

Type A personality is not linked to heart disease in large study

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Although human genes contribute significantly to a person's health and behavior, these two kinds of traits aren't closely linked at all. In fact, a study appearing this month in the Public Library of Science found absolutely no connection between the hard-driving personality and heart disease, contrary to previous studies and conventional wisdom.

This is among the first findings of a massive, 10-year effort to measure the genes and traits of a single population of closely related people. Conducted jointly by Italian and Sardinian researchers, the U.S. National Institute on Aging, and bio-statisticians at the University of Michigan, the project recruited 6,148 people aged 14 to 102 in four clustered villages on the island of Sardinia in the Mediterranean Sea. The sample represents 62 percent of the population of the Lanusei Valley surrounding the four villages.

Sardinia was chosen as an ideal laboratory for genetic studies because of its isolation and relative stability, said Gonçalo Abecasis, associate professor of biostatistics in the U-M School of Public Health. He and U-M post-doctoral fellow Wei-Min Chen led statistical analysis on the project. "If you did this study in New York or Detroit, you'd find people with all sorts of genetic backgrounds," Abecasis said.

The Sardinian study group is essentially one giant family: 95 percent of the people in the study had all four of their grandparents born in Sardinia and one family encompassed 600 cousins. "If you look at small families it's much harder to separate what's genes and what's environment,"

Abecasis said.

Each of the study participants took a personality test and received a half-day health assessment that included tests for cholesterol levels and other blood factors, an electrocardiogram, an arteriogram and blood pressure measurement. Environmental factors such as smoking and diet were also measured, though they have yet to be analyzed.

This is only the first pass on what promises to be a very rich source of new genetic insights, said co-author David Schlessinger of the National Institutes on Aging in Baltimore. "We're expecting an avalanche of data in the next few months."

Although the statistical analysis showed that there is a clear genetic component for each of the 98 traits examined and that some genetic factors influence many traits at once, no connection was established linking personality and cardiovascular function. "We didn't see it," Schlessinger said. "Maybe it's there, but we didn't see it."

Height was found to be 80 percent genetic, cholesterol about 40 percent, and behavior traits 10 to 20 percent, Abecasis said.

Earlier studies had assigned higher percentages for the genetics of behavior, but Abecasis thinks that happened because of statistical biases created by the twin studies that have traditionally provided this kind of data. "To avoid such problems, this analysis of more than 34,000 relative pairs focused on more distantly related individuals," Abecasis.

For most traits, genes have relatively more influence when a person is younger, but some traits, especially high or low blood pressure, were found to be more strongly influenced by genes as a person aged. Schlessinger says this is because some traits would have cumulative effects that only show themselves with a longer lifespan. For example,

genes that result in a poor ability to scour deposits from arteries could eventually lead to elevated blood pressure, but only after the deposits had accumulated over time.

Having established some of the genetic correlations, the next step is to find the specific molecular differences that account for variation, Abecasis said. "The most exciting part comes next. And we now have a better idea of who to study for what condition." In order to accomplish this next step, 10,000 genetic markers have been characterized for each participant and 500,000 genetic markers have been characterized in a subset of participants.

Study participants will also be tracked for several more years to see if the genetic data has been successful at predicting disease, said Schlessinger, who first began thinking about the ambitious Sardinian study 10 years ago. "There is nothing else quite like this."

Though the Sardinian population is uniquely homogeneous, Abecasis and Schlessinger expect that their results will be comparable across populations and consistent with other studies.

Abecasis and Chen co-wrote the paper "Heritability Of Cardiovascular and Personality Traits in 6,148 Sardinians," with Schlessinger of the National Institute on Aging, a division of the National Institutes of Health which leads the federal research effort on aging and the medical, social and behavioral issues of older people.

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