

washingtonpost.com

## Umbilical Cord Blood Injections Aid Aging Brains

Monday, March 17, 2008; 12:00 AM

MONDAY, March 17 (HealthDay News) -- Injection of human umbilical cord blood cells (UCBC) boosted the brains of aged lab rats, University of South Florida researchers report.

They found that the injections led to improvements in the microenvironment of the hippocampus region of the rats' brains and subsequent rejuvenation of neural stem/progenitor cells.

The findings, published online in *BMC Neuroscience*, suggest that it may be possible to use cell therapy to revitalize and improve function in aging brains.

"Brain cell neurogenesis decreases dramatically with increasing age, mostly because of a growing impoverishment in the brain's microenvironment," study co-author Alison Willing, of the USF Center of Excellence for Aging and Brain Repair, said in a prepared statement. "The increase in neurogenesis we saw after injecting UCBCs seemed to be due to a decrease in inflammation."

The age-related decrease in brain cell neurogenesis is a result of a decrease in proliferation of stem cells, not the loss of cells, explained lead author Carmelina Gemma, of the James A. Haley Veterans Administration Medical Center and USF.

"In the brain, there are two stem cell pools, one of which resides in the hippocampus. As in other stem cell pools, the stem cells in the brain lose their capacity to generate new cells. A potent stressor of stem cell proliferation is inflammation," study first author and graduate student Adam Bachstetter said in a prepared statement.

After the aged lab rats received a single UCBC treatment, cell proliferation increased within 24 hours and continued for at least 15 days.

"We have shown that injections of UCBCs can reduce neuroinflammation. Our results raise the possibility that a cell therapy could be an effective approach to improving the microenvironment of the aged brain and restoring some lost capacity," co-author Paul R. Sanberg, director of the Center of Excellence for Aging and Brain Repair, said in a prepared statement.

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SOURCE: University of South Florida Health, news release, March 2008

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