

## Brain Tuner

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See [Sota Instruments Brain Tuner web-page](#) for an example of a commercially available brain tuner.

I have not tried to make or use a device of this type, so I cannot personally comment as to the effectiveness/safety of this device. One user of this device had the following to say to me:

The brain synchronizer distresses, relaxes but also clears the mind. People also use it to break addictions and depression. It's really incredible. I use mine everyday and it keeps me out of the chronic depression I used to suffer.

I have been told to mention the following:

Builders of this device should be aware that if they make and sell CES units to others in the USA that they will be in legal jeopardy because the other official CES companies will turn them in to the FDA. Currently one must be FDA approved as a CES manufacturer in the USA in order to be within the limits of the law.

Both myself and Dr. Beck agreed that it is important to reduce any DC to zero or negligible amounts. Why? As noted DC creates a polarization effect which drives ions to one electrode or the other. This is the same effect as electroplating or electrolysis. In the body it is known as electrophoresis (sp.?). The Bio-Tuner has an AC coupling transformer on its output which prevents DC from passing through 100%. On the Silver Pulsar (blood cleaner) the output is a bi-phasic AC output. The polarity switches every 1/4 second. The lower the frequency the higher chance of DC polarization. However, Dr. Beck's research showed the 4 Hz output did not cause any significant polarization as there was not enough time for a build-up of ions to occur before the polarity switched over. I would say that 1-2 seconds on one polarity would be about the maximum I would suggest. Now, Dr. Hulda Clark's Zapper has a pulsed DC output. I can see that with would cause some electrophoresis, but the small amount that it would cause is offset by the positive benefits of the Zapper. Dr. Clark found that a negative pulsed DC output was detrimental to her protocol.

Hope this helps!

Russ :->

Here's a schematic for one to build yourself. As always, Experiment at your own risk. All other disclaimers apply here. [Brain Tuner Schematic](#)

### **Excerpted from: FOCUS on ALCOHOL and DRUG ISSUES, Jan/Feb 1983 Cranial Electrotherapy Stimulation (CES)**

#### **Help for ANXIETY**

Cranial Electrotherapy Stimulation has been used as a treatment for anxiety in several parts of the world for over a quarter of a century. American medicine has only recently begun to realize its use as a safe and effective treatment. Studies show that CES treatment yields highly significant reductions in anxiety, whether the patients were in a psychiatric setting, a scholastic setting, an outpatient setting, or an in-patient general hospital setting. Further, while many different kinds of anxiety have been studied, as measured by the six different psychological measuring instruments found in these studies, they all responded significantly to CES treatment. Less intense or less permanent forms of anxiety - the so-called "situational anxiety" in which a person habitually responds to personally threatening events in his environment with an anxiety reaction - respond to CES treatments within a week or less. The more permanent forms of anxiety - the so-called trait anxiety, or that underlying level of anxiety that a person typically carries with him at all times - require a longer period of CES treatment. This kind of anxiety typically is not reduced significantly in fewer than 2 or 3 weeks of daily treatments.

#### **Help for DEPRESSION**

Studies show that reactive depression (that which results from acute changes in the patients life situation such as a job change or divorce) is decreased after 6 days of CES treatment.

More deep seated depression (endogenous) in some cases required 3 or more weeks of daily treatment. For this reason, many physicians routinely prescribe a minimum of 2 weeks to a month of daily CES treatments in depressed patients, since it is frequently difficult to gauge the type or depth of depression with great accuracy. Since many patients have a "depression habit" physicians should include a home CES unit in their treatment plan so that the patient can meet any new sign of impending depression with effective treatment and thereby break the behavioral reinforcement chain that has both led to and maintained the habit. In this way, a maladaptive habit can be effectively controlled or broken without the use of frequent medications and/or repeated visits to the physician. Other research has shown that CES, when used this way is neither habit forming nor addictive. Such patients use it only when they experience an impending medical necessity.

## **Help for INSOMNIA**

Because CES was originally called "Electrosleep" in European countries, many earlier American studies were designed to learn whether or not such small amounts of electric currents would actually put people to sleep. That is, just as 50ma of current - called "electro-anesthesia" - put an individual into anesthesia so that surgical procedures could be performed, 1ma of CES current was assumed to put them into a normal state of sleep if "Electrosleep" worked. Such studies discovered that while CES does not necessarily "put a person to sleep", it does accomplish some very therapeutic changes in the sleep patterns of people who complain of insomnia.

The studies below show that whether measured by the patient's own ratings, psychiatrists ratings or by electroencephalograph or polygraph recordings before and after CES treatments, the following effects of CES in insomnia can be expected:

1. Sleep onset latency is reduced. That is, once a person has retired for the evening, the amount of time it takes him to actually fall asleep is reduced from one to two hours or more to the more normal twenty minutes or less.
2. The number of awakenings during the night are reduced. That is, while most insomniacs awaken three or more times during the night and have difficulty falling asleep again, those treated with CES typically awaken no more than once or twice following therapy, with most reporting no awakenings. Furthermore, after awakening, they return to sleep much more promptly than before.
3. CES treated patients spend more time in stage four sleep following CES treatments. That is, patients spend more time in the deepest, most restful stage of sleep than they did prior to CES treatment. It should be noted that some patients who have deprived themselves of REM sleep - the stage during which dreaming occurs - by taking drugs or alcohol as a sleeping aid, sometimes spend the first two or three nights in unusually vivid dream states when first starting CES treatments. This is considered another indication of the therapeutic effectiveness of CES in that persons are known to become increasingly disorganized mentally, some even to the point of psychotic-like symptoms, when they do not engage in the normal amount of dreaming.
4. Finally, it was discovered that many patients receiving CES treatments report feeling more rested when they awaken in the morning following CES treatments.

Treatment parameters: While some patients begin to respond after the second or third day of treatment, others do not have their best response with fewer than 24 days of treatments lasting from 15 minutes to 1 hour. The beneficial effects have been measured in some experimental groups for as long as two years. Some people with insomnia have a habitual pattern of responding to situational stress with an interruption in their sleep patterns. The best results are obtained when CES is used each time unusual stressors occur in their life situations that would ordinarily cause poor sleep. The CES device user is thereby trained over time to expect a good night's sleep no matter what stressful interruptions occurred in the normal flow of daily life.

## **Help for ADDICTIONS**

Foremost among the treatment problems among chemically dependent persons is the need to help them through the psychologically and physically demanding period of withdrawal. The body reacts to the depressed physical state engendered by alcohol and other drugs with a rebound stress reaction. This reaction commonly includes states of extreme anxiety, depression, and insomnia, for which CES treatment is known to be effective.

Underlying the addictive state is an insidious and progressive destruction of normal brain functioning including an often incapacitating memory loss, inability to process information involving abstract symbols, and other dysfunctions associated with the organic brain syndrome, and advanced condition which is known as Korsakoff psychosis. Studies on the use of CES in chemical dependencies are among the best controlled and well designed research in the U.S. They indicate that CES is a highly effective adjunct to methadone withdrawal in heroin addicts, significantly shortening the time to symptom-free withdrawal when compared with methadone alone, and significantly lowering withdrawal anxiety as measured by the Taylor Manifest Anxiety Scale.

Further, the anxiety and depression accompanying and following withdrawal of both alcohol and other drugs in polydrug abusers is significantly reduced when patients receive CES as a post withdrawal treatment.

Most importantly, perhaps, is the finding that CES treatment halts and significantly reverses brain dysfunction in these patients as measured on seven different psychological scales of cognitive function, bringing many such functions back to the level of the pre-addiction state in the majority of patients studied. Another problem in the treatment of chemically dependent persons is frequently recurring "dry withdrawal" in which the individual suffers withdrawal symptoms within several weeks, then again in several months. The phrases used to describe these phenomena are a "dry drunk" followed by the "dry withdrawal".

These psychological states lead to high recidivism rates among these individuals as they return to treatment after "falling off the wagon". CES is now thought of as one of the most effective, non-drug treatments for these periods of withdrawal, and a patient who has a personal CES unit available should be able to use it to prevent a full-blown withdrawal reaction at such times. By doing so he can reduce the need for additional medical treatment in a clinic or hospital setting, and will be less likely to resort to alcohol because of the discomfort accompanying these withdrawal states.

## **Brain Tuner Instructions**

### **Frequency of Usage**

For severe problems use it 40 minutes twice daily. For less than severe problems use it 30-40 minutes once daily, then after a month you can use it 2 or 3 times a week. (It has cumulative effects.) More than 40 minutes usage in one sitting can have less productive results.

### **Selecting 6 hz Option**

6 hz (cycles per second) enhances Theta brain waves which are normally experienced between sleep and full alertness. If you are stressed, anxious, hyper, or are preparing for bed then flip the switch upwards towards the 6 hz sticker. If you just woke up or want to be more alert then flip the switch down away from the 6 hz sticker.

### **Using Ear Clip Electrodes**

Pull open both ear clips and wet thoroughly with saltwater. Wipe your ear lobes clean because dirt or oil can cause stinging sensations when using unit. Clip them onto your ear lobes before turning the unit on. The saltwater usually dries out after 45 minutes (and stops conducting electric current) which is good because then you don't have to watch the clock too closely. Turn unit off before handling electrodes to prevent electrical tingling of your fingers.

### **Setting Current Control Knob**

Before turning unit on, turn the dial fully counterclockwise. Turn unit on, wait for any initial tingling to subside, and then slowly turn the dial clockwise until you get uncomfortable tingling and then turn it back counterclockwise into the comfort zone. The farther clockwise it is turned, the more electric current you're receiving (and the more the current LED will light up). Too much current can result in dizziness. When you first start using it you may have uncomfortable sensations even with it turned fully counterclockwise. This usually subsides quickly and then you can turn it up. If it don't subside then you can adjust the electronics to suit you by turning the unit off, removing the 4 bottom screws, pulling out the electronics board, and with

a mini-screwdriver turn the center of the potentiometer marked "<-adjust" counterclockwise (while the unit is on and connected to you) until you are comfortable with the diminished sensation felt. This is a last resort though because too little current may result in less benefits.

## Using AC Adapter

This unit is powered by an internal rechargeable battery that will need recharging when you can't feel any tingling with the control fully clockwise. To recharge the battery just turn the unit off and plug the AC adapter into the AC wall socket and into the power jack on the unit. It will automatically recharge like that. Let it recharge overnight or 14 hours for a maximum charge. Too much charging may shorten the batteries life span. Next morning it is ready to use for at least another 4 hours total. Don't connect the AC adapter to the unit except when recharging. If the unit ever gets to where it won't last long between charges then you can replace the internal 9v battery with Radio Shack's 9 volt rechargeable #23-299. Recharge after replacing battery.

## Caring for Electrodes

Handle electrodes carefully so as not to bend the wires where they connect to the electrodes. If this connection ever breaks then you can remove the cloth and solder the wire back in place. If cloth gets too dirty then you can replace it by removing it, cutting a piece of 100% cloth the same size, and re-stitching it back in place.

## Making Saltwater

Mix 3 tsp non-iodized sea salt or rock salt with 2 ounce distilled water. Stir and let sit for 3 hours. Store in a dark eyedropper bottle. Stir 1 drop of this salt solution into 4 oz distilled water and use to fill an eyedropper bottle for use on the electrodes.

## Parts List:

Qty	Mouser	#	cost	Backup
1	project box	400-1542	3.70	RS: 270-231 2.32
1	9v rechargeable battery	573-15F8K	7.99	
1	9v battery clip	12BC160	.54	
1	output transformer	42TM006	2.41	
1	C555 timer IC	511-TS555CN	.46	
1	C556 timer IC	511-TS556CN	.62	
1	8 pin IC socket	571-26404633	.11	
1	14 pin IC socket	571-26403573	.13	
1	100K pot	31VA501	1.25	
1	pot knob	450-2070	.99	
1	25K mini pot	569-72PM-25K	.99	
2	3.5mm female jack	16PJ137	.52	
2	3.5mm male plug	17PP103	.86	
1	12v 200ma Adaptor	412-1101	4.90	
1	470uf capacitor	140-XRL10V470	.18	
1	1uf capacitor	540-1.0M35	.33	
1	.22uf capacitor	540-0.22M35	.33	
1	.0047uf capacitor	581-UEC472J1	.62	
1	130K 1/4w resistor	30B-J250-130K	.22	
1	120K resistor	30B-J250-120K	.22	
1	33K resistor	30B-J250-33K	.22	
2	22K resistor	30B-J250-22K	.44	
2	4.7K resistor	30B-J250-4.7K	.44	
1	680 ohm resistor 1/2W	30B-J500-680	.22	
1.5"	1/16" shrink tubing, 4'	5174-11162	4'/.78	

Qty	Radio Shack #	cost
2	2ma LED	276-044 2.12

1	PC board	276-150	.64
3.5'	24ga speaker wire	278-1301	.27

Qty	JDR	#	cost
1	SPDT switch	SP/DT	1.25
1	SPDT-CO switch	SW22	1.29
1	1.5M resistor	R1.5M	.05
1	18K resistor	R18K	.05
2	10K resistor	R10K	.10
2	2.2K resistor	R2.2K	.10
1	50K mini pot	72PR50K	.79
1	10K mini pot	72PR10K	.79
1	1K mini pot	72PR1.0K	.79
2	2907 transistor	2N2907A	.29
2	3904 transistor	2N3904	.10
4	1N4148 diode	1N4148	.04
1	1N4001 diode	1N4001	.06
4	rubber feet	3M5012-BL	100/6.95
3.5'	24ga single wire	WIRE-24YSR100	100'/3.95
2	ear clips from Beads N Beyond part #125		\$.25ea

(sew 100% cotton cloth on them. Wet with saltwater before using)

Beads N Beyond:  
1-704-254-7927  
35 Wall St  
Asheville NC 28801

Mouser Electronics:  
1-800-346-6873  
958 N Main St  
Mansfield TX 76063-4827

JDR Microdevices:  
1-800-538-5000  
1850 South 10th St  
San Jose, CA 95112-9941