

# Alzheimer's Care Group



## **More Leptin May Mean Less Alzheimer's Study Shows High Levels of the Hormone Linked to Lower Rates of Alzheimer's Disease**

Could a hormone responsible for regulating hunger and weight be the future of early diagnosis and treatment of Alzheimer's disease? Some researchers believe so. The following *WebMD* article highlights the research findings and potential promise of a new pilot study on *leptin* and its relationship to Alzheimer's.

Dec. 15, 2009 -- High levels of the energy-regulating hormone leptin were associated with lower rates of [Alzheimer's](#) disease in a study appearing in *The Journal of the American Medical Association*.

If confirmed, researchers say the findings could have important implications in the search for effective therapies to prevent and treat the disease.

Discovered in the mid-1990s, leptin is produced by fat cells and is believed to be critical for regulating [hunger](#) and [weight](#). But there is growing evidence suggesting a role for the hormone in brain development and memory.

Leptin has been shown to reduce concentrations of B-amyloid, the major component of the deposits, or plaques, that occur in the brains of people with Alzheimer's disease.

In the new study, elderly people were followed for up to 15 years after blood leptin concentrations were measured.

Over 12 years of follow-up, people with the lowest leptin levels were roughly four times more likely to develop Alzheimer's disease than people with the highest levels.

"Our study raises a strong possibility that leptin may actually have a role in the various pathological processes that result in clinical Alzheimer's disease," senior researcher Sudha Seshadri, MD, of Boston University School of Medicine, tells *WebMD*.

### **Measuring Leptin Levels**

The study initially included 785 elderly people taking part in the ongoing Framingham Heart Study, which began recruiting patients in 1948.

Blood leptin levels were measured between 1990 and 1994. Around eight years later, 198 of the participants who had not developed [dementia](#) underwent brain imaging with MRIs to assess brain aging.

Those with the highest leptin levels at the beginning of the study had healthier brains with less evidence of aging.

During an average follow-up of eight years, 89 study participants developed Alzheimer's disease and 22 developed other dementias.

Higher early leptin concentrations were associated with lower rates of dementia years later. This association was seen even after they adjusted for the impact of midlife abdominal [obesity](#), or belly fat, which has recently been identified as an early risk factor for Alzheimer's disease.

"If our findings are confirmed by others, leptin levels in older adults may serve as one of several possible biomarkers for healthy brain aging and, more importantly, may open new pathways for possible preventive and therapeutic interventions," the researchers write.

### **Leptin Replacement Therapy**

Treatment with leptin has been shown in recent animal studies to improve memory performance even after the onset of Alzheimer's-like dementia.

But Seshadri says it remains to be seen if leptin replacement therapy would benefit humans with Alzheimer's disease or help protect against the disease.

The National Institutes of Health recently awarded close to \$3 million for a small pilot study of leptin replacement therapy in patients with Alzheimer's disease.

J. Wesson Ashford, MD, PhD, who is the principal investigator, says about 45 patients will be recruited for the study. A major goal will be to determine if leptin treatment reduces concentrations of a protein called tau that is elevated in the spinal fluid of Alzheimer's patients.

### **Leptin Replacement Therapy continued...**

Ashford is with the Stanford/VA Aging Clinical Research Center in Stanford, Calif.

"Tau is a fundamental protein that helps transport along the fibers of the brain," he tells WebMD. "If leptin lowers tau concentrations in the spinal fluid, that tells us something is going on. That's why we only need 45 patients to show an effect."

Maria C. Carrillo, PhD, of the Alzheimer's Association, calls the leptin research promising. But she warns that clinical treatments based on the research are years away, if they happen at all.

She says the study reinforces the growing recognition that lifestyle-related health issues like obesity and [insulin](#) resistance increase the risk for late-life dementia.

Obese people in the study tended to have lower leptin levels.

"This gives us more information about how maintaining a healthy weight, staying active, and avoiding diseases like [diabetes](#) all come together to help protect our brains as we age," she says.

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