LEVEL 1
NEUROINTEGRATION
CLASS

TRAINING
MANUAL

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Brainwave Training
Using The Clear Mind
NeuroIntegrator System

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What Is Neurofeedback and when is it used?

• Neurofeedback is a method of training brainwaves to alter the structure and function of the brain.
• It is used to help people reduce symptoms of a variety of disorders including ADHD, Depression, Anxiety, TBI, Stroke, Seizure as well many others.

Training Brainwaves

• People can learn to change their brainwaves.
• By practicing on a regular basis they can change the activity level of different areas of the brain.
• The brain can be made stronger and more efficient through training.
How is it done?

- Individuals are hooked up to a computer using wires and sensors.
- The computer reads their brainwaves.
- When their brainwaves begin to appear properly ordered it feeds back that information to the individual.
- This feedback appears in the form of a game, movie or exercise that tells them when they are training just right.
- Through Operant Conditioning individuals learn to change brain structure and function.

Operant Conditioning

- The individual feels rewarded for his or her training efforts during neurofeedback.
- This reward process is called reinforcement in the psychology of Behaviorism.
- We learn to ride a bicycle in the same manner through the same mechanisms.

Learning Is Permanent

- Once we learn something it becomes a permanent part of our behavior.
- Follow up studies in neurofeedback show that the effects continue for up to 30 years.
How long does it take?

- Trainees typically come for 20-40 sessions of training.
- Trainees come twice a week or more.
- Each session is 30-45 minutes long.

When do clients begin to feel better?

- Each individual responds differently to neurofeedback. Their sensitivity varies.
- The greater their sensitivity to neurofeedback the more quickly they feel its effects.
- Sensitivity to drugs often predicts sensitivity to neurofeedback.
- Some individuals feel changes in 1 to 5 sessions.
- More typically noticeable changes begin to occur around 15 to 20 sessions.

Changing Structure & Function

- MRI Research shows that EEG Biofeedback changes the structure and function of the brain.
Success Rates

- Depression- 90%
- AD/HD- 90%
- OCD- 80%
- Anxiety- 75%
- Bipolar- 60%
- Autism- 30-45%

Brainwaves

- Electrical activity recorded from the brain is referred to as EEG or brainwaves.
- The brain produces up to 30 watts of power to accomplish its routines.
- Brainwaves cycle from positive peaks to negative troughs.
- On average they may go as high as 30-40 microvolts (or millionths of a volt) or as low as 1 microvolt.

Neurons in the cortex generate electrical activity from synaptic interaction.
EEG is from the summated pre and post synaptic potentials in the cortex

Synapses generate electrical fields called dipoles

The EEG: Peak Value vs Peak To Peak

- EEG is a form of alternating current.
- It can be measured in terms of Volts or Power.
- Voltage is measured in terms of how high it swings above and below the 0 value line.
- The volt is defined as the potential difference across a conductor when a current of one ampere dissipates one watt of power.
Amplitude vs Power

- Amplitude is the peak to peak measurement of voltage of the EEG.

Power is the computation of energy in that peak to peak voltage.

Frequency

- A cycle is when a brainwave swings from zero to a positive peak, then down to a negative peak, then back to zero.
- One cycle every second is called one cycle per second or one hertz.
- Frequency is the number of cycles that occur in one second.

Frequency Spectrum

- The brain produces most of its activity in the frequencies between one and 24 cycles per second.
- Recent research indicates high frequencies up to 40 cycles per second or 40Hz can be important as well.
- This entire range of frequencies is called a frequency spectrum.
- Your equipment will display this spectrum in a series of bar graphs running from low to high.
Component Bands

- The frequency spectrum is divided into component bands.
- The most basic divisions from low to high are delta, theta, alpha and beta.
- Delta is 1-4hz, theta is 4-8hz, alpha is 8-12hz and beta is 13hz and higher.

Component Bands & Function

- **Delta**: Related to sleep and brain stem functions. Also Fascicular Continuity and neural integration. Can indicate white matter damage.
- **Theta**: Related to memory, emotion, and emotional brain (Limbic System) functions. Can indicate cortical lesions or dysfunction.
- **Alpha**: Related to the brain at rest or routine activities. Can indicate processing incapacities.
- **Beta**: Related to activation and processing in the Cortex of the brain. Can indicate hyperactivation of cell columns and over-processing.

Function & Location

- The cortex is the source of cognitive processing which appears as beta.
- When it is in stand-by mode it produces alpha.
- The brain stem does most of the housekeeping for the body and the brain and is a major source of delta.
The Brain: General Orientation

- Frontal Lobes
  - ST Memory
  - Emotional Valencing
  - Attention
  - Emotional Inhibition

- Parietal Lobes
  - Body Awareness
  - Location
  - Association
  - Arousal

- Occipital Lobes
  - Vision
  - Arousal

- Temporal Lobes
  - Memory
  - Comprehension
  - Major Convergence Zone

- Cerebellum
  - Balance
  - Motor Sequencing

- Brain Stem
  - Primary Arousal
  - Consciousness

The Limbic System

- The limbic system is below the cortex.
- It is considered the source of emotional activity.
- It is the major source of theta in a healthy brain.

SMR & Motor Function

- When SMR (13-15hz) appears over the sensorimotor strip, the sensory flow from the thalamus to the cortex is reduced (gated) (Sterman & Bowersox, 1981).
- The body is calmed and the somatic system reduces in tone.
- The cortex is alert but not heavily processing.
- The sensorimotor strip is mapped to the body and can be trained locally.
Delta & The Brain Stem

- The reticular activation system (RAS) adjusts basic arousal in the brain.
- The primary neuromodulator mechanisms are norepinephrine and acetylcholine.
- Resulting vigilance activity is most readily observed at P4 and F4.
- Delta is an indicator of functional continuity.

The Normal Distribution

- In general there is a normal distribution or layering of brainwaves when the eyes are closed.
- Alpha is highest, then theta, then delta, then beta.
- Beta is about one half of alpha. Theta is about 2/3 of alpha.

This trainee is normalizing their delta theta layering (note theta increasing over alpha between 13 and 16 minutes).

The Eyes Open Distribution

- The eyes open distribution is different from eyes closed.
- Delta is highest, then theta, then alpha, then beta.
- If the distribution is different, then it is abnormal and usually indicates something is wrong.
Abnormal Distribution

- When there is a disorder in the brain, the distribution becomes disturbed.
- Neurofeedback is designed to train the brain to a more normal distribution.
- The brain never completely returns to normal but adjusts for a closer approximation.

Exercising The Brain

- The abnormal distribution reflects problems in brain structure and function.
- Neurofeedback is a method of exercising the brain in order to change its function and eventually its structure over time.
- Neurofeedback is a form of training and learning.
- The brainmaps at the right show the normalization of theta over a 15 session training period.

Optimal performance Zone

- The brain has an optimal performance zone.
- This zone is represented as the Normal Range in the figure to the right.
- If the brain operates outside this optimal zone and is too fast or too slow, then problems occur.
Brain too fast

- The red shaded area shows the front of the brain as being overactive and producing too much beta.

Brain too slow

- The red shaded area shows the front of the brain as being underactive (especially the left side) and producing too much alpha.

Instability

- With instabilities the whole brain may shift back and forth between too slow and too fast.
- The shift may be very rapid in a matter of seconds or very slowly over a period of months.
Training Component Bands
We can train component bands up or down with neurofeedback to adjust the brain's distribution.

The client is trying to stay below the threshold line in theta, and above the threshold line in beta.

Asymmetry
- Asymmetry occurs when one hemisphere has more magnitude or power than another.
- It can also occur between the anterior and posterior regions of the brain.

Dominant Frequency
- Dominant frequency is determined by computing which frequency band in a given component band contains the most power.
- In the Alpha component band of 8-12 Hz, the peak frequency of a healthy individual is between 9.5 and 10.5 Hz.
Distributions Of Disorder

- LD appears as posterior elevated delta.
- ADHD appears as elevated frontal theta.
- Depression appears as elevated central or frontal alpha.
- Anxiety appears as elevated frontal beta often in conjunction with diminished alpha.
- Depression also appears as more slowing on the left, while anxiety appears as increased activity on the right.

Phase is the relationship between waves at two locations.

Coherence is about the consistent relationship of phase over time.
Coherence

- Coherence is about the phase relationship between two EEG waves over time. If the phase relationship is consistent, then coherence is high. If the phase relationship is erratic, then coherence is low. If two locations have high coherence, then they are considered to be communicating more than if they are low in coherence. Too much coherence is a traffic jam in the brain, while too little may be due to noise or poor connections.

The Brainmap

- The brainmap is much like a weather map in that it provides us with information about what frequencies or component bands are high or low at different locations.

Map Patterns

- Here is a typical magnitude (average amplitude) map of one trainee.
- Each of his component frequency bands, delta, theta, alpha, or beta, is represented by a circle.
- If his component band is normal in a given location it is green. Note C3 in the alpha band is green.
- If his component band is abnormal it will be a different color. Note C4 in the alpha band is red or high.
- Red and yellow indicate high and light blue or dark blue indicate low.
- Note that P4 in beta is light blue or low.
Asymmetry

- Maps also tells us whether the brain is out of balance front to back or left to right.
- When the brain is disordered it shows problems with this balance.
- This natural balance is called symmetry.
- When there is an abnormal balance it is referred to as asymmetry.

Brain Too Slow

- In depression alpha is higher than normal.
- Alpha is also higher in the left hemisphere than the right.
- Note that the asymmetry section of the map shows this left hemisphere dominance.

Brain Too Fast

- Anxiety appears as low alpha or high beta.
- Beta is high on the right side.
- Anxiety and depression commonly appear in head injury.
Connectivity

- A map can also tell us how well connected different areas of the brain are compared to a normal level of connectivity.
- This level of connectivity is known as coherence.
- Red indicates too much connectivity usually resulting in lack of flexibility.
- Blue indicates too little connectivity indicating too much flexibility.
- In either case communication between brain locations is poor.

Dominant Frequency Analysis

- A slowed alpha frequency can indicate slowing of general brain processing due to physiological imbalances or depression.
- Hypothyroid or toxins affecting liver function may result in slowed alpha.

Arousal Level & Disorder Stratification

- **Brain Too Fast: Beta**
  Anxiety, OCD, Mania, Worry
- **Brain Too Slow: Alpha**
  Depression, Lethargy, Fibromyalgia, Hypothyroid, Toxins, Hepatic Issues, Drug Burnout.
- **Brain Very Slow: Theta**
  ADHD, Head Injury, Toxic Encephalopathy, Cortical Damage
- **Brain Extremely Slow: Delta**
  TBI, LD, Dementia, White Matter Damage
Pre & Post Maps

- As we train we can periodically remap individuals to see how much they have changed.
- We can also determine if we need to change protocols for future sessions to improve training.
- To the right is an example of a pre and post map. Note the reduction in abnormal theta in particular.

Common Mode Rejection

- Detects the difference between active and reference electrode.
- Subtracts the difference between active and reference.
- Common mode rejection ratio (CMRR) measures the quality of the subtraction.
- Rejects unwanted signals common to both amplifier inputs.

Differential Amplifier Dynamics

- Site A = 7uv + Site B = 0uv results in 7uv on your training screen.
- Site A = 7uv + Site B = 7uv results in 0uv on your training screen.
- Site A = 7uv + Site B = -7uv results in 14uv on your training screen.
How do I conduct a session?
Overview

1. Seat the client in front of the training screen.
2. Review how they are feeling and list their present symptoms.
3. Select the appropriate protocol for training.
4. Hook the trainee up.
5. Start the training program.
6. Record a baseline if necessary.
7. Train the trainee for the recommended time period.
8. Record the results.
9. Disconnect the trainee.
10. Display the training results and encourage the trainee.

Hook the client up.

- Place the ground wire on one ear.
- Place the reference wire on the other ear.
- Be consistent in placing the same wire on the same ear at each session.
- Place the active leads on the designated training locations—such as F3-F4.
- Inspect the quality of the raw EEG to be sure the impedance is correct.

The 10-20 system is a co-ordinate system for the scalp

- Electrode placement is based on the 10-20 system.
- Protocols are described in terms of the 10-20 system.
- The 10-20 system is not based on neuroanatomy.
Prepping the skin

- Before placing an electrode at a site, the skin must be cleaned of oil and dirt.
- Use an alcohol swab and apply a small amount of Nu-prep (a mild abrasive).
- Gently scrub the area where the electrode is to be applied.

Getting at the scalp

- Be sure to part the hair with the thumb and forefinger.
- You should be able to see the white of the scalp.
- Holding the hair in place with one hand scrub the white of the scalp.
- It is a good idea to hold the electrode lead in the hand scrubbing the scalp.

Applying Paste

- Paste conducts electrical impulses from the skin to the electrode.
- A plastic knife is often used to scoop paste from the jar.
- Apply a pea sized dab of paste to each electrode.
- Be sure to use a generous portion of paste.
- Gently press the electrode to the skin site until it sticks.
- Paste, not metal, should be touching the skin.
Determining a 10-20 location

- One of the best ways to learn the 10-20 locations is to place an electrocap on a volunteer and use it as a reference to practice placing electrodes on a second volunteer.

Disconnect the Client.

- Remove the electrodes.
- Wipe the electrode sites clean.
- Clean each electrode with the proper solution.
- Provide the trainee with a tissue to wipe their ears.

Eyes Closed: Eye Movement

- This is up and down eye movement.
- It inflates the average amplitude of delta.
- Have clients gently place a finger over each closed eye to monitor and control their eye movement.
Eyes Closed Artifact 2

- This is left to right eye movement. Notice how the two lines come together.
- Use the same procedure as for the previous artifact.

Amplifier Clipping

- When the signal gets too big from eye movement the amplifiers cut off and generate a square looking wave.

EMG Artifact

- T3-T4 is the most likely location to find muscle artifact.
- A large number of individuals with disorder clench their teeth.
- It is often impossible to stop this unconscious habit.
## Adding Entrainment

- Entrainment is a passive form of EEG Biofeedback.
- Brainwaves are stimulated using light and sound.
- As a standalone technology, it must be used daily.
- Creates a powerful synergy when used with neurofeedback.

## Entrainment Equipment

- Entrainment equipment uses glasses that flash light at specific brainwave frequencies into the brain.
- It may also deliver audio tones at the same rate to assist in the entrainment process.
- The NeuroIntegrator combines both neurofeedback and entrainment in one technology.

## VE Stimulates The Visual Cortex

- Entrainment glasses flash lights at brainwave frequencies.
- The optic nerve responds and sends impulses to the thalamus.
- The thalamus conveys the information to the visual cortex.
Dual Visual Channels

• The visual pathways for the left and right hemisphere respond with some independence to the light pulses.
• The left visual field excites the right cortex and the right visual field excites the left cortex.

Areas Of Entrainment 1

• A pet scan of areas that are initially activated by VE.
• Note the visual cortex and Lateral Geniculate Nucleus (LGN) are activated.

Default Network Structural Core

The Default Network of the Brain Then Resonates With Entrainment
The Hub System
The Cortical Network
8 Anatomical Subregions
• Posterior Cingulate
• Precuneus
• Cuneus
• Paracentral Lobule
• Isthmus of the Cingulate
• Superior Temporal Sulcus
• Inferior Parietal Cortex
• Superior Parietal Cortex

Highest elevated fiber counts & densities
(node degree and strength)

Visual Network

• The visual network is highly complex and distributed throughout the brain.
• Different VE frequencies resonate with different regions of the brain.

VE & Harmonics

• A 10hz photic stimulation will often induce elevations in EEG frequencies with associated harmonics and sub-harmonics.
• These harmonics will often resonate with specific brain regions.
Baseline vs VE
Effect of 10hz Entrainment

Baseline vs VE 2

Client 2 VE Asymmetry Shift

Note increase in beta due to harmonics.

Note Alpha dominance shifts to the right.
Train Without VE vs Train With VE

NFB With vs Without Entrainment
Client CC
- 0-8 min Without VE
- 0-16 min With VE
  Good Run
- 16-24 min With VE
  Good Run
- Client takes VE Home

NFB & Entrainment
Response Patterns
Trial B in each Session 1-11 is NFB with VE
Nick NFB vs NFB+VE
RH alpha increase/Theta decrease

Symptom Changes
Pre Post Fibromyalgia

Using Maps to Measure
Network Activity
- Magnitude can measure cortical activation.
- Reduced cortical activation indicates reduction of function or damage.
- Magnitude indirectly measures synchrony at the micro level.

Magnitude reflection of damage due to stroke: Note Elevated Delta & Theta
Lesions & Network Degredation

- Over a century of lesion studies in neurology provide insights to what occurs when network nodes are damaged.
- Provides insights to network characteristics.
- Provides insights to functional connectivity.

Examples of Correlations

Child Diagnosed With ADHD

Symptom Location Correlation
Comparisons To Psychological Evaluations

<table>
<thead>
<tr>
<th>WISC-IV Test Data</th>
<th>Subscale Score</th>
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<td>• Similarities</td>
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<tr>
<td>• Vocabulary</td>
<td>6*</td>
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<tr>
<td>• Comprehension</td>
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<td><strong>Perceptual Reasoning</strong></td>
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<td>• Block Design</td>
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<td>• Picture Concepts</td>
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<td>• Letter-Number Sequence</td>
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<td><strong>Processing Speed</strong></td>
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<td>• Coding</td>
<td>17</td>
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<tr>
<td>• Symbol Search</td>
<td>8*</td>
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Correlate Map Predictions
- Auditory Verbal Sequence*
- Auditory Tone Processing*
- Short Term Verbal Memory
- Dialogue Organization
- Short Term Visual Memory
- Spatial Sequencing*
- Event Sequence*
- Auditory ‘Verbal Sequence”
- Procedural Memory
- Problem Solving
- Short Term Memory
- Motivation Problems
- Attention

Monitoring Dietary Changes
Pre Post Maps: Gluten Free Diet

Seizure Disorder: Nine Months On Gluten Free Diet- No Seizures

Using The NeuroMap Database Site
Clients or Staff Log On To The Site

Fills Out History & Personal Info

Fill Out Cognitive Emotional Questionnaire

Fill Out Physical Symptom Questionnaire
**Metabolic Report Output**

**Predictive Problem Location Map Is Generated**

- Presenting Symptoms Maps
  - Potential problem locations
    - Task-oriented, involves cognitive behavior. Each labeled, on-slip map displays for identified problem areas.

- Answer: Question
  1. Loss Of Interest/Room Follow-Through
  2. Procrastination/Puts Things Off
  3. Easier, Deliberate
  4. Lost Learning Progress
  5. Argumentative

- Suggested: Constant
  1. Short Attention Span & Focus
  2. Disorganization/Proper & Loses Things
  3. Angry & Aggressive
  4. Relaxed/Inpatient/Sushi Premature
  5. Plan Reading Compression

- Doesn't Listen Carefully

**Upload Data and Download Map With Report In Minutes**

- Presentation
  - Date: 6/18/2011
  - Page: 31
Review Discriminants

qEEG Is Automatically Correlated With Cognitive Emotional Questionnaire

Protocols Are Automatically Generated From The Map
Use The Symptoms Checklist To Track Client Changes Over Time

Compare Client Progress Using Pre Post Graph Analysis
<table>
<thead>
<tr>
<th>Session</th>
<th>Design</th>
<th>Channel</th>
<th>Color</th>
<th>Type</th>
<th>NI2 Photic Protocol</th>
<th>Placement</th>
<th>Notes</th>
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<td>C3 &amp; C4</td>
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<td>Fp2 &amp; Fz</td>
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<td>C3 &amp; C4</td>
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<td>Fp2 &amp; Fz</td>
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<td>Fp2 &amp; Fz</td>
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<td>C3 &amp; C4</td>
<td>Hyperactivity, Focus</td>
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<td>Suppress 21-37 Hz</td>
<td>F3 &amp; F4</td>
<td>Social Anxiety / &quot;Free Floating Anxiety&quot; / Language processing</td>
</tr>
<tr>
<td>Anxiety Traumatic Memory</td>
<td>Anxiety_Traumatic_Memory_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>EC</td>
<td>Entrain 10Hz</td>
<td>T3 &amp; T4</td>
<td>Anxiety Assoc. with Traumatic Memory</td>
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<tr>
<td>Depression Anxiety</td>
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<td>2-Channel</td>
<td>B I G</td>
<td>EC</td>
<td>Entrain 13Hz</td>
<td>F3 &amp; Fp1</td>
<td>With Anxiety / Reactive Depression / Agitated Depression</td>
</tr>
<tr>
<td>Depression Cognitve</td>
<td>Depression_Cognitive_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>EC</td>
<td>Entrain 17Hz</td>
<td>F7</td>
<td>Cognitive Depression</td>
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<tr>
<td>Depression Endogenous</td>
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<td>2-Channel</td>
<td>Y</td>
<td>EC</td>
<td>Entrain 17Hz</td>
<td>F3 &amp; F4</td>
<td>Endogenous depression / &quot;Depression without a good reason&quot;</td>
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<tr>
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<td>Depression_Geneitic_1CH.bxd</td>
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<td>Y</td>
<td>EC</td>
<td>Entrain 17Hz</td>
<td>Fpo2</td>
<td>Genetic Depression; involves right amygdala</td>
</tr>
<tr>
<td>Depression Reactive</td>
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<td>Y</td>
<td>EC</td>
<td>Entrain 17Hz</td>
<td>F3 &amp; Fp1</td>
<td>Reactive Depression, &quot;Something happened to cause depression and anxiety&quot;</td>
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<tr>
<td>Chronic Fatigue (Focus)</td>
<td>Chronic_Fatigue_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>EO</td>
<td>Entrain 17Hz</td>
<td>Fz</td>
<td>Focus problems related to CFS</td>
</tr>
<tr>
<td>Chronic Fatigue (Memory)</td>
<td>Chronic_Fatigue_2CH.bxd</td>
<td>2-Channel</td>
<td>Y</td>
<td>EO</td>
<td>Entrain 17Hz</td>
<td>T3 &amp; T4</td>
<td>Memory problems related to CFS</td>
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<tr>
<td>Fibromyalgia</td>
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<td>Y</td>
<td>EO</td>
<td>Entrain 13Hz</td>
<td>C3 &amp; C4</td>
<td>Muscle Pain</td>
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<tr>
<td>Insomnia All Night</td>
<td>Insomnia_All_Night_1CH.bxd</td>
<td>1-Channel</td>
<td>B</td>
<td>EC</td>
<td>Entrain 10Hz</td>
<td>Fz</td>
<td>&quot;Sleeping All Night Long&quot;</td>
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<tr>
<td>Insomnia Onset</td>
<td>Insomnia_Onset_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>EC</td>
<td>Entrain 13Hz</td>
<td>Cz</td>
<td>Onset / &quot;Falling Asleep&quot;</td>
</tr>
<tr>
<td>Insomnia Relaxation</td>
<td>Insomnia_Relaxation_2CH.bxd</td>
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<td>B</td>
<td>EC</td>
<td>Entrain 10Hz</td>
<td>O1 &amp; O2</td>
<td>Helps relaxation before going to bed - remediate insufficient alpha</td>
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<tr>
<td>Tension Headache</td>
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<td>B I E</td>
<td>EC</td>
<td>Entrain 13Hz</td>
<td>C3 &amp; C4</td>
<td>Menstrual / PMS / Muscle Tension / PTSD</td>
</tr>
<tr>
<td>Migraine Sensitivity</td>
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<td>EC</td>
<td>Suppress 21-37 Hz</td>
<td>P3 &amp; P4</td>
<td>Common / Classical Migraine / &quot;Sensitive to light &amp; noise&quot; / Sensory Stimuli</td>
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<tr>
<td>Memory - Declarative</td>
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<td>Y</td>
<td>EO</td>
<td>Entrain 17Hz</td>
<td>T3 &amp; T4</td>
<td>Helps declarative memory (Names, Addresses, Dates, Phone Numbers)</td>
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<tr>
<td>Memory - Working</td>
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<td>1-Channel</td>
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<td>EO</td>
<td>Entrain 17Hz</td>
<td>Fz</td>
<td>Absent mindedness</td>
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</table>

**Glasses Code**
- Blue B
- Green G
- Indigo EC I
- Orange O
- Red R
- White W
- Yellow Y
- BlueGreen EC BG

**Eyes Open EO**
**Eyes Closed EC**

NI2 Basic-SH13
<table>
<thead>
<tr>
<th>Session</th>
<th>Design</th>
<th>Channel</th>
<th>Glasses</th>
<th>Frequency</th>
<th>Eyes</th>
<th>Placement</th>
<th>Notes</th>
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<tr>
<td>ADD Attention (Focus)</td>
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<td>Entrain 17Hz</td>
<td>EO</td>
<td>Fpz &amp; Fz</td>
<td>Focus problems without Hyperactivity</td>
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<td>ADD Alert</td>
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<td>EO</td>
<td>Fpz &amp; Fz</td>
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<td>Fpz &amp; Fz</td>
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<tr>
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<td>F3 &amp; F4</td>
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<td>EO</td>
<td>Fpz &amp; Fz</td>
<td>Focus &amp; Inattention</td>
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<tr>
<td>ADHD Hyperactivity</td>
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<td>Y</td>
<td>Entrain 15Hz</td>
<td>EO</td>
<td>C3 &amp; C4</td>
<td>Hyperactivity, Focus</td>
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<tr>
<td>ADHD Impulsivity</td>
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<td>EO</td>
<td>Fp2 &amp; F4</td>
<td>Impulsivity, Focus</td>
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<td>EO</td>
<td>Fz &amp; Fp2</td>
<td>Hyperactivity, Anxiety</td>
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<td>EO</td>
<td>F3 &amp; F4</td>
<td>Depression associated with ADHD</td>
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<td>Addiction</td>
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<td>Supprerss 21-37 Hz</td>
<td>EC</td>
<td>Fz</td>
<td>Drug addiction, gambling</td>
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<tr>
<td>Addiction</td>
<td>Addiction_2CH.bxd</td>
<td>2-Channel</td>
<td>Y</td>
<td>Entrain 10Hz</td>
<td>EO</td>
<td>F3 &amp; F4</td>
<td>Decrease social anxiety &amp; &quot;biting&quot; drinking</td>
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<td>Alcoholism Addiction</td>
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<td>EO</td>
<td>C2 &amp; Pz</td>
<td>Reduce anxiety about body image</td>
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<td>EO</td>
<td>F3 &amp; F4</td>
<td>&quot;Bad Temper&quot;</td>
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<td>Anger</td>
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<td>EO</td>
<td>F3 &amp; F4</td>
<td>Anxiety causing Obsessive behavior</td>
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<td>Entrain 10Hz</td>
<td>EO</td>
<td>Fp2</td>
<td>Anxiety Assoc. with fear</td>
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<td>EO</td>
<td>C2 &amp; Pz</td>
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<td>EO</td>
<td>Fp2 &amp; F4</td>
<td>Anxiety Depressed Depression</td>
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<td>Fp2 &amp; F4</td>
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<td>EO</td>
<td>C3 &amp; C4</td>
<td>Anxiety causing Obsessive behavior</td>
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<tr>
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<td>EO</td>
<td>C3 &amp; C4</td>
<td>Anxiety causing Obsessive behavior</td>
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<td>EO</td>
<td>Fp2</td>
<td>Anxiety Assoc. with PTSD</td>
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<td>EO</td>
<td>T3 &amp; T4</td>
<td>Anxiety Assoc. with Panic Disorder</td>
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<tr>
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<td>Entrain 10Hz</td>
<td>EO</td>
<td>F3 &amp; F4</td>
<td>Social Anxiety / &quot;Free Floating Anxiety&quot;</td>
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<td>F3 &amp; F4</td>
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<td>T3 &amp; T4</td>
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<td>Aspergers (isolated)</td>
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<td>EO</td>
<td>T6</td>
<td>Difficulty Understanding Others Emotions</td>
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<td>Auditory Processing</td>
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<td>EO</td>
<td>T5 &amp; T6</td>
<td>Distracted Easily by Auditory stimuli</td>
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<td>F3 &amp; F4</td>
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<td>F3 &amp; F4</td>
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<td>F6</td>
<td>Autism Spectrum / Understanding Others Emotions</td>
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<td>B &amp; T4</td>
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<td>F3 &amp; F4</td>
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<td>Chronic Fatigue</td>
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<td>F3 &amp; F4</td>
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<tr>
<td>Clumsy Left Hand</td>
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<td>F3 &amp; F4</td>
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<tr>
<td>Dementia</td>
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<td>Depression Anxiety</td>
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<td>LG</td>
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<td>F3 &amp; Fp1</td>
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<td>Depression Bipolar</td>
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<td>F3 &amp; F4</td>
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</tr>
<tr>
<td>Episodic Dyscontrol</td>
<td>Episodic_Dyscontrol_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 10Hz</td>
<td>EO</td>
<td>F3 &amp; F4</td>
<td>&gt;&gt;</td>
</tr>
<tr>
<td>Excessive Daytime Sleepiness</td>
<td>Excessive_Daytime_Sleepiness_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 10Hz</td>
<td>EO</td>
<td>F3 &amp; F4</td>
<td>&gt;&gt;</td>
</tr>
<tr>
<td>Excessive Talking</td>
<td>Excessive_Talking_1CH.bxd</td>
<td>1-Channel</td>
<td>B</td>
<td>Entrain 21-37 Hz</td>
<td>EC</td>
<td>F3 &amp; Fp2</td>
<td>&gt;&gt;</td>
</tr>
<tr>
<td>Fear</td>
<td>Fear_1CH.bxd</td>
<td>1-Channel</td>
<td>B</td>
<td>Entrain 10Hz</td>
<td>EO</td>
<td>F3 &amp; F4</td>
<td>&gt;&gt;</td>
</tr>
<tr>
<td>Fibromyalgia</td>
<td>Fibromyalgia_2CH.bxd</td>
<td>2-Channel</td>
<td>Y</td>
<td>Entrain 10Hz</td>
<td>EO</td>
<td>C3 &amp; C4</td>
<td>&gt;&gt;</td>
</tr>
<tr>
<td>Flashbacks</td>
<td>Flashbacks_2CH.bxd</td>
<td>2-Channel</td>
<td>Y</td>
<td>Entrain 10Hz</td>
<td>EO</td>
<td>F3 &amp; F4</td>
<td>&gt;&gt;</td>
</tr>
<tr>
<td>Handwriting Problems</td>
<td>Handwriting_Problems_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 10Hz</td>
<td>EO</td>
<td>C3</td>
<td>&gt;&gt;</td>
</tr>
<tr>
<td>Hearing Problems</td>
<td>Hearing_Problems_2CH.bxd</td>
<td>2-Channel</td>
<td>Y</td>
<td>Entrain 10Hz</td>
<td>EO</td>
<td>F3 &amp; F4</td>
<td>&gt;&gt;</td>
</tr>
<tr>
<td>Hyper Emotionality</td>
<td>Hyper_Emotionality_1CH.bxd</td>
<td>1-Channel</td>
<td>B</td>
<td>Entrain 10Hz</td>
<td>EO</td>
<td>C3 &amp; C4</td>
<td>&gt;&gt;</td>
</tr>
<tr>
<td>IBS Anxiety</td>
<td>IBS_Anxiety_2CH.bxd</td>
<td>2-Channel</td>
<td>Y</td>
<td>Entrain 10Hz</td>
<td>EO</td>
<td>F3 &amp; F4</td>
<td>&gt;&gt;</td>
</tr>
</tbody>
</table>

N2 Design-SH14
<table>
<thead>
<tr>
<th>Session</th>
<th>Design</th>
<th>Channel</th>
<th>Glasses</th>
<th>Frequency</th>
<th>Eyes</th>
<th>Placement</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBS Depression</td>
<td>IBS_Depression_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 15Hz</td>
<td>EC</td>
<td>Fp2</td>
<td>For underlying Depression</td>
</tr>
<tr>
<td>Incontinences</td>
<td>Incontinence_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>Oz</td>
<td>Incontinence / Bedwetting</td>
</tr>
<tr>
<td>Insomnia All Night</td>
<td>Insomnia_All_Night_1CH.bxd</td>
<td>1-Channel</td>
<td>B</td>
<td>Entrain 10Hz</td>
<td>EC</td>
<td>Fz</td>
<td>&quot;Sleeping All Night Long&quot;</td>
</tr>
<tr>
<td>Insomnia All Night</td>
<td>Insomnia_All_Night_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Entrain 10Hz</td>
<td>EC</td>
<td>F3 &amp; F4</td>
<td>&quot;Sleeping All Night Long&quot;</td>
</tr>
<tr>
<td>Insomnia Onset</td>
<td>Insomnia_Onset_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 13Hz</td>
<td>EC</td>
<td>Cz</td>
<td>Onset / &quot;Falling Asleep&quot;</td>
</tr>
<tr>
<td>Insomnia Onset</td>
<td>Insomnia_Onset_2CH.bxd</td>
<td>2-Channel</td>
<td>Y</td>
<td>Entrain 13Hz</td>
<td>EC</td>
<td>G3 &amp; C4</td>
<td>Onset / &quot;Falling Asleep&quot;</td>
</tr>
<tr>
<td>Insomnia Treatment</td>
<td>Insomnia_Relaxation_1CH.bxd</td>
<td>1-Channel</td>
<td>B</td>
<td>Entrain 10Hz</td>
<td>EO</td>
<td>01 &amp; 02</td>
<td>Helps relaxation before going to bed - remediate insufficient alpha</td>
</tr>
<tr>
<td>Math Difficulty</td>
<td>Math_Difficulty_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>P4</td>
<td>Math Problems - especially word problems</td>
</tr>
<tr>
<td>Melancholia</td>
<td>Melancholia_2CH.bxd</td>
<td>2-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>T3 &amp; T4</td>
<td>Trains the anterior insula on each side</td>
</tr>
<tr>
<td>Memory Declarative</td>
<td>Memory_Declarative_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Suppress 21-37 Hz</td>
<td>EC</td>
<td>C3 &amp; C4</td>
<td>Helps declarative memory (Names, Addresses, Dates)</td>
</tr>
<tr>
<td>Memory Working</td>
<td>Memory_Working_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>T3 &amp; T4</td>
<td>Helps declarative memory (Names, Addresses, Dates)</td>
</tr>
<tr>
<td>Migraine Sensitivity</td>
<td>Migraine_Sensitivity_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Suppress 21-37 Hz</td>
<td>EC</td>
<td>P3 &amp; P4</td>
<td>Common / Classical Migraine / &quot;Sensitive to light &amp; noise&quot;</td>
</tr>
<tr>
<td>Migraine Sensitivity</td>
<td>Migraine_Sensitivity_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Suppress 21-37 Hz</td>
<td>EC</td>
<td>C3 &amp; C4</td>
<td>Common / Classical Migraine / &quot;Sensitive to light &amp; noise&quot;</td>
</tr>
<tr>
<td>Mind Chatter</td>
<td>Mind_Chatter_1CH.bxd</td>
<td>1-Channel</td>
<td>B</td>
<td>Entrain 10Hz</td>
<td>EC</td>
<td>T4 or Cz</td>
<td>&quot;Golf Critic&quot;, Learn to &quot;Just do it&quot;</td>
</tr>
<tr>
<td>Motility Difficulty</td>
<td>Motility_Difficulty_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>Cz</td>
<td>Running, Kicking, Hopping etc.</td>
</tr>
<tr>
<td>Motivation</td>
<td>Motivation_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>T6</td>
<td>Procrastination / Lack of drive</td>
</tr>
<tr>
<td>Muscle Cramps</td>
<td>MuscleCramps_1CH.bxd</td>
<td>1-Channel</td>
<td>B</td>
<td>Entrain 12Hz</td>
<td>EC</td>
<td>Cz</td>
<td>Promotes relaxation</td>
</tr>
<tr>
<td>Muscle Cramps</td>
<td>MuscleCramps_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Entrain 12Hz</td>
<td>EC</td>
<td>C3 &amp; C4</td>
<td>Promotes relaxation</td>
</tr>
<tr>
<td>Nightmares</td>
<td>Nightmares_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Suppress 21-37 Hz</td>
<td>EO</td>
<td>Fp1 &amp; Fp2</td>
<td>General Entrainment</td>
</tr>
<tr>
<td>Numbness (R, L)</td>
<td>Numbness_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>(Left: P4, Right: P3)</td>
<td>Check for peripheral nerve problem</td>
</tr>
<tr>
<td>OCD</td>
<td>OCD_1CH.bxd</td>
<td>1-Channel</td>
<td>B</td>
<td>Suppress 21-37 Hz</td>
<td>EO</td>
<td>F3 &amp; F4</td>
<td>Repetitive Behavior / Relieves Anxiety</td>
</tr>
<tr>
<td>OCD</td>
<td>OCD_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Suppress 21-37 Hz</td>
<td>EO</td>
<td>F3 &amp; F4</td>
<td>Repetitive Behavior / Relieves Anxiety</td>
</tr>
<tr>
<td>ODD</td>
<td>ODD_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>Oz</td>
<td>Wants to do the opposite</td>
</tr>
<tr>
<td>ODD</td>
<td>ODD_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>Fp2</td>
<td>May need more than 10 sessions</td>
</tr>
<tr>
<td>Overeating</td>
<td>Overeating_2CH.bxd</td>
<td>2-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>P3 &amp; P4</td>
<td>Check for pesticide exposure / toxicity in hypothalamus</td>
</tr>
<tr>
<td>Pain Perception</td>
<td>Pain_Peception_1CH.bxd</td>
<td>1-Channel</td>
<td>B</td>
<td>Entrain 10Hz</td>
<td>EC</td>
<td>F4</td>
<td>Perception of pain</td>
</tr>
<tr>
<td>Performance Anxiety</td>
<td>Performance_Anxiety_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Suppress 21-37 Hz</td>
<td>EO</td>
<td>C3 &amp; C4</td>
<td>Peak Performance training, with anxiety</td>
</tr>
<tr>
<td>Performance Focus</td>
<td>Performance_Focus_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Suppress 21-37 Hz</td>
<td>EO</td>
<td>Fp2 &amp; Fz</td>
<td>Peak Performance training, for focus</td>
</tr>
<tr>
<td>Pick Frontal Dementia</td>
<td>Pick_Frontal_Dementia_2CH.bxd</td>
<td>2-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>F3 &amp; F4</td>
<td>Prevents progression</td>
</tr>
<tr>
<td>Poor Judgement</td>
<td>Poor_Judgement_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 15Hz</td>
<td>EO</td>
<td>Fp2</td>
<td>Hyperactivity, Impulsivity</td>
</tr>
<tr>
<td>PTSD</td>
<td>PTSD_1CH.bxd</td>
<td>1-Channel</td>
<td>B</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>Fp2</td>
<td>May need more than 10 sessions</td>
</tr>
<tr>
<td>Reactive Attachment Disorder</td>
<td>Reactive_Attachment_Disorder_2CH.bxd</td>
<td>2-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>F3 &amp; F4</td>
<td>Can't Relax &amp; sleep</td>
</tr>
<tr>
<td>Restless Legs</td>
<td>Restless_Legs_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Suppress 21-37 Hz</td>
<td>EC</td>
<td>(C3 &amp; C4) or (F3 &amp; F4)</td>
<td>Can't Relax &amp; sleep</td>
</tr>
<tr>
<td>Reward Deficiency</td>
<td>Reward_Deficiency_2CH.bxd</td>
<td>2-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>F3 &amp; F4</td>
<td>Common in alcoholics, PTSD, and other addictions</td>
</tr>
<tr>
<td>Reward Deficiency</td>
<td>Reward_Deficiency_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>Fp2</td>
<td>Common in alcoholics, PTSD, and other addictions</td>
</tr>
<tr>
<td>Rumination</td>
<td>Rumination_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Suppress 21-37 Hz</td>
<td>EO</td>
<td>T3 &amp; T4 or (P2 &amp; O2)</td>
<td>&quot;Hypersensitive to light, sound, touch&quot;</td>
</tr>
<tr>
<td>Sensory Integration Disorder</td>
<td>Sensory_Integration_Disorder_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>Pz</td>
<td>&quot;Hypersensitive to light, sound, touch&quot;</td>
</tr>
<tr>
<td>Sensory Integration Disorder</td>
<td>Sensory_Integration_Disorder_2CH.bxd</td>
<td>2-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>P3 &amp; P4</td>
<td>&quot;Hypersensitive to light, sound, touch&quot;</td>
</tr>
<tr>
<td>Slow Cognitive Processing</td>
<td>Slow_Cognitive_Processing_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>Pz</td>
<td>Uncommon to be only Problem</td>
</tr>
<tr>
<td>Snoring</td>
<td>Snoring_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>Fp2</td>
<td>Helps with sleep apnea / increases tone in pharyngeal muscles</td>
</tr>
<tr>
<td>Spelling</td>
<td>Spelling_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>1&quot; Below T5</td>
<td>Distinct from other learning difficulties</td>
</tr>
<tr>
<td>Stutter</td>
<td>Stutter_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>F7</td>
<td>&quot;Verbal Fluency&quot;</td>
</tr>
<tr>
<td>Tension Headache</td>
<td>Tension_Headache_2CH.bxd</td>
<td>2-Channel</td>
<td>B I</td>
<td>Entrain 13Hz</td>
<td>EC</td>
<td>C3 &amp; C4</td>
<td>Tension Headache</td>
</tr>
<tr>
<td>Tic Disorder</td>
<td>Tic Disorder_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Suppress 21-37 Hz</td>
<td>EO</td>
<td>T3 &amp; T4</td>
<td>&quot;Can't suppress sound&quot; / Inner ear origin / Stimulate that part of the brain</td>
</tr>
<tr>
<td>Tinnitus Anxiety</td>
<td>Tinnitus_Anxiety_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Suppress 21-37 Hz</td>
<td>EO</td>
<td>T3 &amp; T4</td>
<td>&quot;Can't suppress sound&quot; / Associated with Anxiety</td>
</tr>
<tr>
<td>Tinnitus HyperSensitive</td>
<td>Tinnitus_Hypersensitive_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Suppress 21-37 Hz</td>
<td>EO</td>
<td>T3 &amp; T4</td>
<td>&quot;Hypersensitive to sound&quot; / Brain origin (e.g. After accident)</td>
</tr>
<tr>
<td>Tremor - Intention Cerebellar (R,L,G)</td>
<td>Tremor_Intention_Cerebellar_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>(Left: 02; Right: 01; Gait: 01)</td>
<td>&quot;Miss objects you are trying to touch&quot;</td>
</tr>
<tr>
<td>Tremor Resting Tremor</td>
<td>Tremor_Resting_2CH.bxd</td>
<td>2-Channel</td>
<td>B</td>
<td>Suppress 21-37 Hz</td>
<td>EO</td>
<td>C3 &amp; C4</td>
<td>Parkinsonism - Resting tremor</td>
</tr>
<tr>
<td>Verbal Understanding</td>
<td>Verbal_Understanding_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>T5</td>
<td>&quot;What did the person or book say&quot;</td>
</tr>
<tr>
<td>Visual Processing</td>
<td>Visual_Processing_1CH.bxd</td>
<td>1-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>Oz</td>
<td>Trouble reading, tires easily &amp; doesn't enjoy reading</td>
</tr>
<tr>
<td>Visual Processing</td>
<td>Visual_Processing_2CH.bxd</td>
<td>2-Channel</td>
<td>Y</td>
<td>Entrain 17Hz</td>
<td>EO</td>
<td>O1 &amp; O2</td>
<td>Trouble reading, tires easily &amp; doesn't enjoy reading</td>
</tr>
</tbody>
</table>

**Glasses Code**
- Blue B
- Green G
- Indigo EC I
- Orange O
- Red R
- White W
- BlueGreen EC BG

**Eyes Open** EO

**Eyes Closed** EC
Recommended Reading for Neurofeedback

Doing Neurofeedback, A Condensed and Comprehensive Guide to the Practice of NFB
Dr. Richard Soutar, PhD
Published by the author, updated 2007

Getting Started with Neurofeedback
(an introduction to theory and practice – useful reference for clinical approaches)
John N. Demos
Norton (2005)

Awakening the Mind – A Guide to Mastering the Power of Your Brain Waves
(hands-on tips for self-mastery; useful meditations and imagery for use with patients)
Anna Wise
Tarcher-Penguin (2002)

A Symphony in the Brain – The Evolution of The New Brain Wave Biofeedback
(must have to understand history of the development of NFB; part of the story)
Jim Robbins

A Guide to Neurofeedback
(great reference handbook-excellent neuroanatomy diagrams, clinical applications)
Thompson & Thompson
Published by The Association for Applied Psychophysiology and Biofeedback (2003)

Handbook of Neurofeedback – Dynamics and Clinical Applications
(theoretical, but excellent resource with cited references)
James R. Evans, PhD

Change Your Brain, Change Your Life
The Breakthrough Program for Conquering Anxiety, Depression, Obsessiveness, Anger and Impulsiveness
Daniel G. Amen, MD

Power Up Your Brain
(Dr. Perlmutter is a solid reference for nutritional concerns; discusses the spiritual side of brain fitness)
The NeuroScience of Enlightenment
Dr. David Perlmutter & Alberto Villoldo
Hay House (2011)
# NeuroIntegration Intake Form

## PERSONAL INFORMATION
Name ____________________________ Date of birth _____/____/____
Address ____________________________________________ Age ___________ years
City ___________________ State ________ Zip ____________ Gender M F
Email address __________________________
Home Phone ___________________________ Cell Phone ___________
Work Phone ___________________________ Fax___________________

**Tell us more about your needs and desires regarding brain health.**
How can we help? What are you hoping to address or achieve through our NeuroIntegration Program?

## HEALTH INFORMATION

1. **OVERALL HEALTH**
   On a scale of 1-10, how would you rate your current health? 
   (1 being the worst, 5 being average, 10 being the best) 1 2 3 4 5 6 7 8 9 10

2. **SLEEP**
   Rate the quality of sleep you usually get in the past month. 1 2 3 4 5 6 7 8 9 10
   At what time do you go to bed? ___________ am/pm
   At what time do you rise in the morning? ___________ am/pm
   Are you able to sleep through the night? YES NO
   If NO, please describe:
   Are you able to fall asleep easily most nights? YES NO
   If NO, please describe:
   Do you wake refreshed? YES NO
   If YES, please describe any exceptions:

3. **HEAD or NECK INJURY**
   Have you ever injured your head or neck? YES NO
   Ever had a concussion? YES NO
   If yes, have you suffered more than one concussion? YES NO
   Have you ever been in an auto, motorcycle or bicycle accident? YES NO
   Have you ever had a traumatic brain injury? YES NO
   Are you currently receiving care for this/these injuries? YES NO

   Please describe your head or neck injuries using the reverse side of this page, thinking back over the years.
   Please consider the childhood and teen years, as well as adulthood, including home life, sports, accidents, slips/falls, etc.

4. **CHRONIC HEALTH PROBLEMS?**
   Please list any chronic medical problems or brain health issues you have on the back side of this form.

5. **HORMONES**
   Are you concerned that hormonal imbalances that may be contributing to your condition? YES NO

6. **MOODS & EMOTIONS**
   How would you describe your general emotional state? (A brief sentence or short phrase of 3-4 words is fine.)
7. **MEDICATIONS, SUPPLEMENTS & VITAMINS**
If you haven’t previously listed these on our intake form, please provide a list here including name, dose, frequency and for what symptom you are taking each. Feel free to use the other side.

<table>
<thead>
<tr>
<th>Medications</th>
<th>Nutrition Supplements/Vitamins</th>
</tr>
</thead>
</table>

**ANY KNOWN MEDICATION ALLERGIES?**

YES  NO

*Please list any medication allergies you may have:*

8. **SUBSTANCES**

Do you currently use psychoactive drugs, medications or alcohol to pick yourself up or calm yourself down?  YES  NO

Have you ever used psychoactive drugs, medications or alcohol in the past to pick yourself up or calm yourself down?  YES  NO

Are you currently a smoker?  YES  NO

Do you consider your current use of tobacco, alcohol or street drugs a problem?  YES  NO

If yes on any of these substances, circle those currently taking.

<table>
<thead>
<tr>
<th>Do you feel depressed or anxious at the present time?</th>
<th>Depressed</th>
<th>Anxious</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Neither</td>
<td></td>
</tr>
</tbody>
</table>

| Have you suffered from depression or anxiety in the past? | YES | NO |

Circle condition if yes.

9. **ATTENTION & LEARNING**

Any history of learning difficulties?  YES  NO

Any history of memory problems?  YES  NO

Any history of ADD/ADHD?  YES  NO

In childhood?  Adulthood?  (please circle)

10. **OTHER CONDITIONS**

Any history of other psychiatric conditions in yourself, such as schizophrenia, bi-polar disorder, psychosis?  YES  NO

Any history of other psychiatric conditions in family members, such as Schizophrenia, bi-polar, psychosis?  YES  NO

11. **COUNSELING & PSYCHOTHERAPY**

Are you currently working with a psychiatrist, therapist, counselor or clergy in matters regarding your mental health?  YES  NO

If yes, please list name/names ________________________________

12. **SEIZURES or LIGHT SENSITIVITY?**

Are you, or have you ever been, sensitive to lights or strobe lights, had or been diagnosed with migraines or epileptic seizures?  YES  NO

13. Is there anything that you would like to add?

---

**Parent or Guardian of Minor, please complete this section**

<table>
<thead>
<tr>
<th>Parent/Guardian Name</th>
<th>________________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>_________________________________</td>
</tr>
<tr>
<td>City</td>
<td>_____ State _____ Zip _____</td>
</tr>
</tbody>
</table>

Do you live with the patient?  Y  N Phone __________
<table>
<thead>
<tr>
<th>Date</th>
<th>Settings today</th>
<th>Session Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session #____</td>
<td>Program # _____ Downtrain</td>
<td></td>
</tr>
<tr>
<td><strong><strong>/</strong><em>/</em></strong></td>
<td>Uptrain</td>
<td></td>
</tr>
<tr>
<td>Site <em><strong>/</strong></em>_</td>
<td>Enhance _____ Hz (AVE)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Color: B G Y none</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eyes: open closed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reward _____</td>
<td></td>
</tr>
<tr>
<td>TR time (min)</td>
<td>=_________ Media used:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Music CD Movie DVD</td>
<td></td>
</tr>
<tr>
<td>_____ (#) X</td>
<td>____ (min) Stopping point: <strong><strong>:</strong></strong></td>
<td></td>
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PROTOCOL WORKSHEET & CONSENT FORM
(Patient and Physician to retain copies)

Patient Name ____________________________________________________________
Date of Birth ___/___/____

Brain Map & Assessment
A 12-lead qEEG brain map may be recommended for the patient named above by
________________________(Practitioner Name, title, credentials) on ___/___/____. The brain map and
assessment of outcome was performed on ___/___/____.

Training Recommendations Pt initials here ___
I have been informed by ______________________(Neurofeedback practitioner name, title) that
Neurofeedback is an emerging therapy that has shown benefits for many conditions, and is being actively
researched for the treatment of depression, anxiety, insomnia, fibromyalgia, chronic pain, learning
difficulties, PTSD and more. Recent studies demonstrating efficacy are available to review on our website
and we will post any new studies as they become available.

Number & Type of Training Sessions Pt initials here ___
Based on your brain map results, a total of ___ (#) of NFB training sessions are recommended. We
suggest that the following training sessions be considered as outlined here:

<table>
<thead>
<tr>
<th>Protocol</th>
<th>YBGnone</th>
<th>EO</th>
<th>EC</th>
<th>Enhance/Suppress</th>
<th>Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rational</td>
<td>__________________________</td>
<td></td>
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<tr>
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<td>__________________________</td>
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Re-assessment Recommendation Pt initials here ___
I understand that a follow-up brain map is recommended to assess progress and/or revise training
protocols after ___(#) NFB training sessions.

Technical services at ___NAME OF CLINIC HERE___ will be managed and/or provided by
________________________(NFB practitioner name) under the direction of
________________________(licensed healthcare provider name, credentials, State in which licensed, license
number). Neurofeedback is a form of brain-based biofeedback that offers potential benefits for improved
cognitive, emotional, psychological, or metabolic functioning.

My Training Goals
As we have discussed, my primary brain health training goals are: patient writes his/her goals here
Precautions

If I am epileptic, have sensitivity to lights or a history of seizures, I have received clearance from a qualified healthcare professional to proceed with appropriate NFB training.

If you have had a brain injury or suffer from any mental disorder or psychiatric illness, I understand that it is recommended that I proceed with NFB training with the consent of my doctor, with the guidance of our qualified staff in-house.

General Recommendations for Neurofeedback Training

1. Remain hydrated daily during your training period of ___(estimated #) weeks. Drink water or clear liquids appropriate to your physical condition.
2. Prior to your NFB training session, drink a 6-8 oz glass of water (15-30 minutes prior).
3. We will apply training programs and coaching as outlined above. Changes in protocol will be discussed with you prior to implementation.
4. Arrive early for your session, if possible. To get the most out of your personal training session, quiet your mind and relax your body as you enter the training room.
5. Most sessions are offered in a seated or semi-reclined position. Please let us know if you have requirements or requests for specific seating arrangements.
6. During each session, our personal trainer for the brain will “check-in” with you. You may be asked about your diet, sleep, exercise, moods, activities, etc. since your last NFB session.
7. If at any time during the session, you begin to feel discomfort, including (but not limited to) vertigo, nausea, euphoria or déjà-vu, or if you experience a mental instability, please let your trainer know immediately. Your trainer will supervise your training sessions and may check-in with you periodically during each session.
8. We recommend that you begin your training with ___ sessions the first week, then ___ sessions/week starting at ___ weeks.
9. If your medications or supplements change during the time you are receiving brain health training, please let your trainer know as a change in protocol may be in order.
10. If new symptoms arise, please let your trainer know in person, by email or by telephone. Our number is listed on the front side of this sheet. Please send emails to:

Medical Release

I understand that I agree to inform my primary care physician, therapists, and my NFB provider if taking any neurologic or psychiatric medications, or if suffering from a psychological disorder. With my informed consent, ______(NFB practitioner) may speak with my designated providers and therapists and/or fax them reports to them, if a team approach is desired. Appropriate Medical Release Forms will be obtained by me prior to the release of any medical information.

Informed Consent

I give my informed consent to participate in NFB training and/or brain health nutrition, exercise or behavioral coaching sessions at Revolutionary MD. Please check one for each line below:

I ___do ___do not have epilepsy/seizure disorder..
I ___do ___do not have a family history of epilepsy/seizure disorder.
I ___do ___do not have bipolar disorder.
I ___do ___do not currently use psychoactive drugs
I ___do ___do not currently use alcohol excessively.

Signature of patient or responsible party, parent or guardian

Name___________________________

Signature_________________________ Date____________________

BCN/ RMD staff initial _____________ Date____________________