

Study confirms that Neanderthals and humans got it on

By [Arielle Duhaime-Ross](#) on April 8, 2014 12:58 pm



The genetic similarities between certain human populations and Neanderthals are striking. Indeed, many researchers think the Europeans and Asians inherited between [1 and 4 percent](#) of their DNA from Neanderthals, yet scientists have struggled to demonstrate with a high degree of certainty that these genetic similarities are the result of interbreeding between these two species. Now, a pair of European scientists say that they have confirmed the human-Neanderthal reproduction hypothesis using statistical modeling — and these results, the researchers add, should go a long way to change the way we think of other human-like species.

In the past, genetic similarities between Neanderthals and humans have been associated with two possible scenarios. The first hypothesis puts forth that idea that certain human populations — those that went on to become modern Eurasians — evolved in isolated patches in Africa that allowed them to stay genetically similar to Neanderthals after they split from their shared common ancestor. The interbreeding hypothesis, on the other hand, states that bouts of human-Neanderthal reproduction would have occurred after humans migrated out of Africa. So, to find out which hypothesis fit humanity's genetic history more closely, the scientists tested the two hypotheses using a statistics and an evolutionary model.

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"We did a bunch of math to compute the likelihood of two different scenarios," says Laurent Frantz, study co-author and evolutionary biologist at Wageningen University in the Netherlands. "We were able to do that by dividing the genome in small blocks of equal lengths from which we inferred genealogy." This method allowed the researchers to support with a high degree of certainty that interbreeding occurred, Frantz says. "Our analysis shows that a model that involves interbreeding is much more likely than a model where there was sustained substructure in Africa." The scientist cautions that sustained

substructure might still have occurred, "but it cannot be used to explain that the genetic similarities" all on its own.

These results, [published today](#) in *Genetics*, go against [a 2012 study](#), published in *Proceedings of the National Academy of Sciences*, that found that interbreeding was far less likely than the alternative. "There seemed to be something that has gone wrong [in that study] because it seems unparsimonious to me," Frantz says. "When we tested two hypotheses, we got a high support for a scenario where humans and Neanderthals interbred."

Shifting the conversation away from the brutality of human evolution

The researchers originally developed the statistical method to study the genetic history of insect and pig populations in Europe and Southeast Asia, respectively. But they think that it can also be used to study interbreeding events when there is a limited pool of genetic samples available. Furthermore, Frantz thinks that these results, along with those from previous studies, should serve to shift the conversation away from the brutality of human evolution.

"There have been a lot of arguments about what happened to these species," the researcher says. "Some think that we outcompeted [other hominins] or that they were killed by humans, but now we can see that it's not that simple." In all likelihood, some Neanderthals were recruited into certain human populations, he says, and shared in their daily lives. So thinking of humanity solely in terms of a struggle to destroy all that differs from our species is, at least partially, incorrect. There is little doubt now, Frantz says, that "human evolution is much more complex than we previously thought."