Increased calmness and intensity of focus, for both trainer and trainee, through the Solfeggio Frequency Arpeggiation (SOLFA) mind-body intervention technique.

Abstract

SOLFA is a stress relief, mood changing, and focusing technique that was developed during the process of a PhD study. The SOLFA praxis is designed to deliver verbal clues (the training program) and is accompanied by specific low intensity sound vibrations and brain entrainment frequencies, as well as colour flooding, for greater effectiveness of message delivery. To date, qualitative workshops trials have been conducted with some five hundred people to determine the calming and focusing influence of the technique. SOLFA has also been incorporated in a stage production so as to establish the acceptance of the praxis as a program delivery tool with the general public, in an entertainment forum. Specific technically incorrect performance styles were used to gauge the effectiveness of the technique in keeping the audience attentive and emotionally engaged, all the while actors also reported a beneficial mood change, greater calmness, and an increased focus on tasks. Further collaborative, qualitative and quantitative experimentation could lead to the development of precise SOLFA modules for specific purposes. Use of such a training method could decrease the effect of any unsettling influences, while increasing mindfulness, as well as the effectiveness and expediency of the program delivery.

Introduction

My vocational training skills are confined to practical experience in commerce and industry, which spans over a period of more than forty years. As a manager, and later business proprietor, it was in my interest to have well trained staff. During the 1970's and 1980's such training was based on the American motivational model pioneered by Carnegie and advanced by a succession of motivational speakers and trainers. What stood out was that people could be easily influenced, both favourably and unfavourably, if the right approach was taken. This influence, which I call extrinsic influence, can be observed being applied in many different ways in our modern consumer society and sometimes can produce a group mentality. One of the most common extrinsic influences in current society, amongst other, is the easy access to information and the speed with which people can contact each other or interact on social media. This ease of access may come at the cost of the loss of tranquillity and a reduction of focus required for effectively learning.

In today's fast paced environment many things can sidetrack a person's mind from a basic and personally intrinsic intent. We can forget the innate connection to nature, and even no longer take time to try and make sense of things. Answers seem instantly available at the press of a button, so often that we could easily become blinded by such readily available information and lose touch with the obvious. Or in other words, lose ourselves and become like an automaton; a mere extension of gadgets. With all the information that is available, we could easily become stressed, and in fact many do, as our minds attempt to keep up with it all. Modern technology can therefore be a double edged sword, at once helpful whilst also having the potential to increase the pressure on

the human psyche, in having us decide what is more important to our wellbeing and we could become affected by distractions that change our focus and mood. When the minds of trainer or trainee become influenced by such unexpected diversions then the effectiveness of the training program could become reduced; whereas a calm and focused mind increases the effectiveness and expediency of transferring knowledge. For this reason calming practices that relieve stress, increase focus, and decrease the effect of extrinsic influence can have a beneficial effect on both trainer and trainee.

The SOLFA praxis

The SOLFA praxis uses a combination of four energy transferring techniques. Combined they have produced some noteworthy calming, mood changing, and wellbeing experiences. Solfeggio and binaural beat frequencies, as well as colour waves are directed towards the body's energy field, and are believed to produce a favourable osmotic affect on the human system, while verbal prompts similar to theatrical monologues or dialogues are used to guide people into a contemplative, high intense focus, or alternatively into a dream state.

1. Solfeggio is a six tone resonance as well as a musical system where each note of a score is sung to a specific sol-fa syllable and each tone corresponds to certain cycles per second, or Hertz (Hz) frequency. Later a seventh note (ti/si) was added in memory of Pope Johannes, also known as St. Johannes. Early Christian Gregorian (St. Gregory, 590-604) chants are said to have been sung in such tonality, but these frequencies have become lost over time through a gradual Galician and Gregorian assimilation. This

changed the frequency of the notes that are in common use today. In more recent times Dr. Joseph Puleo, a naturopathic physician and herbalist continued the Gregorian chant research began by Willi Apel and investigated the deeper meaning of the hymn to John the Baptist in its more ancient wording and uncovered references made regarding an ancient healing code through vibrations. Puleo used the Pythagorean method of finding the single value of a number and arrived at frequencies that revert to a recurring number sequence of nine, six, and three, which by some is believed to represent the numbers of creation, or sacred geometry, as expressed by fractals. These frequencies also seem to correspond with the arrangement of the seven Eastern philosophical chakras, which from a Western perspective could be considered to be energy vortexes that centre on the glands of the endocrine system. From an Eastern philosophical perspective, these vibrations might help to return the human system to a state of equilibrium.

396 Hz = 9 **root chakra – supports the material existence**
417 Hz = 3 **sacral chakra – supports creativity and procreation**
528 Hz = 6 **life force chakra – supports body functions**
639 Hz = 9 **heart chakra – supports the expression of feelings**
741 Hz = 3 **throat chakra – supports interaction/ communication**
852 Hz = 6 **pineal/third eye chakra – supports intellect and body/mind/soul realization**
963 Hz = 9 **crown – supports cosmic connection**

2. Binaural Beats, which were discovered by physicist, Heinrich Wilhelm Dove, are a response to specific sound stimuli where auditory perceived sound-waves create the perception that sounds arise in the brain. The human ear utilizes the ability to analyze the direction of a sound source by identifying the split second time difference between the sound arriving at each ear. So, if different sinusoidal signals are delivered then there will be a minute difference between the sound arriving at each ear due to wave length. This is believed to produce a balance between the left and right cerebral hemisphere of the brain and creates a state of mind state that is called ‘brain entrainment’. The effect on

brainwaves depends on the difference in frequencies of each tone: for example, if 407Hz was played in one ear and 417Hz in the other, then the binaural beat would have a frequency of 10Hz, which is that of a typical dream wave state frequency. Gerald Oster enlivened the interest in binaural beats and identified the potential for the technique to be used in cognitive research and as a diagnostic tool for finding and assessing auditory impairments and general neurological conditions. For instance, by working with patients suffering with Parkinson disease he found that some patients could not perceive binaural beats in the beginning, but could do so after a few days. Extensive use of binaural beat stimulation has shown that a variety of states of consciousness can be induced, and some work has been done to evaluate the effects of stimuli on these states of consciousness (Hutchison, 1986).

Human hearing perceives a range from 20Hz to approximately 20,000Hz however the common frequencies of human brain waves are usually below 40Hz. To account for the lack of perception below 20Hz, binaural beat frequencies are utilized to entrain the brain. Repeated training to distinguish between sounds of close frequencies results (due to brain plasticity) in reorganization of the brain towards such trained frequencies, as well as the capability of asymmetric balancing of the hemispheres of the brain. When a stimulus is received that is within the frequency range of brain wave oscillations in the alpha, beta, delta, gamma, or theta brainwave range, the subject's predominant brain wave frequency might then adjust to the frequency of the stimulus, and this is referred to as entrainment. Experimentally measured beat frequencies of up to 40Hz have been produced in the brain with binaural sounds and it was also found that the binaural beat stimulus can be aural or visual. The beta state of consciousness 13-40 Hz is the fully awake and alert state and

people spend most of their waking time in this state. It is associated with alertness, worry, stress, fear, anger, weakened health, nervousness, anxiety, and depression.

Of particular interest to this exploration are the alpha, theta, and brainwave states. The Alpha state, 7-13 Hz, supports calmness and tranquility that results in effortless creativity as experienced in a state of "flow". It reduces fears and phobias, and is considered a powerful state of learning. The theta stage is considered to produce insight, inspiration, and intuition and is good for problem solving. It feels like floating with dream-like imagery and experiencing oneness with all there is. Delta 0.5-4 Hz is a state of dreamless sleep and renewal and healing and portal to the non-physical state. It is considered an excellent state for immune system functioning and restoration of good health, whilst below 0.5 Hz produces a deep meditative state as experienced by advanced yogis. In the late twentieth century, a number of investigations supported claims that binaural beats can help induce relaxation, meditation, creativity and other desirable mental states, such as control over pain.

Experiments conducted by sound technician Noel Davies (of Jandakot Digital Recording Studio), under my direction, have shown a variety of possible applications by shifting phase and frequency of two sound waves to achieve brain entrainment. A left to right and right to left energy flow was also created by such means and it was found that different parts of the body could be stimulated with combinations of Solfeggio and binaural beat frequencies. For instance, the 43.5min SOLFA workshop soundtrack has 'slow wave sleep' delta frequencies of less than 1Hz included in three sections ranging from 0.3min to 2.3min in duration. Participants recorded a feeling of belonging when for 7min gamma

range frequencies between 27Hz and 43.5Hz were played, believed to promote group mentality. For instance we have found that perfect strangers began interacting after prolonged use of such frequencies. For 22 min left to right and right to left brain entrainment energy applications were explored and specific chakras targeted. Whilst the use of headphones proved most effective for the praxis, two powerful speakers correctly positioned sometimes also produced observable results. Low volume as well as full volume delivery of the praxis showed effectiveness. In the training industry brain entrainment frequencies between 4 and 13 Hz could be considered to be of greatest benefit.

3. **The use of colour:** The colours of the rainbow, which correspond to the atomic spectral colours are perceived by advanced practicing Yogis in deep meditation. This prompted me to explore this a bit further. Whilst sound vibrations need a medium like air or the cellular water content to be effective, light can travel even through a vacuum and therefore might have an even deeper osmotic effect on the human system at the microscopic level. Kriya Yogis record achieving soul-mind-body synchronization that keeps the human system in a state of equilibrium and so corresponding colour flooding was added to the praxis

4. **Theatre monologues** and dialogues and for educational purposes training texts have been added during praxis explorations. In a relaxed state, as occurs during a SOLFA workshop, where mind interference has been minimized through the use of binaural beats, enhanced focus has been recorded by participants. Messages received under such conditions could be anticipated to be more readily absorbed by the mind. For instance,

Bulgarian psychiatrist Georgi Lozanov found that students could learn over five times as much with less study time per day, with greater long-term retention and in less time (Harris, 2007 pg161).

The Solfeggio arpeggiation technique was designed to create some form of melody that it is pleasing to the ear. For the workshop CD, more than one hundred ambient sounds were recorded, desired parts were selected and electronically adjusted, and binaural beats were then added. This was pieced together to form a sound stream and then synchronized with corresponding colours and presented as 'Sound and Light Shows' or as stress relief and wellbeing workshops, which were held in various venues and once even under the stars on a school playground.

Three more CD tracks were recorded to date. The 528 frequency soundtrack relates to 'MI' on the Solfeggio scale, which is derived from Latin "*mi-ra gestorum*" meaning "miracle". This frequency is believed to have a healing capacity and is apparently used by genetic biochemists to repair DNA. The third CD is a recording of the six pure Solfeggio tones with added binaural beat frequencies and is used for specific exploration work. The fourth soundtrack was developed for the performance of "The ordinary journey of Mr. ODD". This soundtrack led the audience, in the first act, through the chakra frequencies from 852 Hz (intellect) to 396Hz (root chakra) to arouse a passion for material experience. In the second act a reverse order was used, from 396Hz, or passionate life expression back to the crown (963 Hz) - which is believed to represent the body body/mind/soul realization potential.

Methodology

This explorative and qualitative PhD research is informed by the phenomenology of personal experience, as well as by anecdotal evidence, and by questionnaires. My personal contribution towards the value of applied resonance was after I suffered a heart attack in September 2010. After surgery I was determined to explore the beneficial qualities of Solfeggio frequencies, as suggested by a friend, as well as try out some commercially available brain entrainment CD's. From the moment that I woke in intensive care, I began listening to Solfeggio sounds and brain entrainment resonance and continued to do so over the next four days, even whilst eating and sleeping. I refused sleeping tablets and analgesics and on the fifth day I was discharged. On the twelfth day I returned to work for very light duties. I believe that this resonance therapy might have contributed to my speedy recovery by diverting my mind from the trauma of surgery and the emotional mind evaluation of some likely life-outcomes. This first experience with resonance led to further experimentation and the Solfeggio Frequency Arpeggiation (SOLFA) technique, in its most basic form, can now simply be experienced through the ear phones of a CD player, or delivered by loudspeakers.

The methodology used to acquire information from others were five workshops at the Murdoch University, Drama workshop and eighteen semi-commercial workshops at the Calvert Music Centre, South Fremantle Senior High School, as well as a theatrical production, "The ordinary journey of Mr. ODD" that was staged at the Murdoch University, Nexus Theatre. Information from a number of less controlled workshops, a

number of Sound and Light Shows, as well as one-on-one experimentation, also added to the overall knowledge. At the time of writing, in excess of seven hundred people have in some form experienced the effect of the SOLFA technique. Overall, some of the voluntary completed questionnaire responses, record for both satisfaction and stress relief, a level in excess of 8 on a scale of 1 (lowest) to 10 (highest).

Findings and discussions

Our first experience with the effects of the SOLFA resonance was during the recording sessions, where we listened to Solfeggio sounds and binaural beats for four hours at a time. Both, the sound technician and the participating musician described the experience as incredibly soothing. After many months of recording the experience remains as calming as it was on the first day.

The most memorable first report was received from my son's friend who has muscular dystrophy. When asked what he thought of it, he replied, "I have lost my mind", explaining that relying on others to assist with the most basic functions like eating, drinking, toiletry, and so on, his mind was continually occupied in thinking about it. After listening to the CD, he became aware that his mind was suddenly clear of such recurring thoughts. To relieve a person from an overactive mind and habitual thoughts like worry, fear, anxiety, stress, and anger, even for short periods of time, could have beneficial effects on their wellbeing. Interesting results were reported when the workshop soundtrack was played (even at low volumes) to autistic teenage students, with the most unruly sitting down behind his desk and gently shaking his head. Another result was

reported by the mother of autistic teenage twins, where a reduction in unruly and abusive behavior was recorded over a period of time. A longer term balancing effect of the human system might also occur. Personal experience, as well as reports from a number of people that are using the sound track during computer work has shown that the initial drowsiness and urgency to sleep, experienced during workshops, diminished and that productivity increased.

Recently I have become further encouraged when a gentleman declared deaf since birth, was played the Sound track from the play, “The ordinary journey of Mr. ODD”, and showed awareness of the Solfeggio resonance, but as soon as the section with Tchaikovsky’s 1712 overture came on he no longer was able to recognize the sound and sat there waiting, oblivious that music was being played. This could also indicate that the resonance of the common seven tone music might have a different effect on a person and this would agree with Puleo’s theory that the Solfeggio frequencies have specific balancing and calming qualities.

Another notable experience was when an elderly lady, severely shaking in the beginning, left the workshop without visible shakes. Several times it was observed that people were shaking quite strongly during a workshop, seemingly in a trance and oblivious to the surroundings, only to have them report afterwards that they felt very relaxed. The most unexpected experience was when a gentleman made wild involuntary movements with his right leg. After the session, as was usual practice, I asked participants if they had experienced something unusual. As there was no response from this particular man I asked if he would mind telling me what had happened with his right leg. He was very

confused and even more so when I told him that I had seen his leg wildly jerking. So I enquired if he perhaps had had an accident. “Which leg?” he asked. “The right one” I said. “Oh”, he replied, “I had a motorcycle accident and I have a metal pin in my leg.”

Conclusion

The SOLFA technique is not claimed to be a healing cure as might be promoted by some new age philosophy or other unorthodox practices. I believe that the observed effectiveness is a result of the calming and balancing effects of the combined wave expression techniques. Further qualitative and quantitative experimentation could lead to the development of precise sound tracks for specific purposes, like for instance for fast stress relief after trauma, greater focusing ability in the training environment, or for mitigating psychological and stress related conditions. The technique might also prove useful for people with certain hearing problems, autism, or some spastic or epileptic conditions like those experienced by my son whose condition has markedly improved, and whose assistance in the evaluation of experimental sounds was of great help. An adequately funded and controlled interdisciplinary study might identify some interesting applications and discover even greater potential for the technique’s use. Above all, the technique could be helpful for general use by those in the community who are affected by stress due our modern lifestyles.

Bibliography

Apel, Willi, *"The Central Problem of Gregorian Chant," Journal of the American Musicological Society 9, 118-127, 1956.*

Apel, Willi, *Gregorian Chant*, Indiana School of Music, Bloomington, IN:, Indiana University Publications, 1958.

Barba N.E., Savarese. *A., Directory of Theatre Anthropology, the Secret Art of the Performer* London: Routledge, 1991

Beatty J, Greenberg A, Deibler WP, O'Hanlon JF (1974). "Operant control of occipital theta rhythm affects performance in a radar monitoring task". *Science* **183** (4127): 871–3. doi:10.1126/science.183.4127.871. PMID 4810845, accessed Sept. 2012.

Besant, A, Leadbeater, C.W., *Man: How, Whence, and Whither?*, Introduction page vii, Theosophical Publishing House, Adyar, India, 1913.

Boal, Augusto, *The Rainbow of Desire: the Boal Method of Theatre and Therapy*, London: Routledge, 1995

Brennan, Barbara, *Hands of Light*; Bantam Books, Transworld Publishers, 1993.
Bruce Robert, *Astral Dynamics: The Complete Book of Out-of-Body Experiences*, ch 24, Hampton Roads Publishing Company, VA., 2009.

Campbell, Thomas, *My Big TOE: The Complete Trilogy*, Lightning Strike Books; 1st edition, 2007.

Campbell, Tom and Dennis Mennerich, Interview: *The Value of Intuition*, 2010, www.youtube.com/watch?v=3P36dTa-zpI, accessed Sept 2011.

Csikszentmihalyi, M. Csikszentmihalyi and I. S., ed. *Optimal Experience*. New York: Press Syndicate of the University of Cambridge, 1988.

Cvetkovic D, Simpson D, Cosic I, "Influence of sinusoidally modulated visual stimuli at extremely low frequency range on the human EEG activity". *Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Conference* **1**: 1311–4, 2006, doi:10.1109/IEMBS.2006.259565. PMID 17945633.

Dyer, Wayne, *The Power of Intention*, Alexandria, Australia Hay House Australia Pty. Ltd. 2000

Dobie RA, Norton SJ "Binaural interaction in human auditory evoked potentials". *Electroencephalography and clinical neurophysiology* **49** (3-4): 303–13. – 1980. doi:10.1016/0013-4694(80)90224-2. PMID 6158406.

Elkins, Rueckert, McCarty, *The Ra Material: An Ancient Astronaut Speaks*, p. 141, Virginia, The Donning Company, 1984.

Goffman, Erwing, *The presentaiton of Self in Everday Life*, University of Edinburgh Social Science Centre, Anchor Books, 1959.

Goffman, Erwing, *Asylums: Essays on the Social Situation of Mental Patients and Other Inmates*. Doubleday, New York., 1961.

Gottselig JM, Brandeis D, Hofer-Tinguely G, Borbély AA, Achermann P, "Human central auditory plasticity associated with tone sequence learning". *Learn. Mem.* **11** (2): 162–71.2004, doi:10.1101/lm.63304. PMC 379686. PMID 15054131.

Gruzdev N. V., Spivak D. L. An exploratory investigation into the association of neuroticization, cognitive style, and spirituality to reported altered states of consciousness in women experiencing childbirth // *International Journal of Transpersonal Studies*. — 2006. — Vol. 25, No. 1. P. 56-61.

Harris, B., *Thresholds of the Mind,* Centrepoint Research Institute, USA, Oregon, 2007.

Hutchison, Michael M. *Megabrain: new tools and techniques for brain growth and mind expansion*. New York: W. Morrow, 1986.

James, John, *THE GREAT FIELD, The Soul at Play in a Conscious Universe,* USA, Elite Books, 2007.

Kliempt, Ruta, Ogston, Landeck & Martay, Jan 2000, Hemispheric-synchronisation during anaesthesia: a double-blind randomised trial using audiotapes for intra-operative nociception control, Jan 2000, retrieved July 2011.

Lane JD, Kasian SJ, Owens JE, Marsh GR (1998). "Binaural auditory beats affect vigilance performance and mood". *Physiol. Behav.* **63** (2): 249–52. doi:10.1016/S0031-9384(97)00436-8. PMID 9423966, 1998.

Lavallee, Christina F.; Koren, Persinger, (7). "A Quantitative Electroencephalographic Study of Meditation and Binaural Beat Entrainment". *Journal of Alternative and Complementary Medicine* **17** (4): 351–355, 2010, doi:10.1089/acm.2009.0691. PMID 21480784. Retrieved 10 March 2012.

Leadbeater, C.W., *Man, Visible and Invisible*; THE THEOSOPHICAL PUBLISHING HOUSE Adyar, Madras 600 020, India; Wheaton Ill., USA. London, England, 1902.

Ludwig, Arnold, M., "*Altered States of Consciousness* (presentation to symposium on 'Possession States in Primitive People')". *Archives of General Psychiatry*, volume 15 No. 3, September 1966. Retrieved 29 September 2010.

Martin, Barbara, Y., *Change Your Aura, Change Your Life*. CD, retrieved Sept. 2012, http://www.spiritualarts.org/publishing/

Mennerich, Dennis, *Meeting Tom Campbell and Robert Monroe for the First Time,* www.youtube.com/watch?v=2DeuUG9OHqs, Retrieved 2012.

Mennerich, Dennis, *His Personal Journey into the Nature of Reality*, www.youtube.com/watch?v=SoTpu4jDiSo, retrieved 2012.

Menning H, Roberts LE, Pantev C., "Plastic changes in the auditory cortex induced by intensive frequency discrimination training". *Neuroreport* **11** (4): 817–22, 2000. doi:10.1097/00001756-200003200-00032. PMID 10757526.

Monroe, Robert, Out of body experiences, www.higherconsciousness.tv, accessed, July 2012.

Moushegian G, Rupert AL, Stillman RD, "Evaluation of frequency-following potentials in man: masking and clinical studies". *Electroencephalography and clinical neurophysiology* **45** (6): 711–18. 1978, doi:10.1016/0013-4694(78)90139-6. PMID 84739.

Oster, Gerald, *Auditory Beats in the Brain,* Scientific American, 1973.

Powell, Arthur, A., *The Astral Body and other Astral Phenomena*, The Theosophical Publishing House, London, England; Wheaton,Ill, U.S.A.; Adyar, Chennai, India, 1927, reprinted in 1954 and 1965, page 7, online July 2012 at http://hpb.narod.ru/AstralBodyByPowell-A.htm.

Horowitz, Leonard, Joseph E. Barber, *Healing Codes for the Biological Apocalypse*, Healthy World Dist, 1999, p.166.

Rogers LJ, Walter DO, 1981, "Methods for finding single generators, with application to auditory driving of the human EEG by complex stimuli". *J. Neurosci. Methods* **4** (3): 257–65, 1981. doi:10.1016/0165-0270(81)90037-6. PMID 7300432 accessed March 2011.

Schechner, Richard, *The End of Humanism*, New York: Performing Arts Journal Publications., 1982

Sheldrake, Rupert, *Morphic Resonance and the Presence of the Past, The habits of nature*, Rochester, NY: Times Books, New York. 1988

Smith JC, Marsh JT, Brown WS (1975). "Far-field recorded frequency-following responses: evidence for the locus of brainstem sources". *Electroencephalography and clinical neurophysiology* **39** (5): 465–72. doi:10.1016/0013-4694(75)90047-4. PMID 52439.

- "Human auditory frequency-following responses to a missing fundamental". *Science* **201** (4356): 639–41. doi:10.1126/science.675250. PMID 675250, 1978.

Smith JC, Marsh JT, Greenberg S, Brown WS, "Human auditory frequency-following responses to a missing fundamental". *Science* **201** (4356): 639–41.1978, doi:10.1126/science.675250. PMID 675250, accessed Feb, 2011.

Schwarz DW, Taylor P., "Human auditory steady state responses to binaural and monaural beats". *Clinical Neurophysiology* **116** (3): 658–68, 2005, doi:10.1016/j.clinph.2004.09.014. PMID 15721080, accessed April 2011.

Tart, Charles T. *Altered states of consciousness: a book of readings*. New York: Wiley, 1969.

Turner, Victor, *Drama, Fields, and Metaphors; Symbolic Action in Human Society*, Cornell University Press. Ithaca, 1974.

- *The Anthropology of Performance*, PAJ Publications, 1986.

Turner, Victor, Shechner, Richard, *The Anthropology of Performance*, PAJ Publications, 1988.

Van-Gelder-Kunz, Dora, *The Personal Aura*; Quest Books, 1991.

Wahbeh H, Calabrese C, Zwickey H., "Binaural beat technology in humans: a pilot study to assess psychologic and physiologic effects". *Journal of alternative and complementary medicine* **13** (1): 25–32., 2007. doi:10.1089/acm.2006.6196. PMID 17309374, accessed Jan 2011.

Wahbeh H, Calabrese C, Zwickey H, Zajdel J., "Binaural Beat Technology in Humans: A Pilot Study to Assess Neuropsychologic, Physiologic, And Electroencephalographic Effects". *Journal of alternative and complementary medicine* **13** (2): 199–206, 2007. doi:10.1089/acm.2006.6201. PMID 17388762, accessed Jan 2011.

Yamada, O. et al, "Simultaneous recordings of the brain stem response and the frequency-following response to low-frequency tone". *Electroencephalography and clinical neurophysiology* **43** (3): 362–70.-1977, doi:10.1016/0013-4694(77)90259-0. PMID 70337, accessed Feb 2011.

Yogananda, Paramahamsa, 1946-2004, *Autobiography of a Yogi*, Australia, Axiom, 1946-2004.

Yukteswar Swami Sri, *The Holy Science*, Selfrealization Fellowship, Los Angeles, USA., 1990