Innovative Brain Tools for Behavioral, Emotional, and Academic Growth

A Chance To Grow

A Chance To Grow Programs:
- Home Based Services
- Outpatient Rehabilitation Clinic
- Auditory Processing Clinic & Therapy
- Neurotechnology Clinic & EEG Biofeedback
- SMART Boost Up Plus - Summer & School Year
- Neurological Reorganization
- Turnquist Child Enrichment Center
- Minnesota Learning Resource Center
- Kretsch Family Brain Resource Library

A Chance To Grow is dedicated to helping all, including those with learning problems, developmental delays and brain injuries, reach their highest potential.

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A Chance To Grow

WWW.ACTG.ORG

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Learning Starts With Building Developmental Foundations

NEUROTECHNOLOGY

Benefits of Neurotechnology

- A relaxed state of mind
- Improvement in behavior
- Academic success
- Athletic enhancement

What is NEUROTECHNOLOGY?

EXERCISE FOR THE BRAIN

What type of child should be referred to use AVE or EEG Biofeedback?

ADD OR ADHD
ADD OR ADHD
OPPOSITIONAL/REFUSES TO DO WORK
TIRED
UM爱奇ONAL/quiet/passive
ANXIOUS
"ACHES & PAIN" CHILD
AVOIDANT
DEPRESSED/ DOWN
AUTISTIC
VERY DISORGANIZED
EMOTIONAL
ANGRY/AGGRESSIVE/ARGUMENTATIVE
STRESSED
STUCK IN BEHAVIORS/THOUGHTS
FORGETFUL

Neurotechnology’s 2 Components

EEG Biofeedback:
- A noninvasive way of using computerized technology to give feedback about what one’s brainwaves are doing
- Audio Visual Entrainment/AVE
- Brainwaves are exercised (entrained) with light and sound patterns

EEG Biofeedback

Components:
- Sensor
- Learning/age/perform
- Motor
- Perceptual
- Integrated
- Integrated
- Sensory
- Auditory
- Motor
- Motor
Electrical Brain Activity and the Experience

- **Delta** - Deep Sleep -- Brain Damage, Drug Abuse
- **Theta** - Light Sleep -- Creativity, Brain Fog, ADHD
- **Alpha** - Meditation - Passive Attention, ADD, Depression, Sadness
- **SMR** - Calm, Relaxed Focus, Emotionally Stable
- **Low Beta** - Alert Focus/Active Cognitive Process
- **High Beta** - Tension, Anxiety, Night Terrors, Sleep Issues, OCD, Type A Personalities
- **Gamma** - Multi-Focal Attention

Electrical Brain Activity and the Experience

- **Initial Scan of Client Before Sessions**
- **Final Scan After 40 Sessions**

Initial Scan of Client Before Sessions

- **High Beta**
- **Delta**
- **Theta**

Final Scan After 40 Sessions

- **High Beta**
- **Delta**
- **Theta**

Scan of child with ADHD
Scan of child without ADHD

“Normal” or Average Flexibility Scan

Initial Scan Of Client Before Sessions

- **Academic Activity**
- **Brain Activity**

Final Scan After 40 Sessions

- **Academic Activity**
- **Brain Activity**
Initial Scan Of Client Before Sessions

Final Scan After 40 Sessions

Divergence Numbers =
Right & Left Brain Hemispheric Communication
( Lower the Number = More Communication )

PRE

POST

Neurofeedback Changes Brains in Veterans

Where To Find
EEG Biofeedback Research
www.EEGINFO.com

THE AMERICAN ACADEMY OF PEDIATRICS

"Evidence-based Child and Adolescent Psychosocial Interventions"
BIOFEEDBACK (Including EEG)
Level 1 = "BEST SUPPORT" intervention for Attention & Hyperactivity
Level 3 = "MODERATE SUPPORT" intervention for Anxiety or Avoidant Behaviors

How can a child qualify for EEG Biofeedback sessions?

Qualifying Traits:
EXTRA THETA
EXTRA HIGH BETA
BRAINWAVES "STUCK" IN ONE FREQUENCY
UNSTEADY CENTRAL NERVOUS SYSTEM
SLOW COMMUNICATION BETWEEN THE 2 BRAIN HEMISPHERES
Audio Visual Entrainment

Putting on the eyesets & earphones

AVE Control Device

AVE in a reclining chair

AVE lying down

Audio Visual Entrainment

Device

What Is Audio Visual Entrainment?

ENTRAINMENT =

2 Ways To Use AVE

Passively

Choose a Relaxation Program

Close Your Eyes

Follow The Entrainment

Quiet The Mind

Let-Go

Benefits

Reduce Stress

Stimulates The Neurons

Enhances Blood Flow

Increases Oxygen

Reduce Muscle Tension

Boost Immune Function

Proactively

Close Your Eyes

Customize Your Program

Relate An Activity You Want To Improve In Your Mind

Let Your Brain Put You In "The Zone"

Benefits

Improvement In The Activity You Want To Enhance

How often should one use it?

Safety of Tru-Vu Eyesets With Photo-Epileptic Seizures

COLORS

WHITE: Use with any session

BLUE: Calming & Relaxing

LIGHT BLUE: Reduces Risk of Seizures

GREEN: Effective for Pain-reduction & Meditation

YELLOW: Improves Cognition & Focus

RED: Increases Physical Activity & Energy Levels

MAGENTA: Best for Meditation & Building Creativity

Mind Alive, 2003

COLORS

WHITE: Use with any session

BLUE: Calming & Relaxing

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Mind Alive, 2003
**CES**
(Cranial Electrical Stimulation)
- Improved Memory
- Mood Elevation
- Mental Clarity
- Improved Learning
- Sound Sleep
- Increased Concentration
- Increased Vitality
- Reduction of Psychosomatic Conditions
- Assisting Substance Abuse Recovery

**Mind Alive, Inc**
Audio Visual Entrainment Devices
are licensed by Health Canada
as a Class I Medical Device
for the treatment of attentional disorders,
Seasonal Affective Disorder (SAD),
depressed mood, insomnia and anxiety.

**Physiology of Audio Visual Entrainment**
1. Dissociation/Hypnotic Induction (Glickson, 1987)
2. Increased Neurotransmitters (Berg & Siever, 2004)
3. Possible Increased Dendritic Growth (Beardsley, 1989)
5. Altered EEG Activity (Siever, 2004)

**Alpha/Theta Training**
- Increases:
  - DHEA
  - Melatonin
  - Beta-Endorphin
  - Dopamine
- Decreases:
  - Cortisol

**AVE Neurotransmitter Production**
- Increases:
  - DHEA
  - Melatonin
  - Beta-Endorphin
  - Dopamine
- Decreases:
  - Cortisol

**Average Reading Gain Points for Neurotechnology Students (N=37)**
Students Not Receiving AVE/EEG Neurofeedback (N=189), and The Average Normative Data

**Average Mathematical Point Gain for Neurotechnology Students (N=37)**
Students Not Receiving AVE or EEG (N=189)
ATTENTION DEFICIT/HYPERACTIVITY DISORDER TEST (ADHD-T)

40 AVE sessions

NEUROTECH INNOVATIONS GRANT
2004-2005

STUDENTS

N=30

Regular Education Classroom Teacher Survey

N = 204

Slosson Oral Reading Test-Revised

Significance level, *= or < .001

30 AVE sessions

Eight month reading gain in three months

NEUROTECH REPLICATION GRANT
2000-2001

Behavior Dimension Scale Scores

School/Teacher Behavior Dimension Scale Scores

N = 204

All parameters significant, *= or < .001

Neurotech Replication Grant
2000-2001

Less Improvement

More Improvement

30 AVE Sessions

Normal  Average = 10

When training plateaus?

http://gvanv.com/compass

/Arch/v1402/toc1402.html

Take a Number

Many pieces to the puzzle
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