

# Rapid Recovery Hyperbarics

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In a report just published online in *The Journal of Infectious Diseases*, scientists at Washington University School of Medicine in St. Louis and the University of California at San Diego say they've found a reduction of blood flow in the brains of people who are infected with HIV, the virus believed to cause AIDS. What makes this so concerning is that it indicates something is rapidly aging the brains of these patients. In fact, the blood flow in the brains of the HIV-infected research subjects was reduced to levels normally seen in uninfected persons who are 15 to 20 years older.

Does this mean HIV is causing premature brain aging? Maybe. However there's another possibility: according to the researchers, *the drugs used to treat HIV/AIDS might play a role in this super fast brain aging.*

## **AIDS drugs may damage the brain**

Previous studies have found the HIV virus may adversely affect many parts of the body, including the heart, liver, kidneys, endocrine system and skeleton. Although a strong "cocktail" of antiviral medications has been credited with extending the life span of those with HIV, these drugs are known to come with a host of side effects -- many of which are health problems often associated with aging. For example, the drugs can cause anemia, digestive problems, peripheral neuropathy and osteoporosis. So it can be difficult to distinguish between any signs of rapid aging that are due to HIV or to the drugs used to treat it.

When it comes to the brain, HIV patients are sometimes known to develop dementia. And HIV infected people often complain of thinking problems.

"The graying of the AIDS patient community makes this infection's effects on the brain a significant source of concern," Beau Ances, M.D., Ph.D., an assistant professor of neurology at Washington University and first author of the new study, said in a statement to the media.

"Patients are surviving into their senior years, and a number of them are coming forward to express concerns about problems they're having with memory and other cognitive functions."

To investigate possible premature brain aging in HIV patients, Dr. Ances and his research team used magnetic resonance imaging (MRI) scanners and a new technique known as arterial spin labeling that allows precise, non-invasive blood flow measurement to check the brain blood flow in 26 subjects with HIV. The scientists also looked at the brains of 25 uninfected controls. Both groups were about the same age and had the same education.

When the study participants were resting in the scanner, the brain blood flow was found to be significantly reduced in those who tested positive for HIV compared to those in the uninfected control group. Significantly, the scientists found that having HIV was associated with reduced brain blood flow even among the younger, most recently infected patients.

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The research team asked the research subjects to perform a visual task which normally triggers blood flow to increase in specific regions of the brain involved in the task. The MRIs revealed the HIV group had greater blood flow increases, suggesting their brains had to work harder in order to accomplish the task.

"Brain blood flow levels decline naturally as we age, but HIV, the medications we use to control it or some combination of the two appear to be accelerating this process independent of aging. Could we reduce the harmful effects of the virus if we started treatment earlier, *or does treatment significantly contribute to the harm that's being done?*" Dr. Ances said in a press statement. "These are the kinds of issues we urgently need to start examining as the AIDS patient population ages."

