

## No sign that ethnic groups' genes cause diabetes, research says

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A study by U.S. and Australian researchers is helping dispel the 40-year-old "thrifty genotype theory," which purports that certain minority groups are genetically prone to diabetes.

The study, co-authored by UC Irvine anthropologist Michael Montoya, along with an epidemiologist and population geneticist, analyzed existing genetic studies published across a variety of disciplines. The team found no evidence to support the widely held thrifty genotype theory, which suggests that cycles of feast and famine early in human history created a gene that helps the body use scarce nutrients – a gene that leads to obesity and diabetes in comfortable, sedentary modern lifestyles.

"Our study challenges the presumption that Native American, Mexican American, African American, Australian Aborigine, or other indigenous groups are genetically prone to diabetes because the evidence demonstrates that higher rates of diabetes across population groups can be explained by non-genetic factors alone," said Montoya. The study helps explain why more than 250 genes have been studied as possible causes of type-2 diabetes, but together these genes explain less than 1 percent of diabetes prevalence worldwide.

The findings are published in the spring issue of the journal *Perspectives in Biology and Medicine*.

"When it comes to diabetes, we're finding that genes are no more important for ethnic minorities than for anyone else," said Stephanie

Fullerton, a population geneticist and bioethicist at the University of Washington and co-author of the study.

Also, it was found that in most existing studies of the suspected genes that contribute to diabetes in ethnic minorities, researchers failed to control for the potential impact of social and environmental factors. Controls would have enabled researchers to see that other factors – such as poverty, housing segregation or poor diet – were stronger indicators of diabetes than genes. "Our study shows that by focusing on genes, researchers miss the more significant and alterable environmental causes of diabetes," Montoya said.

Montoya argues that in order to gain a better understanding of the causes of type-2 diabetes, future research efforts will require interdisciplinary teams that assess social, historical and environmental factors as carefully as researchers have studied the genetic factors.

"Poor diet, reduced physical activity, stress, low birth weight and other factors associated with poverty all contribute to the high rate of diabetes in these groups," said Yin Paradies, epidemiologist at Australia's Menzies School of Health Research and co-author of the study.

Montoya's recent work has found that it's virtually impossible for geneticists to define ethnicity and race in strictly scientific terms – historic, political and social factors inevitably influence their definition of genetic groups. He is on faculty in the departments of anthropology and Chicano/Latino Studies in the School of Social Sciences. He is also on the faculty of UCI's Program in Medical Education for the Latino Community (PRIME-LC), the first medical education program in the country designed to meet the growing demand for physicians and public health leaders who are specifically trained to address the distinct and specific needs of medically underserved Latinos.

Source: University of California - Irvine

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