Rewriting history: Study suggests a more robust Neanderthal population

Hundreds of thousands of years ago, the ancestors of modern humans diverged from an archaic lineage that gave rise to Neanderthals and Denisovans. Yet the evolutionary relationships between these groups remain unclear.

A University of Utah-led team developed a new method for analyzing DNA sequence data to reconstruct the early history of the archaic human populations. They revealed an evolutionary story that contradicts conventional wisdom about modern humans, Neanderthals and Denisovans.

The study found that the Neanderthal-Denisovan lineage nearly went extinct after separating from modern humans. Just 300 generations later, Neanderthals and Denisovans diverged from each other around 744,000 years ago. Then, the global Neanderthal population grew to tens of thousands of individuals living in fragmented, isolated populations scattered across Eurasia.

"This hypothesis is against conventional wisdom, but it makes more sense than the conventional wisdom." said Alan Rogers, professor in the Department of Anthropology and lead author of the study that published online on August 7, 2017 in the *Proceedings of the National Academy of Sciences*.

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The new method confirmed previous estimates that modern Eurasians share about 2 percent of Neanderthal DNA. However, other findings questioned established theories.

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The analysis also questioned whether the Neanderthal population had only 1,000 individuals. There is some evidence for this; Neanderthal DNA contains mutations that usually occur in small populations with little genetic diversity.

However, Neanderthal remains found in various locations are genetically different from each other. This supports the study's finding that regional Neanderthals were likely small bands of individuals, which explains the harmful mutations, while the global population was quite large.

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