CENEGENICS medical institute

HEALTHY LIFESTYLES FOR HEALTHY AGING

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Aging Memory: Risk Factors You Should Know

Does living longer mean "living better"?

The stats are jarring. On average, every 70 seconds someone in America develops Alzheimer's disease—by mid-century, that number is expected to jump to every 33 seconds. Approximately 5.1 million Americans aged 65 and older have the disease with nearly 500,000 under 65 suffering from either Alzheimer's or other forms of dementia.

In fact, Alzheimer's disease was the sixth-leading cause of death regardless of age in 2006 and the fifth-leading cause for those 65 and older.

With medical advances and scientific technologies, Americans are living longer. But that begs the question, "Will they be living healthier and with a higher-quality life or spend those years in mental obscurity?"

The question is important as baby boomers head toward that 65-year-old mark in 2011. Per the 2009 Alzheimer's Disease Facts and Figures report, all boomers by 2029 will be at least 65, equating to an estimated 7.7 million Americans in 2030 having Alzheimer's . . . a **50% increase** from our current stats. And that will put a significant impact on our healthcare system and long-term care resources.

Your focus: prevention. For those with dementia/Alzheimer's, active medical management has shown to "significantly improve quality of life through all stages" of the disease.

But what about those of us who may have the potential of dementia in the near future? Perhaps the most promising and tangible evidence from the 2009 report centers on the field of prevention, a field many scientists view as touting "the most exciting developments" in dementia research. And the good news is key factors are in your control.

The report says . . .

- A growing body of evidence suggests that the health of the brain—one of the body's most highly vascular organs—is closely linked to the overall health of the heart and blood vessels.
- Some data indicate that management of cardiovascular risk factors, such as high cholesterol, type 2 diabetes, high blood pressure and overweight, may help avoid or delay cognitive decline.
- Additional evidence points to a significant role for regular physical exercise in maintaining lifelong cognitive health.
- More limited data suggest that a diet rich in fruits and vegetables may support brain health, as may a robust social network and a lifetime of intellectual curiosity and mental stimulation.

We'll look at some of those more closely in a minute. For now, let's turn our attention to your aging brain.

From 20s onward, it's all downhill or is it? According to Harvard Health literature, your brain starts shrinking at some point in your 20s, resulting in a .5% to 1% annual loss after age 60. The primary hit of age-related declines (with more rapid decrease) appears to be in your hippocampus—a banana-like shaped region responsible for long-term "declarative" memory, located on the edge of the cerebral cortex (domed outer layer of your brain).

You actually have two hippocampi (one on each side of the brain). Of the two types of declarative memory in the hippocampus (semantic/factual and episodic/personal experience details), the episodic diminishes as the years march on: events linked to specific places and times, such as a birthday party, wedding, vacation trips.

Steer Clear of These Foods for a Healthier Brain

- **Fatty cuts of meat**
- **High-mercury fish (halibut, shark, king mackerel, swordfish, tilefish, whitemeat tuna**
- **Sweets, refined grains, starches**
- **Bad fats**
- **High-sugar condiments**
- **Fried foods**
- **Sweetened beverages**
- **Sugar/artificial sweeteners**
- **Exitotoxins (asparatame, MSG, hydrolyzed vegetable protein)**

based on Dr. David Perlmutter's "The Better Brain Book"

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On the other hand, procedural memory—riding a bike, playing an instrument, tying a shoe—is durable and controlled by different brain components.

So your memories aren't warehoused in just one cerebral location. There are cerebral cortex networks with 20 billion interconnecting neurons coordinating sensory information, voluntary control movements and mediation of thinking processes for your memory to work. Your brain cells use chemical substances to "chat" via synapses (spaces), activating dendrites (long branches budding from a nerve cell's body).

There are three key steps to the memory process: (1) learning, (2) consolidating declarative memories and procedural memory and (3) retrieval (recall).

But the advancing years can evidence . . .

- Diminished cerebral blood flow that negatively impacts cell functionality
- Lost connection between brain cells, affecting communication
- Lost neurons in deeper brain structures, resulting in diminished neurotransmitters needed for learning/memory (i.e. serotonin, dopamine, acetylcholine)
- Reduced density in the white matter (predominant in those over 60), interrupting region coordination

Although genes may play into your memory capacity, you can take positive steps right now to control certain lifestyle factors and prevent or delay the onset of age-related dementia.

Know the risk factors. Cardiovascular disease and its cohorts (hypertension, high cholesterol and diabetes) can pave the way to an aging memory.

- **High blood pressure.** Studies show significant reduction in cerebral blood flow in hypertensive individuals (resulting in higher levels of white matter damage) and Alzheimer's patients. Those having both high blood pressure and Alzheimer's demonstrated severe reductions in blood flow.
- **High cholesterol.** It increases risk for "mild cognitive impairment" and Alzheimer's.
- **Diabetes.** Red alert since the disease means a 50% - 100% higher risk for Alzheimer's and other dementia, potentially resulting from a reduced hippocampus function or damaged brain blood vessels (both from high blood sugar levels); other possible causes are having reduced insulin receptors in the brain or having high insulin levels (a biomarker for inflammation, which promotes Alzheimer's).
- **Overweight/obesity during midlife.** Weighing 20% more than the ideal weight puts you at risk since organs must work harder, which stresses the body, advances inflammation and free radicals, all of which damages brain cells.

Noted neurologist Dr. David Perlmutter sounds the alarm on the link between being overweight or obese since it significantly ups the risk for poorer brain health. The concern hinges on having higher levels of glucose that "react with specific proteins in the brain, forming substances called advanced glycation end products (AGEs), which can destroy proteins throughout the body and in the brain and create more free radicals."

AGEs accelerate aging and have been linked to Alzheimer's. In fact, glycation deposits have been found in the neurofibrillary tangles of the brain. A study published in the February 2009 issue of *Brain* says Alzheimer's is characterized by: neuronal death, amyloid deposits (abnormal protein/peptide deposits causing plaques), and neurofibrillary tangles composed of an abnormal form of a protein called tau protein which cross reacts with other abnormal tau proteins causing the “tangles.” Their research suggests that the half-life of the amyloid deposits is prolonged in Alzheimer's, resulting in greater accumulation of glycation end product modifications, which in turn may act to promote accumulation of additional amyloid. A vicious cycle ensues.

Food Focus for a Healthier Brain

- **Avoid trans-fatty acids.** Watch out for processed, refined foods, deep-fried or fried foods (donuts, french fries, corn chips, etc.)
- **Reduce saturated fats.** Limit meat and full-fat dairy products, opting for leaner cuts and more plant-source protein
- **Eat more omega-3 fatty acids.** Choose Alaskan sockeye salmon (caught in the wild), fresh greens, walnuts, pumpkin seeds, flaxseed
- **Eat more cruciferous veggies and have a salad a day.**
- **Choose berries.** Blackberries and blueberries top the list.

Lifestyle factors come into play:

Nutrition—High-fat, high-cholesterol foods could increase Alzheimer's risk, especially if consuming large amounts of saturated fats (meat/dairy) and trans fats (processed foods with hydrogenated oils).

On the flip side, plant-based nutrition reduced the disease risk. Famed neurosurgeon Dr. Sanjay Gupta advocates fruits and vegetables since they have been linked to slower cognitive decline. Opting for healthy carbohydrates that have a slower digestion rate and slower sugar- and starch-absorption rate translates to having better blood glucose levels, helping you avoid AGEs and their resulting cellular dysfunction, tissue inflammation and degenerative disease potential.

In addition, omega-3 fatty acids (as found in fish oils) have come front and center via studies (like the Framingham Heart Study) revealing their link to reduced dementia.

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Nutraceuticals—Studies show B vitamins positively impact cognitive functions, including abstract and spatial thinking, as well as lessen age-related memory loss. Research published in *Neurology* suggests that increasing Vitamin B12 intake may help to prevent brain shrinkage, per lead author Anna Vogiatzoglou.

Vitamin D can lower two inflammatory markers (including C-reactive protein), per a Belgium study and a Tufts University study. Inflammation is a marker for Alzheimer's.

Exercise—A 2005 *Lancet Neurology* issue published research demonstrating that study subjects engaging in physical activity twice weekly were half as likely to present with dementia than their not-so-active counterparts.

A 2007 issue of *Annals of Internal Medicine* published research by Ronald J. Sigal, MD, MPH, showing that aerobic exercise and strength training improve blood sugar levels—and that can help sidestep reduced hippocampus function or damaged brain blood vessels resulting from raised glucose levels.

A study in the January 2006 *Archives of Internal Medicine* showed exercise linked to delaying the onset of dementia and Alzheimer's among those 65 and older. Those exercising three times a week were less likely to develop dementia—a third less often.

All in all, exercise, particularly strength training, has been shown to increase insulin sensitivity and ultimately drop insulin levels, which further protects the brain.

Diminished hormones (i.e. testosterone and thyroid)—may negatively impact cognitive function:

- Testosterone affects visual/spatial and verbal memories (studies show men with higher testosterone levels having better results)
- Clinical hypothyroidism (underactive thyroid) and hyperthyroidism (overactive thyroid) cause reversible dementia—a hyperthyroid escalates metabolism, affects the hippocampus and causes confusion, while a hypothyroid plunges metabolism and causes depression, sleepiness, slower thinking

Medications (prescribed and over-the-counter) — may also impair memory, from sleep and hypertension medications to painkillers.

Long-term depression — could contribute to neuron loss in brain structures (such as the hippocampus).

Sleep— Dreaming instigates cortical activity, which may, per scientists, strengthen neuronal pathways that encode memories. But insomnia and sleep apnea interrupt sleep cycles and the natural reduction of stress hormones, which allow the hippocampus to consolidate memories. Sleep apnea is a sleep disorder (heavily linked to being overweight/obese) resulting in brief/ frequent disruptions in breathing that awaken a person as much as 100 times nightly, without him/her knowing it.

Smoking—study after study shows an association between smokers and a higher degree of cognitive problems and memory loss including a heightened risk for Alzheimer's.

Your next step? Certainly you should consider exercising your brain—do crossword puzzles, learn a language or an instrument, do math problems, change up your mental daily routine, take on challenging verbal and spatial exercises, etc.

As Dr. Sanjay Gupta says, the "more you learn, the more protection your brain appears to have against damage later on" . . . and that translates to enlarging your brain reserve, which strengthens your brain's neuroplasticity (ability to change).

But for a complete preventive approach enveloping your whole body, tap into Cenegenics. A healthy body = a healthy mind. Based on solid science, our age management medicine protocols capture the attention of international media and are considered the next generation of medicine.

We begin with a highly comprehensive evaluation process, going far beyond your annual check up—undergoing assessments for your cognitive function, fitness level and lifestyle factors.

Cenegenics uses the diagnostic CNS Vital Signs Neurocognitive Assessment Battery, shown to provide precise, objective, valid, reliable and standardized data to help us evaluate your cognitive health. With it, we can detect subtle cognitive deficits, create a baseline of cognitive function (measure) and track subtle cognitive changes (monitor).

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Together, we'll create a customized program backed by the 21st century science that fuels age management medicine.

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