

NEURO LIGHT: RELATED RESEARCH



THE NEURO LIGHT
- TOTAL BRAIN WELLNESS -

THE NEURO LIGHT

Brain Gym

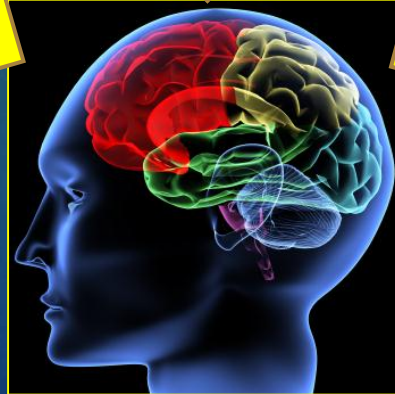
Neuroplasticity
Training

Brain Food

Transcranial
Light Stimulation

Brain Skills

Function Specific
Brain Training



#1 - BRAIN GYM

NEUROPLASTICITY TRAINING



- The Neuro Light recognizes that **every individual** has their own **potential** for **Neuroplastic change**.
- The **potential** relates to **age**, **vitality** and **possible pathology**.
- The term to describe this is Neuroplastic Capacity.

#1 - BRAIN GYM

NEUROPLASTICITY TRAINING



- “Today we recognize that the **brain continues to reorganize** itself by **forming new neural connections throughout life**. This phenomenon, called “**neuroplasticity**”, allows the neurons in the brain to compensate for injury and adjust their activity in response to new situations or changes in the environment.”
 - *Liou, Stephanie, Neuroplasticity, Neurobiology Journal, June 26, 2010*

#1 - BRAIN GYM

NEUROPLASTICITY TRAINING



- “**Early hypotheses** on the **pathophysiology of mood disorders** were based on aberrant intra-synaptic concentrations of the neurotransmitters serotonin and norepinephrine.
- **However, recent neuroimaging** and post mortem morphometric studies demonstrated **selective structural and morphological changes** across various limbic and non-limbic circuits in the brains of depressed patients... *(continued)*

#1 - BRAIN GYM

NEUROPLASTICITY TRAINING



- “An evolving **new hypothesis** in the pathophysiology and treatment of **depression involves adaptation or plasticity of neural networks.** Depression could result from an **inability to make appropriate adaptive responses to stress or averse stimuli.**”

- Czeh B., Simon M., Neuroplasticity and depression, Psychiatria Hungarica, 2005, 20(1): 4-17

#1 - BRAIN GYM

NEUROPLASTICITY TRAINING

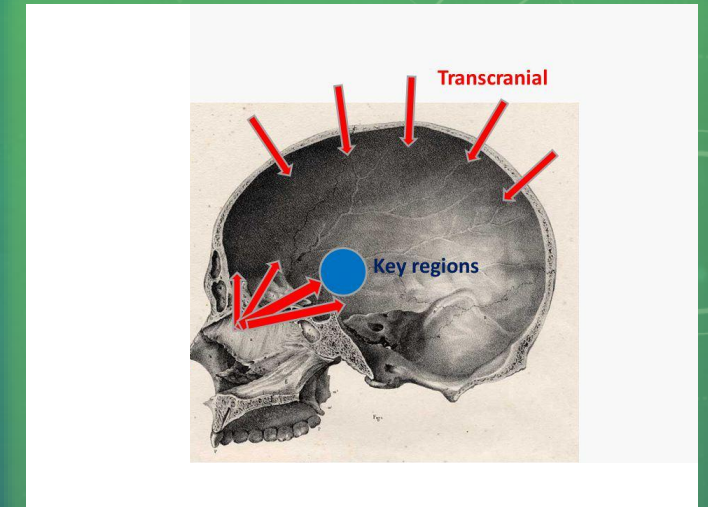


- Greater cognitive resilience and redundancy: **more neurons and synaptic connections**
- **Increasing Cognitive Reserve (CR)** through **neuroplastic adaptation**
- **Decreasing CR** through negative adaptation: (depression, stress, EtOH, TBI, sleep deprivation, vascular risk factors, etc.) **increase risk of dementia**
- **Delaying onset of dementia by 5 years** has been estimated **to prevent 50% of cases**
 - *Clifford Singer, MD/csinger@emhs.org Adjunct Professor, University of Maine Chief, Geriatric Mental Health and Neuropsychiatry Acadia Hospital and Eastern Maine Medical Center, Bangor, Maine*

#2 - BRAIN FOOD

TRANSCRANIAL LIGHT STIMULATION

- One of the **newest** and most **promising discoveries** in **cranial neurology** is the fact that it is possible to **feed Light Energy into the brain from outside the skull.**
- Remarkably **effective, non-invasive**, very **safe** and **easy** to do.



#2 - BRAIN FOOD

TRANSCRANIAL LIGHT STIMULATION

- **Transcranial Light Stimulation** is performed by placing **super-luminous LEDs** on the **scalp of the head** and shining **wavelength specific light** at a **specified power** and **time** into the brain.
- **Sufficient dosage** actually **reaches the brain tissues through the skull** to create the **beneficial effects**.



#2 - BRAIN FOOD

TRANSCRANIAL LIGHT STIMULATION



- One of the **most promising methods** to treat **neurodegeneration** is noninvasive transcranial near-infrared laser therapy (NILT), which appears to **promote acute neuroprotection** by stimulating **mitochondrial function**, thereby **increasing cellular energy** production.
- NILT may also **promote chronic neuronal function restoration** via trophic factor-mediated plasticity changes or possibly neurogenesis. Clearly, NILT is a treatment that confers **neuroprotection or neuro-restoration** using pleiotropic mechanisms.
 - [Transcranial near-infrared laser therapy applied to promote clinical recovery in acute and chronic neurodegenerative diseases, PubMed Central, Lapchak, Paul A, 2012-01-01](#)

#2 - BRAIN FOOD

TRANSCRANIAL LIGHT STIMULATION



- Evidence suggests that **near infrared (NIR) illumination has a beneficial effect on a variety of cells** when these cells are exposed to adverse conditions. Among these conditions is the hypoxic state produced by acute ischemic stroke (AIS).
 - [Review of technology development and clinical trials of transcranial laser therapy for acute ischemic stroke treatment. NASA Astrophysics Data System \(ADS\) Catanzaro, Brian E.; Streeter, Jackson; de Taboada, Luis 2010-02-01](#)

#2 - BRAIN FOOD

TRANSCRANIAL LIGHT STIMULATION



- Increasing concern is evident over the **epidemic of traumatic brain injury** in both civilian and military medicine, and the lack of approved treatments. **Transcranial low level laser therapy** is a **new approach** in which near infrared laser is delivered to the head, **penetrates the scalp and skull to reach the brain.**

- *Transcranial low-level laser therapy increases memory, learning, neuroprogenitor cells, BDNF and synaptogenesis in mice with traumatic brain injury, NASA Astrophysics Data System (ADS), Xuan, Weijun; Huang, Liyi; Vatansever, Fatma; Agrawal, Tanupriya; Hamblin, Michael R., 2015-03-01*

#3 - BRAIN SKILLS

FUNCTION SPECIFIC BRAIN TRAINING



The **BRAIN SKILLS** section of the **NEURO LIGHT** is called **Function Specific Brain TRAINING**.

- This means the session **targets** a **particular Brain/Mind function**.
- **NEURO LIGHT** has **80 Brain Training sessions** – each with its own unique and important Specific Function for the Brain/Mind.

#3 - BRAIN SKILLS

FUNCTION SPECIFIC BRAIN TRAINING



- Results from one of the best studies, published earlier this year in the **Journal of the American Geriatrics Society**, is certainly encouraging. As Glenn Smith of **Mayo Clinic** and her colleagues report, cognitively normal older adults who **trained their brain** were able to **improve their auditory information processing speed by about 58 percent** (versus 7 percent in controls).

P. Murali Doraiswamy and Marc E. Agronin, Scientific American, April 28, 2009

#3 - BRAIN SKILLS

FUNCTION SPECIFIC BRAIN TRAINING

- The new clinical trial results, presented Sunday at the [Alzheimer's Assn.'s International Conference](#) in Toronto, establish specialized **brain training** as a potentially **powerful strategy** to **prevent Alzheimer's Disease** and other afflictions, **including normal aging**, that sap memory and reduce function.

LA Times, Science Now, Melissa Healy, June 24, 2016



THE NEURO LIGHT – TOTAL BRAIN WELLNESS



- As an approach to **Brain Wellness**, consider the **Neuro Light** as **Brain “Exercise”**, **“Nutrition”** and **“Learning”**.

THE NEURO LIGHT – FULL INTEGRATION – TOTAL BRAIN WELLNESS

