

Adolescents with Type 2 diabetes have diminished cognitive performance and brain abnormalities

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A study by researchers at NYU Langone Medical Center have found that obese adolescents with type 2 diabetes have diminished cognitive performance and subtle abnormalities in the brain as detected by Magnetic Resonance Imaging (MRI). Identification of cognitive impairments as a complication of type 2 diabetes emphasizes the importance of addressing issues of inactivity and obesity, two important risk factors for the development of the disease among the young. The study appeared online in the journal *Diabetologia*, July 30, 2010.

"This is the first study that shows that children with type 2 diabetes have more cognitive dysfunction and brain abnormalities than equally obese children who did not yet have marked metabolic dysregulation from their obesity, " says Antonio Convit, MD, professor of Psychiatry and Medicine at NYU Langone Medical Center and the Nathan S. Kline Institute for Psychiatric Research. "The findings are significant because they indicate that insulin resistance from obesity is lowering children's [cognitive performance](#), which may be affecting their ability to perform well in school."

Researchers studied 18 obese adolescents with type 2 diabetes and compared them to equally obese adolescents from the same socioeconomic and ethnic background but without evidence of marked insulin resistance or pre-diabetes. Investigators found that adolescents with type 2 diabetes not only had significant reductions in performance

on tests that measure overall intellectual functioning, memory, and spelling, which could affect their school performance, but also had clear abnormalities in the integrity of the white matter in their brains.

"We have previously found brain abnormalities in adults with Type 2 diabetes, but believed those changes might have been a result of vascular disease," adds Dr. Convit. "Now we see that subtle changes in [white matter](#) of the brain in adolescents may be a result of the abnormal physiology that accompanies [type 2 diabetes](#). If we can improve insulin sensitivity and help children through exercise and weight loss, perhaps we can reverse these deficits."

Provided by New York University School of Medicine

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