In this issue:

- Our progress
- Lessons
- New challenges
- Misunderstandings
- About our team

Research at work

We have been busy since our last Gene-Environment Interaction newsletter! We are very excited about the things we are learning from our participants in interviews, focus groups and community advisory boards. We especially appreciate your willingness to help us in this work.

Since our last update, we have spent a lot of time analyzing the interviews we from summer and fall 2006. We carefully read through those interviews to learn how people think about their health, genes and behavior. Using what we learned from the interviews, we created audio messages that sound a lot like radio announcements. The announcements explain that genes AND your daily health choices interact to influence your health. We recently tested our audio messages with focus groups in Atlanta and Augusta. We will continue our research to find which message works best for our audiences.

The information we’ve gathered in the past year is so useful that we have been able to write some articles for academic journals. The pilot study for our CDC grant produced an essay about people’s reactions to visual images of nanotechnology. That paper is in the final stages of revision, and will be published in Public Understanding of Science. Another paper based on our CDC data is being revised to be sent to a health journal. This paper describes people’s mental models about the relationship between genes and the environment. A third paper that is being revised to submit to a communication journal, provides an overview of our CDC data. Research team members are also revising additional papers from these interviews. One paper discusses the possible functions of fatalism when people talk about their health. The other is about the ways people talk about their religious beliefs in relation to their health.

This newsletter has more about the work our center is doing in the spring of 2007. For information on earlier work and future updates, visit our website: www.southerncenter.uga.edu.

Thank you for your help and continued interest in our research. You serve an important role in our work!

Lessons from focus groups

This March we held focus groups in Atlanta and Augusta. Each focus group was made up of people from our target populations. These focus groups allow us to test how effective our audio messages are and what should be changed before we move forward with them. People listen to the messages and give us their response. This helps us determine if we are really teaching that genes
Lessons continued.

and environment interact. How much control does this message make you think you have over heart disease? Do you believe this message? Does this message apply to people like you? We asked these questions to get responses from the focus group participants. The group also compared all five messages to each other. They chose the message that was the most memorable, the most believable, and the most motivating. Our focus group participants also did a bar chart activity to indicate how much risk for a disease each message communicated.

Our focus groups reacted to some of our messages in ways that surprised us. The goal of our messages is teach people about gene-environment interaction. Based on what people said, the message may not have helped them to understand that. However, based on the bar charts, it seems like they did get that message. This is not what we expected! But what we do know is that people have a hard time finding ways to explain this interaction relationship. These differing results show us that people could really understand this idea, but can't communicate what they understand. We hope more research will help us find out.

New Challenges

“I’ve heard that all before.”

This is a comment we’ve heard in our focus groups and advisory board meetings. After listening to our messages, you reminded us that everybody knows that eating right and exercising is good for you. So what makes these messages different? We focus on the reason that those things can be especially important for you. Most health messages only tell you to do good things for your health. Our goal is different. We want to teach you that your genes and health behaviors interact. When you have certain genes, it changes the way your body processes things like fat and toxins. This means that genes can affect how bad some behaviors are for different people.

Our messages try to give people this new piece of information about the genes that run in their families. In our focus groups we found out that talking about genes and about diet and exercise is too much information at one time. People remember what they should do, but they didn’t remember why. We think it’s important for people to know that their genes can affect how some health behaviors cause your own body to respond.

Now we are trying to change our messages so that people will think more about the new genetic information. But it is a tough task. Our bodies are complicated, and it’s hard to explain how they work in a short commercial! We think it might help if we only talk about how genes affect your health, but don’t give recommendations about how to improve your health. After all, everybody already knows what to do. We’ve heard it all before!

EXAMPLE MESSAGE

Do you know what puts you at risk for heart disease? Depending on the types of genes that run in your family, the fat that you eat can clog your arteries faster. If someone in your family has heart disease, you may have those fast-clogging genes. But your risk for heart disease is likely to go down a lot if you eat fresh fruits and vegetables every day. Regular exercise can prevent arteries from clogging. Exercise can even clean and open arteries that are already clogged. Genes and health choices interact. Don’t feed those fast-clogging genes!
Misunderstandings of genetics

During our research over the last year, we have been able to talk with many people about what they think about genes. We have found that people think about genes in lots of different ways. But there are some common misunderstandings about the way genes work. This is not surprising. Scientists are still learning more and more about genetics everyday! Here are some common thoughts about genes that we saw over and over while talking to our participants. We want to help explain these misunderstandings.

Having a gene for a disease is the same thing as having that disease. This is never true. Genes are chemicals in your bodies that produce proteins. They are not diseases. However, for a few diseases, if you have a gene that fails to produce a necessary protein in the right form, you will inevitably get sick. For instance if you have a gene for Huntington’s disease, you will eventually get this disease if you don’t die from something else first. But in the cases of most common illnesses, having a gene that predisposes you to a disease doesn’t even mean that you will eventually get the disease. Here’s an example. Some people have inherited genes from their family that make them more at risk for heart disease. But just because someone has the genes that put them at a higher risk, this does not mean that the person HAS heart disease. Most often, heart diseases are conditions that develop from the way you treat your body combined with the genes that run in your family. Having a gene for a condition is NOT the same thing as having that condition. It also does not mean that you will definitely get that disease.

You can develop a gene and then pass it on. Some participants thought that genes can be developed sometime during life and then passed on to future generations. For example, some people thought that: “If a person smokes a lot and develops lung cancer, then this person has developed a lung cancer gene. They can pass this lung cancer gene along to their children.” This idea is sometimes called Lamarckism, after the scientist who developed this theory in the 18th century. It is easy to see why people believe this is true, since we hear things like this in childhood (think of the story “How the Leopard Got Its Spots”).

But this is not the correct way to think about genes. You are born with your genes. They are inherited from your parents. Getting a disease does not change the genes in the “germ cells” that you pass down to your children. Using our example of lung cancer, getting lung cancer might change some of the genes in the cancer cells in your lungs, but it does not change the genetic makeup of your germ cells. So the changes to your lung cells can’t get passed on to the next generation.

What about “mutations”? For instance, a person’s genes can change when they are mutated. You may remember this concept from comic book strips like Spiderman, where genetic mutations can cause superpowers. But genetic mutations in real life usually aren’t so good. Mutations may be due to environmental factors like radiation and toxins to the body. These changes can sometimes be passed on to children and show up in various ways, from birth defects to diseases. However, there is rarely a direct link between the mutated gene and any disease that the parent gets. This is because the genes passed on are in the “germ cells” whereas diseases that result from mutations in the parent are located in the parents’ body cells. Radiation may harm the parent’s cells and also change the genes passed on to the child, but the effects the child will experience from the modified genes are likely to be different from the effects the parent experienced from the mutating agent because the germ cells are affected in different ways than the parent’s cells.

Some behaviors “trigger” a gene to be active. Many participants believe that if someone has a gene for a disease, they can do something that will “trigger” that gene to be activated. Some people used this example: “John had a family history of heart disease, so he must have the gene for it. One day he ate a greasy hamburger, and the next thing you know, he had a heart attack.” It is true that unhealthy behaviors can lead to a higher risk of heart disease. However, in most cases, one bad behavior doesn’t make someone have a heart attack. These diseases come from practicing unhealthy behaviors over a long period of time. The damaging effects of these unhealthy behaviors build up to put someone at a higher and higher risk for developing a disease. If you have some particular genes, your risk builds up even faster. So it is important to stay healthy by making one healthy choice at a time. The good news is that if you have a gene for heart disease, these healthy choices lower your risk even faster than someone who does not have that gene.

People have lots of opinions about how genes work. We hope that explaining some of these common thoughts will help people understand genes better. While your genes play an important role in your health, genes interact with the behaviors that you choose each day to contribute to your health outcome.
The research team has been quite busy over the last semester. We have worked diligently on this project to create and test health messages that will be best suited for the target audiences. Recently we had the opportunity to present this work to a group of philanthropists known as Achievement Rewards for College Scientists (ARCS). We are also involved in several other projects aside from the Gene-Environment Interaction study for the NIH and CDC. One of the service projects we are working on for the Center is being conducted with the Athens-Clarke County Early Head Start program. Dr. Condit and team members* have worked closely with the program’s staff and clients since January to increase awareness about mental health services in that community. Our work with EHS has proved to be very rewarding and our work with them will continue throughout the summer.

The research team is made of faculty, staff, and graduate students in the Speech Communication department at the University of Georgia. They are: Dr. Celeste Condit, Dr. Tina Harris, Dr. Lijang Shen, Samantha Barrientos, Youyou Cheng, David Cisneros, Marita Gronnvoll, Bethany Keeley, Jamie Landau and Lanelle Wright. Another graduate student, Nicole Hurt, will join our team in the fall.

Our team would like to thank our partners at ORC Macro in Atlanta, the Medical College of Georgia in Atlanta, our Community Advisory Board members, and all of our focus group and interview participants throughout Georgia. Without your many contributions, our work is not possible.

Thank you!

*Other notable contributors to our service project are Shelly Hovick and Rebecca Keuhl.