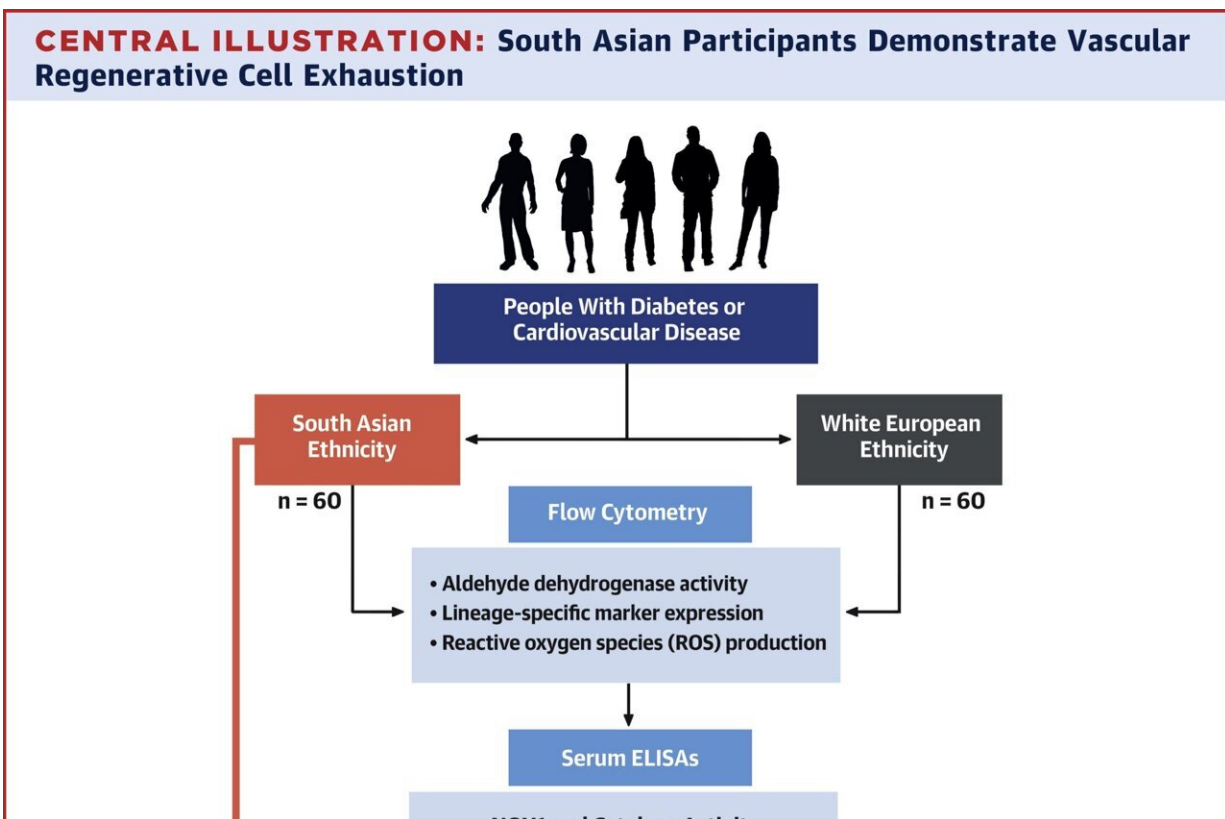


Researchers identify potential 'missing link' for why South Asians have higher rates of heart disease

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Credit: *Journal of the American College of Cardiology* (2024). DOI: 10.1016/j.jacc.2023.12.012

A new study led by researchers at St. Michael's Hospital has found that

South Asians with either heart disease or diabetes had fewer vascular regenerative and reparative cells compared to white European patients. These findings present a clue as to why South Asians have a greater risk for cardiometabolic diseases, such as heart disease, stroke and diabetes.

Research shows that South Asians have a higher prevalence of cardiovascular risk factors and [heart disease](#). People of South Asian ethnicity make up about 25% of the [global population](#), but disproportionately account for more than 50% of cardiovascular deaths worldwide.

A recent Canadian study of more than 70,000 heart disease patients found that South Asian patients were younger and had higher rates of coronary artery disease compared to East Asian and white patients. Other studies have found that when compared with white individuals, South Asians are more susceptible to developing type 2 [diabetes](#), a primary driver of heart disease.

The new study, [published in the *Journal of the American College of Cardiology*](#), suggests that South Asian patients have deficient vessel repair capabilities, which may be contributing to their excess cardiovascular risk, said Dr. Subodh Verma, study co-lead and cardiovascular surgeon at St. Michael's Hospital.

"These data provide a novel and previously unrecognized link to explain why South Asians develop early and aggressive heart disease," he said.

A 'perfect storm'

Between January 2022–January 2023, 60 South Asian and 60 white European adults with either heart disease or diabetes and at least one other cardiovascular risk factor were enrolled in the study.

Both groups provided [blood samples](#), which were analyzed using a [new test](#) developed by the research team. The test calculated the frequency of certain key vascular regenerative and reparative progenitor cells in the blood samples. Vascular regenerative and reparative cells are found in all humans, and their function is to promote the growth of new blood vessels and repair damaged blood vessels. These cells are critical to maintaining good blood vessel health.

The researchers found that despite having the same cardiovascular risk profile, South Asian participants had fewer circulating regenerative and reparative cells in their blood compared to the white European participants. The study also found that the South Asian group was younger and weighed less.

It's been long established that type 2 diabetes results in high levels of glucose in the bloodstream, which is very damaging to blood vessels, said Dr. David Hess, study co-author, affiliate scientist at St. Michael's Hospital, adjunct professor at the University of Toronto and professor of physiology and pharmacology at Western University. Diabetes coupled with a weakened ability to repair blood vessels appears to create excess risk for South Asians, he said.

"Our research indicates that the South Asian participants who already have increased damage to their blood vessels due to their diabetes, also have a decreased ability to repair damaged blood vessels," Hess said. "It's like a perfect storm."

The researchers say the study findings are an important first step towards developing interventions and tailored strategies to combat heart disease among South Asians, who are the largest diasporic group in the world.

"We hope this research can serve as a guide for clinicians to treat South Asian patients on a personalized level," Hess said. "This could mean

earlier intervention with specific medications that could potentially reverse this impairment of vessel repair and regeneration."

Verma adds, "This is precision medicine. It's getting a glimpse into a patient's ability to heal their own [blood vessels](#). It's getting a glimpse of their future health."

More information: Aishwarya Krishnaraj et al, Vascular Regenerative Cell Deficiencies in South Asian Adults, *Journal of the American College of Cardiology* (2024). [DOI: 10.1016/j.jacc.2023.12.012](https://doi.org/10.1016/j.jacc.2023.12.012)

Provided by St. Michael's Hospital

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