

*Change Your Mind*  
*with*  
**Neurofeedback**



*By*

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# Neurofeedback

For thousands of years, people have used meditation and prayer to change the brain by training the mind. In the past 50 years, Neurofeedback technology has made it possible to achieve a much faster and easier approach: Change your mind by training the brain directly!

# Neurofeedback Beginnings

- Hindus – practiced meditation 5000 years ago in India, without understanding its implications and wider application for Neurofeedback
- Electroencephalograph (EEG) has been studied and applied since the 1930's
- Joe Kamiya, in the 1960's, discovered that his research subjects could learn how to alter the power and speed of their brain waves
- Barry Sterman, in the 1960's, found that he could alter cat's brainwaves through "goal" rewards



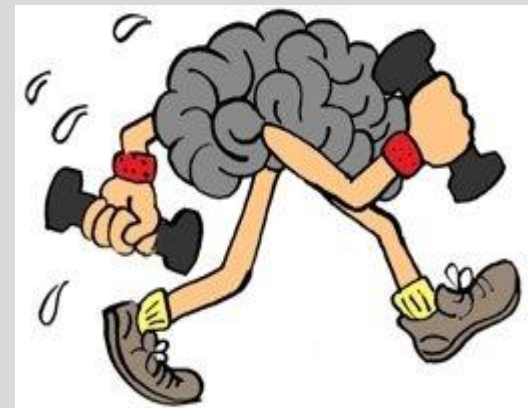
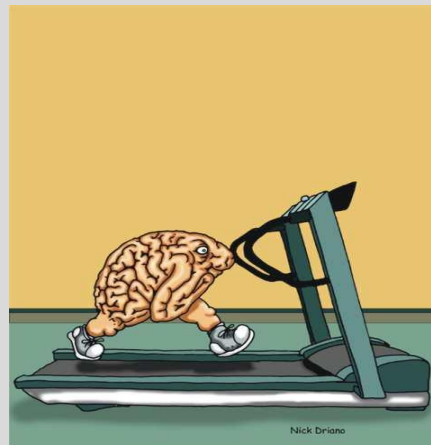
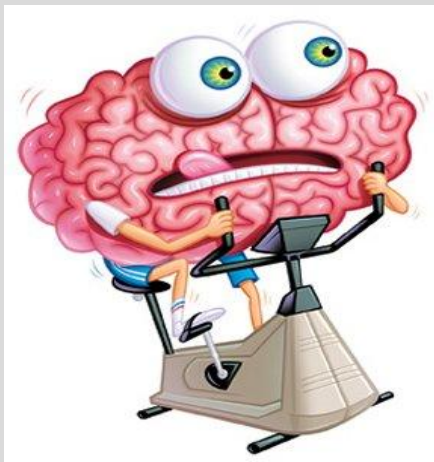
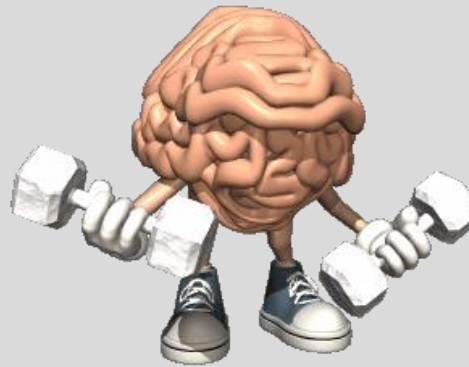
# Neurofeedback is an Holistic Modality

- Drug free
- Painless
- Non-invasive
- Acts as *technological* cognitive behavior therapy
- May raise IQ 10-15 points

# Neurofeedback Training

Neurofeedback, also known as EEG (electroencephalogram) is training in self-regulation. It is simply biofeedback applied directly to the brain. When coupled with traditional psychotherapy, Neurofeedback can decrease symptoms of stress-related brain disease and neurobehavioral disorders by altering brainwave patterns. The brain learns to function with greater control and stability.

# Neurofeedback provides a workout for your brain – It acts as “Brain Gymnastics”



# Neurofeedback Functioning

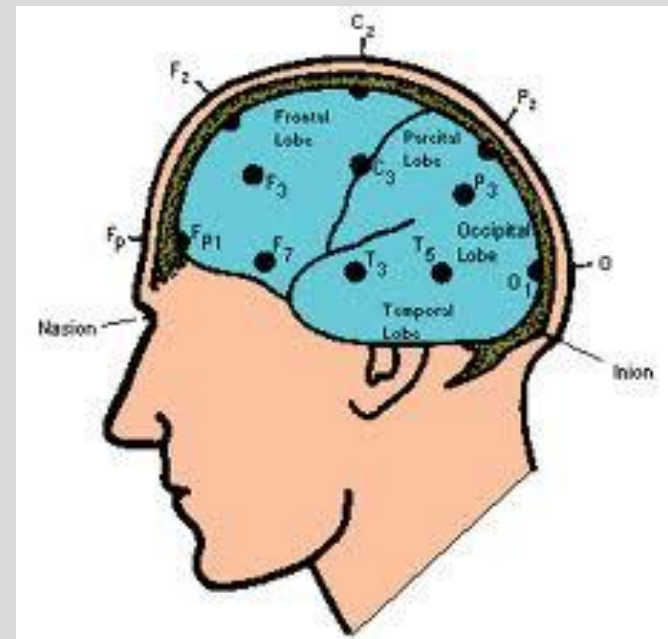
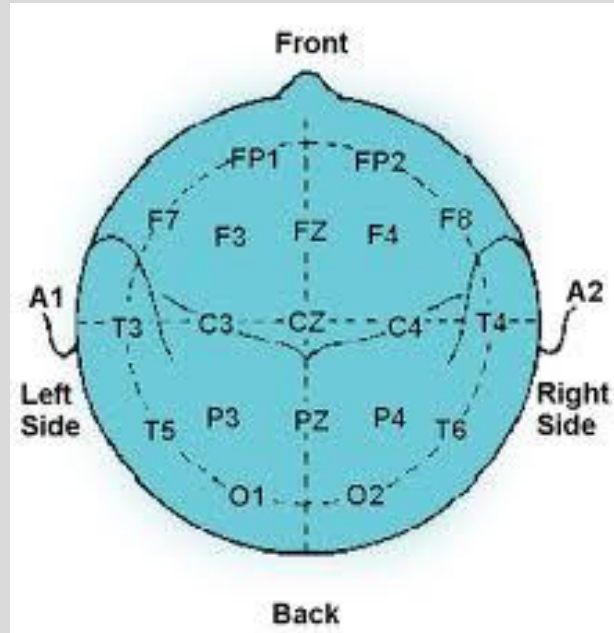
- Directs training of brain activity
- Addresses problems of brain dysregulation
- Teaches the brain self-regulation that allows the central nervous system to operate at an optimal level



# How does Neurofeedback work?

- Electrodes or sensors are applied to the scalp to monitor brainwave activity
- The locations on the scalp are specific to the conditions being addressed
- The computer processes the signal to extract information about brainwave frequencies
- The ebb and flow of activity is presented back to the person in the form of a DVD or video
- Eventually brainwave activity is shaped towards a more desirable, self-regulated performance

# Neurofeedback Head Sensor Connections



# States of Consciousness

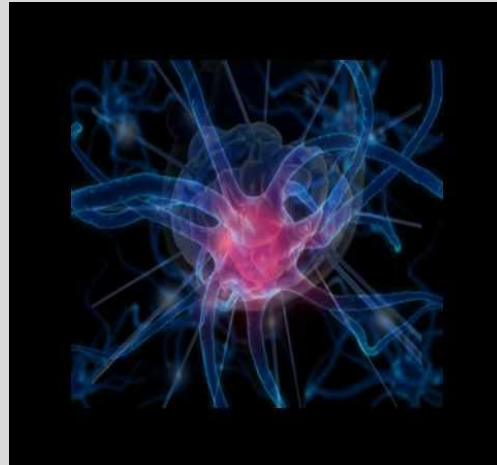
- High Beta (22-32hz) – Highly aroused mind and body
- Mid Beta (15-18hz) – Alert and focused
- SMR (12-15hz) – Relaxed body and mind
- Alpha (8-11hz) – Deeper states of relaxation, stress relief
- Theta (3-8hz) – internal focus, meditative
- Delta (0.2-3hz) – Deep, dreamless sleep

# Symptoms Treated by Neurofeedback

- ADD/ADHD
- Anger
- Anxiety
- Asperger's
- Depression
- Head Trauma
- Migraine
- Mood Disorders
- OCD
- Oppositional Defiant
- Phobias
- Seizures
- Sleep Disorders
- Tourette's
- *May Enhance Academic and Athletic Performance*

# Neurofeedback Manages the Cognitive Processes of the Brain

- Focus
- Memory
- Planning
- Learning
- Organizing
- Regulates emotional tone and brain arousal



# Pir Heg

## (Passive Infrared Hemoencephelography)

Pir Heg is a special type of Neurofeedback that indirectly measures oxygen and blood flow in the brain. The system uses an infrared camera-like sensor positioned on a person's forehead. A movie is used as the feedback signal. While watching the movie, a person has to maintain a RELAXED BUT FOCUSED concentration. If they lose the focus, the movie will pause. The object is to be able to maintain that same sense of control and relaxation in real life circumstances.

# Pir Heg Sensor



# Pir Heg Research Results

- Autism – after 20 sessions
  - patients showed 42% reduction in symptoms
  - overall 90% success rate
- ADHD – after 10 sessions
  - showed clinically significant improvement
  - medication intake was substantially lowered
- Migraines – after 6 sessions
  - strong impact on migraine headaches
  - over 90% showed significant improvement



# 007 is the iconic representation of Relaxed and Focused



# **CYGNET, EEG**

## **(Electroencephalography)**

Neurons produce electrical activity that is readable by attaching sensors on particular sites to the scalp. These sensors give feedback information on what your brain is doing. Research shows that we can change our brainwave patterns by exercising our brains. Using very low frequencies, Cygnet does this exercise by using a movie or video game that gives us visual and auditory feedback. By way of this response, our subconscious mind begins to program our mind to stay in a healthy pattern.

# Cygnnet Neurofeedback Session



# Which System is Right for Me???



# The Yonkers Project

A Neurofeedback program was set up in a Yonkers, NY public school in 1995 – 2001. The project was created by Dr. Mary Jo Sabo and vice-principal Linda Vergara. A small grant was obtained for equipment and the bulk of the work was initially all volunteers. It targeted training the most difficult kids in school – ringleaders and the most difficult behaviorally. The program was very successful and expanded to two additional schools. Unfortunately, due to lack of funding, the program was cut after 9/11.

# Organizations that have used Neurofeedback

- American Academy of Pediatrics
- Cleveland Clinic
- Mayo Clinic
- The Olympics
- The US Government (PTSD)

# Neurofeedback in the News

- NY Times Science Section
- Psychology Today
- Newsweek
- The Today Show
- OWN/Oprah Winfried Network
- Dr. OZ
- National Public Radio

# Neurofeedback requires a commitment



**Neurofeedback is NOT Fairy Dust!**



# In Conclusion

Neurofeedback has the ability to change the face of mental health treatment and offer resolution of symptoms rather than the temporary relief of medications...

...Change your mind with Neurofeedback

