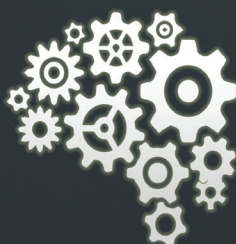




CENTER *for*
BRAINHEALTH®
THE UNIVERSITY OF TEXAS AT DALLAS

Making Brain Health Operational

5 Foundational Elements



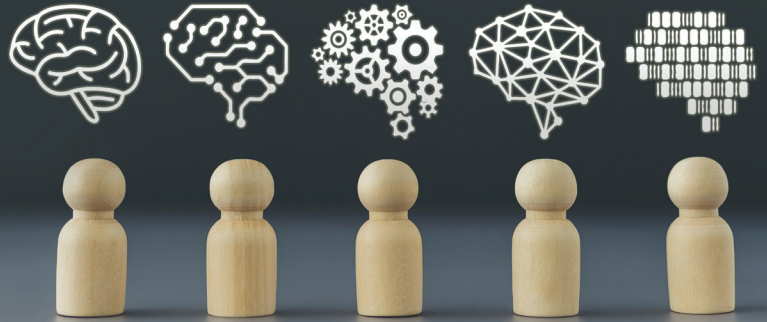
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Making Brain Health Operational

5 Foundational Elements



Introduction

Over the past few years, the concept of brain health has become increasingly prominent.

In 2022, the WHO recognized the rapidly growing importance of brain health, publishing a seminal paper. (Optimizing brain health across the life course: WHO position paper)

The momentum continues to build, with an incredible set of sessions at the United Nations' UNGA79 (2024), where the concept of brain health was explored by a variety of critical stakeholders, including member nations of the EU who have all committed to developing brain health strategies at a national level.

Here at the Center for BrainHealth (part of The University of Texas at Dallas), we are absolutely thrilled to see the world embrace the concept of brain health – it has been our exclusive focus since 1999.

The purpose of this White Paper is to build on the momentum and lay out five foundational elements that are essential for the concept of brain health to be actionable at every level of society. These five elements are based on our decades of cognitive neuroscience research, as well as our translational work that takes the latest science insights and creates practical interventions that have been shown to produce measurable improvements in brain health, helping people flourish at all ages and stages.

Element 1 Brain Health Must Be Broadly Defined

Our science is uniquely focused on the brain's lifelong upward potential – uncovering the deep interconnections among the brain's domains, exploring the power of the brain's frontal networks, validating new metrics to track improvement, and empowering people to take action.

Our remarkable founder, Sandra Bond Chapman, PhD, was one of the early pioneers to recognize the potential for humanity when we tap into the brain's incredible adaptability. **Simply put, our brains change every moment of every day, depending on how we use them.**

Dr. Chapman started using the term “brain health” more than two decades ago, which was unusual enough that she was able to trademark it. BrainHealth® remains a registered trademark of the Center for BrainHealth.

Elsewhere, the underlying focus too often remains on decline, disease and disorder; this is why we were delighted to see the WHO publish its 2022 paper, adopting a similar concept of brain health as ours.

Having a universally accepted definition that focuses on health and features the role of self-agency is an important first step to igniting a brain health revolution.

We define brain health as the continual promotion of optimal brain development, cognition, well-being and connectedness – leveraging daily brain skills that help people thrive at every age and life stage.

Element 2

Brain Health Can Be Measured

A holistic understanding of brain health is just the first step; for the concept to truly be operationalized, we need a clear and scientifically validated measurement tool. After all, what gets measured, gets managed.

The Center for BrainHealth has been developing and testing these metrics for more than two decades. Our measure, the BrainHealth Index, boasts several unique attributes:

- A holistic look at brain health (vs. looking at a single dimension in isolation).
- Built with an algorithm based on 22 measures of cognitive function, daily life habits and social-emotional wellbeing. Some of these measures are widely used; others such as our TOSL (Test of Strategic Learning, focused on executive function) are proprietary.
- A dynamic measure built for an organ that is itself dynamic and always changing – it can evolve as we learn.
- Strength-based (vs. constructed to detect deficits).
- Prioritizes ‘you compared to you’ – the only comparison that ultimately matters – and less on measuring your Index score against the thousands of other people who have taken theirs.
- Reveals multiple pathways to expand brain health (vs. single domain).

We know of no other measure that considers brain health in its totality, underscores the tremendous interconnectedness of various domains, and empowers individuals to take charge of their brain in a very actionable, personalized way.

Element 3

Brain Health Can Be Improved

At this point you could be saying to yourself: “I get that measuring brain health is important. But it doesn't make much difference unless we know how to improve it.”

At the Center for BrainHealth, strengthening the brain's health and performance has been our mission for more than 25 years. And we collaborate with the world's top experts in brain health to leverage the latest learnings (see Appendix 1).

In addition to advancing the science, our team develops, validates and delivers a wide variety of programs to improve brain health in different populations.

Our interventions share a common approach:

1. Teach someone how their brain works and changes every day based on how they use it and care for it.
2. Train them in a series of core cognitive strategies and lifestyle practices grounded in science.
3. Give them the ability to track their own change and improvement over time.

To date, we have reached more than 100,000 people with brain health interventions at all life stages, and our efforts are scaling quickly – Appendix 2 provides the detail of the peer-reviewed research we have conducted with a variety of populations.

And in national surveys, we have confirmed that people are more than ready to listen to the brain health message. In fact, once people understand how to take charge of their brain and its performance, we believe they will be empowered to build their brain health for life.

National Omnibus Survey 2023:

90%

DO believe you can directly affect how well your brain performs or functions

68%

ARE aware it is possible to gain significant brain power with training

74%

ARE motivated to take an action or learn more when they understand the brain starts to decline gradually beginning in early adulthood

... yet only

27%

KNOW where to turn for resources

Element 4

There Is So Much We Can Do Now

(AND IT
DOESN'T
COST
MUCH)

As people embrace the concept of brain health, there is increasing excitement about future pharmaceutical and neurotech breakthroughs, as well as exploration of the role of the built environment, environmental degradation and even social structures in supporting or reducing brain health.

There is also increasing investment to research critical areas contributing to understanding and treating brain health deficits, like neurodegenerative diseases and mental health disorders.

These future possibilities are essential goals and these

investments need to be made, but let's not allow them to obscure how much we can do RIGHT NOW – with minimal investment.

All the populations with which we work have shown measurable brain health and brain performance improvement through practical, low-cost interventions that leverage our existing (and growing) knowledge of neuroplasticity. The interventions are low-cost because we use a leveraged 'train the trainer' approach combined with assets that can be delivered digitally, which allow us to scale the impact. Look for

more detail on this in an upcoming white paper.

And while there will undoubtedly be fantastic medical and technological breakthroughs in coming years, we believe that they will not deliver their full potential unless we also provide these low-cost, foundational interventions that teach people how to use their brain effectively with strategies to implement cognition-based protocols that are already demonstrated to make a difference.

Element 5

Only You Can Manage Your Own Brain

One critical driver of the brain health revolution is that only one person can manage your brain health and brain performance – you. This concept of self-agency is at the core of how we at the Center for BrainHealth design interventions for every population. Our brain training programs show people how to leverage the power of their frontal networks with practical strategies and tools that can be implemented in daily life.

Equipped with this knowledge, it is up to the individual to build new brain-healthy practices. To put this another way, strengthening brain health and brain performance is not about additional tasks that require allocating time during the day. Rather, it's about learning to go through your day differently, more efficiently and effectively.

What are the frontal networks, and why do they matter?

The frontal networks are interconnected systems within the brain's frontal lobes responsible for high-level cognitive processes, emotional regulation, decision-making and social behavior. These networks play critical roles in how we think, feel and interact with the world each day.

Summary

As an increasingly recognized critical concept, we have no doubt that brain health thinking will eventually be built into every nation, every organization, every educational system, and – we hope – embraced by every individual around the world in the next decade. In this White Paper, we have shared 5 foundational elements that make the case for operationalizing this concept NOW, based on more than 25 years of translational research at the Center for BrainHealth.

We remain true to our mission of accelerating the brain health revolution. We are advancing the science and providing people with practical guidance on how to improve brain health at every stage of life – and with a validated tool to measure and track change, especially improvement.

“**YOU ARE THE
ARCHITECT OF
YOUR BRAIN’S
HEALTH AND
PERFORMANCE.**”

Appendix 1

BrainHealth Collaborators



At the Center for BrainHealth, strengthening the brain's health and performance has been our mission for more than 25 years. And we collaborate with the world's top experts in brain health to leverage the latest learnings about effective ways to measure, track and improve brain health throughout life.

Appendix 2

Our Academic Papers

Middle school students

Gamino et al., 2010

- 86% of the students who participated in brain training were graduating on time, compared to the district average of 45%.

Gamino et al., 2022

- Students in some schools performed 30% better on STAAR standardized tests across all subjects after brain training. emotional balance

Veterans

Vas et al., 2016

- Reasoning training is shown to reduce symptoms of depression by 58% and lower stress-related symptoms by 43% among veterans.

Healthy seniors

Vas et al., 2016

- Brain training showed an 8% increase (on average) of brain blood flow, greater functional connectivity, and white matter integrity – indicators of a more active and connected brain.

Healthy adults

Chapman et al., 2021

- Teaching brain-healthy strategies to healthy adults 18-97 has shown that improvement tracks with the degree to which they engage with the training.

Military personnel & law enforcement

Young et al., 2021

- SMART training among military personnel has shown significant improvements in integrated reasoning and innovation, while among police officers it enhanced innovation and strategic attention.

Disadvantaged adolescents

Gamino et al., 2010

- 7th and 8th grade kids have shown significant increases in gist reasoning after SMART training regardless of socioeconomic status.

Neurodivergent young people

Gamino et al., 2009b

- Children with ADHD who completed the SMART program have showed improved gist-reasoning while those that underwent the behavioral attention training did not.

Corporations

Zientz et al., 2023

- 75% of a large global architecture firm employees who participated in brain training showed significant gains in the BrainHealth Index as well as connectedness, emotional balance, and clarity.

General population

Laane et al., 2023

- Online SMART is shown to improve symptoms of depression, anxiety, and stress, and results persisted 6 months post training.