

# Brain connectivity altered in type 2 diabetes

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Patients with type 2 diabetes mellitus have reduced functional connectivity in the default mode network, which is associated with insulin resistance in some brain regions, according to a study published online July 26 in *Diabetes*.

(HealthDay) -- Patients with type 2 diabetes mellitus (T2DM) have reduced functional connectivity in the default mode network, which is associated with insulin resistance in some brain regions, according to a study published online July 26 in *Diabetes*.

Noting that T2DM is a risk factor for Alzheimer's disease and that individuals at risk for Alzheimer's disease have altered brain activity in the default mode network, Gail Musen, Ph.D., from the Joslin Diabetes Center in Boston, and colleagues used resting-state [functional magnetic resonance imaging](#) to compare [functional connectivity](#) in the default mode network regions in 10 patients with T2DM and 11 age-matched controls without T2DM.

The researchers found that, compared with controls, the T2DM patients

showed weaker correlations between the seed reference (posterior cingulate) and the bilateral middle temporal gyrus, the right inferior and left medial frontal gyri, and the left thalamus. In patients with T2DM, the homeostasis model assessment of [insulin resistance](#) was inversely correlated with functional connectivity between the posterior cingulate and other regions of the default mode network, particularly the right [inferior frontal gyrus](#) and precuneus. There were no differences in hippocampal volume or cognitive performance between the two groups.

"T2DM patients showed reduced functional connectivity in the default mode network compared with control subjects, which was associated with insulin resistance in selected brain regions, but there were no group effects of brain structure or cognition," Musen and colleagues conclude.

**More information:** [Abstract](#)  
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