

## **Moderate Over Strenuous Exercise Appears Best for Later Life Cognition**

New research shows that women who engage in greater amounts strenuous physical activity throughout life show poorer performance on cognitive tests that are predictive of Alzheimer's disease and dementia.

"Our findings suggest that while moderate activity protects brain function and may improve cognition over the long term, strenuous activity may increase a women's risk of developing cognitive impairment or dementia in later life," says Dr. Mary Tierney, principal investigator of the study and director of the Geriatric Research Unit at Sunnybrook Health Sciences Centre.

The study, published in the January 2011 issue of the *Journal of Alzheimer's Disease*, studied ninety postmenopausal women between the ages of 50 and 63 years.

This is the first study to examine the link between intensity of long-term physical activity in women between high school and menopause and to find effects on cognition later in life.

Why the link? "We know that exercise intensity can affect hormone levels," says Dr. Tierney, also a professor at University of Toronto. Dr. Tierney and her team specifically examined the association in women because strenuous activity is known to affect their estrogen levels. For example, younger girls who engage in strenuous athletic activities begin menstruating later, and adult women who engage in high amounts of strenuous activity often experience amenorrhea due to lowered levels of estrogen. Other studies have found that lowered levels of estrogen throughout life have negative effects on cognition in later life.

Thus it is possible that the reduction of estrogen in premenopausal women as a result of greater amounts of strenuous activity over a prolonged period of time may counteract the beneficial effects of that activity on brain functioning.

"While physical activity is widely encouraged by health experts, this research supports further investigation of the effects of the intensity of physical activities on cognition before recommendations can be made regarding optimal exercise regimens," adds Dr. Tierney. Some research has shown it may be possible to produce similar levels of exercise capacity with shorter bursts of strenuous aerobic activity as compared to high volume endurance training.

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