

# Early signs of heart disease in preadolescent children with type 1 diabetes

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Cardiovascular disease is the leading cause of death in patients with diabetes. Patients with type 1 diabetes have a 200 percent to 400 percent greater chance of developing cardiovascular disease than those without diabetes. Medical College of Wisconsin researchers at Children's Hospital of Wisconsin discovered the early signs of cardiovascular disease are likely to manifest before the onset of puberty in many children with diabetes.

Those findings are published in the February 2, 2011 online version of *Diabetes Care* and will be in the March 2011 issue of [Diabetes Care](#).

Led by Dr. Ramin Alemzadeh, professor of pediatrics at the college and pediatric endocrinologist at Children's Hospital of Wisconsin, and Senior Clinician Scientist at Children's Hospital's Max McGee Juvenile Diabetes Research Center, the researchers studied 21 preadolescent children (avg. age 8.5 years) with [type 1 diabetes](#), and compared that group to 15 healthy siblings. Investigators looked at flow-mediated dilatation (FMD), a gauge of the health of a major blood vessel of the upper arm artery, in both groups. FMD percentage (FMD%,) is a way to measure any stiffening of the blood vessels; stiffening blood vessels is an early precursor of cardiovascular disease.

Children who had [high blood pressure](#), family history of [high cholesterol](#) or premature [cardiovascular disease](#) from other causes were excluded. Blood samples were collected from all participants to monitor cholesterol and sugar levels.

When tested, the blood vessels of children with type 1 diabetes had a lower FMD% change, which means their blood vessels were less expandable than the control group suggesting that higher circulating glucose results in increased rigidity of blood vessels independent of serum cholesterol levels. The patients with diabetes also had vascular inflammation, which is a known harbinger of future cardiovascular risk. Long-term studies are needed to evaluate the progression of those vascular changes through puberty and beyond.

**More information:** The published paper, "Impaired Endothelial Function in Preadolescent Children with Type 1 Diabetes," was co-authored by Dr. Ghufraan S. Babar, M.D., et al.

Provided by Medical College of Wisconsin

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