



WELCOME TO THE BRAIN AGE!

Understanding the Cognitive Wellness Revolution

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Welcome to the Brain Age! The brain is having its moment in history, and it is well-deserved. Thanks to many distinct yet overlapping factors, we are in the midst of a fascinating revolution in our ability to understand, influence, and change the physiology and function of our most vital organ—the brain. Among them:

- **We're living longer.** Economic prosperity in the developed world, along with improvements in medical care, mean that people are living approximately 22 years longer than a generation ago. Experts report that by 2047 there will be a worldwide population shift with more people over 60 than under 18, with over 2 billion over age 60 by 2050. In the U.S. we have become more and more concerned about the different ways in which aging affects us, which has made cognitive health a top priority. A 2014 AARP survey found that 93% of those asked feel that maintaining brain health is very or extremely important.
- **Age-related diseases are on the rise.** The downside of living longer is that we're at an increased risk of developing conditions that affect the function and health of our brains. The Centers for Disease Control report that one in eight adults over 60 report that they've experienced increasingly frequent changes in their ability to remember over the past year (Centers for Disease Control, 2013). What's more, rates of Alzheimer's disease and other dementias are on the rise. According to the [The Alzheimer's Association](#), more than 5.3 million American adults in the United States have been diagnosed with memory impairment. By 2050, an astounding 16 million adults in this country will have the disease. Direct care costs will run \$226 billion in 2015 alone, climbing to an estimated \$1.1 trillion dollars by 2050 (with indirect costs increasing the economic burden of the disease significantly). For these reasons, researchers are striving to understand better how to preserve brain health and prevent dementia, as public policy makers are focusing on promoting brain healthy behaviors and providing better care for those affected by serious memory loss through programs such as the [Healthy Brain Initiative](#) and the [National Alzheimer's Plan Act](#).
- **Scientists know more about how the brain works.** Researchers are making tremendous gains in our understanding of brain function. Neuroimaging capacities through functional imaging now allow us to study the brain *in vivo*, greatly expanding our ability to understand how the brain works, the impact of injury, learning challenges, disease, and even behaviors. Most critically, science has shifted in the last two decades to commonly accept what was once a revolutionary notion: That the brain is plastic and capable of change through experience, producing new neurons and creating new synapses (structures that allow information to flow from one neuron to another). This has contributed to improved diagnosis and treatment of a wide range of brain-health challenges, including developmental and acquired brain-related disorders, as well as behavioral health conditions. However, none have been more dramatically impacted than our understanding of how aging affects the brain, and the potential for reducing age-related changes in everyday intellectual function, as well as maintaining cognitive vitality over our lifetime. A number of



government-funded research projects are advancing our knowledge of brain health, including the [BRAIN Initiative](#) in the United States and the [Human Brain Project](#) in Europe.

- **Consumers want better brain health.** When it comes to commercial products and services, it seems the brain health obsession is everywhere. Traditional services such as business consulting and educational tutoring are rebranding around the brain and mind, and products to stave our smarts abound. Folks of all ages, but especially those over 50, want to do whatever they can to keep their brains healthy and their minds sharp. While the markets for traditional brain-training programs, as well as for nutritional supplements that claim to boost cognitive health, have grown, none have matched the incredible rise of the digital brain-fitness market. New technologies, scientific advancements, and commercial opportunity have merged to give rise to a multitude of new products offering tools for assessment, training, and monitoring multiple brain health challenges, including aging. The brain-training app [Elevate](#) was recently voted 2014 App of the Year by Apple. [Sharp Brains](#), a market research firm specializing in the digital brain fitness space, reports that this digital brain fitness market grew to a \$1 billion dollar industry in 2012, and estimates growth to over \$6 billion dollars by 2020. [Well-founded criticism](#) focusing on the true value of such products from the scientific community has not stalled growth. However, as consumers and professionals interested in providing brain health training become more savvy about the field, we are seeing growth in wellness-based brain fitness products and services that better reflect the research evidence for what best promotes staying sharp and reducing dementia risk over our lifetimes.

[WHAT IS BRAIN HEALTH?](#)

There's no doubt the term "brain health" has joined the daily lexicon. Despite the hype, many people, including health care professionals, remain confused about what it means exactly. Finding a common way to understand brain health is critical for communicating not only what brain health is but also for educating others and ourselves about the ways in which we can support better brain health.

One way we can understand what brain health means is to look at the different ways the term is used, whether by researchers, policy makers, health care professionals, and even the public. The following four-part definition frames the distinct yet overlapping areas of definition that covers the many different things we mean when we say "brain health":

- **Physiology.** Brain health refers to the physiological health of the brain as an organ. This reflects the physical status of our brain, including such factors as symmetry, cerebral blood flow, and freedom from infarctions (small strokes) or other abnormal changes or pathology.
- **Function.** Brain health also refers to the functional health of the brain as it supports everyday intellectual performance. We "see" our brain's health reflected in how we function day to day, including how well we are able to attend, learn, and—most notably—remember.
- **Vitality.** Brain health reflects the longitudinal health of the brain for promoting intellectual vitality and preserving independence, especially as we grow older.



- **Prevention.** Finally, brain health refers to our ability to manage our risk for serious memory impairment, such as Alzheimer’s disease, other dementias, and stroke.

A second way we can understand brain health is to consider the desired outcomes of being “brain healthy.” These are:

- **Maintaining sharp intellectual performance:** A primary goal of brain health is being able to function well on a daily basis. Studies have found that practices such as challenging our intellectual skills with targeted activities, getting regular aerobic exercise, and even meditation can help people focus, think more quickly, multitask, reason, and remember.
- **Preventing disease.** A second important goal of improved brain health is lowering the risk of brain-related problems such as Alzheimer’s disease, other types of dementia, and stroke. Research shows that certain lifestyle behaviors, including maintaining a healthy weight, eating a well-balanced diet, and staying intellectually engaged can help lower the chance of developing a memory disorder later in life.

Clearly, defining brain health requires us to think not only across several facets of brain health but also to consider what we hope to gain by improving cognitive wellness.

In sum, there is no doubt that we are witnessing a tremendous revolutionary shift in how we think about our brains, and that tremendous changes in the scientific landscape and resulting opportunities for consumers lay ahead. Whatever the Brain Age brings, it is exciting to imagine what is possible.