Preserving Cognitive Function with Lignans

by Christine Horner, MD

Menopause is a natural transition of life. If a woman is in balance she will easily glide through it. But if her eating habits and lifestyle choices have been poor, the resulting accumulative imbalances will manifest as a myriad of aggravating symptoms. Insomnia, hot flashes, bloating, mood swings, and mental "fogginess" are some of the most common complaints. With time, these imbalances may lead to serious chronic disorders such as high blood pressure, heart disease, and dementia. But all of these symptoms and conditions may be avoided with the right food and lifestyle selections. For example, research shows that consuming plenty of lignans—powerful health-promoting substances found in certain plants, especially flax seeds and also in the all-natural lignan supplement called **Brevail®**—can help to alleviate most menopausal symptoms and prevent many of the chronic disorders associated with aging such as osteoporosis, cardiovascular diseases, diabetes, obesity, cancer, and dementia.

Dementia and Lignans

Let's take a close look at just one of those conditions—dementia—to appreciate the many ways that lignans can help you to avert common age-related health disasters. Statistically, women have a higher incidence of dementia than men. The risk of dementia and Alzheimer's disease increases rapidly with age. The Alzheimer's Association reports that after age 65, the percentage of people with these degenerative brain disorders almost doubles every 5 years. Of people aged 85 and older, almost 50 percent suffer with dementia. According to researchers at the Julius Center for Health Sciences and Primary Care in Utrecht, The Netherlands, consuming lignans could help to preserve cognitive function in postmenopausal women and decrease their risk of developing Alzheimer's disease. In a study published in the *Journal of Nutrition* in May of this year *(Franco, O.H., et al, Higher dietary intake of lignans is associated with better cognitive performance in postmenopausal women. J Nutr. 2005 May;135(5):1190-5),* 394 postmenopausal women were surveyed to determine their lignan intake and cognitive function. Their lignan intake was calculated from a validated frequent food questionnaire and their cognitive function was evaluated using a standardized test known as the Mini-Mental State Examination (MMSE). The researchers found that postmenopausal women who consumed higher dietary amounts of lignans had better cognitive function.

Lignans and Risk Factors for Dementia

There are several properties of lignans that may help to explain why they may be effective at preserving cognitive function. Cognitive decline is more common in people have a history of heart disease, strokes, diabetes, high blood pressure and cholesterol, and inflammatory conditions. A study published in the journal *Neurology* in the January 25, 2005 issue found that the likelihood of developing dementia was higher by 46% in those with diabetes, 42% with high cholesterol, 26% with a history of smoking, and 24% with high blood pressure. If someone had two of these conditions their risk was 70% higher and if they had 3 or more, they were twice as likely to develop dementia. Research shows that lignans are effective at lowering most of the risk factors for dementia. For instance, a 2004 study published in the *Journal of Hypertension* found that postmenopausal women who consumed

high levels of lignans had statistically significant lower blood pressure and incidence of hypertension. Several other studies point out that lignans also help to prevent blockages in arteries—the cause of most heart attacks and strokes. *(Owen AJ et al. Regulation of low-density lipoprotein receptor activity by estrogen and phytoestrogen in HepG2 cell model. Ann Nutr Metab. 2004;48(4):269-75 Epub 2004 Aug 25) (Prasad K. Dietary flax seed in prevention of hypercholesterolemic atherosclerosis. Atherosclerosis. 1997 Jul 11;132(1):69-76)*. In addition, lignans lower total cholesterol and LDL (the "bad" kind of cholesterol) and raise HDL (the "good kind of cholesterol). *(Samman S, et al. The effect of supplementation with isoflavones on plasma lipids and oxidisability of low density lipoprotein in premenopausal women. Atherosclerosis. 1999 Dec;147(2):277-83)*

Lignans may help to protect against diabetes too. Type 2 diabetes, the most common type of diabetes, is associated with abnormalities in blood glucose levels due to insulin resistance of the cells. A study published in *The American Journal of Clinical Nutrition* in 2002 reported that lignans improve glucose levels and insulin resistance. *(Bhathena SJ, Velasquez MT. Beneficial role of dietary phytoestrogens in obesity and diabetes. Am J Clin Nutr. 2002 Dec;76(6):1191-201)*

Another well-known contributing factor to dementia is damage to brain cells caused by oxygen free radicals. Oxygen free radicals are unstable molecules of oxygen created as a normal by product of cellular metabolism. We need them to drive every chemical reaction in our body. But, if there are excess amounts of them they can damage cell membranes and DNA, including that in our brain tissue. Pollution, stress, alcohol, and lack of rest are common causes of oxygen free radical overload. Antioxidants neutralize these destructive molecules. Lignans happen to be excellent antioxidants and according to a study published in the journal *Free Radical Biology and Medicine* in 1992, they are very effective at protecting against the free radical damage to the brain that normally occurs with aging. *(Xue JY et al. Antioxidant activity of two dibenzocyclooctene lignans on the aged and ischemic brain in rats. Free Radic Biol Med. 1992;12(2):127-35).*

The final factor correlated with an increased incidence of dementia is inflammation—and lignans can help thwart this too. A study published in 2003 in the *Journal of Ethnopharmacology* in 2003 conducted at Gazi University in Ankara, Turkey revealed that lignans have strong anti-inflammatory effects.

Dementia is a tragic and devastating disorder that occurs all too often with old age. Genetics does play a role, but there is much you can do to lower your risk of developing it. As Leon Eldred said, "*If I'd known I was going to live so long, I'd have taken better care of myself.* Chances are, you'll live a long life too—so take good care of yourself and protect yourself against dementia by eating plenty of fresh organically grown vegetables, fruits, and whole grains; exercising regularly; keeping your brain stimulated with new information; avoiding toxins, especially smoking; the daily practice of an effective stress-reducing technique such as meditation; and consuming plenty of lignan-rich foods or taking the lignan supplement **Brevail**.