



*Harbin Clinic Behavioral Sciences*  
**Seminar Presentation**



**W**elcome to a Comprehensive  
Evaluation and Treatment Program  
for Children and Adults with:

**Attention Deficit Disorder**  
**Learning Disabilities**  
**Behavior Problems**  
**Hyperactivity**



# Welcome To Harbin Clinic Behavioral Sciences

Effective Treatment Programs for ADHD and Brain Fitness

**What is Harbin  
Clinic Behavioral  
Sciences?**

# Harbin Clinic Behavioral Sciences



## ■ Meet Our Staff

Randell Elkins, Ph.D.

Frank Harbin, Ph.D.



# Welcome To Harbin Clinic Behavioral Sciences

Effective Treatment Programs for ADHD and Brain Fitness

**What is  
Attention Deficit  
Hyperactivity  
Disorder?**



# What is ADHD?

**A**ttention Deficit Hyperactive Disorder, (ADHD) is a specific developmental disorder that affects children, (as well as adults). It is the most commonly diagnosed behavioral and learning disorder. As much as 10% of the population suffer from some form of ADHD. In some cases, it has only a mild impact on a person's life while in other cases, it affects people severely.

The '3' main features of ADHD are:

- ➔ **Difficulty Paying Attention**
- ➔ **Acting Impulsively**
- ➔ **Being Hyperactivity**



# What ADHD Treatments are Available?



Current recognized methods of treatment involve;

- ❖ Medication
- ❖ Behavior Therapy
- ❖ Educational and Parent Training
- ❖ Family Counseling
- ❖ **EEG Neurofeedback**

While all of these treatments can be helpful in learning to cope with ADD/ADHD, only **EEG Neurofeedback** can help to actually assist an individual in changing, (controlling) physiological differences found in those suffering from ADD/ADHD.





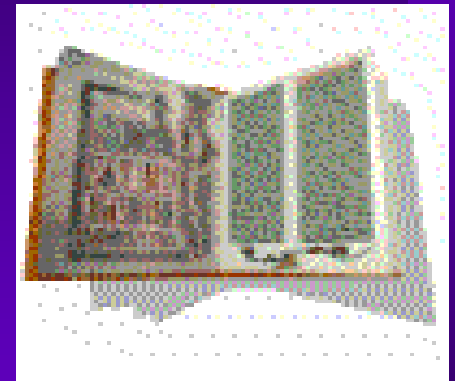
# People With ADHD Have 'Different' Brain Waves!



**Pediatric Neurology**- "Quantitative Analysis of EEG in Boys with ADHD", Mann, etc. Vol. 8, No.1, 1991: QEEG's were conducted on boys diagnosed with ADHD. The researchers found an increase in 'slow brain waves' and fewer 'fast brain waves' during mental tasks like reading and math.

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This study first measured brain wave activity while children were actively daydreaming. EEG measurements of brain activity were then collected while the children were engaged in mental tasks like reading, listening, math and drawing.

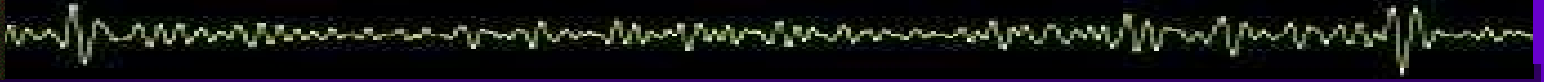


When the mental processing tasks were compared to daydreaming, the researchers found that **children diagnosed with ADHD had significant increases in slow brain waves** that lead to inattention and poorer processing.

**Children that were not diagnosed with ADHD did not show this pattern – their brains were able to effectively block out this slow wave, daydream activity!**



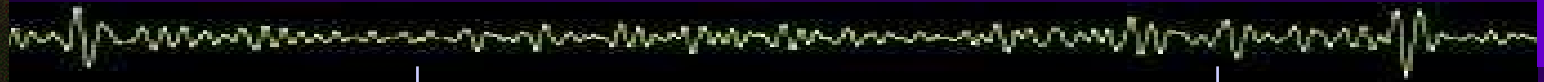
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**Let's Better  
Understand These  
'Different' Brain  
Wave Patterns...**



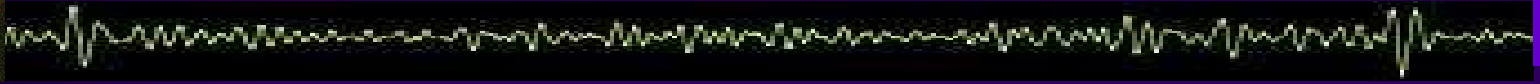
# Brain Waves Have Different Names



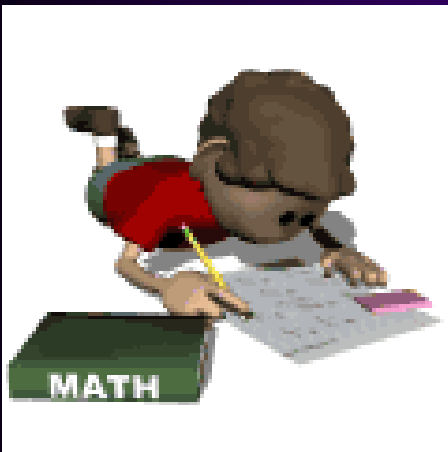
	Frequency of Brain Wave States	Mental States	Description of Brain Waves
SLOW WAVES	<b>DELTA:</b> 0.5-3 (cps)cycles per second	Sleep	The 'Sleep' State
	<b>THETA:</b> 4-8 (cps)	Inner reflection w/o much attention focused on the outside world; tuned out; drowsy	The 'Tuned-Out' Waves
	<b>ALPHA:</b> 8-13 (cps)	Resting in a meditative & creative state; daydreaming; inattentive	The 'Daydreaming' Waves
FAST WAVES	<b>SMR:</b> 12-15 (cps)	Calm, not fidgeting, not impulsive, not thinking about bodily sensation; Often externally aware; quietly alert	The 'Calm' Waves
	<b>BETA:</b> 16-20 (cps)	Focused analytical, often externally oriented, intense thinking/processing	The 'Thinker' Waves



# Slow Brain Waves = Daydreaming Fast Brain Waves = Attention



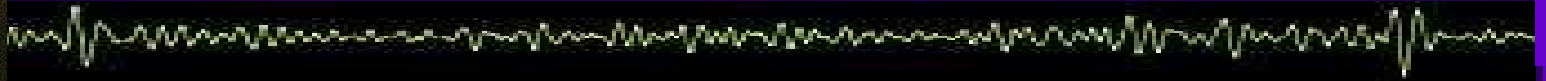
Ever wonder why ADHD children can focus so intently on video games, TV, or things they are interested in, yet can't focus on their schoolwork?



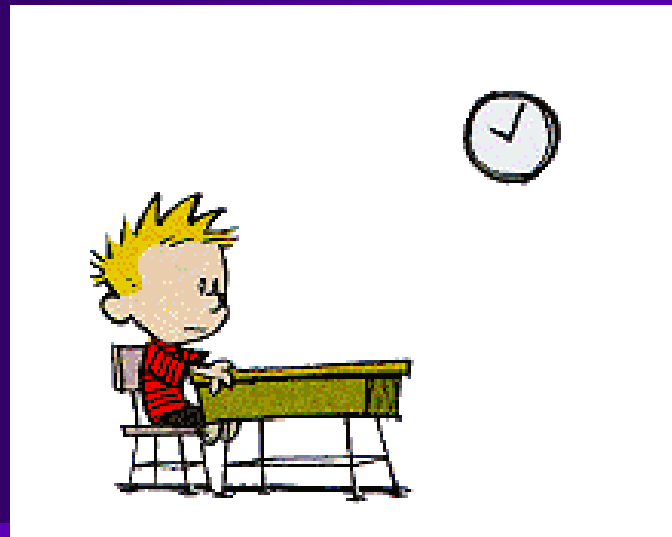
**W**hen we are inattentive or daydreaming, our brains produce primarily slower waves like theta and alpha. As we focus on a task like reading or listening our brain engages and these slow waves 'drop out' with brain energy moving to the faster 'thinker' waves. Our brain is 'waking up' and activating to process this information.



# Low Arousal = Daydreaming



The ADHD brain works differently. Research demonstrates that when an ADHD child tries to concentrate, the brain continues to produce even more slow wave activity leading to a state of under activation or **low arousal**.





# Boredom = Increased Activity



Children with ADHD are dependent on stimulation from the environment to direct attention – they are unable to self-regulate.

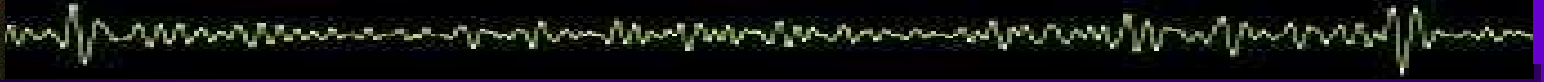
If there is not sufficient stimulation present from the environment, a child seeks out or creates stimulation around them. The child may become fidgety, restless, get out of their seat, talk to their neighbor...



All these activities are designed to increase stimulation to break out of this state of low arousal.



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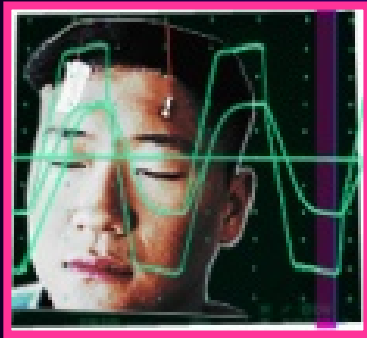


**What is EEG  
Neurofeedback?**

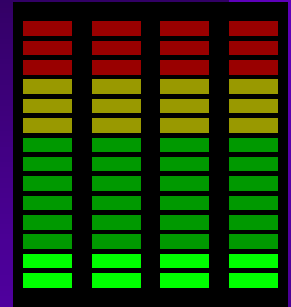
# Now That We Better Understand the Brains of Those with ADHD... What Can Be Done About It?



For more than 30 years, **Biofeedback** has successfully measured and changed physiology in our bodies.



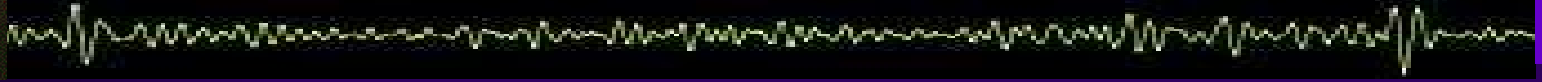
**What is Biofeedback?** Biofeedback is a computer-assisted device that first measures physiology in a person's body such as; muscle tension, anxiety, blood pressure, etc.



Through this measurement, the computer then **feeds back** this information visually and auditorally to the person. Through a simple learning and conditioning process, an individual learns to **CHANGE HIS/HER OWN PHYSICAL RESPONSES** to improve their health!



# Successfully Treating ADHD By Changing Brain Wave Patterns!



## What is EEG Neurofeedback?

**EEG, (Electroencephalography) Neurofeedback** is a form of Biofeedback. Rather than measuring the peripheral nervous system, **EEG Neurofeedback** measures the central nervous system or **Brain Wave activity**.



Since the 1970's, **EEG Neurofeedback** has been used to assist with conditions such as Seizure Disorders and ADHD. Through sensors, safely placed on the surface of the head brain wave activity can then be monitored visually and auditorally on a computer.



# Over 30 Years of Research



With over 30 years of research and more than 3000 treatment centers in the US, state-of-the-art, computerized **EEG Neurofeedback** treatment is an effective alternative to medications.

Through a sophisticated training system, individuals are taught, in a game like format, to effectively exercise their brain, leading to increased attention, processing and learning!





# Video Game Enabled Feedback

Scientists at NASA LaRC have researched and developed technologies using physiological measures for assessing sustained attention, engagement, awareness and pilot stress, in laboratory flight simulators. As NASA scientists measured pilot's attention and engagement to task in flight simulators, these scientists recognized that a flight simulator was very similar to a video game. They then came upon the exciting concept of using real video games controlled by the player's brain activity.

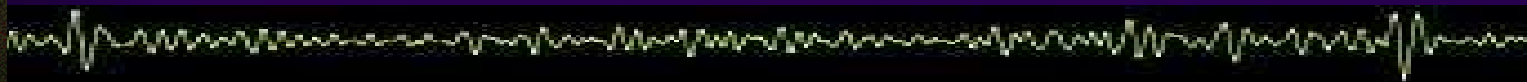


Biomedical spin offs have emerged from this work through collaboration with medical centers. NASA first sponsored and conducted a research study at Eastern Virginia Medical Center, to determine the effectiveness of using their patented video game technology in the treatment of ADHD.

***S.M.A.R.T. BrainGames™ is a spin-off, turning years of NASA Biomedical and scientific research into an effective and fun experience for children and adults.***



# This Is What EEG Neurofeedback Treatment Looks Like!



**EEG Neurofeedback Treatment** naturally empowers the brain to effortlessly develop increased control and strength, much like the effects of weight lifting to build muscle strength or jogging to improve cardiovascular fitness:





# This Is What Our Neurofeedback Treatment Looks Like!



Watching movies and playing video games consistently engages users allowing deeper and more consistent reinforcement!

The high engagement to the training task is self motivating and allows for home training to take place without boredom and with excellent compliance.





**Welcome To Harbin Clinic Behavioral Sciences**  
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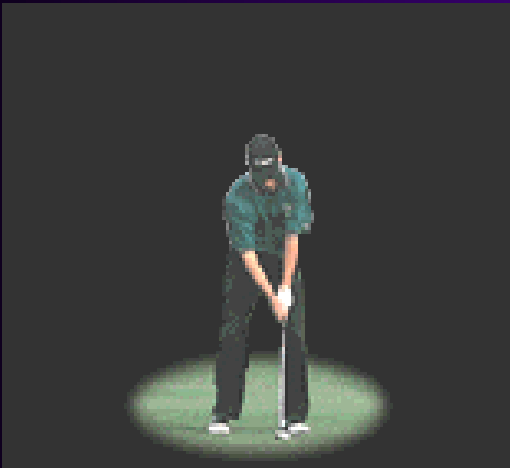
**How Does  
Neurofeedback Work?**



# Learning Theory & Neurofeedback



Successful neurofeedback training is based on simple learning theory. In order to learn or acquire a new skill we need two simple components present: feedback and practice.



The more we practice, the more natural and second nature the learning becomes.

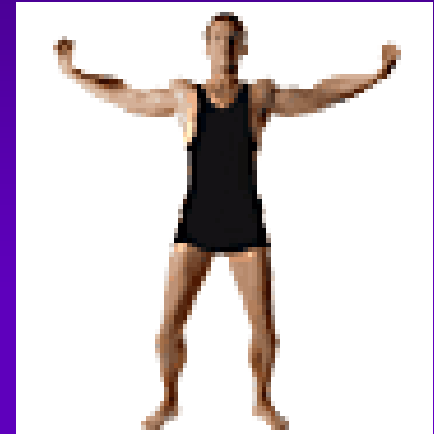


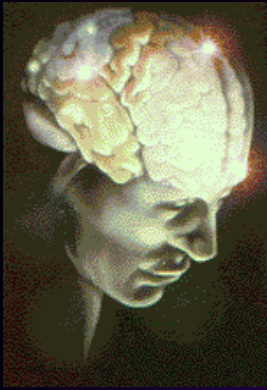
# Successful Training = Success

**W**ith neurofeedback we are training the ability to sustain attention and improve processing. The more we train, the stronger and more efficient our abilities develop. **Just like exercising to develop strength.**

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**U**nlike weight training in which you need to continue exercising to maintain the benefits- **with neurofeedback the benefits of attention training stay with you,** as you are always using attention!





# Welcome To Harbin Clinic Behavioral Sciences

## Effective Treatment Programs for ADHD and Brain Fitness

**What is Involved in  
the Harbin Clinic  
Behavioral Science  
Evaluation Process?**



# Take the First Step Today!...



## Step 1:

# COMPREHENSIVE PSYCHOLOGICAL EVALUATION

**O**ur Comprehensive evaluation process will allow us to determine if the Harbin Clinic Behavioral Sciences Program is appropriate for you or your child.

**I**n addition to objective testing, a thorough medical, developmental, educational and social history is conducted.





# The Objective Evaluation Provides the Answers!



## The Evaluation Process is Extensive:



Before the evaluation, families complete important developmental history information and behavior rating scales.



If appropriate, teachers are asked to provide written feedback about classroom behavior.



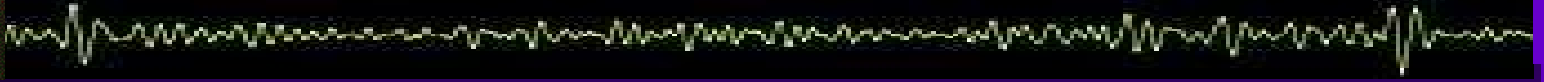
Our Doctor's meet with family to obtain additional documentation, answering important questions.



In addition to the comprehensive history, psychological testing is performed to help establish whether ADHD is the appropriate diagnosis, assess for any learning problems or disabilities, and evaluate whether emotional factors are adding to the problem.



# The Evaluation Continues...



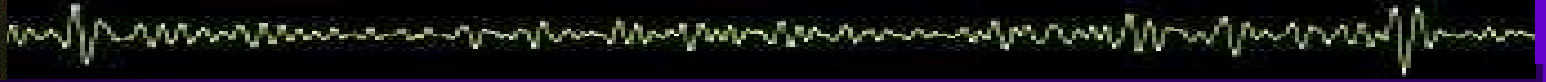
**For children, teenagers and college students, a 2 to 3 hour Psychological testing session is conducted which yields objective measures in the following areas:**

- Intelligence
- Reading abilities including phonetic processing, word reading, sentence comprehension, passage comprehension and reading fluency
- Spelling abilities
- Math skills
- Written language abilities
- Visual motor skills
- Anxiety and Depression
- Personality and emotional skills
- Continuous Performance Testing- this is a computerized attention measure which objectively measures inattention, processing speed, variability of attention and impulsivity





# The Final Analysis!



## Bringing It All Together:

**Now** that we have obtained all necessary **subjective** information from the client, family, parents and teachers...

**And** have collected all **objective** data by means of Psychological testing and computerized attention testing...

**A** convergence of this information answers the important questions:



**Does the client meet a diagnostic criteria?  
Can this client benefit from Harbin Clinic  
Behavioral Sciences?**



## Say, "YES To Success" at Harbin Clinic Behavioral Sciences

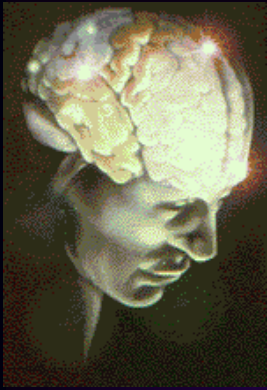


### Reachable Goals Ensure Success:

**A**t the close of the evaluation, the client and family establish very specific measurable and reachable realistic goals for success in treatment.

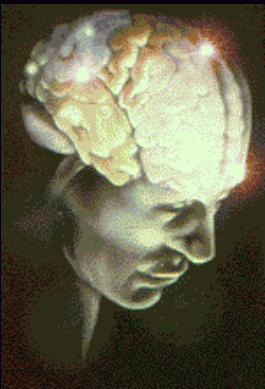
**W**hen a client begins the treatment process, it is these goals that lay a foundation for measuring continued progress in treatment. These goals are carefully reviewed throughout the course of treatment to ensure success!



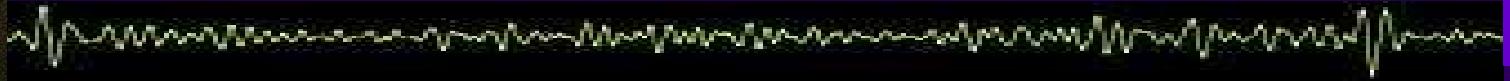


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**The**  
**Harbin Clinic Behavioral**  
**Sciences Treatment Process...**



# In-Office and Home Training Programs



Harbin Clinic Behavioral Sciences offers both traditional in-office Neurotherapy programs and Home Training options. In our in-office program the client comes to our offices and trains 2-3 days a week over a 4-6 month time period. All Neurotherapy is conducted in-office.

Our Home Training program is now available thanks to the effectiveness of SMART BrainGames NASA developed video game Neurotherapy technology.

Whether training at home or in our office, training is conducted using fun, off the shelf, PlayStation or X-Box video games and DVD movie





# If Your Family is Accepted Into the Harbin Clinic Behavioral Sciences Program...



## Step 2: Beginning Treatment!

In our in-office Program, each Client is assigned to his/her own case manager and doctor. As treatment's progress is reviewed closely throughout treatment, the case manager and doctor meets with the family at least 4-6 times during the course of treatment.

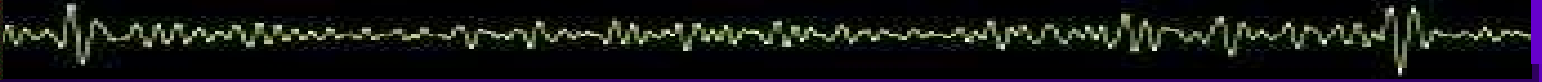
Our home training program allows for the training sessions to be conducted in the convenience of your home. You will meet as a family with your case manager and doctor to review progress 4-6 times over the term of the home training.



Each case is also reviewed at our weekly staff case management meetings to ensure that we are reaching the expected outcomes in treatment.



# Harbin Clinic Behavioral Sciences Offers So Many Services to You & Your Family!



## Ongoing Testing:

The Continuous Performance Testing, (CPT), is conducted at the middle and end of treatment.

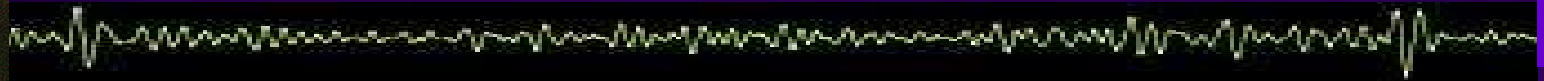
### This Objective Testing:

- Provides valuable information about treatment's progress,
- Is used to objectively document performance gains,
- Is an indicator used to determine physiological change and response to treatment.





# Harbin Clinic Behavioral Sciences is Committed to Your Families' Success



## Taking Treatment's Temperature:

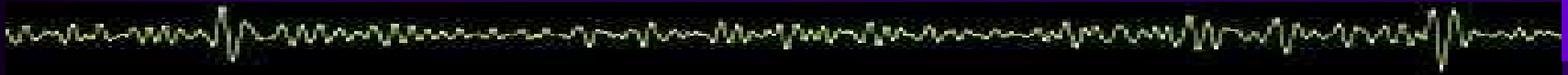
Feedback forms are completed by parents after every visit (in-office program), by teachers every '10' visits (in-office program) and consistently from our clients as well. This is one of many ways we "Take Treatment's Temperature" throughout a client's time with "Your Clinic". We want to ensure...

### SUCCESS WITH EVERY CLIENT!

For our home training clients, feedback is provided by email, phone and during our in-office consults. For adult clients, we ask that a spouse or relative provides us with ongoing insight.




# Service Costs- In-Office Training



- Office Treatment-
- \$2800 (if paid up front)
  - \$3000 (if paid in 2 installments)
  - \$3200 (if paid in multiple installments)
- Office treatment involves 40 sessions, with sessions scheduled either 2 or 3 times per week. There is no equipment charge or charge for on-going supervision from the provider.

# Service Cost- Home Training

- 
- Home Treatment- (does not include cost of home equipment)
    - \$1800 (if paid up front)
    - \$2000 (if paid in 2 installments)
    - \$2200 (if paid in multiple installments)
  - The fee covers all needed services for a 6-month period (office visits, phone consults, weekly monitoring of progress via e-mail, and communications with medical doctors about medications)
  - The Home System equipment is available from BrainGames (see the link on our website) at a cost of approximately \$550, which does not include a Sony Play Station.