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Vestibular Stimulation Research Overview

Compiled by Dr. Adrian Larsen

Vestibular Stimulation refers to motion-stimulation of the vestibular system in the inner ear. This important sensory system provides significant input into the brain, which is used to process motor activity, postural control, and balance.

At TWC, the rotation of the Theta Chamber provides vestibular stimulation during treatment. This stimulation synergistically combines with the other concurrent treatment modalities to make significant neurological changes in the client.

Numerous studies have shown vestibular stimulation to affect brain development, integration and intelligence. Behavior modification has also been shown. The following are a sampling of the effects reported in literature:

- Developmentally delayed children displayed significant advances in speech development after vestibular stimulation treatment.[1]
- **A meta-analysis of 14 studies using vestibular stimulation revealed that subjects receiving vestibular stimulation performed significantly better than members of control or comparison groups who did not receive such stimulation.[2]**
- **Children exposed to vestibular stimulation showed significant motor and reflex changes[3] and significant improvement in gross motor skills.[4]**
- **Vestibular stimulation made impressive improvements in behavior of children diagnosed with ADHD. Improvement persisted through follow up one year later.[5]**

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[1] Magrun M et. al. **Effects of vestibular stimulation on spontaneous use of verbal language in developmentally delayed children.** American Journal of Occupational Therapy, 2: 101-104. (1981).

[2] Ottenbacher KJ. **The Efficacy of Vestibular Stimulation as a Form of Specific Sensory Enrichment.** Quantitative Review of the Literature. Pediatrics, Vol. 23, No. 8: 428-433 (1984)

[3] MacLean WE and Baumeister AA. **Effects of vestibular stimulation on motor development and stereotyped behavior of developmentally delayed children.** Journal of Abnormal Child Psychology Vol. 10, No. 2: 229-245 (1982)

[4] Clark DL et. al. **Vestibular stimulation influence on motor development in infants.** Science 10 June 1977: Vol. 196. no. 4295: 1228 – 1229

[5] Arnold LE et. al. **Vestibular and visual rotational stimulation as treatment for attention deficit and hyperactivity.** *American Journal of Occupational Therapy, 39*, 84–91. (1985)

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CES Research Overview

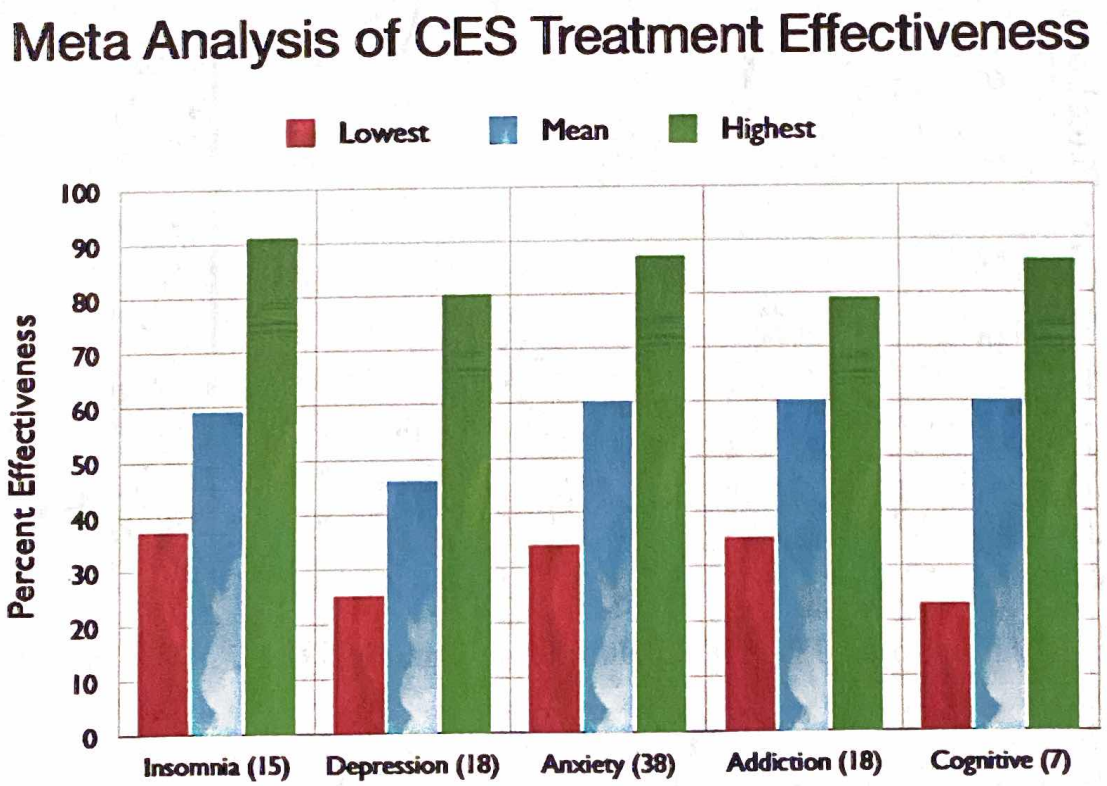
Compiled by Dr. Adrian Larsen

Cranial Electrotherapy Stimulation (CES) is an FDA-cleared treatment for anxiety, depression and insomnia. Using precisely tuned, subtle electrical impulses, CES stimulates specific parts of the brain to revert to normal production of neurotransmitters. The result is properly balanced brain chemistry and the reduction of elimination of symptoms. [1]

The electric currents used in CES are similar to those naturally produced in the brain; they are safe and often not even felt by our clients.

The use of CES for addiction was pioneered by Dr. Margaret Patterson, beginning in Hong Kong in the 1970's. By the late 1970's, Dr. Patterson had perfected her techniques and was treating addiction with great success. She developed a following among professional musicians, and her success stories include Pete Townshend, Boy George, Eric Clapton, and Keith Richards among others. [2] [3]

In modern use, a variety of devices are commercially available for the treatment of depression, anxiety and insomnia, and a large number of high-quality research studies have been published. Meta-analysis of CES studies shows the following results:



[1] Smith RB. **Cranial Electrotherapy Stimulation: Its First Fifty Years, Plus Three.** Monograph 2006

[2] McAuliffe K. **Brain Tuner.** Omni January 1983: 44-48, 115-120

[3] Patterson, M. **Hooked? NET: The New Approach to Drug Cure.** The Long Riders' Guild Press 2007

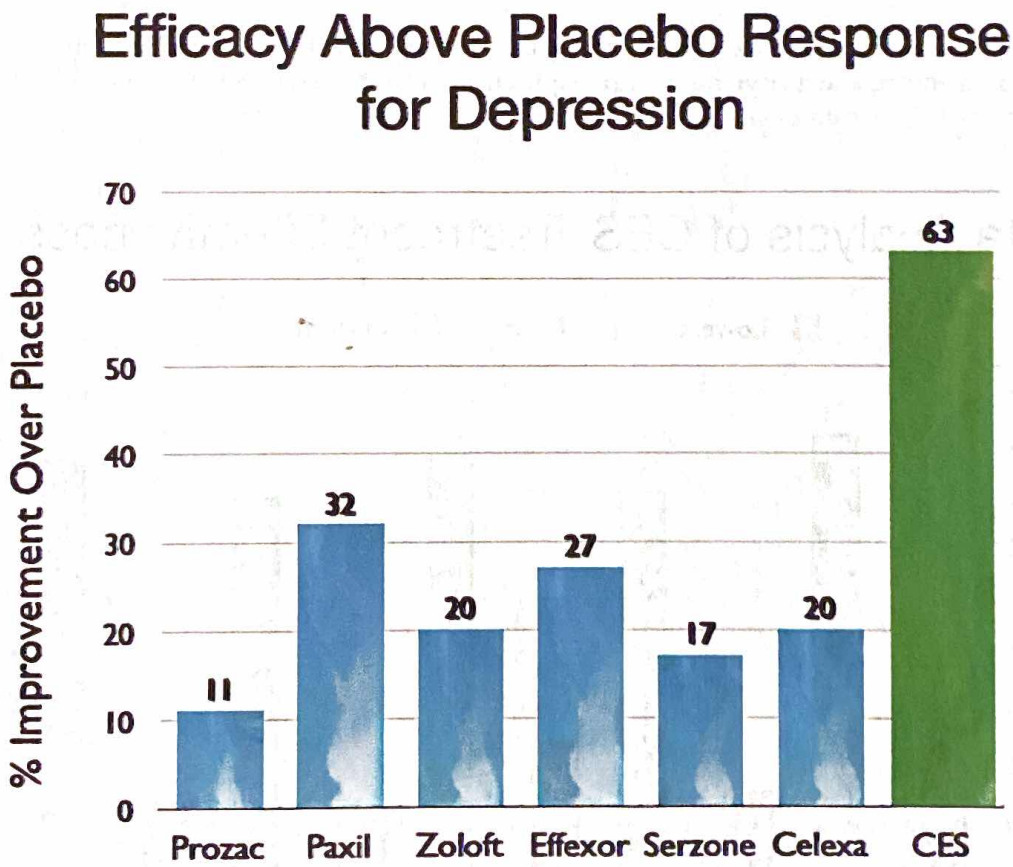
Depression

A meta-analysis of 18 published studies on depression treatment reveals that the lowest effectiveness recorded in any study was 25%, and the highest was 80%. The mean (average) of the studies recorded an effectiveness rate of 46% for depression.[4] These statistics are good, but fail to tell the whole story. A comparison with anti-depressant medication is even more impressive.

Trials of the six market-leading antidepressants reveal a mean placebo contribution-to-effect size of 79%. In other words, 79% of the effect of taking an antidepressant medication is due to the placebo effect, and only 21% can be shown to be due to the medication itself.

On the other hand, the same study showed a mean placebo contribution-to-effect size of just 37% for CES. In other words, 63% of the effect of CES stimulation on depression can be shown to be due to the treatment itself, and not placebo.

Simply stated, this research shows CES treatment for depression is approximately two to six times more effective than antidepressant medication, and has virtually no side effects.[5]



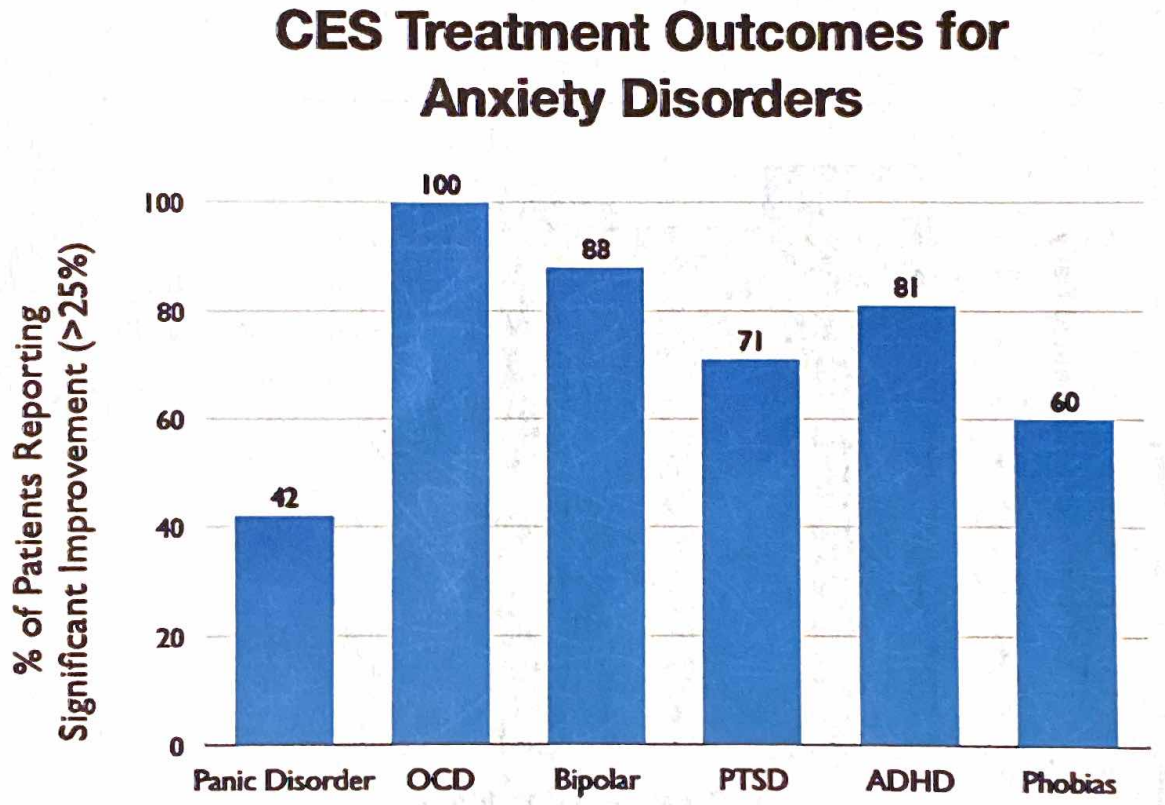
[4] Reported at http://elexoma.ch/en/more-info/research. Accessed 7/26/12.

[5] Guila MF and Kirsch DL. **Cranial Electrotherapy Stimulation Review: A safer Alternative to Psychopharmaceuticals in the Treatment of Depression.** Journal of Neurotherapy 2005 9(2):7-24

Anxiety

Anxiety disorders are the most common mental illness in the US, and include Generalized Anxiety, Phobias, Panic Disorder, Obsessive-compulsive disorder, and Post-traumatic Stress Disorder (PTSD). Anxiety disorders affect 18% of US adults and 25% of adolescents.

Meta analysis of 38 anxiety research studies shows a minimum CES effectiveness of 34%, and a maximum of 87%. The mean (average) effectiveness is 58%.[6] Further, a study of significant patient response shows that a high percentage of patients experience significant improvement with CES in most anxiety-family disorders (see following chart.)[7]



[6] Smith, *Op. Cit.*

[7] Kirsch DL and Gilula MF. **CES in the Treatment of Anxiety Disorders.** Practical Pain Management. March, 2007: 40-47

Addiction

CES has been shown effective in a variety of studies and case reports for treatment of addictions of many types. In fact, it has been suggested by at least one expert in the field that standard addiction treatment facilities do not use CES because it is too effective and limits their ability to make money on repeat treatment. A meta-analysis of 15 published studies on addiction treatment reveals that the lowest effectiveness recorded in any study was 35%, and the highest was 79%. The mean (average) of the studies recorded an effectiveness rate of 60% for addiction.[8]

Of 86 published studies on CES use in drug withdrawal, 78 show positive outcomes for CES. (91%)

Two representative studies will be highlighted here. In the first, heroin addicts undergoing methadone treatment were provided CES, as were control groups receiving placebo and sham CES. The results are shown below[9] in Figure 1:

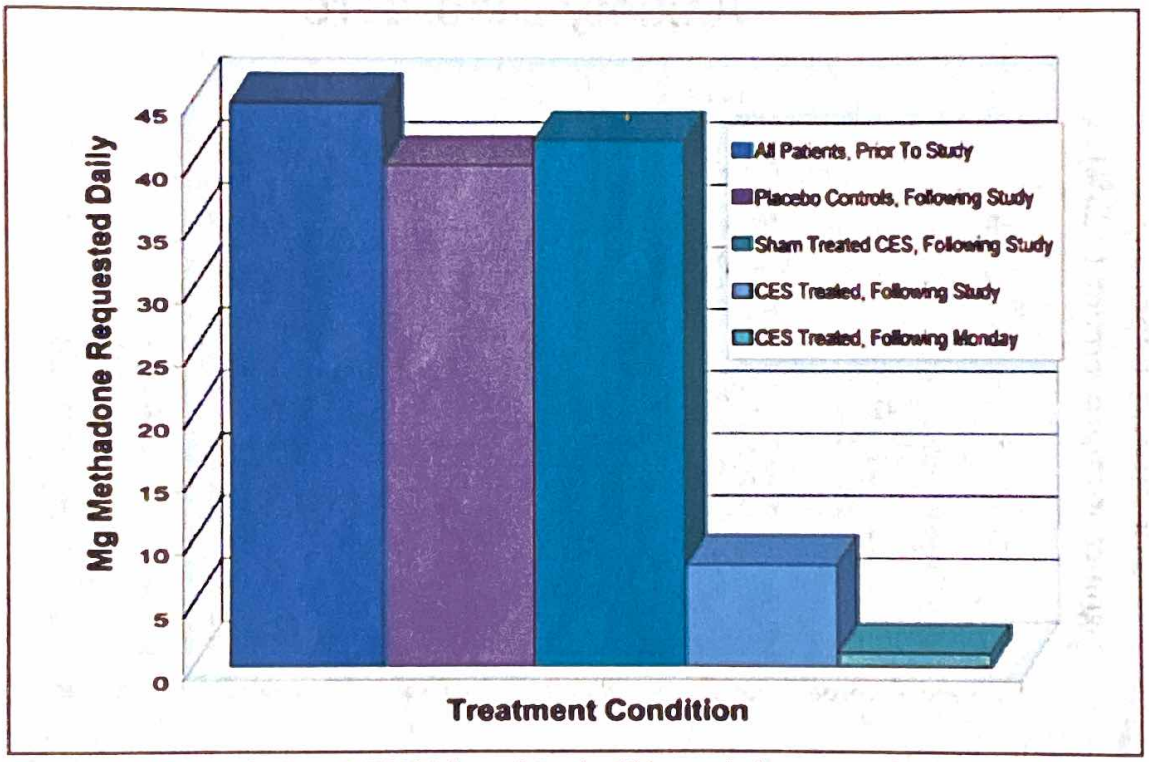


FIGURE 1. *CES Methadone Self Withdrawal Study. This graph shows near elimination of the need for methadone over a two week period in the CES treated group, but not in the two control groups.*

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[8] Smith, *Op. Cit.*

[9] Kirsch DL and Gilula MF. **CES in the Treatment of Addictions: A Review and Meta-Analysis.** Practical Pain Management. November/December, 2007: 73-79

In another study, cocaine addicts were provided CES treatment and compared to controls undergoing traditional treatment. As shown in Figure 2, 100% of the CES group completed detox, completed treatment, and did not relapse in 8 months[10].

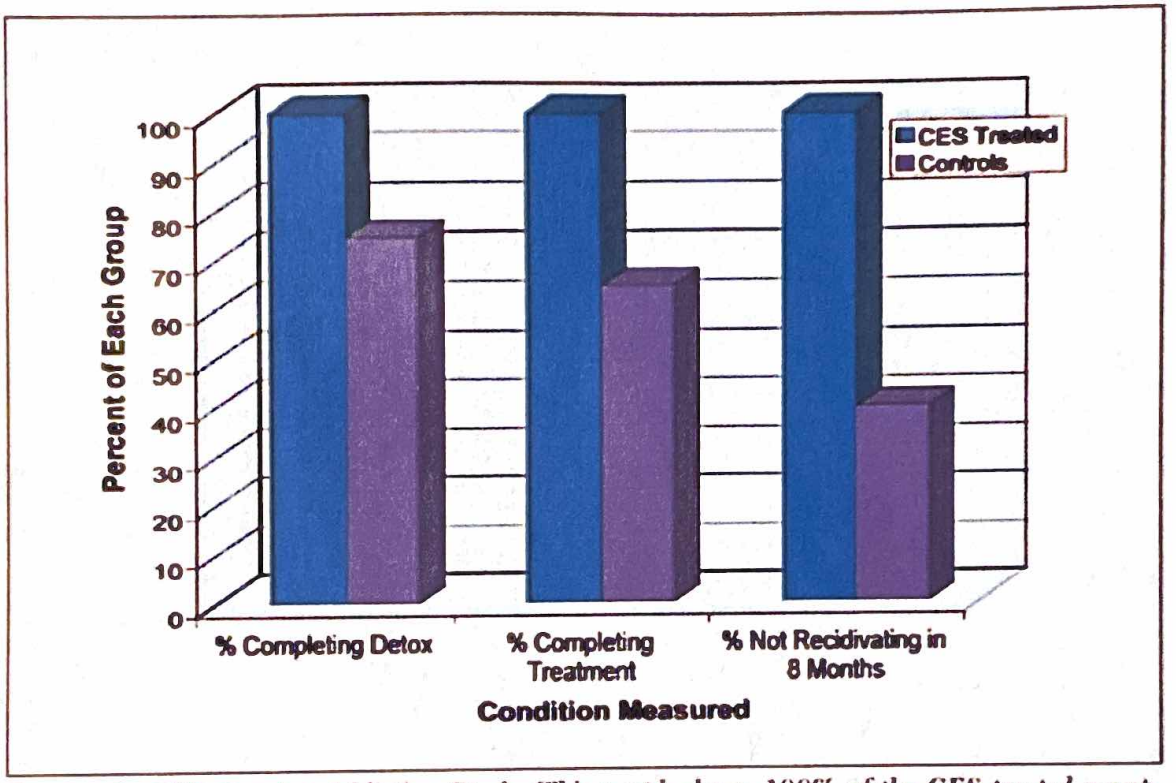

FIGURE 2. *CES Cocaine Addiction Study. This graph shows 100% of the CES treated group, but not the control group, completed treatment and avoided recidivism.*

Summary

Cranial Electrotherapy Stimulation is a powerful tool in the treatment of neurological disorders, including anxiety-family disorders, depression, addiction, and even cognitive disorders. Well over 100 research studies have been published on this treatment method, with nearly universal positive results.

The combination of CES with the other synergistic treatments offered at Theta Wellness Centers provides truly remarkable results in these otherwise difficult-to-treat problems.

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[10] Kirsch, **Addictions,** *Op. Cit.*