

# Islet transplant may slow progression of atherosclerosis

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Minimally invasive islet transplantation for patients with type 1 diabetes achieves insulin independence and reverses the progression of atherosclerosis in the first few years after transplant, according to a University of Illinois at Chicago study.

The research is published in the February issue of the journal [Diabetes Care](#) and is available online.

Patients with diabetes, particularly women, have a substantial increased risk of dying from ischemic heart disease, according to previous research. However, future cardiac events may be prevented with intensive glycemic control.

In the current longitudinal study, UIC researchers looked at changes over time in carotid intima-media thickness, or CIMT—a marker for atherosclerosis—in a group of type 1 [diabetes patients](#) without kidney disease or previous cardiovascular events.

"This is the first study to look at what happens to diabetes-related cardiovascular complications after islet [cell transplantation](#) alone without [kidney transplant](#)," said Kirstie Danielson, assistant professor in the UIC College of Medicine and School of Public Health, and lead author of the study, who noted that previous research has focused on metabolic changes and glycemic control after transplant.

The 15 adults (two men and 13 women) suffered from [type 1 diabetes](#)

for more than five years and had hypoglycemic unawareness despite best efforts to manage [insulin levels](#). The patients received a total of 27 islet transplants (one to three transplants each) and were followed from one to five years after their first transplant. CIMT was measured before and approximately every 12 months after the first islet transplant.

The researchers found a significant decrease in CIMT one year after islet transplant. The CIMT measures started to progress again—slightly more than they would in healthy individuals without diabetes—between 12 and 50 months. At 50 months, post-transplant the CIMT measures were still lower than pre-transplant levels, Danielson said.

"The decline of CIMT we saw at one year is not generally seen in patients with diabetes," said Danielson, who attributes the improvements to better glycemic control achieved through [islet transplantation](#) and better management of cholesterol, or lipid levels, post-transplant.

All 15 patients achieved insulin independence after receiving one to three islet transplants at the University of Illinois Hospital & Health Sciences System. At the end of the current study, 11 patients were insulin free, three remained on insulin but at greatly reduced doses, and one patient withdrew from the trial because of islet graft loss.

The next step would be to replicate these results in a larger trial, Danielson said.

Provided by University of Illinois at Chicago

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