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Me and My Genome

By RANDY DOTINGA

Part II: AFTER (Click [here](#) for Part I)

I got the results of my \$300 DNA analysis. The news wasn't good for my prostate and colon.

Sunday, March 15, 2009 | I knew there was going to be a test. I just didn't know it would be this hard.

Last December, I gave a saliva sample to a company called Navigenics, which promised to analyze my DNA and report back on my genetic risk of getting various medical conditions. Now the results are in.

Let's put it this way: A lot of middle-aged men worry about their prostate and colon. That's going to go double for me.

The test says I've got a one-in-four chance of developing prostate cancer, at least judging by my genes alone. My risk of getting colon cancer is higher than normal too -- meaning daily bran muffins might be in my future. And it might be a good idea to schedule a colonoscopy (gah!) sooner than the average guy in his early 40-somethings.

Or maybe not. While there's been a lot of hype about a new era of "personalized medicine," no one really knows how valid these test results really are. Our health, after all, depends on much more than just the DNA we were born with, and scientists are still figuring out the role that our genes play.

Genetic tests "need to be taken with a grain of salt and an understanding of what they can and cannot tell you," said Daniel Weeks, professor of human genetics and biostatistics at University of Pittsburgh.

Whatever the case, from here on out I'll be thinking more about everything from what I eat to how often I go to the doctor. And if genetic testing becomes more popular, so will millions of others. Yet at this point the jury is still out whether these tests will make us healthier or just stress us out and sock our pocketbooks.

The reason I have all of this information and consternation is because I'm taking part in a study sponsored by Scripps Health that aims to figure out what people do after they get genetic tests that outline their disease risk. The study subjects, including me, will fill out



The Randy File
Age: 40
Ethnicity: White
Weight: Classified

ELEVATED RISK	
Colon cancer	Prostate cancer
Randy: 10 percent	Randy: 26 percent
Average: 6 percent	Average: 17 percent
AVERAGE RISK	

questionnaires about our lives over the next 20 years, giving researchers insight into whether we change our behavior because of the tests.

The results of my test listed 22 conditions and my risk -- based purely on my DNA, nothing else -- of getting each one.

The news wasn't horrible. I don't have a 50 percent higher chance of getting any of the listed conditions. But the results weren't anything to cheer about either. My odds of getting five conditions -- including prostate cancer, diabetes and colon cancer -- are above average, in some cases significantly so.

My risk of colon cancer, for example, is 10 percent, compared to average of 6 percent for men of European ancestry. "This is saying there's a 90 percent risk that you won't ever have colon cancer in your life," said Elissa Levin, director of genetic counseling at Navigenics. "Some people might walk away and say that's pretty good."

On the other hand, the report also says I'm in the 4 percent of people most likely to get the disease. That means 96 percent of European-descended men have a lower risk than mine. That's not a guarantee that I'll get colon cancer, but it's certainly a reason to worry.

Over on the prostate front, my risk of getting the disease is even higher, at 26 percent compared to an average of 17 percent, again among men descended from Europeans.

On the bright side, I'm significantly less likely than many men to get Alzheimer's disease. That means I shouldn't need to learn Sudoku or take up crossword puzzles to keep my brain extra healthy. Unless, of course, the results are wrong.

The man in charge of the institute behind the Scripps Health study acknowledges the uncertainty. "Most disease-risk genes have not yet been found [and] the genes which cancel out the risk (known as 'modifiers') are still largely unknown," wrote Dr. Eric Topol, director of the Scripps Translational Science Institute, in a December 2007 [commentary in the Wall Street Journal](#).

Even if tests are valid, scientists think genes only play a part in determining the disease we get. Our environment -- the foods we eat, the exercise we get, the air pollution we breathe -- are crucial too, and the genetics tests don't measure those factors.

In fact, the environment seems to actually whether our genes turn on or off. Our DNA may be set in stone, like a blueprint, but our bodies can interpret it in different ways depending on the world around us.

"It's not about how your genome is written. It's more about how your genome is read," said Dr. Edward McCabe, co-director of the UCLA Center for Society & Genetics. Enough about science. What's next for me? That's the hard part.

Ideally, I'd use the information from the genetic test to improve my health. Nicholas Schork, director of research for Scripps Genomic Medicine, likes that idea. "Most medicine is reactive: you go to the doctor and find out what disease you have," Schork said. "Here, we're trying to empower people with information they might use to avoid having disease."

But my options aren't crystal clear. Take colon cancer, for instance. People assume that eating more fiber will prevent the disease, or at least make it less likely. But researchers haven't actually found a link between fiber consumption and colon cancer, so adding wheat germ to my cereal might do nothing except keep laxatives off my shopping list.

I'll ask my doctor if I should undergo a colonoscopy, the procedure in which a doctor sends a

scope into your rear in search of cancerous polyps. (Here's hoping he says to skip it for a few more years.) But colonoscopies aren't foolproof: they can miss potential tumors.

Keeping prostate cancer at bay isn't an easy proposition either. A healthy diet may prevent it, but [doctors haven't come up with specific guidelines](#) yet. Some researchers think sex might be related to prostate cancer, although there's debate over exactly how.

[One recent study](#) suggested that sexual activity without a partner -- if you know what I mean -- reduces the risk of prostate cancer, providing extra protection to those in their 20s. Without going into the gory details, prostate health may have something to do with making sure the prostate gland doesn't just sit around with nothing to do.

But [a newly released study](#) found the opposite, that men who engaged in the most sexual activity in their 20s and 30s, solo or otherwise, are most likely to get the disease. Oh well. For me, what's done (or not done) is done: My own 20s and 30s are behind me.

I could get screened more often for prostate cancer and take a blood test designed to detect signs of trouble. But doctors [question](#) the value of the commonly used prostate-specific antigen test, and some think men should actually avoid it because it's can lead to unnecessary treatment. Not to mention stress.

"It might not be good for everyone to undergo early screening for prostate cancer, which might needlessly raise a lot of anxiety," said the University of Pittsburgh's Weeks.

I might get these tests anyway just to feel safe. But if lots of other men do the same thing, we could be spending a lot of money for little benefit. And that could put more pressure on the healthcare system.

"To me, it's a lot like the 'total body scanning' fad of the 1990s," said UCLA's McCabe, who serves as president of the American Society of Human Genetics. "Everybody had a little (suspicious) spot on their total body scan and spent lots of additional money to determine if it was real or not real. Occasionally, it picked up an early cancer, but there was a lot of money being spent on some little spot that then went away."

On the other hand, McCabe said, many people don't bother to get colonoscopies in the first place, and a genetic test could motivate them.

For my part, I'll continue responding to questionnaires from Scripps Health for the next two decades. And I'm not done with Navigenics: They will send me details about my ancestry later this year, all derived from my DNA.

The results could resolve a dispute among my mom's relatives about whether a distant branch of their family was black or Native American. But scientists aren't sure whether genetic ancestry tests are truly valid, so the findings could be bunk.

Great. More uncertainty. It's enough to give me a 100 percent chance of getting a headache.

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