Brain Health

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What is Brain Health?

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The Five Pillars of Brain Health

Neural Systems
Cognitive Processes
Psychological Health
Real Life Function
Social Cognition

Linkage of Benefits across Domains
THE VISION

Empower people of all ages to unlock their brain potential.

Center for BrainHealth®

MISSION

Lead scientific research to enhance, protect and restore brain health across the lifespan.

Brain Performance Institute™

MISSION

Deliver brain science innovations to enhance how people think, work and live.
Established in 1999 to focus on research that seeks to understand, protect, heal, and enhance the brain

Team of more than 150 cognitive neuroscientists, clinicians, imaging specialists, biostatisticians, neuroengineers, and support staff

67 research projects, 115 completed studies, and more than 1,000 published articles

Created in 2013 to deliver science-based innovations that enhance how people think, work, and live

Build global awareness of brain health and empower 500,000 people over the next 10 years

There is no other organization like this in the world.
Maximize Cognitive Performance

HEALTHY BRAIN DEVELOPMENT
- Complex Thinking
- Decision Making
- Physical Exercise
- Resilience Training
- Benchmark
- Teen Reasoning
- High Performance Brain Training

DISEASE/DISORDER
- Alzheimer’s & MCI
- PTSD
- ADHD
- Multiple Sclerosis
- Addiction
- Depression
- Bipolar
- Frontotemporal
- Asperger/Autism

INJURY
- Concussion
- Traumatic Brain Injury (TBI)
- Stroke
- Brain Tumor
- Chemo Brain
- Hormones
- General Anesthesia
At what age is your brain at peak performance?

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A SMART Brain is Robust Frontal Networks

- Complex Problem Solving
- Novel Thinking
- Emotional Intelligence
- Agile Acumen
- Judgment & Decision Making
- Strategic Leadership
What’s Good For You... Is Good For Your Brain

- Exercise
- Stress Management
- Nutrition
- Sleep
- Social Relationships
- Mental Activity
Stress Management is Critical for Brain Health

- Reduction of serotonin & dopamine
- Brain change
  - Decreased memory, hyper-emotions
- “Fight or flight” system over-firing
- Impaired memory & thinking
- Slows neuroplasticity
- Accelerates brain aging

(Lupien, et al., 2005)
(Sapolsky, 2004)
Nutrition for Brain Health

- Mediterranean diet, emphasize:
  - Olive oil, fish, berries, vegetables
- Eat lots of vegetables
  - Particularly leafy greens
- Omega fatty acids
- Plant polyphenols

(Morris, et al., 2015)  (Morris, el al., 2006)
(Kang, et al., 2005)   (Nooyens, et al., 2011)
                  (Chen, et al., 2012)
Exercise Across the Lifespan

START YOUNG
Aerobic activity in children ~ Improved cognition

AIM HIGH
High fitness ~ Improved brain fitness

INVEST LONG-TERM
Physical fitness + healthy lifestyle ~ Buffer cognitive decline in aging

STAY STRONG
Aerobic + resistance training ~ Cognitive & brain health in older age

(Voss, et al., 2015)  
(Kayes & Hatfield, 2013)  
(Scarmeas & Stern, 2003)  
(Rovio, et al., 2005)
Other Lifestyle Factors

SLEEP

- Critical for overall health
- Most need 7-8 hours/night
- Essential for brain repair
- Lack of sleep increases risk for chronic disease, depression, & impaired cognitive performance

(Sleep: Irwin, 2014; Balkin, 2014)

SOCIAL RELATIONSHIPS

- Strong relationships bolster psychological resilience
- Loneliness is a risk factor:
  - Poor cognitive function in older adults
  - Dementia and depression

(Social Relationships: Zhong et al., 2016; Cacioppo, et al., 2014; Seeman, et al., 2001)
Cognitive Training
Mental Activity
Is multi-tasking beneficial or harmful to your brain health?

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Effects of Multitasking

RESEARCH REVEALS CHRONIC MULTITASKING CAUSES US TO BE:

• Suckers for irrelevancy
• Constantly distracted
• Shallower thinkers
• Error prone

MULTITASKING ALSO LEADS TO:

• Decline in fluid intelligence
• Greater brain atrophy
• Chronic Stress
Workplace Challenges

**OVERWHELMED**

**THE CULPRIT**

Information Overload

We are exposed to more information than ever before.

- 2005
- 2010
- 2012
- 2015

**CRUISING ON AUTOPILOT**

**THE CULPRIT**

When thoughts, conversations and activities become routine, our brains get bored and goes backwards.

**DEEP THOUGHT DEPRIVED**

**THE CULPRIT**

Tied to technology

- Constant mental work
- Multi-media input
- ADHD-like State

**FEELING UNPRODUCTIVE**

**THE CULPRIT**

Multitasking

Multitasking causes brain fatigue and multiplies the time it takes you to finish a task by 5.
Distractions by the numbers

150 – number of times per day the average person checks their phone

1-3 minutes - average time most people are able to work without an interruption or switching tasks

20-25 minutes – average amount of time to resume focus on a task after being interrupted/task-switching

40% - potential decrease in productivity due to distractions and multitasking

(Mark, et al 2013)
(T-Mobile 2012)
Cost of workplace distractions

According to employees, interruptions cause:

- Difficulty working / producing
- No time to think deeply or creatively
- Information overload
- Missed deadlines
- Lost business / angry customers

Distractions or Interruptions per person, per year = $10,375
(assuming average salary of 60k)

(harmon.ie, 2011)
What is SMART?

Strategic Memory Advanced Reasoning Training

1. STRATEGIC ATTENTION
   Calibration of mental resources

2. INTEGRATED REASONING
   Stability and adaptability

3. INNOVATION
   Possibility with plausibility
Benefits of SMART

• Strengthens brain health
  Function (CBF and connectivity)
  Structure

• Optimizes performance
  Speed, quality, innovation, strategic attention, memory

• Tactical tool
  Builds efficiency and resilience and promotes regeneration
A SMART brain is **frontal lobe integrity**.
Frontal Lobe Blood Flow

Up to 12% increase in brain blood flow*

Generalized gains across all cognitive functions
LEARNING TO THINK SMARTER, NOT HARDER.
Strategic Attention

BRAINPOWER OF TWO

- Pinpointing **TWO** most vital ideas
- Identifying **TWO** top priorities
  - *Move your needle, professionally or personally*
  - *Require higher-order thinking*
  - *Able to be accomplished within 45 mins*
- Stopping points
BrianHealth App
Developing Brain-Healthy Habits

Neuroscience research has shown that integrating certain strategies into your daily life may help boost productivity, increase creativity and sharpen your focus.

We’ll update your BrainHealth Meter as you complete tasks.

Success!
Your first two elephants are complete.
Strategic Attention

BRAINPOWER OF ONE

- Executing **ONE** task at a time
- Limiting multitasking
- Sequencing tasks versus toggling between multiple tasks
- Blocking out unimportant information/distractions
Strategic Attention

- Using silence to think deeply
- Recharging your brain throughout the day
- Taking a break when you ‘hit a wall’ mentally
- Leveraging ‘AHA’ moments

BRAINPOWER OF NONE
Hindering Brain Potential

• When a brain is busy, it does not operate efficiently
• Chronic stress reduces neuronal activity
• Associated with high incidence of depression, anxiety, and rage
Virtual Reality Social Cognition Training
Engaging The Social Brain

THROUGH VR TECHNOLOGY AND ONE-ON-ONE COACHING

• Helping people who struggle to connect and make friends
• Unlocking your true social potential
• The VR environment that translates into real-world success
Engaging The Social Brain
Your brain has a remarkable capacity to change and grow over the course of your life. You can enhance brain performance today, and improve brain health in the future.

A PERSONALIZED ASSESSMENT

- Establishes a benchmark of cognitive function that allows you to monitor changes as you age
- Measures higher-order cognitive functioning, identifying strengths and areas for improvement
- Provides personalized recommendations for enhanced productivity, focus, efficiency and decision-making
- Identifies habits that may be depleting optimal brain function
YOU ARE NEVER TOO YOUNG OR TOO OLD TO START KEEPING YOUR BRAIN HEALTH IN MIND

This confidential, two-and-a-half-hour session includes a series of cognitive tests that involve verbal interactions and written responses.

Assessments are one-on-one and take place in a comfortable environment.

Receive your results and personalized feedback during a separate one-hour, private session with your clinician.
Research Studies

SMART Training Classes
Brain Health

CenterForBrainHealth.org