Facts about The Strong Heart Study

- The Strong Heart Study (SHS) is a study of cardiovascular disease and its risk factors among American Indians.
- The SHS has a field center in each of the following areas: Arizona, the Dakotas, and Oklahoma. SHS also has a coordinating center in Oklahoma, Penn Medical Laboratory in Washington DC, an ECG and ultrasound reading center at Weill Medical College of Cornell University in New York, and a genetics center in San Antonio, TX.
- SHS began in 1988 and has continued through five phases of study. SHS added other family members to the study in 1997.
- SHS is the largest, longest longitudinal study in the U.S. of heart disease and its risk factors in individuals with diabetes.
- SHS is a population based study and has a retention rate of 90%. This shows the extraordinary commitment of SHS participants.

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Genetics and You

RESEARCH RESULTS AND INFORMATION FROM:
STRONG HEART STUDY

Genetics and You

What are genes and why are they important?

Your body is made up of tiny cells, and inside each one is a copy of your DNA. The DNA gives instructions to the cell and tissue, telling it how to look and how to work. For example, the DNA inside of a skin cell determines the size of the cell, the function of the cell, and ultimately, the color of the skin. The DNA is divided up into chromosomes, like books in a set of encyclopedias. On the chromosomes are "genes." You received your genes from your parents. Half of your genes came from your dad and the other half came from your mom. Each human's genes are very similar, with less than 1% of our genes being different from one another. However, that small difference makes each one of us unique.

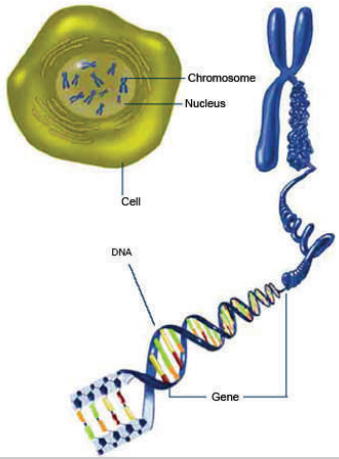


Image: National Institute of General Medical Sciences

Genes determine how a body looks and acts. You look a little bit like your mom and a little bit like your dad because you inherited genes from both parents. Genes also determine whether you are more or less likely to get certain diseases. For example, a person might be more likely to get heart disease because he or she has certain forms of genes in his or her body.

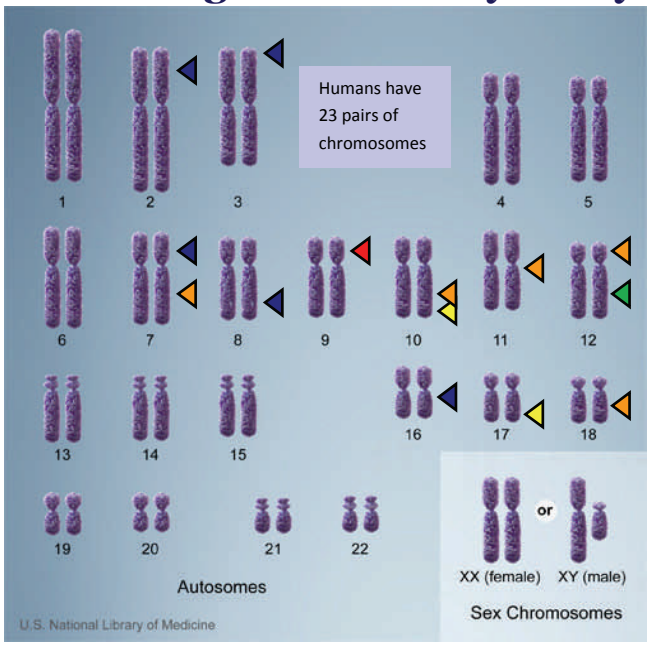
The good news is that your environment (where you live, how you spend your time, what you eat, etc.) can change the way your genes give information to your body. For example, if you eat healthfully and exercise regularly, you might be able to avoid having heart problems, even if both of your parents have heart problems.

Heart Disease, Genes, and American Indians

Scientists discovered that American Indians living today appear to be more likely to get heart disease than other groups of people. Learning about the genes of American Indians will help us determine why American Indians are currently at a higher risk for heart disease than other people are. Genes are located in particular places on the chromosomes, and the SHS has found some places on certain chromosomes that affect risk factors for heart disease (see image to the right). We hope our future research will lead to more answers about the exact genes affecting your risk of heart disease and how the environment can change the way the genes tell the body to work. For example, a certain form of a gene might make a person more likely to get heart disease, but only if that person also smokes cigarettes or has a particular diet.

Understanding how genes and the environment affect American Indians can improve your health and quality of life.

Genetic Risk Factors for Heart Disease: Some Results from the Strong Heart Family Study



- This region may increase or decrease **how fast your heart beats.**
- Changes in this region may affect the **size of the left heart chamber** (left ventricular mass).
- These regions carry information that may affect **blood pressure**.
- These regions carry information that may affect **how well** a person's **kidneys** are **functioning**.
- Changes in these regions may affect a person's risk for **diabetes**.