## **Boosting Your Brain Performance**

#### **In Three Months**

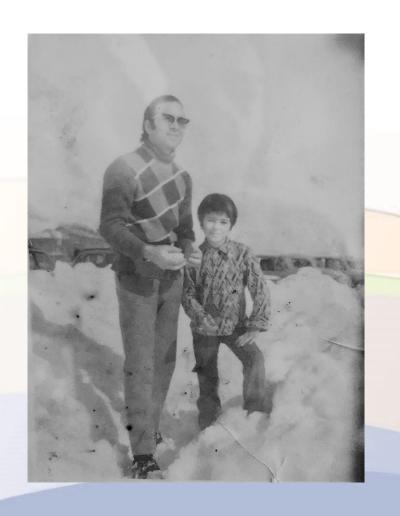
Majid Fotuhi, MD PhD

Medical Director: NeuroGrow Brain Fitness Center

Affiliate Staff: Johns Hopkins



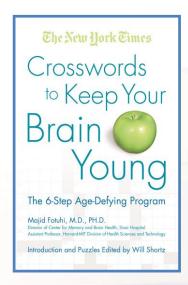


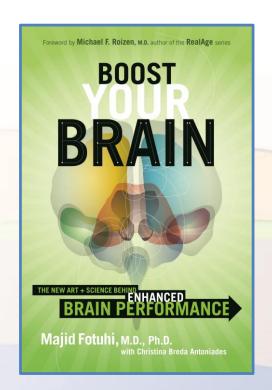


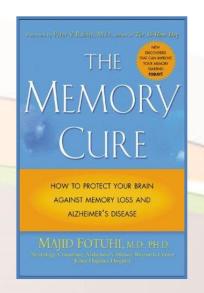
# **Neuroplasticity in the Human Brain:**

**My Research & Publications** 













**Forbes** 





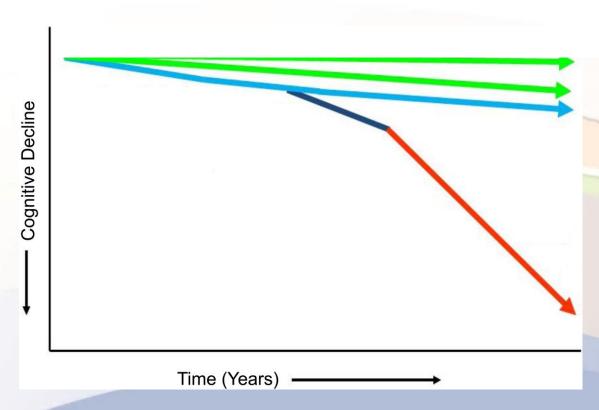




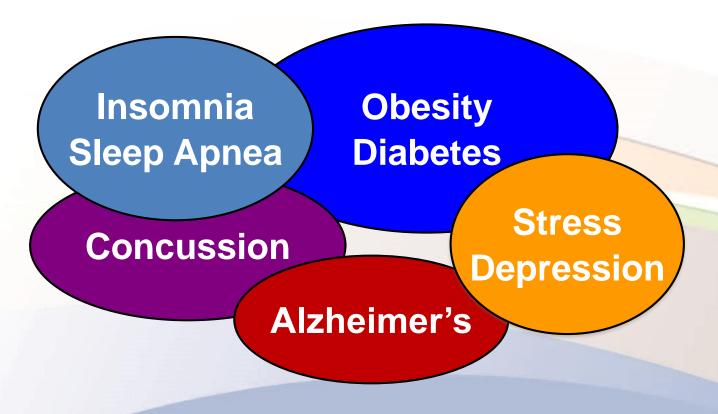




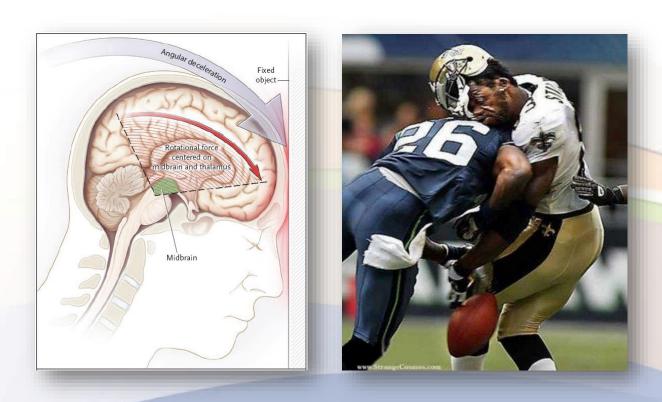
# Hippocampus and Cortex Shrink by About 0.5% per Year After Age 50



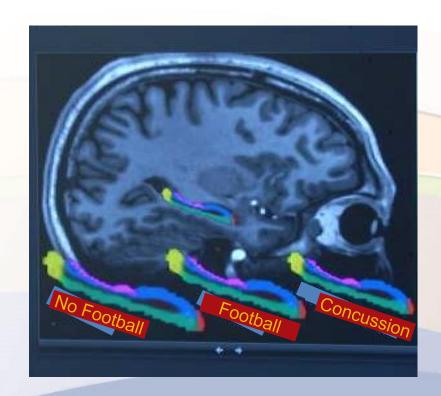
#### What Causes Shrinkage in the Cortex & Hippocampus?



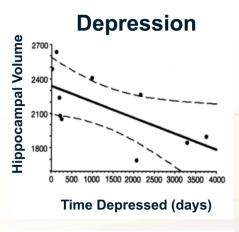
### **More Concussion, Smaller Hippocampus**

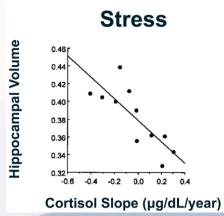


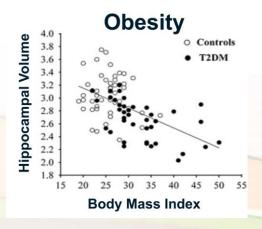
#### **More American Football and Concussions, Smaller Hippocampus**

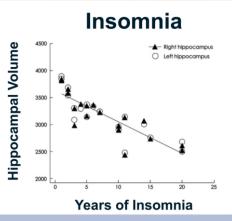


# More Depression, Obesity, Stress, and Insomnia, Smaller Hippocampus

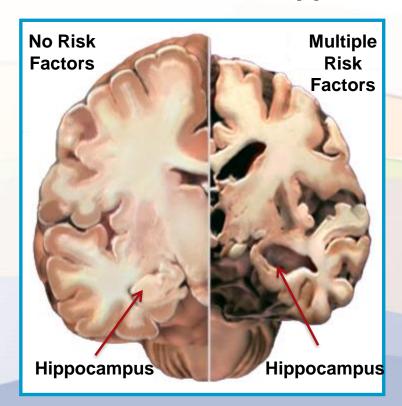






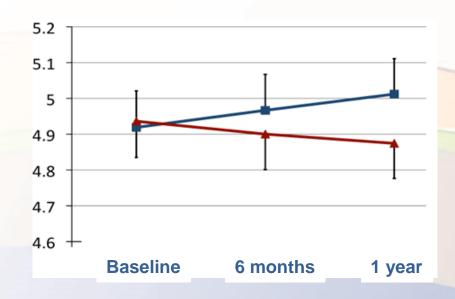


#### Multiple Risk Factors, Much Smaller Cortex & Hippocampus



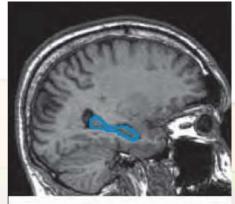
1. Get Fit

Walking 3 Times a Week For One Year Grows Your Hippocampus

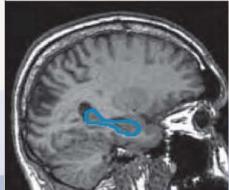


#### Three Months of Vigorous Exercise, Bigger Hippocampus

Before Exercise

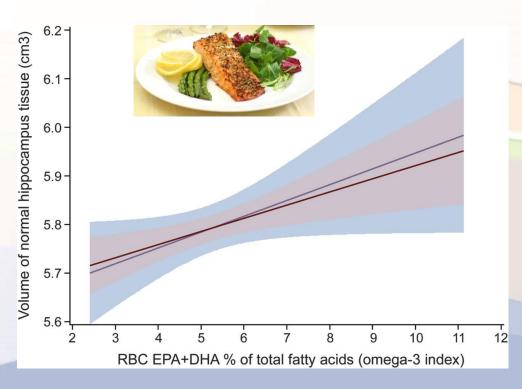


After Exercise



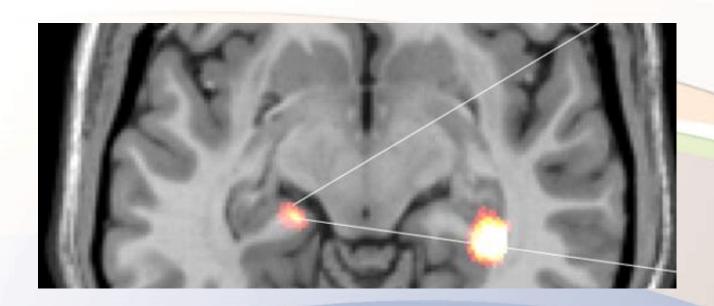
#### 2. Eat a Mediterranean Diet

Take Omega-3 Supplements

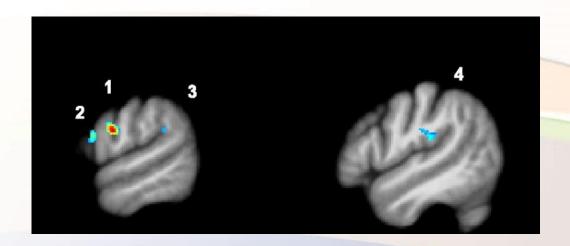


## 3. Learn Something New

Learn a New Language

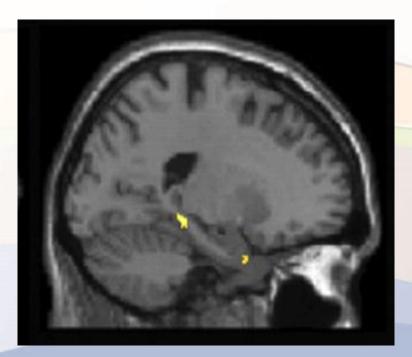


#### Learning to Play Golf Grows Your Cortex

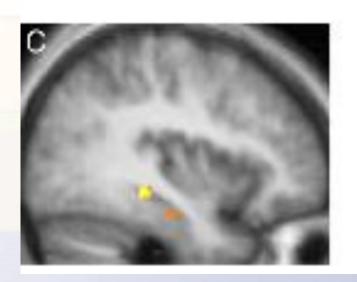


4. Sleep Well

Treat Your Sleep Apnea

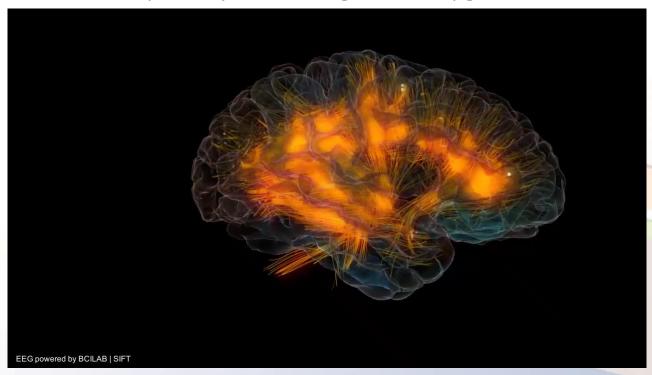


5. MeditateLower Your Stress, Be Happy



#### Neuronal Pathways Use Electricity to Communicate with Each Other.

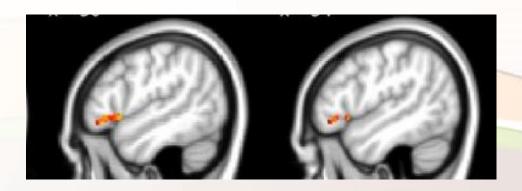
These pathways can be degraded or upgraded.



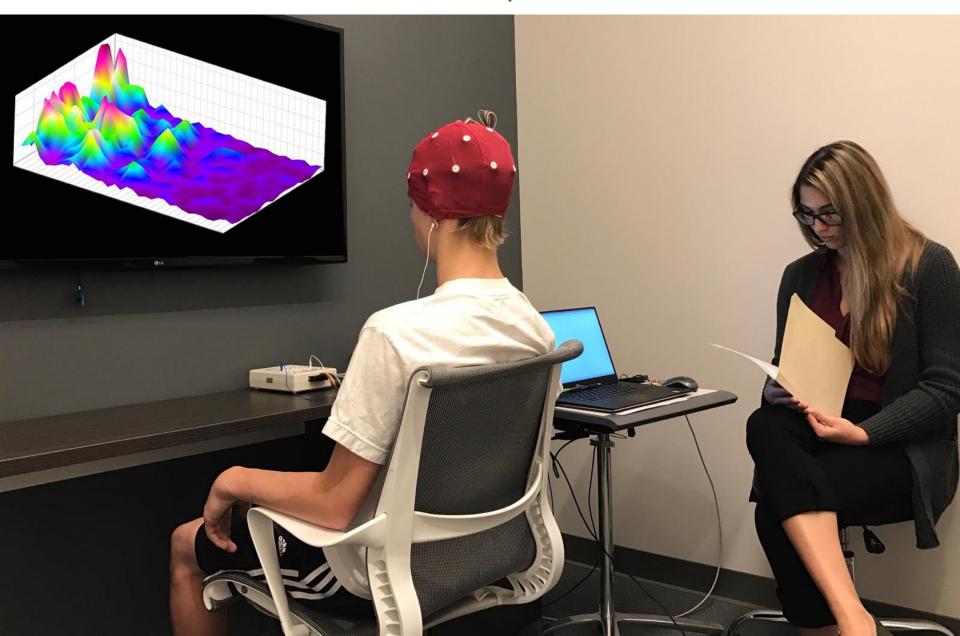
http://neuroscape.ucsf.edu/technology/#glass-brain

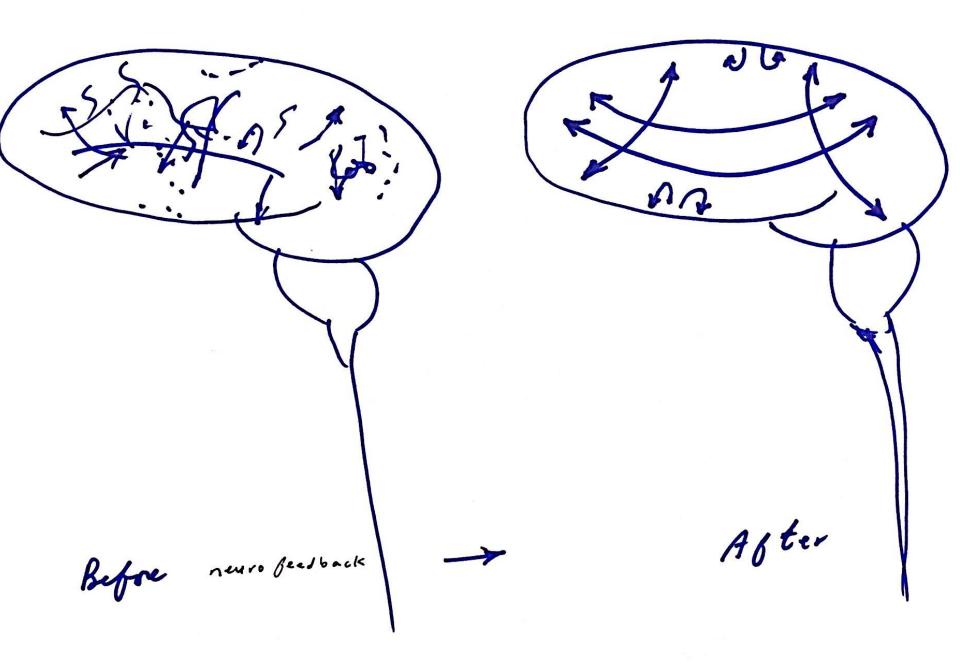
#### 5. Try Neurofeedback

#### EEG Biofeedback Therapy Grows Your Cortex

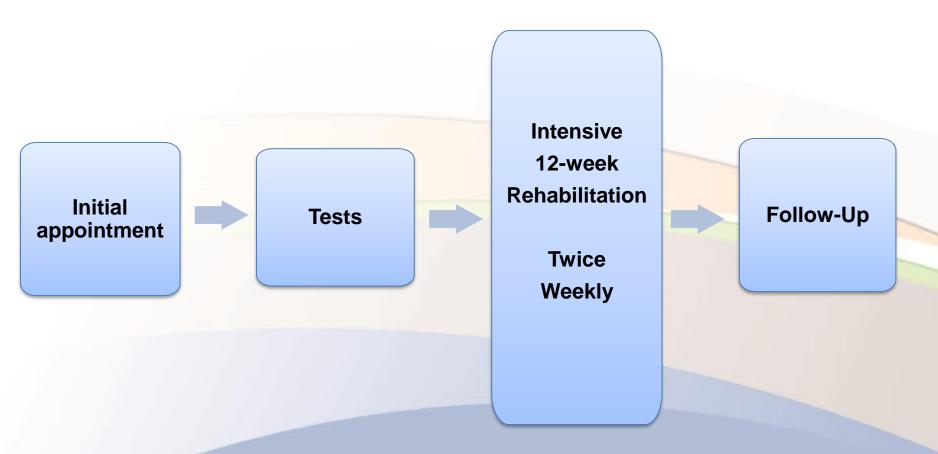


## Brain Mapping measure your brainwaves Neurofeedback optimizes them





# Brain Fitness Program "Physical Therapy for Your Brain"





# Brain Fitness Program: Twice Weekly (90-minute) Treatments

Neurofeedback



Cognitive Skills Training



Brain Coaching & Meditation



**Nutrition Counseling** 



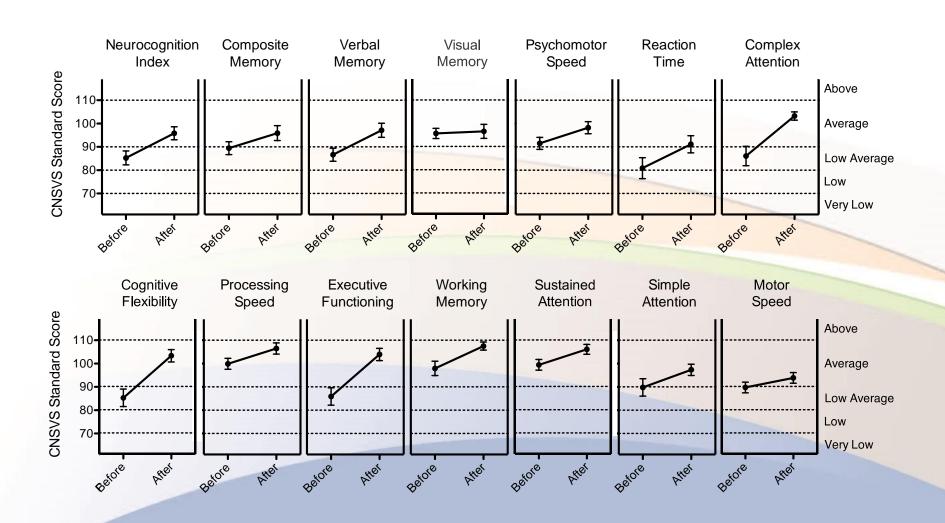
**Exercise Training** 



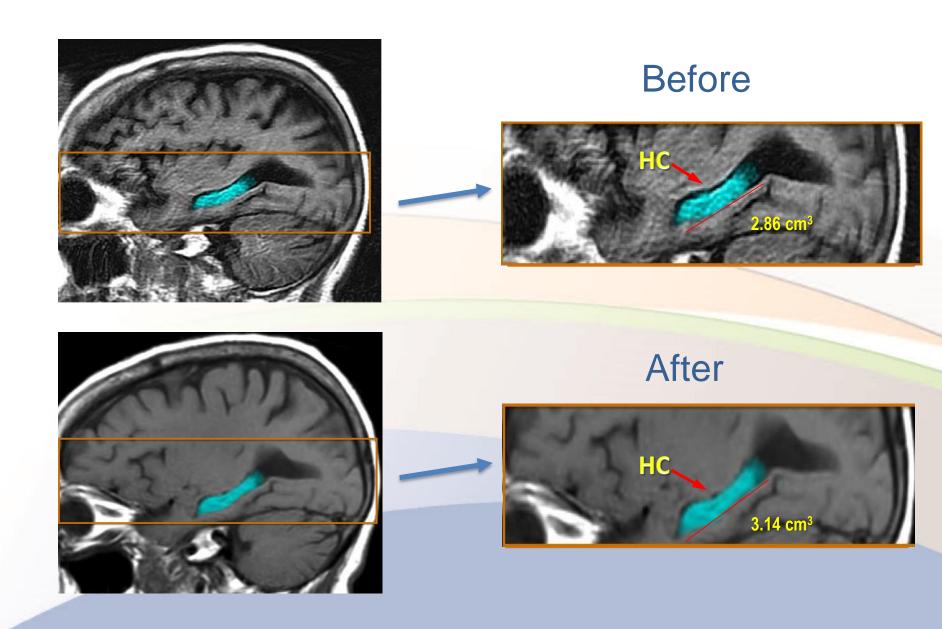
Weekly Monitoring



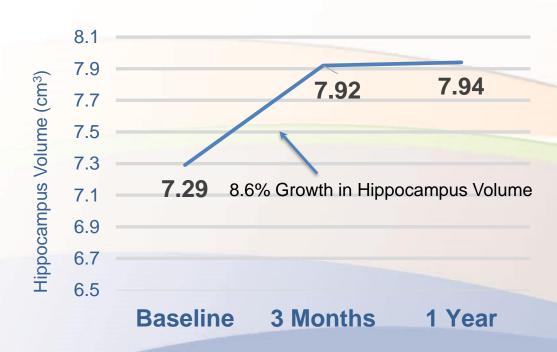
## Significant Improvement in Brain Performance



# MRI Results



#### **Sustained Benefits One Year Later**



# You Can Boost Your Brain Performance and The Size of Your Hippocampus & Cortex

### When You Start Early in Life





Diabetes
Hypertension
Obesity
Sleep Apnea
Head Trauma
Genes
Stress



Brain-healthy Diet
Physical Fitness
Cognitive Stimulation
Meditation & Sleep
Neurofeedback

# THANK YOU



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