

Health & Science

Was I part British, part Dutch, a little bit Jewish? The oddness of DNA tests.

By Debra Bruno

November 3

The other day, Ancestry.com told me that my mother was my mother.

Phew.

I was starting to wonder about some of the peculiar results that I'd been seeing from the two DNA testing companies I used.

Yes, I'm the kind of person who would take a DNA test with Ancestry and then, curious about whether I'd get the same results, try Helix, another DNA-test site.

(Full disclosure: I also cannot resist getting multiple opinions from palm readers until I get a favorable reading.)

From Ancestry, I learned that I am a muddle of 30 percent British, 29 percent southern European, 15 percent western European and 8 percent eastern European Jewish. ("Mazel tov," my daughter responded to this news.)

I was surprised because my mother hails from a Dutch family that has been in America since the 1600s, and because when I trace our family tree through church records, census reports and marriages, I see Dutch names: Van Valkenburg, Hallenbeck, Van Vechten, Bronck (as in the Bronx), Vrooman.

Granted, there is the occasional Smith, Armstrong and Patterson, but mainly I find Dutch name after Dutch name.

My father's family is completely Italian, which explains the 29 percent, although I thought it would be higher, given my ravioli-making skills and my tendency to be the loudest person in the room.

To get a second opinion, I spit into another tube and sent my DNA sample off to Helix, the company handling the Geno 2.0 test for National Geographic. This time, my results were 55 percent Italy and southern Europe ("Ciao, paesani!"), 32 percent northwestern Europe, 9 percent northeastern Europe and just 3 percent "Jewish diaspora."

What gives?

Companies such as Ancestry and National Geographic are taking a snapshot of various DNA markers, said Robert Green, a geneticist at Harvard Medical School who serves as an adviser for Helix. From that snapshot comes a statistical inference, he said. In other words, "Given this pattern, it's likely that you came from this region," Green said. "But it's not a certainty, and shouldn't be read as a certainty."

Jennifer Utley, director of research at Ancestry, said that the DNA results from each individual are compared against a reference panel. The company gathered DNA from people around the world who had lived for five generations in the same place. An individual's DNA markers are then compared to the DNA of people in those communities. Your DNA, in short, is matched up with living people in those regions, not with your ancestors from those places.

The companies' pie charts and fancy infographics that show little arrows and offer fascinating stories about human history make for great conversation, but they are actually more like educated guesses than like census documents. (That said, they're probably more accurate than that palm reader.)

The problem with the reports, said Jonathan Marks, an anthropologist at the University of North Carolina at Charlotte who writes about genetics, is that many people interpret the results as authoritative. They're not, he said. To say that DNA results show you come from a particular country just confuses things.

"It's certainly a blurring of the meaning of numbers to be able to give you such precise calculations as if that's knowledge," Marks said. "What gets lost in translation is just how sloppy the numbers are."

So I'm not 30 percent English?

Not necessarily, Marks said. Anyone who looks at a map can see that the English Channel is as narrow as 19 miles at one point. And 10,000 years ago, England was attached to Europe.

Last month, however, a new twist to my ethnicity investigation popped up when Ancestry announced that it had developed new algorithms "to analyze longer segments of genetic information," said an Ancestry spokesman, "and better distinguish between adjacent regions." It also added 13,000 more reference samples.

The result, for me, was both slightly disappointing (Jewish heritage: gone) and a whole lot closer to my other ethnicity results. Now, I was told I am 42 percent Italian, 32 percent "Germanic" European, 14 percent English and northwestern European, 4 percent Irish and Scottish, 4 percent Greek and Balkans, 2 percent French and 2 percent Norwegian. But when I looked more closely at the old results and the new ones, the general areas of origin were not that much different. In short, I'm European with various north and south influences.

Greek? French? Norwegian?

"Any number in the single digits is probably not going to be distinguished from a zero margin of error," Marks said.

My brother did a test with Ancestry, too. Although he and my two other siblings are the people most genetically similar to me, we don't necessarily get the same batch of DNA. Green, the Harvard geneticist, said, "Even though on average you both got 50 percent of your parents' DNA, you could get different pieces of DNA from your mother and father."

In his first results, my brother had just 16 percent from Britain and 28 percent from western Europe. But that adds up to 44 percent, almost exactly the same 45 percent I got when I added my English plus western European percentages. And his 28 percent southern Europe matches my 29 percent southern Europe. He, however, has a surprise 8 percent Scandinavian, similar to my 8 percent Jewish. After the update, he was told he was 35 percent English, Welsh, northwestern Europe (19 percent more than before), 29 percent Italian, 12 percent Greek and Balkans, 11 percent Germanic European, 7 percent French, and 6 percent Irish and Scottish. Judging from his map, however, it looks as though the circles have expanded a bit and "Scandinavia" has been renamed "Germanic Europe."

Next, my mother took the test. At first, she got 47 percent from western Europe and 24 percent from Britain, adding up to 71 percent from the region that gave me and my brother 44 to 45 percent. But she also got a big 21 percent from Scandinavia, which was initially a surprise. Then I unearthed an ancestor named [Albert Andriessen Bradt](#) (1607-1686), my 10-times-great-grandfather, born in Norway, who came to America in 1636. In her updated report, she was 57 percent from England and northwestern Europe, 18 percent from "Germanic" Europe, 16 percent from Sweden and 9 percent from Norway — so not radically different from the first round.

Ancestry, which links you to people who match with your DNA, told me with "Confidence Level: Extremely High," that my mother is my mother. Next closest: my brother.

My husband, Bob, had a very different report on his DNA tests. From Ancestry, both before and after the update: 100 percent eastern European Jewish. He also tried a second test at Helix. Same result: 100 percent eastern European Jewish.

What does that mean? It doesn't mean that no one in my husband's family tree ever married outside the faith, Marks said. The companies run the analysis by looking for certain genetic markers, some of which are 10 times more elevated in a Jewish population, creating "idiosyncrasies in the gene pool." In fact, Jewish populations turn out to be more closely related to the people surrounding them than to other Jewish populations in the world, Marks said.

"In every generation, the rabbis are complaining about intermarriage," he said.

In the end, the DNA ethnicity tests that cost from \$69.95 to \$199 could be seen as a pricey way to confirm what you probably already know. It might make more sense just to look in the mirror. "The one Sicilian in a room of Irish is going to stand out, and you don't need genetics to tell you who Conan O'Brien is," Marks said.