**Alzheimer’s Disease**

Alzheimer’s disease accounts for roughly 40 percent of all cases of senility and about half of the nursing home population in America. *(Lowell Ponte, in Reader’s Digest, February, 1985)*

I was a premed student at the State University of New York at Albany. Since my parents were both physicians, I had grown accustomed to people asking me for medical advice. One day while I was reading a newspaper, a friend asked, "How can I tell if I'm losing my memory?" Without looking up from my paper, I teased, "I explained that to you yesterday." *(Haroon Fiaz Choudhri, in Reader's Digest)*

**The price of a big brain: As humans get older, our brains shrink by about 15 percent, making us vulnerable to memory loss, dementia, and depression. But the brains of our closest relatives, chimpanzees, stay the same size throughout life, a new study has found. And while 50 percent of Americans over 85 suffer from Alzheimer’s, elderly chimps appear to have no similar problems. “The million dollar question” is why, study author Chet Sherwood, an evolutionary neuroanatomist at George Washington University, tells Science. Brain atrophy may be the cost humans pay for living longer and having more gray matter than other species do. Human brains are three times as big as chimps’ and require much more energy. And unlike chimps, humans far outlive their ability to give birth. Sherwood speculates that our longevity may have evolved in part to allow humans to help raise their children’s children, since big-brained human offspring mature very slowly. But he says a long life also stresses our neurons, which “have the odds really stacked against them after long years of high energy consumption.” *(The Week magazine, August 12, 2011)***

**Blood sugar and dementia: High blood sugar doesn’t just increase your risk of developing diabetes – it also increases your risk of developing dementia. Researchers tracked the blood glucose levels of more than 2,000 older adults for seven years and found that those who had high glucose levels – but not diabetes – were nearly 20 percent more likely to develop dementia than those with low levels. Among people with diabetes, those with the highest glucose levels were 40 percent more likely to develop Alzheimer’s disease or other forms of dementia than those with the lowest. Diabetes can damage the kidneys and other organs, but the findings show that the brain may be especially vulnerable to damage from elevated blood sugar levels – perhaps because the sugar causes inflammation in the tiny blood vessels of the brain. “Every incrementally higher glucose level was associated with a higher risk of dementia,” researcher Paul Crane of the University of Washington tells the Associated Press. To reduce the risk of diabetes and dementia, researchers said, people should eat a healthy diet, exercise regularly, and maintain a normal weight. *(The Week magazine, August 30, 2013)***

**A cure for Alzheimer's?: Alzheimer's disease could be prevented, and perhaps even cured, by boosting the brain's immune system, a new study suggests. In a study involving mice, Stanford University scientists have succeeded in reversing Alzheimer's-like symptoms with a drug that boosts microglia, cells that patrol the brain, clearing it of bacteria, viruses, and other harmful deposits. When microglia age, a protein called EP2 stops them from operating as efficiently -- resulting in the damaged nerve cells associated with Alzheimer's. Researchers found that by blocking EP2's activity, they can enable the microglia to function normally again. When they genetically engineered mice not to produce any EP2, the rodents didn't develop any signs of Alzheimer's; similarly, when researchers blocked the protein in mice that already had the neurodegenerative disease, it reversed their memory decline and confusion. The team is now hoping to create a compound that blocks EP2 without producing any adverse side effects. "Microglia are the man's beat cops," Stanford University's Katrin Andreasson tells The Daily Telegraph (U.K.). "Our experiments show that keeping them on the right track counters memory loss and preserves healthy brain physiology." *(The Week magazine, December 26, 2014)***

**A new study by French researchers has found that people who delay retirement can reduce their risk of developing Alzheimer’s disease and other types of dementia. Scientists say each additional year of work can reduce the risk of getting dementia by 3.2 percent. *(CBSNews.com, as it appeared in The Week magazine, July 26, 2013)***

**A new study estimates that more than 500,000 Americans a year die of Alzheimer's -- six times the number recorded on death certificates. That would make the degenerative disease the third-largest cause of death, after heart disease and cancer. *(Newsday.com, as it appeared in The Week magazine, March 21, 2014)***

**Drugs linked to dementia: Some of the most common treatments for hay fever, bladder control, and insomnia may cause an increased risk of developing dementia, BBC.com reports. Researchers at the University of Washington tracked 3,434 seniors for eight years, carefully monitoring their use of so-called anticholinergic drugs, such as the sleep remedy Nytol and the antihistamines Benadryl and Piriton. During the study, 23 percent of the subjects developed some form of dementia, in most cases Alzheimer's disease. Those who took the highest doses of anticholinergic drugs -- around a fifth of which were bought without a prescription -- had a 54 percent higher risk of developing dementia and a 63 percent higher risk for Alzheimer's. The researchers said that an increased risk was apparent in those who took at least 10 mg/day of doxepin, a 4 mg/day of diphenhydramine, or 5 mg/day of oxybutynin -- common components in antidepressants, sleeping pills, and bladder control meds, respectively -- for more than three years. Study leader professor Shelly Gray advised patients to consult their doctors, but added that "health-care providers should regularly review their patients' drug regimens, including over-the-counter medications, to look for chances to use fewer anticholinergic medications at lower doses. *(The Week magazine, February 13, 2015)***

**Dementia’s earliest signs: Healthy people who are concerned about some lapses in their memory – like forgetting the plot of TV shows or getting lost in familiar places – may be picking up on early signs of dementia that their family members, friends, and doctors can’t yet detect. In one recent study, researchers found that people who were concerned about their memory were 56 percent more likely to be diagnosed with early-stage dementia than those who weren’t. And even among subjects who aced cognitive tests, the more memory trouble they reported having, the more beta amyloid – a protein linked to Alzheimer’s – was visible when researchers scanned their brains. “Years before a clinical diagnosis of Alzheimer’s disease, the individual may be the best judge that his or her memory isn’t what it used to be,” Rebecca Amariglio, a neurologist at Brigham and Women’s Hospital, tells NBC.com. Being able to identify Alzheimer’s symptoms earlier could allow researchers to test treatments to halt the disease’s progression. Most “senior moments,” however, are nothing to worry about. “Every time you forget someone’s name,” says Reisa Sperling, director of the Alzheimer’s center of Brigham, “you don’t need to go running to the doctor.” Symptoms that do appear worrisome include getting easily confused or becoming disoriented in familiar places. *(The Week magazine, August 9, 2013)***

**A dementia epidemic: Alzheimer’s and other forms of dementia are afflicting far more Americans than ever before. An alarming new report by the Alzheimer’s Association shows that one in three seniors have dementia when they die, and deaths from the disease increased nearly 70 percent between 2000 and 2010. “It’s an epidemic, it’s on the rise, and currently there is no way to delay it, prevent it, or cure it,” neuroscientist Maria Carrillo tells NPR.org. As deaths from diseases like cancer, AIDS, and stroke have declined, Alzheimer’s rates have risen because people are living longer. Some 5 million Americans now have Alzheimer’s or related dementia, and as baby boomers age, that figure is expected to jump to nearly 14 million by 2050. As “simply staggering” as those numbers are, says Francis Collins, dir4ector of the National Institutes of Health, funding for Alzheimer’s research still lags far behind the billions allocated for treating and curing AIDS, diabetes, heart disease, and cancer. Researchers say many people don’t realize that Alzheimer’s devastates the body – including lowering a person’s ability to fight infection – as well as the mind, making the disease not just disabling but deadly *(The Week magazine, April 5, 2013)***

**As the population ages and lives longer, dementia has become one of the country’s most expensive medical conditions, with $109 billion in direct medical costs in 2010, a new RAND study found. The medical cost of dementia exceeds that of both heart disease, at $102 billion, and cancer, at $72 billion. *(The Wall Street Journal, as it appeared in The Week magazine, April 19, 2013)***

**How fish can fight Alzheimer’s: Eating more fish – as long as it’s not fried – could help keep your mind sharp as you age. A new study found that 70-year-olds who ate at least one serving of fish per week had bigger brains after 10 years than those who didn’t; the difference was most marked in regions linked to learning and memory. Those with more gray matter were also only a fifth as likely to develop Alzheimer’s disease. The study backs previous research suggesting that a fish-heavy diet reduces the risk of dementia, but it’s “the first to establish a direct relationship between fish consumption, brain structure, and Alzheimer’s risk,” researcher Cyrus Raji, of the University of Pittsburgh Medical Center, tells WebMD.com. Many experts think the omega-3 fatty acids found in fish reduce the risk of Alzheimer’s by improving blood flow to the brain and preventing inflammation. But the new evidence that only baked and broiled fish proved beneficial suggests that “other factors” could be involved, says neurologist Richard Lipton of the Albert Einstein College of Medicine. Maybe it’s not the fish itself that offers protection but the tendency of people with healthy eating habits to “exercise more or eat less total calories.” *(The Week magazine, December 23, 2011)***

**Decoding Alzheimer's X factor: Many more women than men develop Alzheimer's disease, a phenomenon that scientists have in the past attributed to women's longer average life span. But news research may have uncovered a more significant reason: a specific gene variant for women that nearly doubles their risk of Alzheimer's. The variant, called ApoE4, is found in roughly 15 percent of the general population and nearly 50 percent of Alzheimer's patients and has long been thought to increase and has long been thought to increase risk for the disease equally in both sexes. But the new findings from a study of more than 8,000 subjects mostly ages 60 and older, found that male carriers of the ApoE4 gene were only slightly more likely to develop Alzheimer's, while its presence increased women's chances some 1.8 times. "Even after correcting for age, women's appear to be a greater risk," Michael Greicius, head of the Stanford Center for Memory Disorders, tells NPR.com. Women account for nearly two thirds, of the 5 million Americans suffering from Alzheimer's, and while more research is needed to pinpoint the cause of the discrepancy, understanding how Alzheimer's differs between the sexes may lead to new, gender-specific drugs and preventive treatments. *(The Week magazine, May 2, 2014)***

**Alzheimer’s genes identified: The largest genetic analysis of Alzheimer’s disease ever conducted has indeed 11 new genes to the disorder, opening promising new areas for research. “Each gene we implicate in the disease process adds new knowledge to our understanding,” Boston University geneticist Lindsay Farrer tells ScienceDaily.com. The study, a collaborative effort by four research consortia in the U.S. and Europe, examined the DNA of more than 74,000 older volunteers, some with Alzheimer’s and some without, across 15 countries. Researchers were especially intrigued to have found a link between Alzheimer’s and a region of the genome that’s known to regulate the body’s immune system, and that has previously been associated with two other neuro-degenerative diseases: multiple sclerosis and Parkinson’s disease. Farrer says the findings advance the prospect of gene therapies to fight Alzheimer’s. “Ultimately these approaches may be more effective in halting the disease,” he says, “since genes are expressed long before clinical symptoms appear and brain damage occurs. *(The Week magazine, November 15, 2013)***

**Hearing loss linked to dementia: Losing your hearing raises the risk that you’ll develop dementia, a new study finds. Researchers at John Hopkins Hospital tested the hearing of more than 600 mentally sharp adults between the ages of 36 to 90, and then tracked them over 15 years. They found that a loss of hearing was accompanied by a much higher likelihood of developing Alzheimer’s or another form of dementia. Every 10 decibels of hearing lost made participants 20 percent likelier to develop cognitive problems. Subjects who lost nearly all their hearing were five times more likely to develop dementia. Study author Frank R. Lin tells Health.com that he and his colleagues aren’t yet sure how to explain the link, but they say it’s possible hearing loss is a cause rather than just a symptom. Hearing difficulties may push people to become socially isolated – which has itself been tied to dementia – or strain the brain’s ability to process other sensory information. So could hearing aids and other treatments help ward off mental decline? For the 30 million Americans with hearing impairment, Lin says, that’s the “50-billion-dollar question.” *(The Week magazine, March 4, 2011)***

**New hope for Alzheimer’s: Alzheimer’s disease strikes one in eight Americans over age 65, but scientists still know little about its causes and have yet to develop an effective treatment. Now two studies, the largest ever to examine the complex disease, have identified five genes linked to Alzheimer’s onset – providing new insight into why the disease develops and clues on how to slow or block its progress. “I’ve been in Alzheimer’s genetics since 1985, and I would have to say this is the most exciting event that’s happened,” lead author Gerard D. Schellenberg of the University of Pennsylvania tells USA Today. More than 100 scientists from the United States and Europe pooled data to analyze the genes of 11,000 dementia sufferers and 43,000 healthy individuals – an unprecedented sample size. They found that dementia was related to the presence of five newly discovered genes, which affect cholesterol levels, the movement of fat inside cells, and inflammation. The presence of any one of the genes increases a person’s risk of developing Alzheimer’s by 10 to 15 percent. Figuring out how the 10 genes linked to the disease thus far affect the brain, researchers say, could lead to new drug treatments within the next decade. “We still have a long way to go,” said Cardiff University researcher Julie Williams, “but the jigsaw is beginning to come together.” *(The Week magazine, April 22, 2011)***

**One lady says to another: “I remember talking with Lillian shortly after Lucy had been diagnosed with Alzheimer’s. Lucy will become more forgetful and confused, but she’s been like that her whole life. It’s hard to know where Lucy ends and the Alzheimer’s begins.” *(Tom Batiuk & Chuck Ayers, in Crankshaft comic strip)***

**New research is confirming and expanding an idea long held by those who work with dementia patients: Music can not only improve the mood of people with neurological diseases, it can boost cognitive skills and reduce the need for antipsychotic drugs. Music therapists who work with Alzheimer's patients describe seeing people "wake up" when the sounds of loved and familiar music fills their heads. Often, after months or even years of not speaking at all, they begin to talk again, become more social and seem more engaged by their surroundings. Some begin to remember names long forgotten. Some even do what Alzheimer's patients often cannot do as their disease worsens: They remember who they are. *(Mary Ellen Geist, in AARP Bulletin, July/August, 2015)***

**A pathway to lost memories? Raising hopes that dementia could one day be reversed, scientists have discovered a way to re-create key neurons that die off in the early stages of Alzheimer’s disease. After testing millions of embryonic stem cells for six years, researchers at Northwestern University have unlocked the genetic coded that allows them to transform stem and skin cells into basal forebrain cholinergic neurons. When the disease destroys these neurons, patients lose access to their memories, but they don’t actually lose the memories themselves. Researchers implanted lab-generated BFC cells into mice and observed that they build memory pathways just as normal neurons do. That opens the prospect that transplanting such cells into the brains of human Alzheimer’s patients could restore their mental function. The research “could have an impact in the next couple of years,” William Thies, chief medical and scientific officer of the Alzheimer’s Association, tells HealthDay.com, as the ability to create BFC cells allows researchers “to much more rapidly test new therapies.” *(The Week magazine, March 25, 2011)***

**Preventing Alzheimer’s: There’s no cure in sight for the 5 million Americans suffering from Alzheimer’s disease. But a new study has found that it’s possible to greatly reduce your chances of developing the disease by lifestyle choices. The study, by the Mayo Clinic, found that seven known risk factors contribute to up to half of Alzheimer’s cases worldwide. For Americans, the single biggest risk factor is physical inactivity, which the study linked to 21 percent of U.S. Alzheimer’s cases. Depression accounts for another 15 percent, and smoking for 11 percent. Globally, lack of education is the greatest risk factor, with a link to 19 percent of cases; scientists say minds that are not active and engaged in learning are more susceptible to the disease. The findings contradict the widespread belief that Alzheimer’s is a predetermined genetic fate. Worldwide dementia rates are expected to triple over the next 40 years, as seniors make up an increasingly large proportion of the global population. Researcher Deborah Barnes of the University of California at San Francisco tells the Associated Press that the study provides hope that we can slow “the epidemic that is coming our way.” *(The Week magazine, August 5, 2011)***

**A protein that fights dementia: A mechanism that protects the brains of animals during hibernation could provide a key for treating and preventing Alzheimer's disease and other forms of dementia. British scientists cooled the body temperatures of dormice to 60 to 64 degrees, and isolated proteins that are released in the brains during "cold shock." These proteins, including a critical one called RBM3, protect the brain during hibernation and rebuild synapses when the animal returns to normal body temperature. The researchers found that artificially boosting RBM3 levels in mice prevented Alzheimer's -like symptoms. Humans also have RBM3 in the brain, but in people with Alzheimer's, it is either absent or doesn't work. Lead researcher Giovanna Mallucci tells FoxNews.com that the findings open the possibility of developing a drug or process that stimulates RBM3 in humans and "mimics the protective effects of cold on the brain." *(The Week magazine, January 30, 2015)***

**Why dementia rates are declining: The older that an individual will develop Alzheimer’s or dementia are falling, new research suggests – even though the number of U.S. cases is predicted to triple by 2050 as the huge Baby Boomer generation ages. One large study in England and Wales found that dementia rates have dropped 25 percent over the past two decades – a trend that epidemiologists say likely holds true in other developed countries, too. Another study, this one in Denmark, found that people reaching their 90s now are mentally sharper than those who turned 90 a decade ago, suggesting that “more people are living to older ages with better overall functioning,” University of Southern Denmark epidemiologist Kaare Christensen tells BBCNews.com. Researchers believe that the mental condition of the elderly has improved because more people are going to school longer than in generations past, and education seems to help protect against cognitive decline. More people are also receiving treatment for high blood presence and cholesterol, causing fewer of them to suffer from dementia caused by small strokes. “Aging is malleable,” says Marcel Olde Rikkert of Radboud University in the Netherlands. “People, their lifestyles, and their environments can contribute a lot to the way they age.” *(The Week magazine, August 2, 2013)***

**Senior moments explained: As we get older, the odds increase that we’ll blank on where we put the car keys or what we’re looking for in the fridge. But such “senior moments” aren’t exactly a memory problem. Rather, they are evidence of a glitch in “how brain networks switch between tasks,” neuroscientist Adam Gazzaley tells LiveScience.com. He and colleagues at the University of California, San Francisco, compared the brains of seniors in their 60s and 70s to those of volunteers in their 20s by having them play two memory games. The two groups performed almost equally well when asked to look at a picture of a field or a forest, keep it in mind for 15 seconds, and then say whether it matched a second photo. But when researchers interrupted the two landscapes with a picture of a face, the seniors proved much less capable of matching the scenes. Scans of their brains showed that they were slow to stop processing the face and re-engage in landscape analysis – tasks handled by different parts of the brain. Understanding how the glitch works could allow scientists to devise brain-training programs to help older people multitask better – especially now that portable gadgets can distract seniors when they’re driving or crossing the street. *(The Week magazine, April 29, 2011)***

**A sniff test for Alzheimer's?: Alzheimer's disease is notoriously difficult to diagnose in its early stages, but a new test appears able to confirm the disorder with nothing more than a ruler and spoonful of peanut butter. Researchers at the University of Florida tested 94 patients, 18 of whom had already been diagnosed with early-stage Alzheimer's, by measuring how close a dollop of peanut butter had to be for them to smell it, one nostril at a time. They found that all of the known Alzheimer's patients were far less able to smell the peanut butter with their left nostrils than with their right. "There was a big asymmetry there," researcher Jennifer Stamps tells The Daily Mail (U.K.). A degraded sense of smell is known to be a symptom of Alzheimer's, which generally affects the left side of the brain first. (In contrast to the processing of other senses, the left side of the brain interprets smells detected by the left nostril.) Stamps says that a broader study is a needed to determine whether the sniff test can actually diagnose early Alzheimer's and urges the public, not to try it at home: Many people's nostrils have varied sensitivity for a host of other reasons, and a self-administered test could raise baseless alarm. *(The Week magazine, November 1, 2013)***

**Stress’s link to dementia: Experiencing stressful events in midlife makes you more likely to develop dementia later, BBCNews.com reports. Swedish researchers recruited 800 middle-aged women ages 38 and up and followed them for nearly 40 years, checking in to see whether they experienced any stressful life events – such as divorce, the death of a spouse, caring for a sick relative, or unemployment. They found that for every stressful event the women faced in midlife, their risk of developing Alzheimer’s disease increased by 20 percent – regardless of how well they appeared to cope with the setbacks. Experts say the findings probably also hold true for men. “This is the best evidence by far to date linking psycho-social stressors with dementia,” says Robert S. Wilson, an Alzheimer’s researcher at Rush University Medical Center. Previous research has suggested that stress hormones could contribute to the buildup of proteins that are found in the brains of people with dementia. Wilson says the findings suggest that stress reduction techniques should become part of routine health care. *(The Week magazine, October 25, 2013)***

**Tracking Alzheimer’s Disease: In a discovery that opens new prospects for treating Alzheimer’s, scientists have learned that the disease spreads through the brain like an infection. But instead of a virus or bacteria, what advances through the brain’s neural pathways is an abnormal form of protein called tau, which forms tangled clumps that strangle brain cells. Two separate teams of researchers charted that process by genetically engineering mice to produce human tau protein – a known marker of the disease – in a part of the brain called the entorhinal cortex. Because the human tau didn’t naturally appear elsewhere in the mouse brains, the researchers were able to trace its diffusion through the neural network over the course of 22 months. Abnormal tau and beta-amyloid, another protein linked to Alzheimer’s, generally appear first in the entorhinal cortex, but it’s only when they turn up elsewhere that symptoms of dementia occur. So if scientists can find a way to stop the tau from spreading, Columbia University pathologist Karen Duff told Bloomberg.com, “there may be an intervention point that might prevent dementia.” *(The Week magazine, February 17, 2012)***

**Virtue, goes the old saying, is its own reward. But a new study has found that self-disciplined, highly organized people get a bonus: They’re less susceptible to Alzheimer’s disease. The study which looked at how personality and behavior may affect the incidence of Alzheimer’s, began with a personality survey of 997 healthy but elderly Catholic nuns and priests in the Chicago area. Researchers then tracked their mental states between the years 1994 and 2006. Nuns and priests who received a high score for “consciousness” were 89 percent less likely to develop Alzheimer’s-type dementia than their less-meticulous peers. “These are people who control impulses, and tend to follow norms and rules,” study author Robert Wilson tells New Scientist. Curiously, autopsies on the subjects who died during the study found no reduced incidence of Alzheimer’s brain plaques among those with conscientious personalities; in fact, researchers found that the brains of the various personality types showed equal rates of tangled proteins associated with the disease. Wilson suggests that the difference may be in the way that disciplined people use their brains – they’re more likely to think with their frontal lobes. Using this part of the brain, which is responsible for decision-making and planning, may make one less vulnerable to impaired thinking caused by lesions in other areas, he says. *(The Week magazine, October 19, 2007)***

**Warding off dementia: Just getting out of the house is enough to cut in half your odds of developing Alzheimer’s disease. That’s the heartening conclusion of researchers at the Rush Alzheimer’s Disease Center after they tracked a group of more than 1,000 initially healthy seniors over five years. They found that those who participated in social activities – like lunching with friends, volunteering, or going to church – were 50 percent less likely to develop signs of dementia; the most outgoing seniors reduced their risk by 75 percent. While becoming housebound has long been linked to cognitive decline, scientists hadn’t been sure whether that was just because memory loss makes seniors feel less like going out. Study author Bryan James tells LiveScience.com that his findings suggest it’s the other way around – “that social inactivity itself leads to cognitive impairments.” People who never leave their comfort zones “aren’t engaging with their environment and meeting new people,” he says. “They may not be using their minds as much.” Interacting with others may be a kind of mental exercise that keeps the brain fit. As James puts it, you can either choose to give your mind a regular workout “or lose it.” *(The Week magazine, May 13, 2011)***

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