Flex Your Cortex: 7 Secrets to Turbocharge Your Brain

HUFFPOST HEALTHY LIVING

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Recently, I had the honor of participating in a TEDx Talk about the power of the human brain.

TED is a nonprofit, nonpartisan organization devoted to spreading big ideas—from science to business to global issues—that deepen our understanding of the world around us. Notably, numerous TEDx Talks focus on the future of space exploration and its many potential benefits for mankind.

In my talk, though, I encourage Americans to turn their focus inward. Truly, some of the most fascinating scientific discoveries today have to do with the world within us: our brains. With all due respect to Star Trek, outer space is not the only "final frontier." Understanding and maximizing the potential of the human brain is also an important—and still largely uncharted—frontier of discovery.

Consider that the brain is the most powerful, most staggeringly complex electro-biochemical machine ever created. Above and behind our eyes are 100 billion neurons in a small calcium shell, laced with organic pumps, channels and switches. Until recently, this complicated organ was thought to be static and unchangeable. Far from it.

Our research shows that the brain is dynamic, adaptable, flexible, and repairable. This knowledge, along with a strong commitment to applying what we have learned, has the potential to dramatically improve the mental capacity of all Americans, regardless of age, even those who have experienced brain illness or injury. Just like a mentally-challenged young man who inspired me to focus my attention and efforts on the incredible potential of the human mind. He could not speak or communicate, but yet he was able to comprehend and problem solve in a way that defied his diagnosis.

My 30+ year career in brain science and at the Center for BrainHealth at The University of Texas at Dallas that I founded has led to the development of seven scientifically-validated secrets anyone can implement to improve brain performance. They are secrets because they challenge conventional wisdom and today's societal pressures.

You might be surprised at how much of the 7-Secret advice is counter to how people live and work. In truth, the frenetic, distracted way we live in 21st century America is not conducive to good brain health or performance.

While the descriptions below are tailored to working-age adults, 7-Secret Thinking is also highly beneficial to others. Teens growing up in poverty, healthy older adults and those experiencing cognitive decline, and those who have sustained a traumatic brain injury are all benefiting by engaging in 7-Secret Thinking.

Secret 1: ***Start single tasking***. For those who proudly identify as multitaskers, understand that your brain is not built to perform two tasks at the same time—instead, it must switch quickly from task to unrelated task. Multitasking tires the brain and activates stress hormones. Giving your full attention to the project at hand will increase accuracy, innovation and speed.

Secret 2: ***Limit information***. Thanks to our technology-driven and uber-connected world, the sheer volume of information we are exposed to every day is nearly 200 times more than we were exposed to 20 years ago! Research shows this information overload comes at a price. High-performing minds are more efficient at knowing what to block out and what to keenly pay attention to. Limit what you take in to enhance your brain's natural ability to block out what does not matter.

Secret 3: ***Detox distractions***. On average, individuals work for three

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minutes at a time before being interrupted. Complicating matters, technology is actually rewiring our brains to be addicted to interruption, as we anxiously wait for the next ping signaling a new email, text or social media post. By silencing your phone and computer and closing your office door, you can actually accelerate your brain's ability to complete tasks.

Secret 4: ***Think big***. Designed to shift between details and the big picture, the brain is overwhelmed by too much focus on details and minutiae. Taking the time to think about a problem or idea from the 10,000-foot view will shift your perspective and strengthens brain systems to generate high level ideas and transformative solutions. Our research has shown that doing so strengthens brain systems at multiple levels of health.

Secret 5: ***Calibrate mental effort***. Mental energy, like physical energy, can be depleted. Prioritize your day by focusing effort on the most important tasks while your brain is at peak operating power, usually at the beginning of the day.

Secret 6: ***Innovate***. Stepping outside your routine is important to brain health and performance. Our brains seek novelty and innovation, so challenge yourself to expand your knowledge and learn new skills.

Secret 7: ***Motivate***. While it is important to learn new skills, the brain is happiest when exploring areas you are passionate about. Focusing on what motivates and matters to you actually increases your rate of learning.

I am confident that practicing 7-Secret Thinking can enhance the cognitive abilities of nearly everyone, and look forward to future applications of our research. I am grateful to TED for giving me the opportunity to demonstrate that exploration of inner space, the brain, can uniquely and positively change all our lives.

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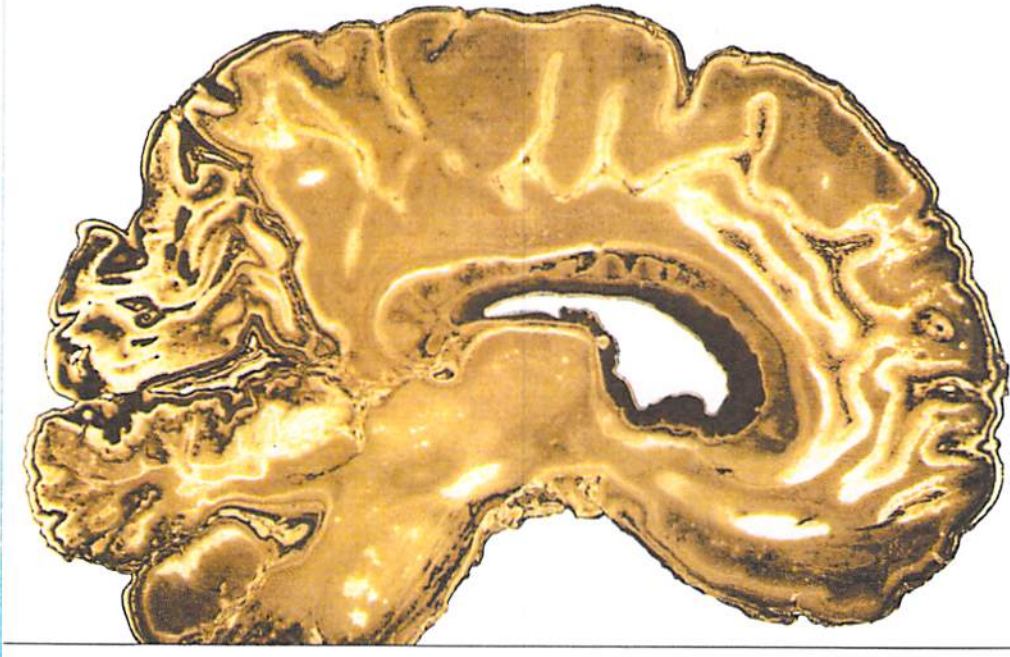
The Future of Brain Health

Enhancing Brain Resilience and Inciting Brain Regeneration



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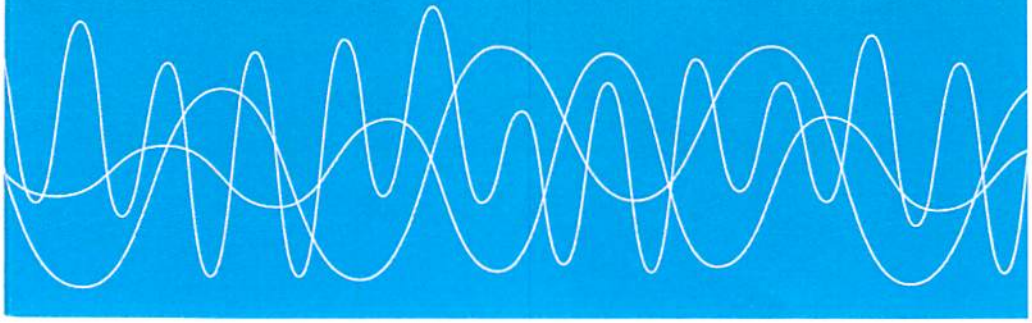
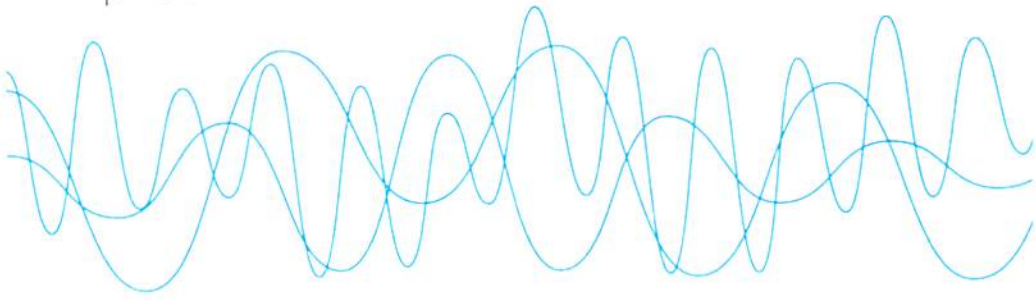
Our brains are resilient. Strong. Flexible. They can bend rather than break, bounce back from injury, improvise, adapt and overcome.



We can modify our brains just as much as we can modify any other part of our bodies—in fact, more so. Just as we can improve our physical health, we can train our brains to improve our cognitive health—and overcome cognitive losses.

The Center for BrainHealth® at The University of Texas at Dallas is dedicated to discovering ways to build resilience, regain cognitive function and maximize the immense potential of our most precious natural resource.



Resilience Fuels Regeneration

In recent years, the safety, preservation and improvement of the human brain have risen to the forefront of our national discourse.

At the Center for BrainHealth, we are dedicated to research into boosting cognitive capacity and performance. Our experienced multidisciplinary team of brain scientists and rehabilitation specialists pursue robust brain health fitness for all ages and stages.

By transforming scientifically proven strategies into programs that address practical needs, the Center is optimizing healthy brain development and improving brain injury prevention and recovery.

Pioneering Programs in Vital Areas of Research

Building on more than 25 years of cognitive neuroscience research, the Center for BrainHealth continues to make enormous strides in numerous vital areas, pioneering programs—more than 60 in all—that focus on the following.

Addiction
Attention Deficit Hyperactivity Disorder
Alzheimer's Disease and Other Dementias
Autism
Bipolar Disorder
Concussion
Decision-Making
Depression
Healthy Aging
Mild Cognitive Impairment
Multiple Sclerosis
Post Traumatic Stress Disorder
Teen Reasoning
Traumatic Brain Injury
Social Cognition
Stroke

Enrich Your Mind for Robust Brain Health

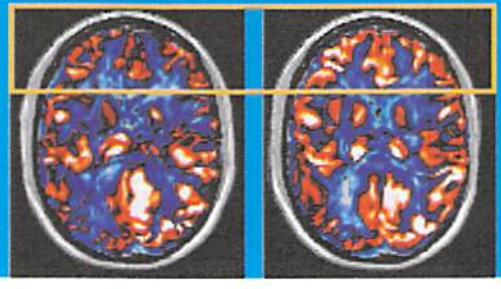
Thanks to scientific advances, many people now live to 100 and beyond. Yet even among healthy aging adults, cognitive brain performance peaks on average in our early 40s. However, declining brain performance is not inevitable. Research shows that we can improve brain health in people of all ages, extending our brain spans to match our increasing lifespans. Building brain resilience in health will mitigate losses from medical, psychological and neurological setbacks and add years to cognitive brain performance. We must recognize two major misconceptions about aging in a healthy brain.

First, aging is not a disease. Age alone is not a key determinant of impaired cognitive abilities. While Alzheimer's disease and dementia afflict the elderly, they are not inevitable consequences of aging.

Second, we are not stuck with the brains we have today. Our brains change and adapt moment-to-moment depending on how we use them. Proactive brain training and the conscious maintenance of brain health can result in significant cognitive changes and improvements.

The Effects of Brain Training on the Frontal Lobe

In a randomized clinical trial, results show that 12 hours of directed brain training can alter brain function, increasing blood flow, enhancing information communication across key brain regions and expanding the structural connections between brain regions related to new learning. The study found three significant training-related brain changes at rest: increases in global and regional cerebral blood flow (CBF), greater synchrony in important brain networks and increased white matter integrity.



FRONTAL LOBE BLOOD FLOW

Left: Before training
Right: After training

Rebound and Recovery after Brain Injury

Brain injury is a leading cause of disability, and it affects the lives and livelihoods of nearly two million people in the United States every year. While previously it was believed that the window for brain recovery was at most one year after injury, Center for BrainHealth research shows the brain can be repaired to significant degrees months and years after injury if the right intervention is applied.

Center for BrainHealth researchers have been focused for decades on **traumatic brain injuries in youth, civilian adults, service members and aging athletes,** designing treatment plans and brain training programs tailored to the unique needs of each group.

Our research in youth, funded in part by the National Institutes of Health, is designed to maintain cognitive health at each stage of development by addressing the continuous, long-term effects of children's brain injuries from a strength-based approach. In civilian adults, guided brain training has shown significant improvement in higher-order cognitive performance and real-life functionality. In retired professional athletes with sports-related concussions, the research is designed to detect and repair debilitating long-term cognitive and emotional disability.

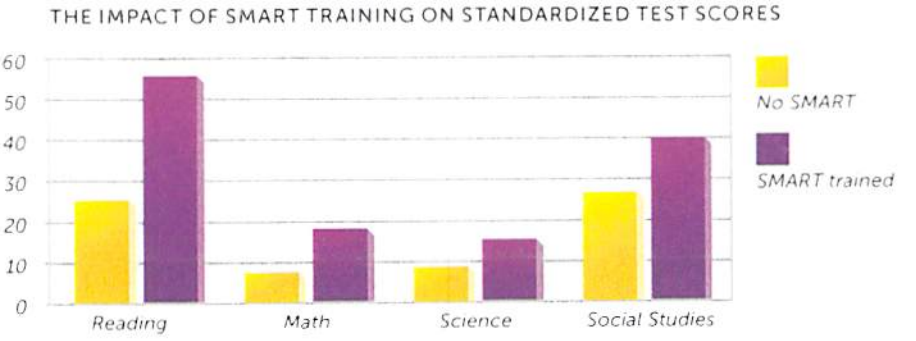
A focus on building brain resilience and inciting brain regeneration will minimize cognitive losses after injury, increase speed of recovery and attenuate anxiety and post-concussive symptoms.

Igniting Innovative Education

Scientific study at the Center for BrainHealth indicates that innovative thinking skills are assets that can be enhanced, especially during teen years. The brain goes through extensive changes during the early teenage years, making adolescence an optimal time to train reasoning and higher-order thinking skills. To be successful in school, in the workforce and in life, individuals need creativity, innovation and imagination.

Researchers at the Center for BrainHealth are providing students, teachers and school administrators with advanced reasoning training to build cognitive capacity in our nation's next generation of leaders. **Building brain resilience reduces the effects of poverty, low stimulation and low expectations.**

The Impact of Brain Training on Adolescents



In a randomized clinical trial, SMART training, which was completed in 9 hours during a one-month period, shows lasting and impressive results including increased scores on state-mandated standardized tests, improved learning across core content areas and improved cognitive abilities in areas not specifically trained. Thus far, the Center for BrainHealth has reached more than 24,000 students across the nation and trained more than 300 teachers and 95 principals and school administrators.

WHAT THE SCIENCE SHOWS

- The brain is the most powerful, intricate engine in the universe. It's what elevates and separates us from every other form of life.
- There is no time limit to the potential for brain repair, given proper treatment, training and time to heal.
- The brain continues to make new cells every day we live.
- The brain can form complex connections throughout life.
- The connections between neurons can be strengthened against weakness.
- Restorative, advanced-reasoning brain training and treatment practices share commonalities across diseases, injuries and age-related declines.
- Advances in sophisticated brain imaging technology allow us to view changes in the activation of brain regions, providing strong metrics of brain change.

OUR PLAN FOR THE FUTURE

- Propel the creation of public-private partnerships to tackle and invigorate the most important and looming public health issue—our brain's health.
- Motivate integrative approaches to individualized medicine; with large data sets, we can begin to amass reliable ways to assess how effective and how safe specific treatments are.
- Transform awareness to create incentives for individuals to adopt healthy brain habits.
- Generate new knowledge of the brain at all system levels to yield new treatments to build resilience or regenerate brain function.

The typical lag between a scientific discovery and the delivery of useful solutions is 20–40 years. We cannot wait that long. The goal of the Center for BrainHealth and the Brain Performance Institute is to ensure that novel programs are delivered to the public as quickly as possible.

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