

# **Naturopathic Prevention and Treatment of Cognitive Decline**

## **The Human Toll of Cognitive Decline and Dementia**

Cognition is our most unique characteristic. Our capacity for learning, recall, language, and judgment are what make us human. Decline in cognitive function is one of the most feared disorders of aging. Mild forms of cognitive decline may be indiscernible in the initial stages. However, if precipitating factors aren't addressed, progression can lead to severe and irreversible impairments in memory and changes in personality that render one incapable of social independence and unable to care for oneself. Alzheimer's disease represents the most common and severe form of dementia. Currently, five million Americans suffer from Alzheimer's. Of those 85 years and older, half are afflicted and the rate is expected to climb to 13.4 million by 2050. Total Medicare spending for persons with Alzheimer's disease in 2005 was estimated at \$91 billion according to the Centers for Disease Control.

## **Cognitive Dysfunction is not a "Normal" Part of Aging**

Research suggests that genetics and family history play a roll in dementia risk. The most important risk factor for dementia is advancing age. Alzheimer's usually begins at age 60 with the risk increasing with age. In spite of age and genetics, cognitive decline with progression to dementia is avoidable. Science does not support that cognitive dysfunction is a norm for aging, and according to the CDC "...Alzheimer's disease is not a normal part of aging." To the contrary, researchers are finding that dementia is preventable and to some extent, even reversible. Early intervention provides great opportunity to prevent cognitive decline and progression to dementia. Controlling oxidative stress and inflammation may be the most important measure to directly protect cognition.

## **Treating Cognitive Dysfunction and Dementia**

- Blood sugar and blood pressure control
- Getting adequate sleep
- Stress management and reduction
- Avoidance and detoxification/chelation from environmental toxins
- Antioxidant rich diet and supplementation
- Essential fatty acids supplementation
- Anti-inflammatory diet
- Avoiding high fructose corn syrup, trans-fatty acids, and excessive sugar

## **Inflammation and Oxidation: the Evil Twins**

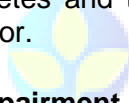
Composed largely of polyunsaturated lipid molecules and lacking high levels of antioxidants, the brain is susceptible to destruction. Inflammation and oxidative stress are pathological processes involved in cardiovascular, and neurological diseases, and diabetes. Researchers have found that oxidative stress and inflammation contribute significantly to age-related cognitive and behavioral decline. These evil twins leave a path of structural changes and faulty cellular communication within the brain and nervous system.

## **Dampening Neuro-inflammation and Oxidative Stress**

With good reason, those with an eye on preventing the negative effects of oxidation and inflammation look to the powerful antioxidant chemicals found in plant foods. Plant foods representing a rainbow of colors provide the rich variance and content of antioxidants and anti-inflammatory chemicals to quench free radicals and cool inflammation. One such class of chemicals is polyphenols. People who consume higher levels of polyphenols are believed to have lower rates of Alzheimer's disease. Researchers found that those who consumed grape seed extract had reduced deposits of the characteristic amyloid-beta proteins characteristic of Alzheimer's along with the typical cellular injury resulting from these deposits. High levels of these polyphenols are found in blueberries and the seeds and skins of grapes. What's more, investigators published in the journal, *Rejuvenation Research* 2006, that the polyphenols from blueberries can even prevent the formation of the amyloid-beta protein.

## **Diabetes, AGEs and Alzheimer's**

Advanced glycation end products is a form of cellular damage acquired from uncontrolled blood sugar. These AGEs are what ultimately lead to many of the complications seen in diabetes, such as cardiovascular changes, along with pain, tingling and numbness of the hands and feet. AGEs have now been found in higher levels in the brains of patients who died from Alzheimer's. Other findings show that diabetics with the poorest blood sugar control are more likely to develop dementia. These findings corroborate earlier reports linking diabetes to Alzheimer's. The authors of one study concluded that having diabetes nearly doubled the risk of dementia. Naturopathic approaches to treating diabetes and tightly managing blood sugar are effective ways to eradicate this preventable risk factor.



## **Environmental Toxins and Cognitive Impairment**

Chemical toxins from medications and the environment are strictly regulated by a specialized system of cells in the brain called the blood brain barrier. However, the BBB is not impenetrable as some chemicals such as organophosphate pesticides can increase its permeability. Organophosphate pesticide-poisoned persons show abnormalities of memory, cognition, mood and motor reflexes and slower reaction times. With many environmental chemicals being lipid soluble such as solvents and heavy metals, the brain can become a repository for stored toxins. The brain's increased susceptibility to oxidation damage heightens the vulnerability. Specific mechanisms for chemical damage to brain cells are as varied as there are toxins, but all affects can lead to cognitive dysfunction and if not addressed, dementia.

For instance, mercury depletes the antioxidants glutathione and selenium, and damages mitochondria causing cellular death at even low levels. Mercury also inhibits uptake of the neurotransmitters dopamine, serotonin and norepinephrine. Post-mortem studies on Alzheimer's sufferers show higher levels of mercury in the brain than non-sufferers. Lead adversely affects the brain as well. Lead easily crosses the BBB affecting learning and memory. Exposure can lead to permanent learning disabilities, seizures, coma and death. Exposure to diesel exhaust is linked to memory loss, impairment in cognition, balance, reflex, vision and disturbed sleep. A personal history of heavy metal contamination should lead to the consideration of testing and chelation therapy.

## **Supplementation in Cognitive Dysfunction**

Glycerophosphocholine is capable of increasing the production of acetylcholine and increasing the neurotransmitter GABA. Supplementation with phosphatidylserine prevents cerebral free radicals, inflammation and also improves cognition. Other supplements useful in cognitive dysfunction include the Ayurvedic botanical *Bacopa monniera*, often called Brahmi, alpha lipoic acid, DHEA and Ashwagandha.

Of course, when treating cognitive dysfunction, supplementation should not be relied upon alone. Treating all potential risk factors such as diabetes, systemic inflammation, lowering free radical oxidation, avoidance and cleansing from environmental toxins and treating cognitive dysfunction early holds the most promise in protecting against cognitive deterioration. With a naturopathic approach, risk factors for cognitive dysfunction and dementia can be remedied to restore cognition.

