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Short arms and legs linked to risk of dementia

ST. PAUL, Minn. - People with shorter arms and legs may be at a higher risk for developing dementia later in life compared to people with longer arms and legs, according to a study published in the May 6, 2008, bonus issue of Neurology ₃, the medical journal of the American Academy of Neurology. Researchers say the association between short limbs and dementia risk may be due to poor nutrition in early life, which can affect limb growth.

Several studies have shown that early life environment plays an important role in susceptibility to chronic disease later in life. Body measures such as knee height and arm span are often used as biological indicators of early life deficits, such as a lack of nutrients, said Tina L. Huang, PhD, who was with Johns Hopkins University in Baltimore, MD, when the study started. Huang is now with the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University in Boston, MA. Because the development of the brain region most severely affected by Alzheimer's disease coincides with the greatest change in limb length, we thought it was possible that men and women with shorter limbs could be at greater risk for developing dementia and Alzheimer's disease.

Researchers from the Cardiovascular Health Cognition Study followed 2,798 people for an average of five years and took knee height and arm span measurements. Most participants were white with an average age of 72. By the end of the study, 480 developed dementia.

Researchers found women with the shortest arm spans were 1.5 times more likely to develop dementia and Alzheimer's disease than women with longer arm spans. For every inch longer a woman's leg, the risk of dementia and Alzheimer's disease was reduced by 16 percent.

In men, only arm span was associated with a lower risk of dementia. With every increased inch in arm span, men had a six-percent decrease in risk of dementia. The associations with such measures in men and women were stronger toward Alzheimer's disease compared to other types of dementia.

Huang says there is a strong correlation between height and socioeconomic background, and trends are reflected as early as the first two years of life. Reduced height for age, or stunting, is thought to be most closely tied to environment and the quality of diet in early life, which corresponds with periods of the fastest leg growth, said Huang. As a result, environment in the first years of life may play an important role in determining future dementia risk.

Our findings are consistent with other studies that have been done in Korean populations, where shorter limb length was associated with greater risk of dementia, said Huang.

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The study was supported by grants from the National Institute on Aging, the National Heart, Lung and Blood Institute and the National Institutes of Health.

The American Academy of Neurology, an association of more than 21,000 neurologists and neuroscience professionals, is dedicated to improving patient care through education and research. A neurologist is a doctor with specialized training in diagnosing, treating and managing disorders of the brain and nervous system such as stroke, Alzheimer's disease, epilepsy, Parkinson's disease, and multiple sclerosis.

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