

## **James L. Holly, M.D.**

### **Alzheimer's Disease: Is There Anything You can Do?**

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**Your Life Your Health**

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All of my father's brothers and sisters are still alive. They are all in reasonably good health well into their mid eighties. That's such good news. What a blessing a good family history is for one's own health prospects. Yet, there is a cloud looming over this long-lived and healthy family. It is Alzheimer's. Several members of that generation have begun to be affected by significant signs and symptoms of Alzheimer's. Is it inevitable that we all face the possibility of living longer but not knowing those we love and care about? Is there anything we can do? This discussion is not directed at those who have Alzheimer's but at those who may develop it, as they age. What can be done, based on current information, to decrease your probability of living beyond your memory of life?

Alzheimer's is a degenerative brain disease that causes memory loss, disorientation, depression and decay of bodily functions. The disease afflicts about 12 million people worldwide, including more than 4 million Americans. It is increasing so fast that more than 22 million people worldwide will be affected by 2025, experts predict. Alzheimer's statistics paint a grim picture: Half of all nursing home patients and half of all people over the age of 85 probably have it, and it's the 4th leading cause of death in adults. Unless more effective preventive measures and treatments are discovered, over 8 million Americans could have Alzheimer's by the middle of the next century.

The human and monetary cost, already in the tens of billions will skyrocket. Add to this number tens of millions more victims in Europe and Asia and a true health catastrophe is unfolding before us.

### **Alzheimer's and Lifestyle – A Possible Connection**

Over the last few years, as hints of a connection between Alzheimer's and lifestyle have emerged, scientists have become increasingly interested in investigating such a link and are just now beginning to realize that what is good for the heart may also be good for the brain. Mounting evidence indicates the risk factors for heart disease — high blood pressure, diabetes, excess weight, high cholesterol and lack of exercise — also may play a role in Alzheimer's disease.

Scientists do not know what causes the sticky brain deposits — the beta-amyloid deposits -- that inevitably kill off brain cells until memory disintegrates and ultimately the patient dies. The biggest risk for Alzheimer's is simply age: Alzheimer's cases double with every five years of age between 65 and 85.

Many Alzheimer's researchers would agree with the statement, "we're seeing the strongest

evidence yet that there is a relationship between healthy aging and a reduced risk of Alzheimer's." Several studies presented at the recent International Conference on Alzheimer's Disease and Related Disorders indicated that people may be able to reduce their chances of developing Alzheimer's by simply treating high blood pressure. One 21-year study, by Miia Kivipelto of the University of Kuopio in Finland, examined 1,449 people. It found that the high cholesterol and high blood pressure seemed to be more strongly linked to the risk of developing Alzheimer's than was a certain gene variation. .

Therefore, the first thing you can do to decrease your risk of developing Alzheimer's is to control your blood pressure, control your weight, exercise and control your blood sugar.

### **Controlling Cholesterol – Decreasing Risk of Alzheimer's Disease**

A growing body of medical literature is suggesting that taking cholesterol-lowering drugs could reduce the chances of developing Alzheimer's. A study by Dr. Robert Green at Boston University School of Medicine found that people taking cholesterol drugs called statins reduced their risk of developing Alzheimer's by 79%. With 2,378 patients, it is the largest study to investigate the connection and the first to include large numbers of African-Americans, who are disproportionately likely to develop Alzheimer's. The study also found that types of cholesterol-lowering drugs other than statins were not linked with a reduced risk of Alzheimer's.

High cholesterol can narrow the arteries and raise the risk of heart disease. Some researchers think high cholesterol may also affect brain arteries and promote the clumping of the protein beta-amyloid, which is thought to damage the brain in Alzheimer's.

Beta-amyloid occurs normally in the body, but can accumulate in the spaces between brain cells and create plaques in the brain. These plaques are linked to the death of brain cells, causing a gradual loss of memory and control of body function, and leading eventually to death. By the time a patient has noticeable symptoms of Alzheimer's, substantial amounts of amyloid have built up in the brain.

A study at St. George's Medical School in London found statins dramatically reduced the production of beta-amyloid. That study concluded, "The small amounts of beta-amyloid normally found in the blood of healthy people are quickly cleared from the brain. In the general population, people taking statins to reduce their blood cholesterol, for whatever reason, have a 70 percent reduction rate for Alzheimer's."

Statins are not to be taken carelessly. It is as yet unclear whether there is a direct affect to taking a statin and the reduced risk of Alzheimer's, or if the benefit is totally dependent upon the indirect affect of lowering cholesterol.

Nonetheless, the second thing you can do is to decrease your cholesterol. Again, this is not by taking a “magic pill,” but by:

1. Moderating your diet
2. Increasing your exercise
3. Controlling your blood sugar
4. Regularly checking your cholesterol

### **Blocking the formation of Beta-Amyloid Formation**

Advances in the understanding of how beta-amyloid acts have prompted researchers to focus much of their effort on trying to block plaque formation. There is hope that this research may result in a vaccine which will prevent beta-amyloid accumulation.

Other research is looking at populations in the world with very low incidences of Alzheimer’s and attempting to identify potential causes for that low incidence. One such study has focused on the Indian population. Elderly individuals, living in Indian villages have the lowest incidence of Alzheimer’s in the world with just 1% of those aged 65 and old contracting the degenerative brain condition. The reason for this is unclear. It is possible that the family structure, life style and other social structures could contribute to this, but one researcher is looking at curcumin.

The Indian diet is rich in curcumin -- a compound found in the curry spice turmeric. Because Alzheimer's disease is characterized by the buildup of amyloid protein “plaques” within the brain, it is important to try to find effective ways to prevent that buildup. In studies in rats, curcumin not only reduces the amyloid, but also reduces the (brain's) response to the amyloid, Dr. Sally Frautschy of the University of California, Los Angeles speculated that curcumin found in curry could provide a clue to this puzzle since the compound has “a long history of dietary and herbal medicinal use” and is also a powerful antioxidant and anti-inflammatory agent.

Frautschy fed middle-aged (9 months old) and aged (22 months old) rats diets rich in curcumin. All of the rats had received brain injections of amyloid to mimic progressive Alzheimer's disease. Curcumin reduced the accumulation of beta-amyloid and the associated loss of proteins' in the synapses, or gaps, between individual brain cells, Frautschy reported. Synapses connect nerve cells and are crucial for memory. Keeping synapses free of plaque is important because “their loss correlates well with memory decline in Alzheimer's.” Curcumin also appeared to reduce Alzheimer's-related inflammation in neurologic tissue. Because “a combined anti-inflammatory and antioxidant approach will be useful for Alzheimer's prevention or treatment,” Frautschy speculates that curcumin could be especially valuable in the fight against the disease, especially in combination with anti-inflammatory drugs like ibuprofen.

As with all supplements, it is as yet unclear whether taking “pills” with extracts and pharmacological preparations of these natural-occurring substances will have the same beneficial results which are suspected from their being consumed in the regular diet. Yet, the growing evidence is such that it warrants changing your diet and supplementing an excellent

diet with antioxidants and anti-inflammatory medications.

Within my children's lifetime, there will be new and exciting treatments for Alzheimer's. At present, the best we can do is what we have discussed above and below.

### **Dementia and Antioxidants**

According to *The Journal of the American Medical Association (JAMA)*, the most important thing you can do to minimize your risk of Alzheimer's is to put "broccoli quiche, peanut butter toast, and orange juice on the breakfast table." A diet rich in vitamins C and E – not vitamin supplements – seems to prevent Alzheimer's disease according to several new studies. A growing body of evidence points to damage from free radicals as the cause of Alzheimer's disease. Free radicals -- byproducts of our bodies' normal functions -- can cause damage to cells, leading to cancer, heart disease, and other illnesses.

Antioxidant nutrients such as vitamin E, vitamin C, and beta carotene are among the body's natural defense mechanisms against this damage. Important sources of vitamin E are grains, nuts, milk, and egg yolk. Vitamin C is mainly found in citrus fruits, kiwi, sprouts, broccoli, and cabbage. Beta carotene is found in kale, carrots, broccoli, and spinach.

The first study reported in *JAMA* followed more than 5,000 men and women -- all at least 55 years old -- for an average of six years. None had any signs of dementia at the beginning of the study. Six years later, 197 had developed dementia; 146 of them had Alzheimer's disease. Dr. Marianne J. Englebert observed, "High intake of vitamin C and vitamin E was associated with lower risk of Alzheimer's disease." Among smokers, this relationship was most pronounced; for them, beta carotene and Flavanoids (found in grape seeds and grape seed extract) -- another type of antioxidant -- also seemed to have a protective effect. Those with genetic predisposition for Alzheimer's did not get any more or less protection from the vitamins.

*JAMA* concluded that these studies "do not provide the final answer to whether antioxidant vitamins are truly protective against Alzheimer's... Nonetheless, the idea that vitamin E and vitamin C might have beneficial effects on the underlying [disease] process makes sense, and it seems unlikely that antioxidant-rich foods would negatively affect brain aging."

The journal *Neurology* published a communication which addressed the use of antioxidants in the prevention of dementia. While the study focused on "vascular dementia," similar benefits, and greater benefits may be present in the prevention of Alzheimer's dementia. This study suggests that vitamin C and vitamin E supplement use may reduce the risk of certain types of mental deterioration (dementia). But the study also suggests that popping antioxidant pills alone isn't enough to protect the brain from damage.

In the study, men who reported taking both Vitamins C and E had an 88% lower risk of vascular dementia than those who took neither supplement. While long-term supplement use didn't reduce the stroke risk, the study suggested that long-term antioxidant use may prevent brain damage when a stroke occurs. The study hints that vitamins C and E may protect

against dementia in general.

### **Conclusion:**

All the evidence is not in about Alzheimer's and the treatment of the disease will change in the future, but at present we can confidently say that even if you have a strong family history of Alzheimer's Disease, if you will do the following, you will be doing a great deal to avoid this devastating illness:

1. Control your weight
2. Increase your exercise
3. Eat lots of vegetables, particularly broccoli and particularly steamed without cheese spreads
4. Control your blood pressure
5. Control your cholesterol – get your LDL below 70 (this is aggressive treatment but the long-term benefits will be great)
6. Control your blood sugar
7. Consider taking a complex antioxidant supplement which has a combination of Vitamin E, Vitamin C, beta-carotene, Flavanoids, CoQ 10 and other beneficial substances. Consider beginning to drink two to four cups of unsweetened green tea a day.

When should you start these measures? At the age of five years you should be attentive to the first three, and, at the age of twenty, you should practice all seven. It is not unreasonable to even start children at the age of two years on an antioxidant supplement appropriate for their age. Of course, no pill will substitute for a diet low in Pizza, fast foods and sweets.

Perhaps the most important thing you can do to avoid Alzheimer's is to stay intimately connected with your family, your friends, and your faith. If you do all of these things, even if you develop Alzheimer's you will have the support you need and you will have done all that you can do to decrease your probability of developing this dreaded disease. Remember, it is your life and it is your health.