

Brain changes may hamper decision-Making in old age

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But special training may slow the decline, researcher says.

(HealthDay) -- The ability to make decisions in new situations declines with age, apparently because of changes in the brain's white matter, a new imaging study says.

The researchers asked 25 adults, aged 21 to 85, to perform a learning task involving money and also undergo MRI brain scans.

They found that age-related declines in decision-making are associated with the weakening of two specific white-matter pathways that connect an area called the [medial prefrontal cortex](#) (located in the [cerebral cortex](#)) with two other areas deeper in the brain, called the thalamus and the [ventral striatum](#).

The medial prefrontal cortex is involved in decision-making, the ventral striatum is involved in emotional and motivational aspects of behavior, and the thalamus is a highly connected relay center.

"The evidence that this decline in decision-making is associated with white-matter integrity suggests that there may be effective ways to intervene," study first author Gregory Samanez-Larkin, a postdoctoral fellow in Vanderbilt University's psychology department and Institute of Imaging Science in Nashville, Tenn., said in a university news release. "Several studies have shown that white-matter connections can be strengthened by specific forms of cognitive training."

The study was published April 11 in the [Journal of Neuroscience](#).

Samanez-Larkin undertook this work while a graduate student at Stanford University in Stanford, Calif.

More information: The Society for Neuroscience explains how to [keep your brain healthy as you age](#).

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