

# New study explains cognitive ability differences among the elderly

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A new study shows compelling evidence that associations between cognitive ability and cortical grey matter in old age can largely be accounted for by cognitive ability in childhood. The joint study by the Montreal Neurological Institute and Hospital, The Neuro, McGill University and the University of Edinburgh, UK was published today, June 4 in *Molecular Psychiatry*.

It has long been thought that preserving brain cortical thickness was a determining factor in superior cognitive ability in old age; however the rare availability of childhood cognitive scores reveals other possible explanations. The article's lead authors, Dr. Sherif Karama at the Montreal Neurological Institute and Hospital, and Dr. Ian Deary of the University of Edinburgh, found in fact that childhood cognitive ability accounted for more than two-thirds of the association between cognitive ability and cortical thickness in old age.

The researchers compared the results of standardized [intelligence tests](#) of 588 people taken when the subjects were 11 years old and when they were 70, as well as MRI brain scans taken when participants turned 73. Those with [dementia](#) were excluded from the analysis.

"Without early-life measures of cognitive ability, it would have been tempting to conclude that preservation of cortical thickness in old age is a foundation for successful cognitive aging when, instead, it is a lifelong association," says Dr. Karama, who has done extensive research into factors that influence [cognitive development](#). "Reasons behind this

lifelong association are likely complex. There might be a reciprocal, dynamic association between cortical thickness and cognitive ability. For example, greater cortical thickness in childhood could lead to greater cognitive ability, which in turn might lead to a greater likelihood to engage in stimulating activities that could result in better cortical maintenance. As a whole, these results can be viewed as compatible with the notion that the factors that account for associations between cognitive ability and cortical thickness in old age have been acting throughout one's life and are not exclusive to old age."

Provided by McGill University

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