

Study shows Native American ancestry a risk factor for eye disease

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New research led by the University of Southern California (USC) Eye Institute, part of Keck Medicine of USC, shows for the first time that Native American ancestry is a significant risk factor for vision-threatening diabetic retinopathy among Latinos with Type 2 diabetes. Diabetic retinopathy is the leading cause of blindness in working-age adults in the United States, affecting more than 4 million Americans age 40 and older.

The research was published online today in *Investigative Ophthalmology & Visual Science*, the peer-reviewed academic journal of The Association for Research in Vision and Ophthalmology, the largest and most respected [eye](#) and vision research organization in the world.

Diabetic retinopathy occurs when blood vessels in the eye's retina are damaged. The retina is the light-sensitive tissue at the back of the eye that acts like a film inside a camera; like damaged film, a damaged retina will produce a bad picture. Symptoms may not be noticeable at first, but the disease can get worse over time and lead to vision loss.

"This is the first study, to our knowledge, that examines the contribution of genetic ancestry in vision-threatening diabetic eye disease in Latinos," said USC Eye Institute Director Rohit Varma, M.D., M.P.H., professor and chair of the Department of Ophthalmology at the Keck School of Medicine of USC and the study's principal investigator. "Previous research has shown that Latinos have a higher prevalence of diabetic retinopathy than non-Hispanic Whites and African-Americans. Our

findings suggest that one contributor to this heavy burden may be due to their Native American ancestry."

Latinos are a diverse group of people typically with a varying mixture of Native American, European and African ancestry. Varma's research team examined data from 944 Latinos with Type 2 [diabetes](#) from the Los Angeles Latino Eye Study (LALES), the largest population-based study of eye disease in that ethnic group. The participants in the study were 40 years of age or older and hailed from the city of La Puente in Los Angeles County, California. Ninety-five percent of them were of Mexican origin. Of the 944 people with type II diabetes, 135 had vision-threatening diabetic retinopathy while 809 did not.

Using genetic assays and detailed ophthalmologic examinations, the team found that individuals with more than 50 percent Native American ancestry had an 87 percent higher chance of also having vision-threatening diabetic retinopathy compared to those who had less than 50 percent Native American ancestry, even after controlling for known risk factors for the disease.

"Our next steps will be to try to narrow down which genomic locations among those with a Native American origin might be contributing to boosting the risk for developing severe [diabetic retinopathy](#)," said Xiaoyi Gao, the study's first author who started his research at USC. Gao is now associate professor of ophthalmology in the University of Illinois, Chicago College of Medicine.

More information: Gao., X., Gauderman, W. J., Marjoram, P., Torres, M., Chen, Y. I., Taylor, K. D., Rotter, J. I., & Varma, R. (2014). Native American ancestry is associated with severe diabetic retinopathy in Latinos. *Investigative Ophthalmology & Visual Science*. Published online Aug. 21, 2014.

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