

INNOVATION & TECHNOLOGY

SUMMIT

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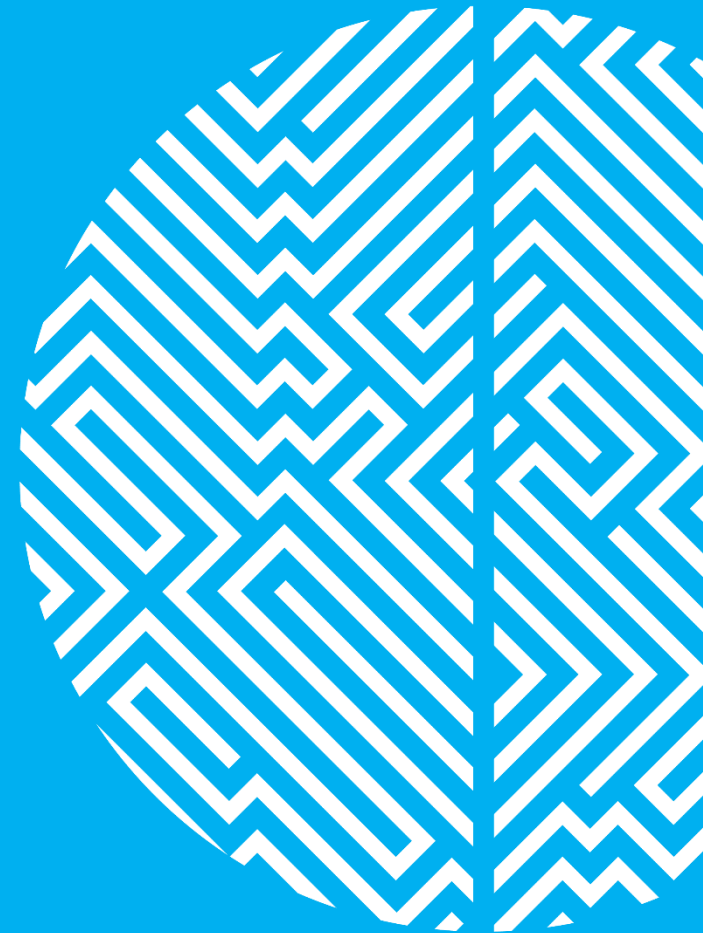
Brain Health

Lara Ashmore, PhD, MEd

Twitter

@brainhealth

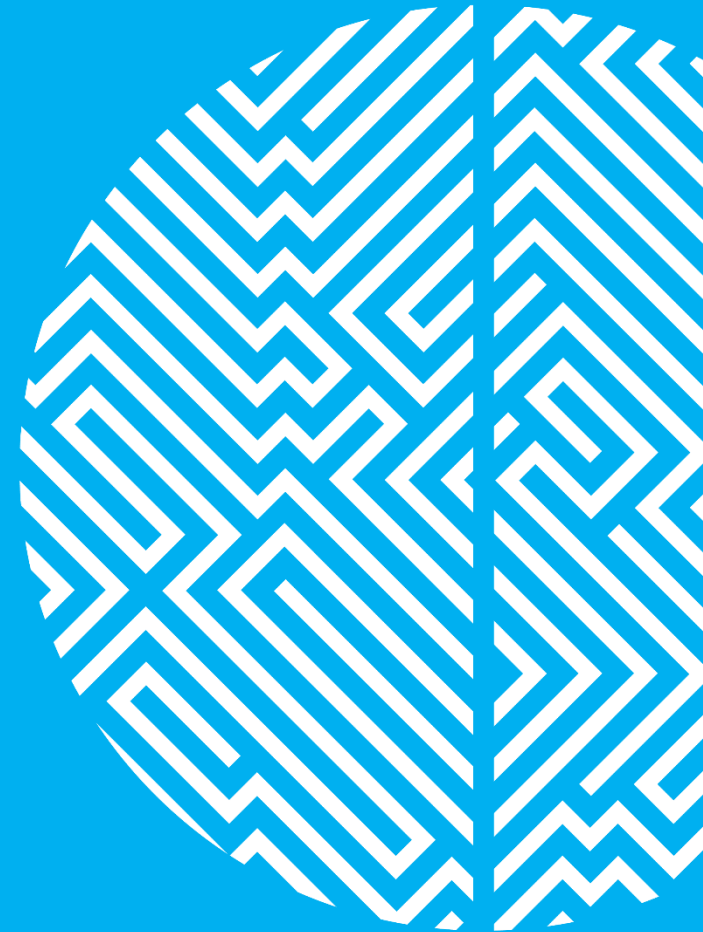
#brainhealth



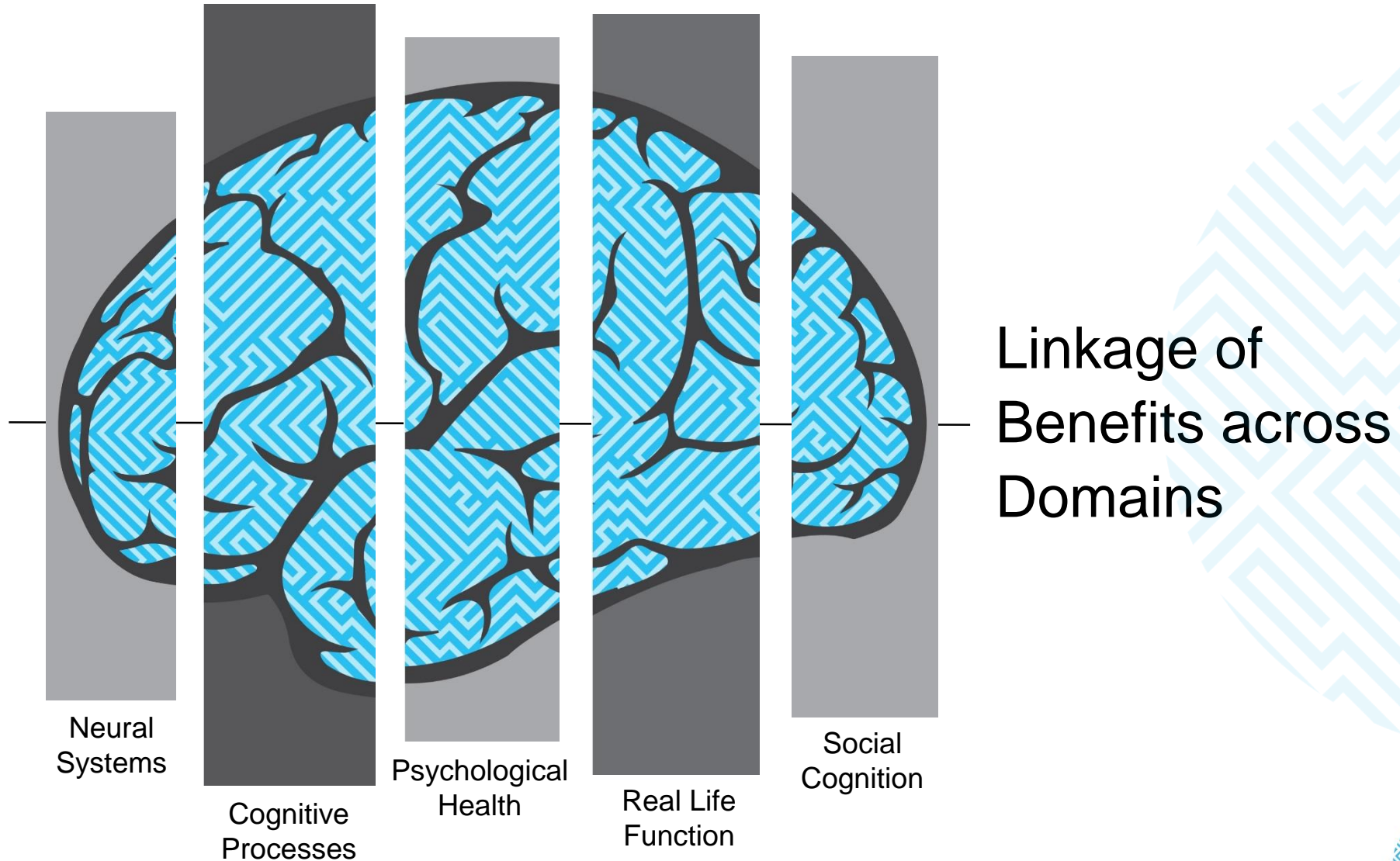
What is Brain Health?

www.menti.com

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The Five Pillars of Brain Health



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.

RESEARCH



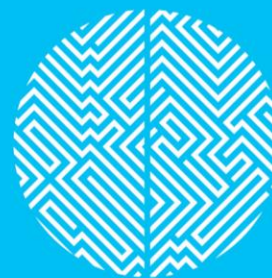
CENTER *for*
BRAINHEALTH®
THE UNIVERSITY OF TEXAS AT DALLAS

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

PROGRAMS



CENTER *for*
BRAINHEALTH®
BRAIN PERFORMANCE INSTITUTE

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

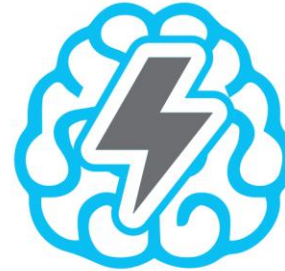
There is no other organization like this in the world.

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



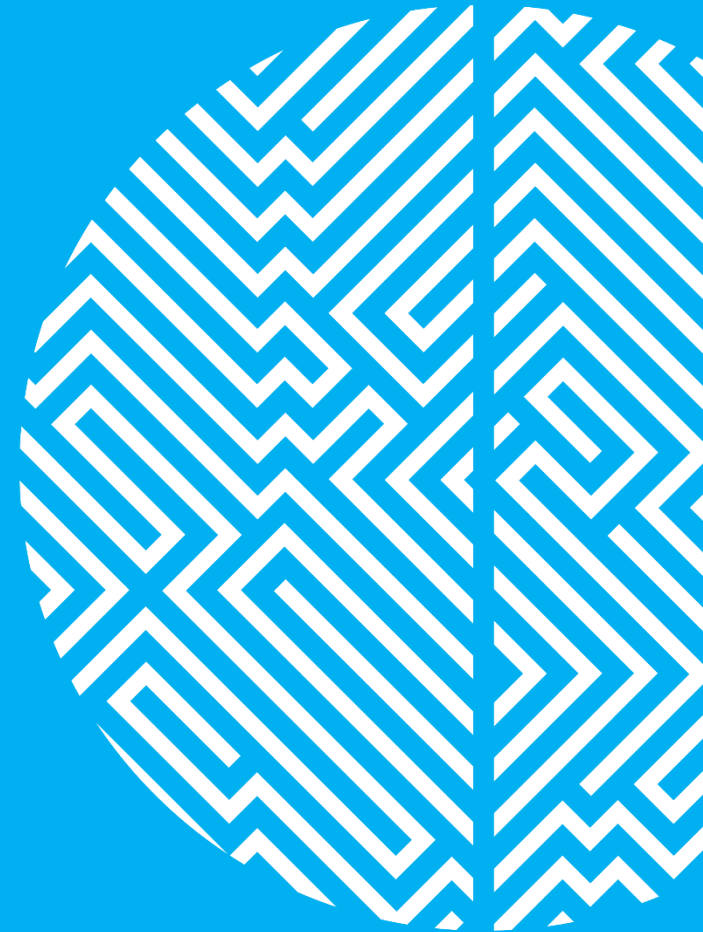
INJURY

- Concussion
- Traumatic Brain Injury (TBI)
- Stroke
- Brain Tumor
- Chemo Brain
- Hormones
- General Anesthesia

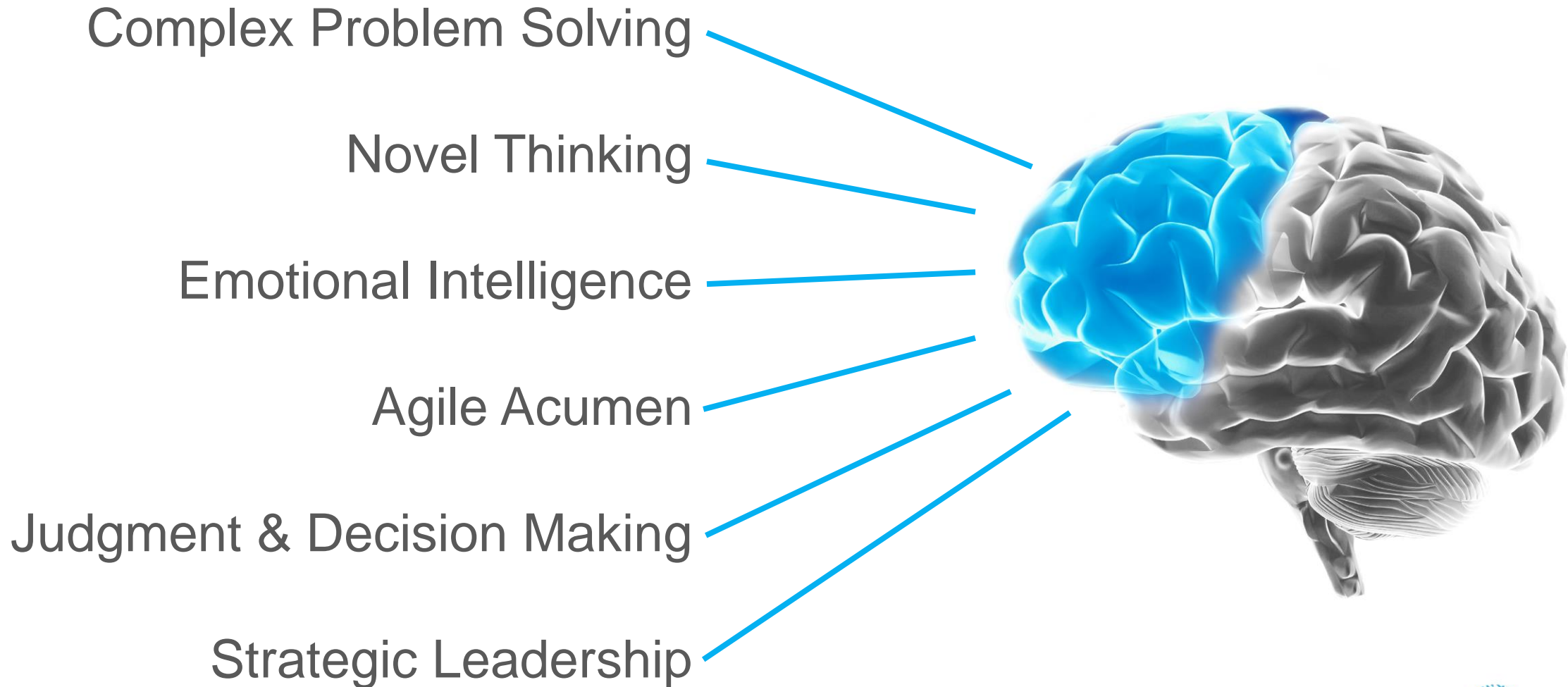
At what age is your
brain at peak
performance?

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A SMART Brain is Robust Frontal Networks



What's Good For You... Is Good For Your Brain

✓ Exercise

✓ Stress Management

✓ Nutrition

✓ Sleep

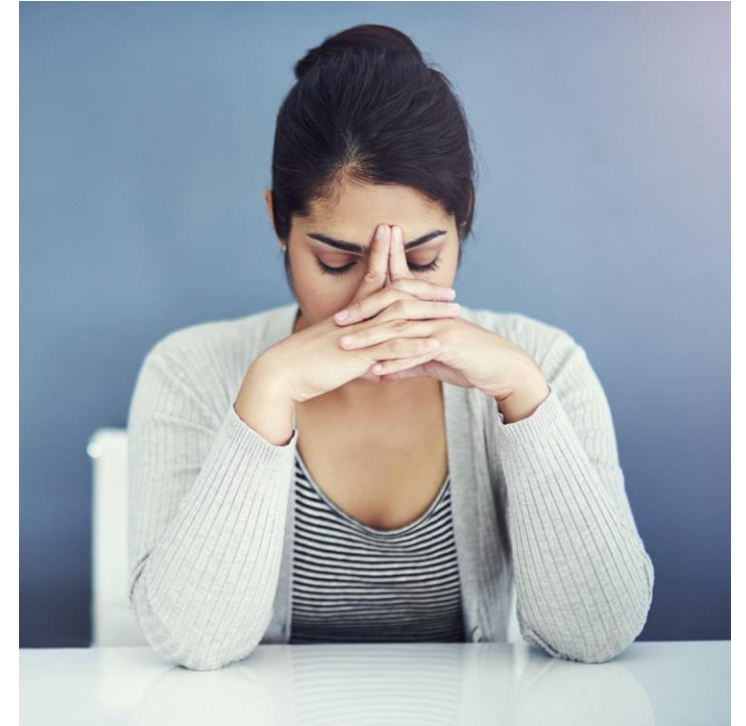
✓ Social Relationships

✓ 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)

(Kang, et al., 2005)

(Morris, et al., 2006)

(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

(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

(Zhong et al., 2016; Cacioppo, et al., 2014; Seeman, et al., 2001)

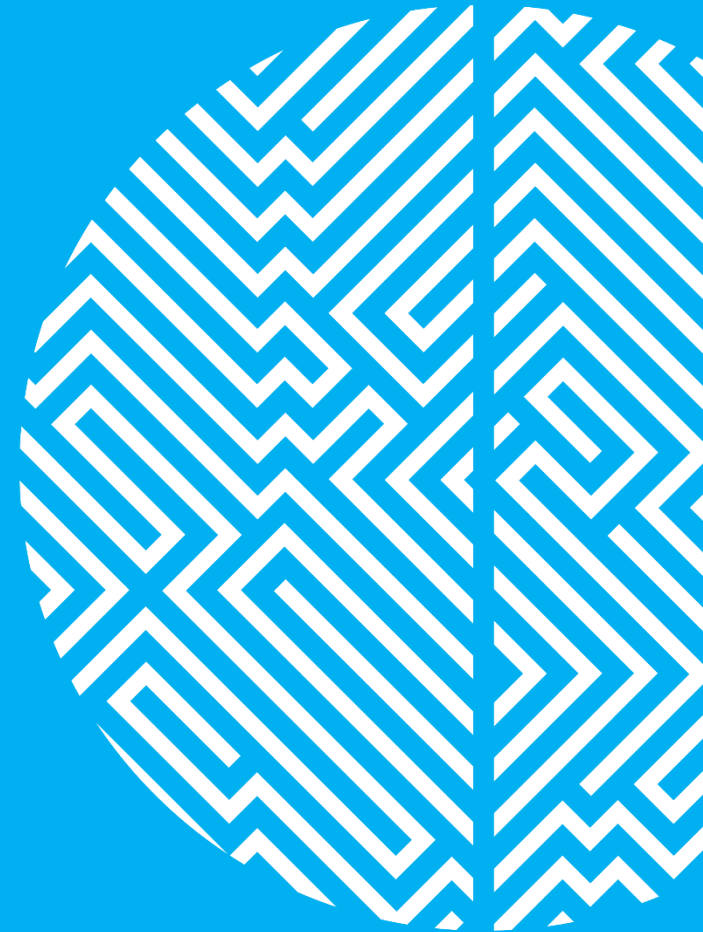
Cognitive Training

Mental Activity

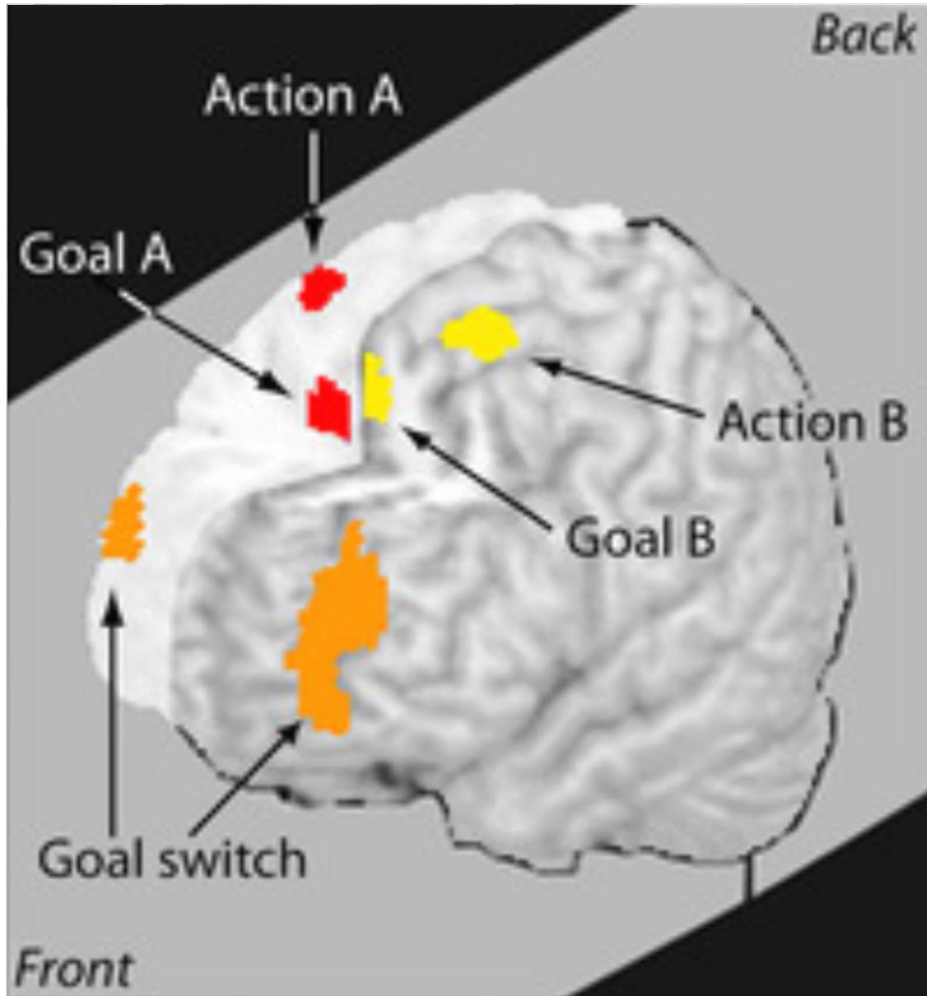
Is multi-tasking beneficial or harmful to your brain health?

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Effects of Multitasking



RESEARCH REVEALS CHRONIC MULTITASKING CAUSES US TO BE:

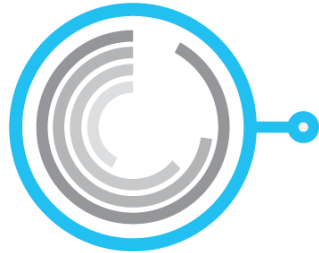
- Suckers for irrelevancy
- Constantly distracted
- Shallower thinkers
- Error prone

MULTITASKING ALSO LEADS TO:

- Decline in fluid intelligence
- Greater brain atrophy
- Chronic Stress

Workplace Challenges

OVERWHELMED

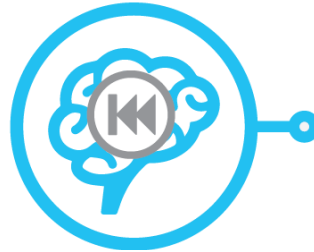


THE CULPRIT INFORMATION OVERLOAD

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

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.

DECISION MAKING ●

NOVEL THINKING ●

PLANNING ●

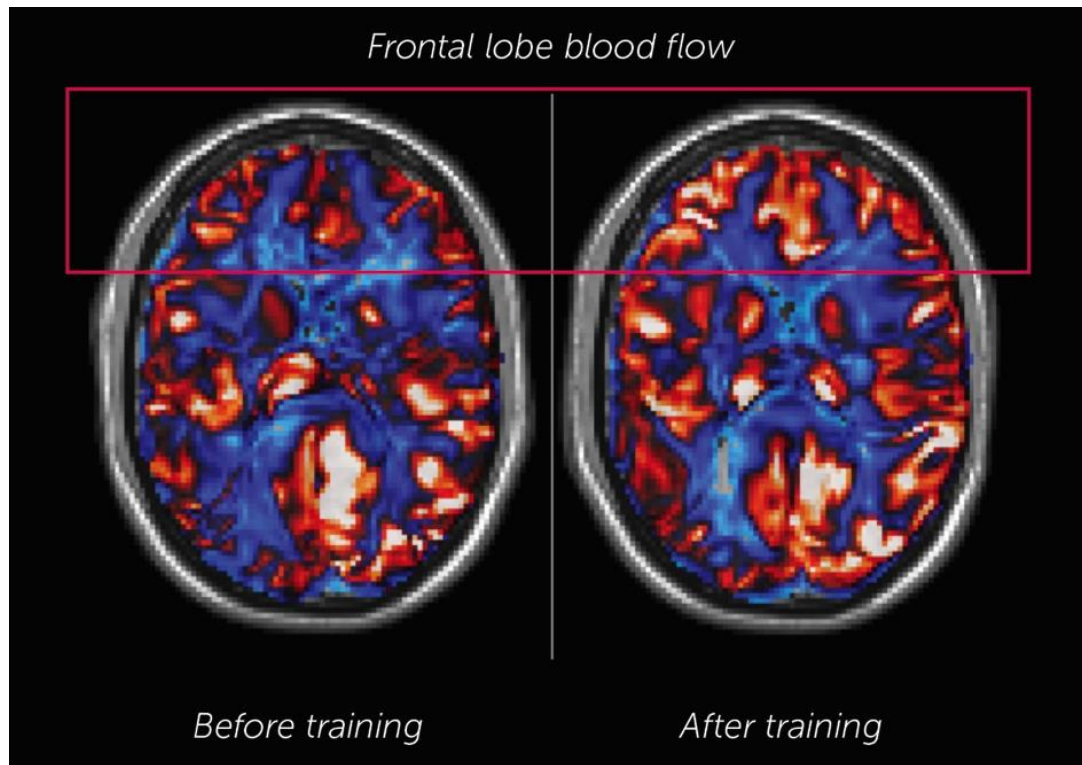
REASONING ●

JUDGMENT ●

MANAGING EMOTIONS ●



Frontal Lobe Blood Flow

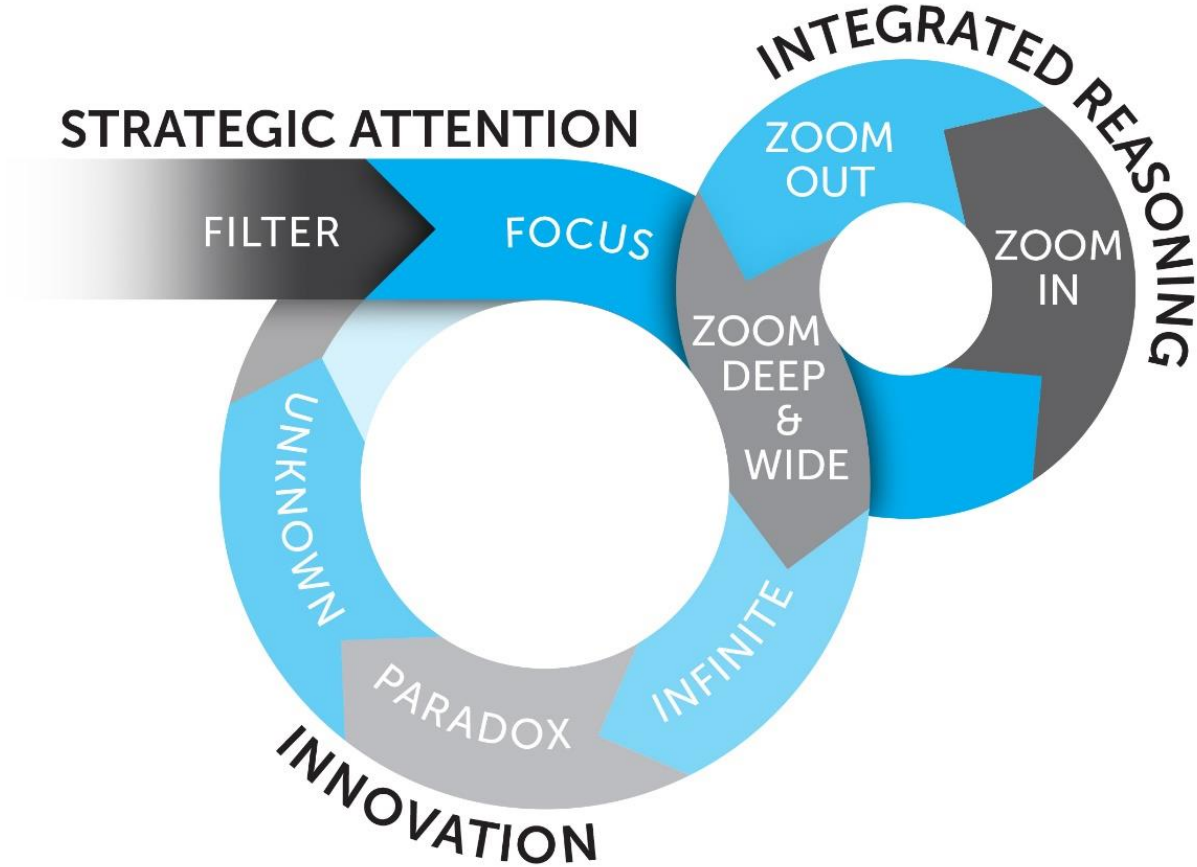


Up to **12%** increase in brain blood flow*

Generalized gains across all cognitive functions

Strategic Thinking

LEARNING TO THINK SMARTER, NOT HARDER.



Strategic Attention



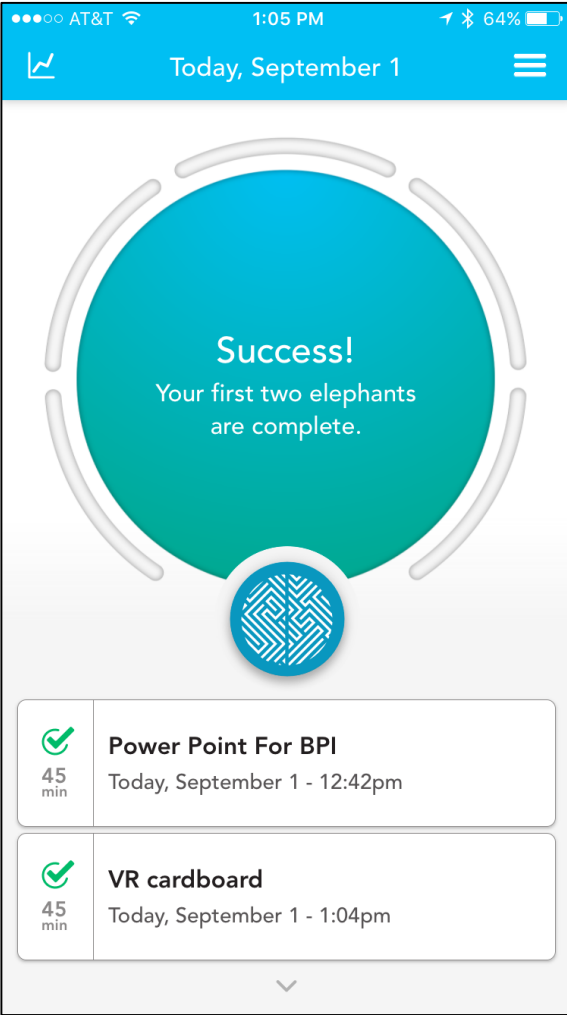
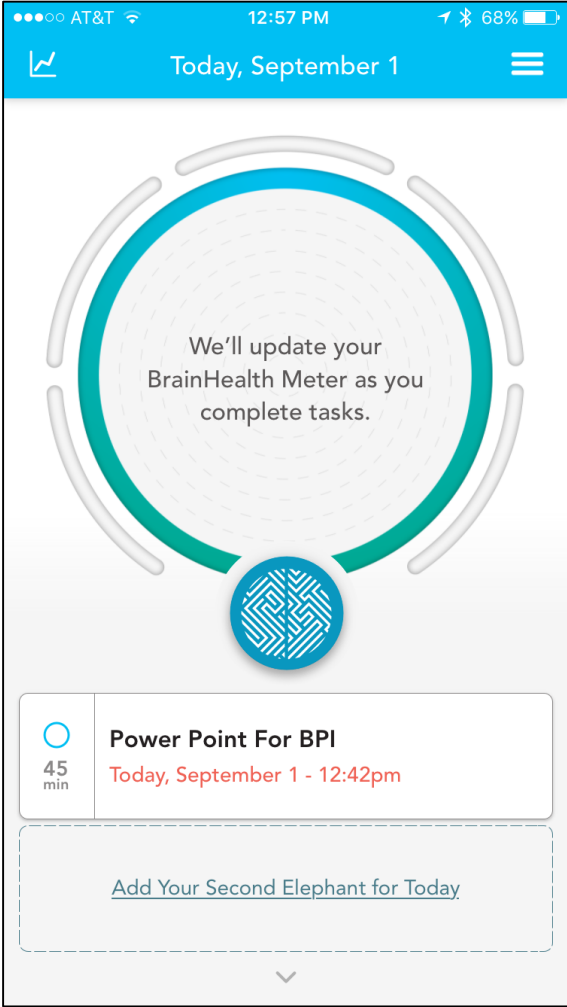
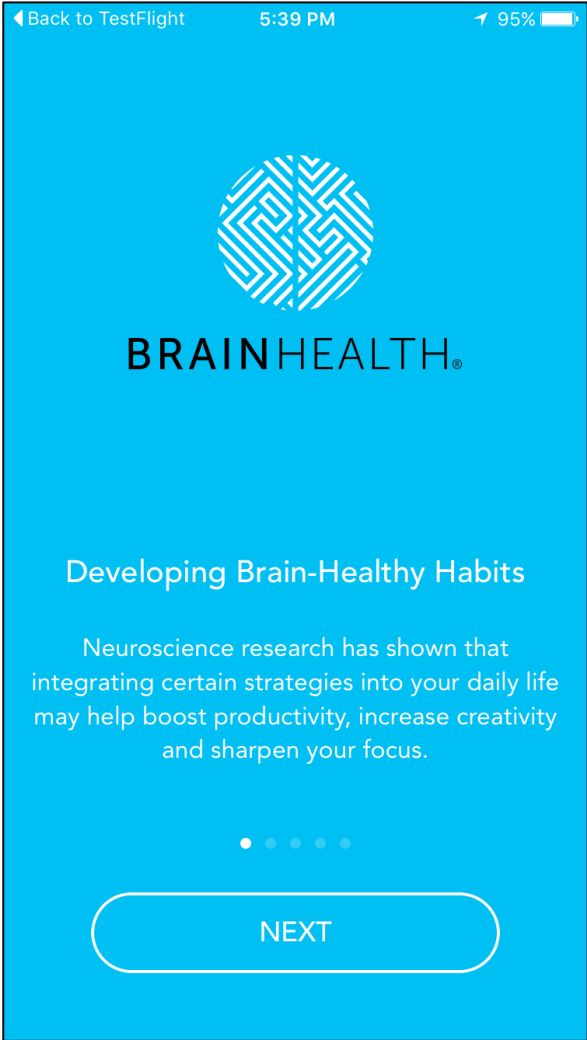
BRAINPOWER OF TWO

- 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



BrianHealth App



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

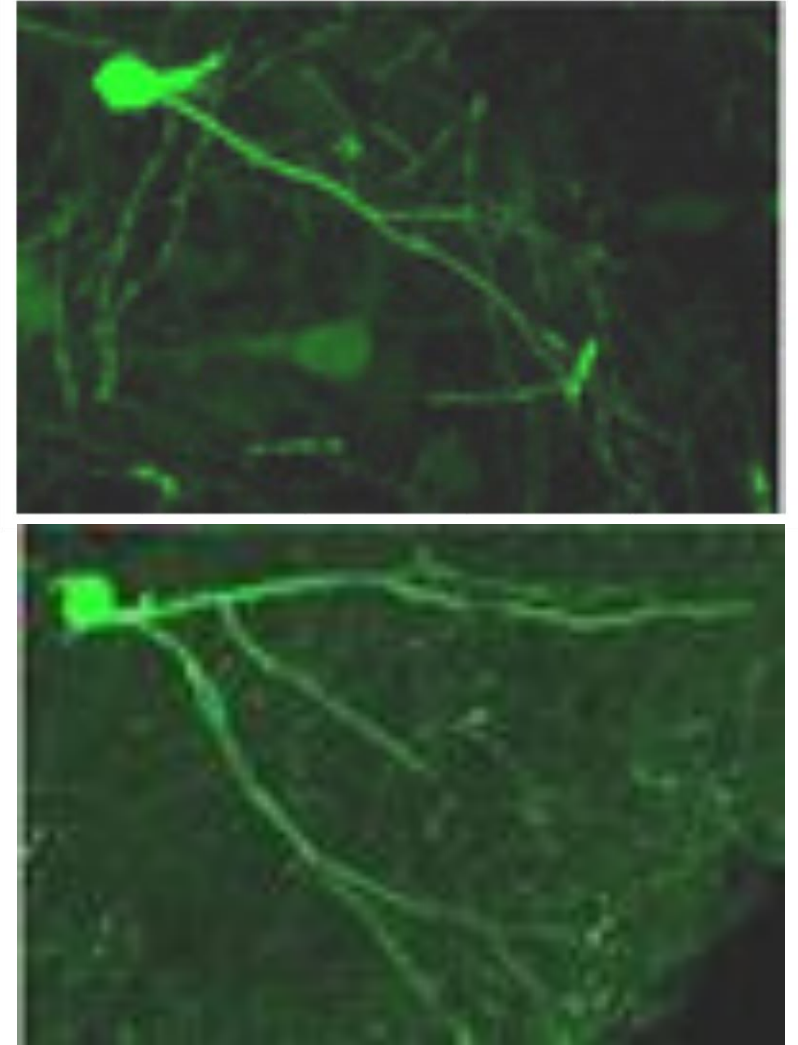


BRAINPOWER OF NONE

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

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

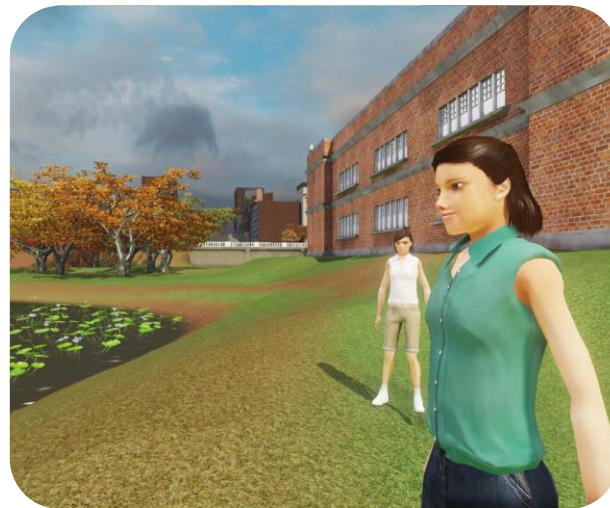


Virtual Reality Social Cognition Training

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



BRAINHEALTH®

PHYSICAL

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.

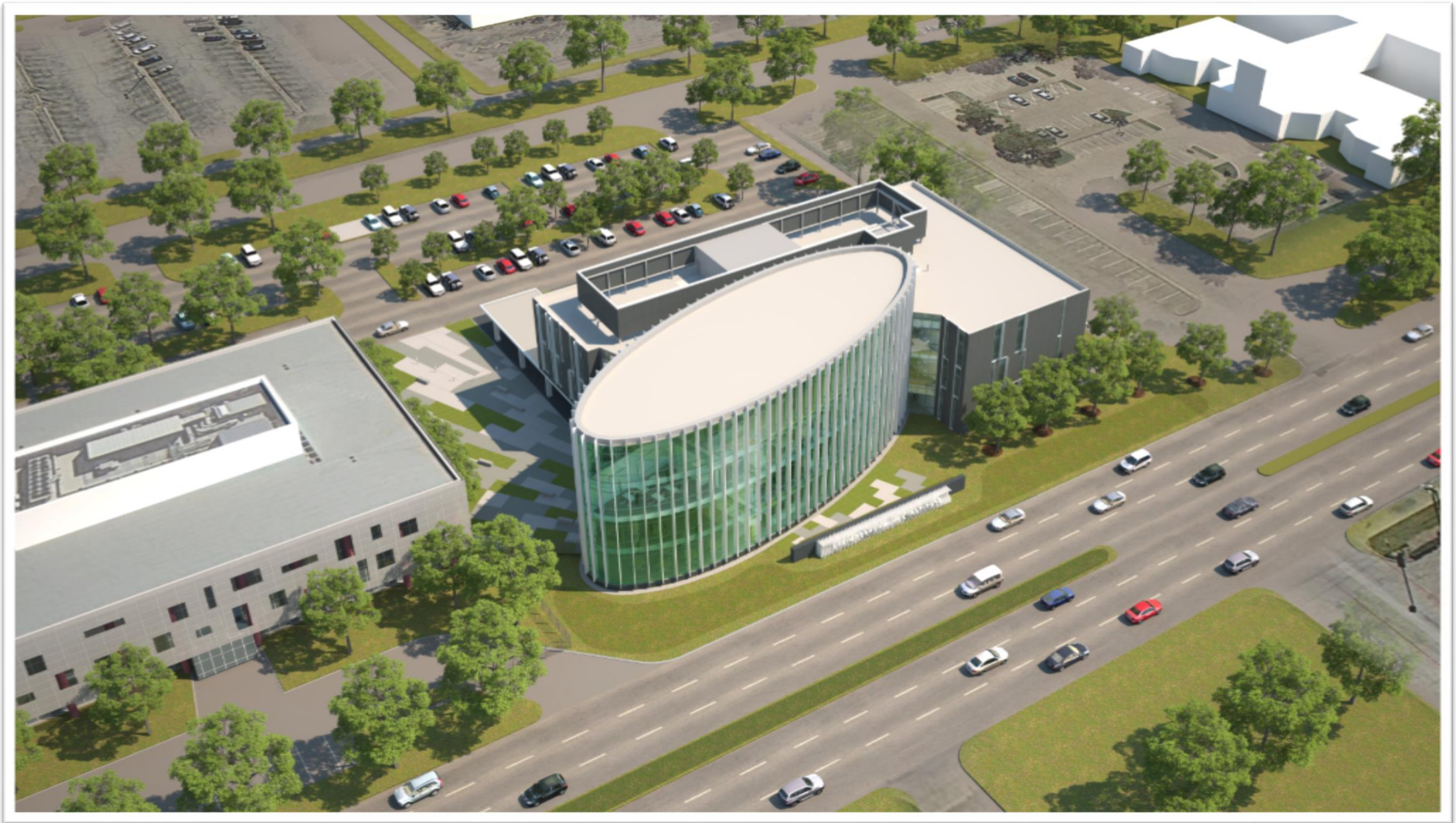


Receive your results and personalized feedback during a separate one-hour, private session with your clinician.

Research Studies

SMART Training Classes





Brain Health

CenterForBrainHealth.org

