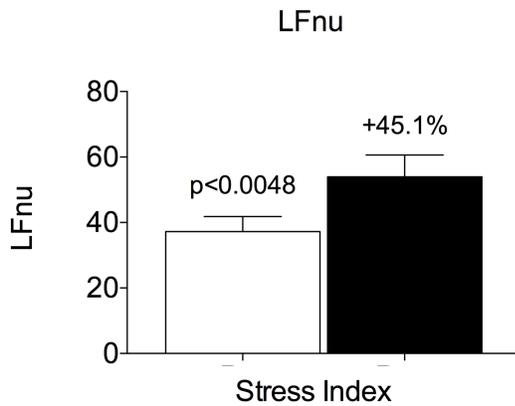


Figure 7. Low Frequency Band (LFnu). General indicator of aggregate modulation of both the sympathetic and parasympathetic branches of the Autonomic Nervous System.

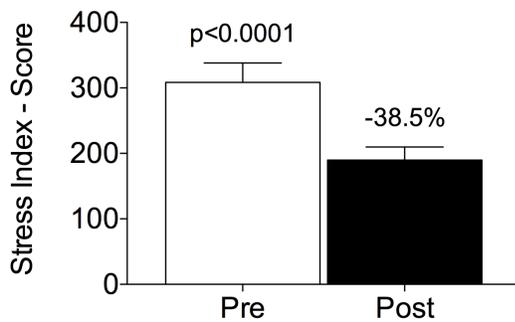


Figure 8. Stress Index.

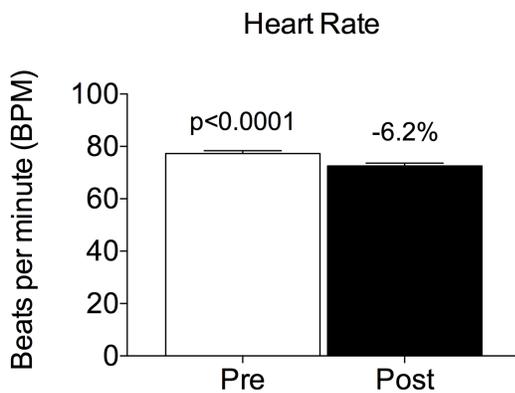


Figure 9. Heart Rate.

3.5. Study #3 - Presented at the 2020 International Society for Neuroregulation and Research (ISNR) 28th Annual Conference.

Title: Effect of Audio-Visual Brain Entrainment on Anxiety, General Health, Stress, Quality of Sleep and Work productivity and Activity Impairment: A pilot study with telemarketers.

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4- Quantum University, Honolulu, HI - USA.

5- Experimental Neuroscience Laboratory (LaNEx), University of Southern Santa Catarina, Palhoça, SC, Brazil.

Background: Audio Visual Brainwave entrainment (ABE) occurs when brainwaves synchronize to external rhythmic stimuli, e.g, visual (flickering lights), auditory (Isochronic tones, and/or Binaural beats) or physical (physical vibration).

Objective: The objective of this study was to investigate the effect of the Audio-Visual Brain Entrainment (ABE) on Anxiety, General Health, Stress, Quality of Sleep and Work productivity and Activity Impairment of telemarketers.

Methods: The study was conducted at the Salgado Institute of Integrative Health, Londrina, PR - Brazil, and the protocol was approved by the Institutions Ethics Committee. Sample size consisted of 13 telemarketers (3 males and 10 females). ABE was delivered with a BrainTap headset (New Bern - NC - USA) in 20-minute sessions 3 times a week for 6 weeks. Session consists of Binaural beats (18 to 0.5 HZ), Isochronic Tones (18 to 0.5 HZ) and visual Entrainment (470 nanometers LEDs flickering at 18 to 0.5 HZ). The following questionnaires were applied at baseline and after 6 weeks: The Hamilton Anxiety Rating Scale (HAM-A) that measures the severity of anxiety symptoms; the General Health Questionnaire (GHQ-12), a screening device for

identifying minor psychiatric disorders; the Perceived Stress Scale (PSS-10), the most widely used psychological instrument for measuring the perception of stress; the Pittsburgh Quality of Sleep Index (PQSI), that scores sleep quality; and the Work Productivity and Activity Impairment Questionnaire (WPAI), that measures impairments in work and activities.

Results: ABE positively affected all scores: HAM-A (22.95%); GHQ-12 (10.93%); PSS-10 (16.86%); PQSI (14.51%); as well as WPAI (absenteeism, 41.66%; presenteeism, 56.25%; work productivity, 56.22%; and activity Impairment due to health, 76%).

Conclusion: Although results did not achieve statistical significant when compared to baseline, ABE positively affect scores related to anxiety, general health, stress, quality of sleep, as well as work productivity and activity impairment of telemarketers. A larger sample size study is necessary to statistically confirm the effects of ABE.

Keywords: Audio-Visual Brain Entrainment, Anxiety, Stress, Quality of Sleep, Work productivity.

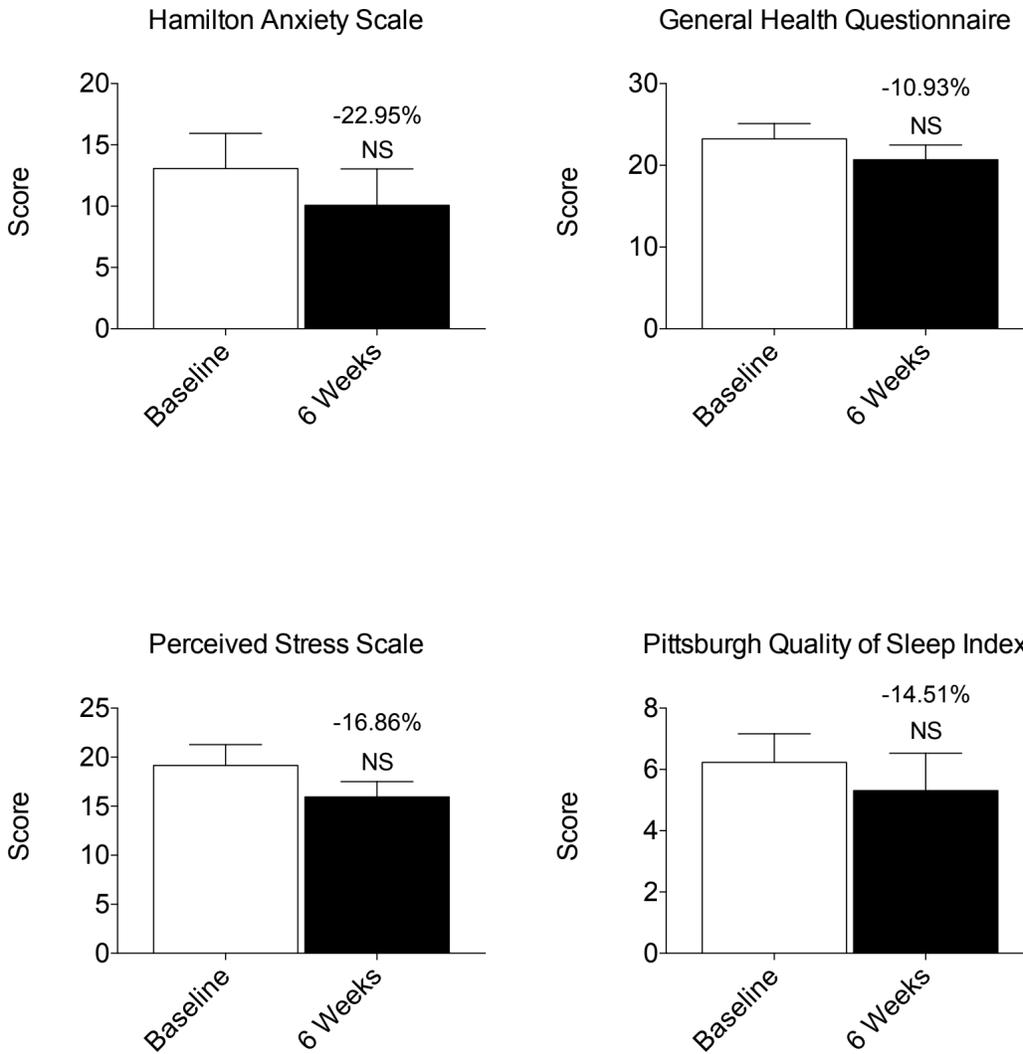


Figure 1. ABE positively affected all scores: HAM-A (22.95%); GHQ-12 (10.93%); PSS-10 (16.86%); PQSI(14.51%).

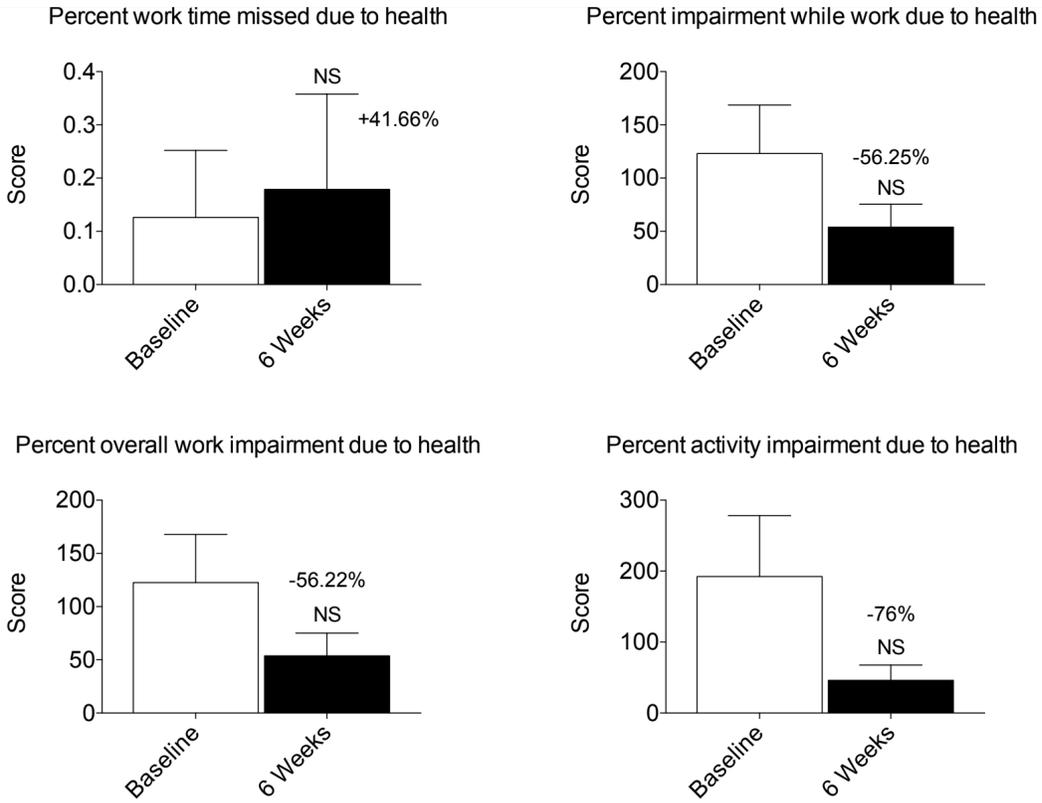


Figure 2. ABE positively affected all scores: WPAI (absenteeism, 41.66%; presenteeism, 56.25%; work productivity, 56.22%; and activity Impairment due to health, 76%).

3.6. References for BrainTap Studies

Daiana Cristina Salm, Luiz Augusto Belmonte, Bruna Hoffmann de Oliveira, Luana Meneghini Belmonte, Francisco J Cidral-Filho, Patrick Porter, and Daniel Fernandes Martins. **Effect of Audio-Visual Brain Entrainment on Mood and Quality of Sleep: A Pilot Trial With University Students.** Presented at the 2020 International Congress on Integrative Medicine and Health. Published at Global Advances in Health and Medicine Volume 9, 2020. DOI: 10.1177/2164956120912849.

Michael Porter, Patrick Porter, Afonso Inoue Shiguemi Salgado, and Francisco J Cidral-Filho. **Effect of a Single Audio-visual Brain Entrainment Session on Heart Rate Variability: A Clinical Trial With 100 Adult Volunteers.** Presented at the 2020 International Congress on Integrative Medicine and Health. Published at Global Advances in Health and Medicine Volume 9, 2020. DOI: 10.1177/2164956120912849.

Afonso IS Salgado, Rodolfo B Parreira, Noemy F de Castro, Maria L Ramos Mendes, Patrick K Porter, Francisco J Cidral-Filho. **Effect of Audio-Visual Brain Entrainment on Anxiety, General Health, Stress, Quality of Sleep and Work productivity and Activity Impairment: A pilot study with telemarketers.** Presented at the 2020 International Society for Neuroregulation and Research (ISNR) 28th Annual Conference.

4. Frequently Asked Questions

4.1. What is the BrainTap headset?

The BrainTap headset is on the leading-edge of the brain-based wellness approach now being advocated by health and wellness practitioners around the globe. The BrainTap headset delivers gentle pulses of light through special earphones and from within a visor. These lights synchronize with two types of sound - binaural beats and isochronic tones - to produce deep and profound relaxation and varying states of consciousness. While research has proven that both flickering light and synchronized tones can produce relaxed states, combining the two guides you to a profound level of restfulness and rejuvenation that's otherwise difficult to achieve; it is a state of tranquility that is optimum for mind/body balance, focus, and accelerated learning.

The BrainTap headset is also considered a portable achievement device. It is driven by specially encoded guided visualization audio-sessions that are uniquely encoded with Neuro-Sensory Algorithms (NSAs) to gently guide the user from the wide-awake state into a deeply relaxed optimum learning state. A mini computer inside the BrainTap headset converts the NSA encoded signal embedded within each session, thus guiding the user through the brainwave entrainment process designed specifically for that session.

With nearly 700 sessions in more than 50 categories, the BrainTap headset system works with any smartphone or tablet that can operate Apple or Android apps.

4.2. What is brainwave entrainment?

The term entrainment refers to the synchronization of organisms to an external rhythm. In the case of BrainTap, the organism being entrained is the brain, and we do this by simulating the rhythms of specific brain wave frequencies known for deep relaxation and heightened states of consciousness.

It is the process of reaching deep levels of relaxation and then using guided visualization to form mental images. Visualization is the primary component of the imagination and is at the core of the human ability to create, innovate and dream.

Many of history's inventors, artists and athletes attribute their success to an exceptional ability to visualize. Thomas Edison, Nikola Tesla, Henry Ford, Tiger Woods, and the great composer, Chopin, and all reported using visualization to spark their

imaginations and achieve unprecedented levels of performance. In fact, Albert Einstein once said that he came up with the theory of relativity by imagining what would happen if he could travel through space on the tip of a light beam. BrainTap Technology can transport you out of a state of stress or fear, and into a new space of inner calm, peace and tranquility. A natural byproduct occurs when the body goes loose and limp, thereby creating the relaxation response - the perfect state for learning or focusing on goals.

4.3. What are brainwave frequencies?

In order to overcome the brutal effects of stress, you need to get out of the fight-or-flight response and into the relaxation response. The relaxation response can't happen as long as you generate primarily high beta brainwave activity. Your brainwave activity must dip into alpha, the intuitive mind, or theta, the inventive mind.

Many believe that theta is the optimum state for creativity and that it's the only mode in which one can make a quantum leap in consciousness. Unfortunately, theta mode is difficult to maintain. This is where the frequency following response generated through the BrainTap headset comes in; it keeps your brain engaged. By using the BrainTap headset, your brain is being trained to generate more alpha and theta waves and fewer beta waves.

4.4. What are the primary brainwave frequencies?

- **BETA 13-30 Hz:** This is the wide-awake alert state where you spend most of your waking life. Beta is your reactionary mind. It is the level of your mind where fears, frustrations and negative emotions are processed. This is also where your strongest filtering system operates. It is called the critical factor. The key purpose in using the BrainTap Headset is to train your mind to get out of this state where stress is dominant.
- **ALPHA 8-13 Hz:** This is the frequency most associated with creativity, imagination and flow. Alpha is the intuitive mind. It is also the brain state associated with relaxation, tranquility and daydreaming. Flow thinking, or a state of "inward awareness," takes place in alpha. It is also known as a super-learning state.
- **THETA 4-8 Hz:** This is the breakthrough state where you can reinvent your life. Theta is the inventive mind. It borders on sleep and is a meditative state with access to the

other-than-conscious mind where you have higher levels of creativity, learning, and inspiration. It is also the state in which the BrainTap Headset help you to visualize and realize your goals.

- DELTA 1-4 Hz: This is deep, dreamless sleep. Delta is the unconscious mind. The BrainTap Headset is designed to keep you from falling into this state of sleep. This is why the light and sound patterns of the BrainTap Headset system continue to change throughout the session.

4.5. What is frequency following response?

Frequency following response (FFR) is the effect created through synchronized light and sound. It's how the brain "syncs" to the strobe lights, beats and tones. While your brain follows the frequencies, you experience less inner chatter and improved concentration. After a few weeks of regular use, most people gain a sense of balance and inner calm. Users report feeling serene, focused, and alert even when faced with high-pressure situations.

4.6. What are binaural beats?

These are imbedded tones that the brain naturally follows into states of deep relaxation. Within minutes your brain reaches extraordinary levels of performance that would otherwise take years of practice to achieve. Binaural beats work by tricking the brain into hearing a phantom frequency that isn't really there. For example, if we play a 220 Hz carrier tone into the left ear and a 226.5 Hz carrier tone into the right ear, your brain perceives the difference between the two, which is a subtle beat frequency of 6.5 Hz, the same frequency associated with deep, meditative states. Your brain naturally follows this frequency and you experience this deeply relaxed state. Binaural beats are a proven self-development tool that's been researched for decades.

4.7. What are isochronic tones?

This is the newest brainwave entrainment technology. Isochronic tones are manually created, equal intensity pulses of sound separated by an interval of silence. They turn on and off rapidly, but the speed depends on the desired brain frequency.

The discrete nature of isochronic tones makes them particularly easy for the brain to follow.

4.8. Why are there lights in the earphones?

The lights in the ears are set to the optimum frequency for creating a delightful feeling of serenity and balance. The earphone lights work by stimulating the ear meridians with gentle frequency pulses - so gentle that they are not visible to the human eye - to soothe, harmonize, calm and balance you.

4.9. How important are the music and tones?

The best brainwave entrainment is auditory as well as visual. Environmental sounds and music have been used for centuries in almost all cultures to create an altered state of consciousness. For example, native tribes used drums, chants, and environmental sounds like wind and rain to provide strong mental pictures and associations. There is a reason we find it relaxing to sit by the ocean and listen to waves crashing to shore or the sound of a stream as it trickles over rocks. These pleasant sounds tend to generate alpha brainwave activity naturally.

In today's frenetic culture, though, we rarely get to enjoy nature's relaxing effects. For this reason, Dr. Porter has personally encoded each session so that on a daily basis you can get a perfectly synchronized experience similar to that which nature provides. Plus, because the program is encoded into the digital audio file, you can use the BrainTap headset with any of today's high quality music players, such as the iPod or iPad, to ensure the best possible sound quality.

The music you hear on every BrainTap Technology process was composed specifically to complement the alpha/theta brainwave entrainment. The music is designed to create a full 360-degree experience that floods your mind with beautiful images and peaceful thoughts.

4.10. Why are LED's used instead of incandescent lights?

Light emitting diodes, also called LEDs, are solid-state devices that convert small amounts of safe electrical energy into light. They can be switched on and off much faster than incandescent lights, producing the crisp strobe-like pulses most

effective at inducing the frequency following response needed to guide the user through the brainwave states. For BrainTap, blue LEDs were chosen for their pure, cool, calming color. Our operational research showed that users preferred the blue effect through closed eyes more than any other LEDs available. It is important to note that a person who is prone to seizures should not use the light portion of the BrainTap headset system.

4.11. Are the audio sessions effective without the Braintap headset?

Visualization and guided imagery techniques have been around for decades. These are scientifically proven modalities for behavior modification, stress relief and self-improvement. Now they are made even more effective with the added benefit of brainwave entrainment through BrainTap Technology. While there is a wide assortment of relaxation training systems, such as autogenic (self-produced) training, progressive relaxation, meditation, and biofeedback to name a few, most of these take conscious effort. With the breakthrough of the BrainTap headset, you don't have to "believe in" or "do" anything. You are immersed in the experience and don't have to create it.

4.12. Why are there sometimes two voices on the Braintap audios?

When you hear a second voice coming through one side the headphone and then other, it's not a mistake! This is a technique called "Dual Voice Processing." Dr. Porter intentionally recorded the sessions in this way to provide your brain a full holographic experience. The second voice moving from right to left and back again is there to stimulate right and left hemisphere balance. It may seem a little disconcerting at first, but don't worry, your brain will adapt quickly. The good news is, you don't have to consciously listen to any of the voices, so just relax and let it happen. The sessions that have Dual Voice Processing are marked "DV" and those that don't will be marked "SV" for single voice.

4.13. What happens during a Braintap session?

With the BrainTap Headset visor over your closed eyes and headphones over your ears, you are immersed in a perfect mixture of light and sound frequencies. Your eyes will be treated to a beautiful light show while you listen to specially designed

music and the guided BrainTap Technology process. This all combines to enhance your experience and invite a higher degree of alpha/theta brainwave activity.

Some people may experience colorful geometric patterns while others may lose track of the lights completely. The light and sound pulse rate shifts from wide-awake beta to a dreamy drowsy state of theta as the session progresses. Using the science of frequency following response (FFR), your brainwave activity will follow the pulse rate of the Neuro-Sensory Algorithms. At the same time, your mind rehearses the changes or improvements you desire for your life.

4.14. What is it like to experience Braintap?

One of the best definitions of the BrainTap experience came to Dr. Porter from a satisfied client, who said, “It feels like my body fell asleep, but my mind stayed awake.” This is because BrainTap generates a natural state, very much like sleep. You are then provided information that you want to apply when you are awake. This is called anchoring your vision to your timeline. It works like writing yourself a sticky note and posting it somewhere to remind you later.

Most people who want to make a change in their lives have the best intentions in the world, but the reality is, we get what we rehearse in life, not necessarily what we intend. Through BrainTap, you rehearse the new behaviors, attitudes, and beliefs you want and create in your mind a timeline for success.

During a BrainTap session, you visualize new responses to old behavioral triggers. Then, when you encounter the old triggers, you’ll simply “forget to remember by remembering to forget.” As your new responses take hold, you’ll be convinced that you can acquire tobacco-free behaviors, think and act like a naturally thin person, or change any negative, unwanted behavior. It’s that easy!

4.15. What are the benefits of using the Braintap headset?

Today, people spend thousands enhancing their bodies, but do nothing to improve the quality of their thoughts. The truth is, we can accomplish far more by managing brainwave activity and mentally rehearsing the positive, productive and healthy lifestyle we all want. Now, it couldn’t be easier because the benefits of the BrainTap headset can be virtually limitless.

- Deep relaxation stimulates the production of natural, stress and tension-relieving neurotransmitters, such as endorphins.
- Helps change unwanted behaviors and habits, including those contributing to smoking and over-eating.
- Balances the brain's right and left hemispheres, inspiring both focus and creativity.
- Promotes relaxation, which contributes to maintaining healthy sleep.
- Brings more blood flow to the brain for clearer thinking and better concentration.
- Alleviates negative mind chatter and enhances motivation and performance.
- Decreases or eliminates jet lag.
- And last, but certainly not least, provides a natural ability to put stress in its place!

The majority of users report stress relief through deep relaxation, maintaining healthy sleep patterns, improved memory, improved learning skills such as concentration and recall of information, a sense of calm, increased focus, lucid dreaming, and increased physical energy.

Please be aware that while the BrainTap Headset is designed to help you reach your full potential, we cannot guarantee your results. Please understand that results will vary from person to person.

4.16. How does Braintap produce such amazing results?

The BrainTap system is designed to program behaviors so they become natural, unconscious, and automatic. You know how to drink water. You know which foods are more natural for your body. You know what exercise is. You already have these abilities. Our focus is not to give you these abilities but rather to give you a response to those abilities, thus creating responsibility. In other words, it gives you the access to the abilities you already possess! BrainTap provides the motivation, the determination, and the drive to succeed. It's a common experience that what the mind thinks about the mind brings about. The BrainTap headset is designed to help you to get into that powerful brain wave state where you can impress upon your mind the results you want in life.

4.17. How soon will I notice results?

Over 90 percent of those trying the BrainTap headset for the first time report feeling refreshed and energized right after the first process. While individual results will vary, many people report feeling more positive and motivated after just a session or two. Dr. Porter encourages everyone to listen to the full series to reap the most benefit. Those using the Habits of Naturally Thin People series may notice habit changes, such as a positive attitude about healthy foods or a desire for water, right after listening to the first process. Golfers regularly report feeling more relaxed and confident the first time out on the course after listening to Dr. Porter's Mental Coaching for Golf processes.

4.18. How will I know I've reached alpha or theta?

Everyone's experience is unique. No two people experience the same feelings or sensations while using the BrainTap headset system, and your experience will likely vary from one session to the next. You might experience lightness, heaviness, or a tingling sensation. You might even feel your eyelids flutter. You may feel as if you are drifting in and out of conscious awareness or feel dreamy, similar to how you feel right before falling asleep at night. Sometimes, as you release tension, your body might jerk or twitch. All of these are indicators that you are experiencing the alpha/theta state the BrainTap headset is designed to create.

4.19. Is it safe?

Absolutely. The only known side effects are improved memory, great sleep, focus, concentration, and reduced stress. However, flashing lights have been known to cause problems in people who suffer from serious medical conditions like epilepsy, seizure disorders, brain injury, or photosensitivity. If you have any of these concerns, you should ask your medical professional if light and sound technology is right for you.

4.20. Who can benefit from Braintap technology?

Anyone who is not sensitive to flashing light can benefit from BrainTap technology. The BrainTap Headset, used in combination with the guided visualization

audio-sessions creates a potent tool for creating laser-like focus and enhanced performance.

The light intensity on the BrainTap Headset is adjustable, so those who have minor light sensitivity can almost always find a setting that's right for them. Those diagnosed with light sensitivity seizures should not use the flashing lights in the visor, but can experience the profound benefits of the guided visualization, auriculotherapy and relaxing tones.

4.21. Can everyone use the Braintap headset?

Generally speaking, any person can achieve alpha/theta brainwave states and can benefit from BrainTap Technology. However, the sessions are recommended for persons with a healthy brain. Persons with severe mental disorders should not use the BrainTap Headset. Flashing lights have been known to trigger seizures in certain cases. While this disorder is rare, people who have a seizure disorder of any kind should not use the lights in the visor. These people can still benefit without the lights. If you are unsure, ask your doctor before proceeding.

4.22. Can children use the Braintap headset?

As long as the child can sit still in a chair for 10 or 20 minutes, the BrainTap headset can be of benefit, and there are a variety of sessions geared toward children, tweens and young adults. We have children as young as five years old using the technology before bed and getting great results. The "Accelerated Learning Series" can be used by teens and adults alike.

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