

Study suggests multiple instances of interbreeding between Neanderthal and early humans

November 27 2018, by Bob Yirka



Comparison of Modern Human and Neanderthal skulls from the Cleveland Museum of Natural History. Credit: DrMikeBaxter/Wikipedia

A pair of researchers at Temple University has found evidence that suggests Neanderthals mated and produced offspring with anatomically modern humans multiple times—not just once, as has been suggested by prior research. In their paper published in the journal *Nature Ecology*

and Evolution, Fernando Villanea and Joshua Schraiber describe their genetic analysis of East Asian and European people and how they compared to people from other places. Fabrizio Mafessoni with the Max Planck Institute for Evolutionary Anthropology offers a News and Views piece on the work done by the pair in the same journal issue.

In recent years, scientists have discovered that early humans moving out of Africa encountered Neanderthals living in parts of what is now Europe and Eastern Asia. In comparing Neanderthal DNA with [modern humans](#), researchers have found that there was a least one pairing that led to offspring, which is reflected in the DNA of humans—approximately 2 percent of the DNA in non-African humans today is Neanderthal. In this new effort, the researchers have found evidence that suggests there was more than one such encounter.

Their findings make logical sense, considering that anatomically modern humans and Neanderthals coexisted for approximately 30,000 years. Recent research by other groups had suggested that multiple offspring-producing unions had occurred—some people in East Asia, for example, were found to have up to 20 percent more Neanderthal DNA than people of strictly European descent. In this new effort, the researchers took a more stringent look to find out once and for all if there had been multiple pairings or just one. They pulled and analyzed data from the 1000 Genomes Project, measuring the amount of Neanderthal DNA in genetic material from volunteers. The first step was separating the data between people of European and Asian ancestry. Doing so suggested that both groups had evidence of early multiple mating events. The researchers then studied the rates of the two groups by creating simulations showing outcomes of differing numbers of mating events between the two groups. Data from the simulations was then fed into a machine-learning algorithm that showed DNA percentage patterns based on the number of cross-breeding events that had occurred.

The [researchers](#) concluded that the most likely scenario was that there were multiple instances of cross-breeding between [early humans](#) in both East Asia and Europe with Neanderthals.

More information: Fabrizio Mafessoni. Encounters with archaic hominins, *Nature Ecology & Evolution* (2018). [DOI: 10.1038/s41559-018-0729-6](#)

Fernando A. Villanea et al. Multiple episodes of interbreeding between Neanderthal and modern humans, *Nature Ecology & Evolution* (2018). [DOI: 10.1038/s41559-018-0735-8](#)

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