

White matter structural changes ID'd in children with T1DM

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(HealthDay)—Children with type 1 diabetes have significant structural differences in the white matter of their brain compared to healthy children, which correlates with hemoglobin A1c (HbA1c) values, according to a study published online Sept. 10 in *Diabetes Care*.

To examine clinical correlates of cognitive abilities and white matter microstructural changes in young children with diabetes, Tandy Aye, M.D., from the Stanford University School of Medicine in California, and colleagues used [diffusion tensor imaging](#) (DTI) scans and neurocognitive testing from 22 children (ages 3 to 10 years) with type 1 diabetes and 14 matched, healthy controls.

The researchers found that children with type 1 diabetes had significantly lower axial diffusivity (AD) values in the temporal and parietal lobe regions, compared with healthy controls. For fractional anisotropy and radial diffusivity (RD) there were no significant differences between the groups. There was a significant, positive correlation between time-weighted HbA1c and RD within the diabetes group. A higher, time-weighted HbA1c value also correlated with reduced overall

intellectual functioning.

"Children with [type 1 diabetes](#) had significantly different white matter structure (as measured by AD) when compared with controls," the authors write. "In addition, white matter structural differences (as measured by RD) were significantly correlated with their HbA1c values."

More information: [Abstract](#)
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