



THE COMMUNITY FAMILY AND TWIN STUDIES

University of Colorado

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DNA Q&A

What is DNA?

DNA stands for Deoxyribonucleic Acid. It is a form of genetic material that is found in all living creatures. DNA carries the complete instructions necessary for the creation of a living organism.

When was DNA discovered?

The unique structure of DNA was discovered in 1953 by Francis Crick and James Watson. This model has been so important in our understanding of how DNA works that they were awarded the Nobel Prize in 1962.

How is DNA collected?

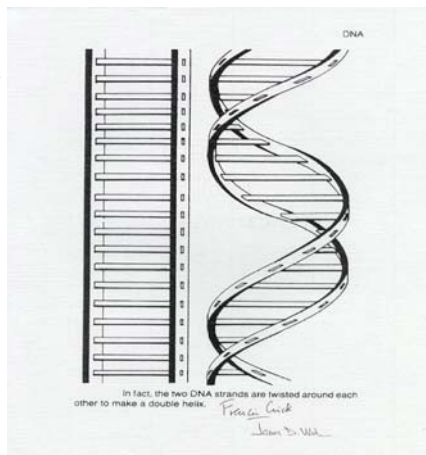
DNA is found in all cells in the body. At the institute we use several different DNA collection methods. One involves swishing mouthwash and spitting it back into a test tube. DNA cells from the mouth are collected in the mouthwash. For the other we use cotton swabs to scrape cells from the mouth. These

cells can then be stored in test tubes and brought back to the lab for analysis. These procedures are non-invasive and completely painless.

drug addiction, or reading disorders. Your DNA sample is protected under strict confidentiality laws and information about it cannot be released.

What are some future applications of DNA research?

DNA research is a relatively new field and there is a lot of hope and excitement that it will lead to the creation of better medicines, foods, and an increased standard of living. Scientists are trying to discover genes (sequences of DNA) that contribute to certain diseases. Once those genes are identified, they can begin working on treatments and preventative strategies that will help people with diseases and other problems.



Double helix structure of DNA, autographed by Francis Crick and James Watson, who discovered this structure.

What do researchers do with your DNA?

When researchers analyze your DNA they are looking for patterns that might influence certain traits or behaviors, such as alcoholism,

Where are we headed?

We would like to thank you for your participation in the interview and data collection process. It will be several years before your data is analyzed. The main reason for this is that we need to have a lot of data from a lot of

participants in order to do effective analyses.

Once we have collected and analyzed enough data, we will be contacting you again for a follow up interview. This could be anywhere

from 5 -10 years down the line. If you move or relocate, please let us know so that we can keep our records current. Our number and addresses are located on the back.



Who is Participating?

- *The Community Family sample is composed of families living in the Colorado front range. We contact families who have an adolescent in drug treatment, as well as matched 'control' families who live in the same area and have a similar family structure.*
- *The Community Twin sample is made up of twins ages 12-18 who live throughout the entire state of Colorado. We interview both fraternal and identical twins as well as the brother or sister closest in age.*
- *The Community Family project began in February of 1993. Since it began we have interviewed 5658 subjects.*
- *The Community Twin project began in September of 1998. To date 2428 twins and their siblings have been interviewed.*

Families interviewed since project began	1866
Investigators involved with project	13
Researchers and staff involved with project	30
Funding to continue until	2005
Papers and abstracts written	75



Novelty seeking and drug use

A main focus of our research is to gain a deeper understanding about drug abuse. Why are some individuals drawn to certain substances, and why do some become addicted while others do not?

In this particular study, researchers looked at data from 100 subjects participating in this research project. They wanted to find what personality characteristics may influence what substances people prefer. One personality characteristic that had a significant impact was Novelty Seeking (NS). NS is a personality trait that describes how adventurous or willing to try new things a person is. Individuals low in NS

tend to be more cautious and conservative, whereas individuals high in NS tend to be more adventurous and daring.

In relationship to drug abuse, we found that individuals low in NS preferred alcohol and marijuana, whereas individuals high in NS preferred a wider range of drugs including stimulants and hallucinogens. We also found that high NS individuals tended to use drugs because of their powerful and stimulating effects, whereas low NS individuals tended to use drugs more to avoid negative emotions and life experiences.

We attempt to find these connections in order to eventually develop better treatment strategies. The more we understand about people's motiva-

tions for drug use, the more we can find ways to effectively treat and prevent addiction.

If you would like a copy of this study or any of our other articles, please contact us at the addresses below.

[Adams, J. B., Heath, A. J., Stallings, M. C., Hewitt, J. K., Corley, R., Young, S. E., & Fulker, D. W. (in review). Relationships Between Personality and Preferred Substance and Motivations For Use Among Adolescent Substance Abusers and Their Family Members. *Journal of Substance Abuse*.]

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The University of Colorado is composed of many different research divisions. Several of those bodies are actively working on this project. These include the Institute for Behavioral Genetics, the Department of Molecular, Cellular and Developmental Biology, and the Division of Substance Dependence at the University of Colorado Health Sciences Center. Each department plays an important role in the collection and analysis of the data.

Division of Substance Dependence

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The process begins when we call for an interview. Families are selected based on criteria such as age and location, and for the twin study, being twins. After the interview process the data are sorted and entered into our databases. The DNA is taken to a lab to be analyzed. Researchers then begin the task of searching for patterns that may lead to a greater understanding of behavior and addiction. We are especially interested in locating genes that may be involved in addictive and/or antisocial behavior.



 University of Colorado
Health Sciences Center

If you have any questions or comments about the nature of our work, please call or email us at the above addresses. Thank you for your time and participation in this project.

We're on the web!
[http://ibgwww.colorado.edu/
cadd](http://ibgwww.colorado.edu/cadd)