

The ancient history of Neanderthals in Europe

June 26 2019



The femur of a male Neandertal from Hohlenstein-Stadel Cave, Germany.
Credit: © Oleg Kuchar, Museum Ulm

Researchers at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, have retrieved nuclear genome sequences from the

femur of a male Neanderthal discovered in 1937 in Hohlenstein-Stadel Cave, Germany, and from the maxillary bone of a Neanderthal girl found in 1993 in Scladina Cave, Belgium. Both Neanderthals lived around 120,000 years ago, and therefore predate most of the Neanderthals whose genomes have been sequenced to date.

By examining the nuclear genomes of these two individuals, the researchers could show that these early Neanderthals in Western Europe were more closely related to the last Neanderthals who lived in the same region as much as 80,000 years later, than they were to contemporaneous Neanderthals living in Siberia. "The result is truly extraordinary and a stark contrast to the turbulent history of replacements, large-scale admixtures and extinctions that is seen in modern human history," says Kay Prüfer who supervised the study.

Intriguingly, unlike the nuclear [genome](#), the mitochondrial genome of the Neanderthal from Hohlenstein-Stadel Cave in Germany is quite different from that of later Neanderthals—a previous report showed that more than 70 mutations distinguish it from the mitochondrial genomes of other Neanderthals. The researchers suggest that early European Neanderthals may have inherited DNA from a yet undescribed population. "This unknown population could represent an isolated Neanderthal population yet to be discovered, or may be from a potentially larger population in Africa related to [modern humans](#)," explains Stéphane Peyrégne who led the analysis.



The Maxillary bone of a Neandertal girl from Scladina Cave, Belgium. Credit: © J. Eloy, AWEM, Archéologie andennaise



Scladina Cave. Credit: D. Bonjean, © Archéologie andennaise

The study is published in *Science Advances* today.

More information: S. Peyrégne et al., "Nuclear DNA from two early Neandertals reveals 80,000 years of genetic continuity in Europe," *Science Advances* (2019). DOI: 10.1126/sciadv.aaw5873 , advances.sciencemag.org/content/5/6/eaaw5873

Provided by Max Planck Society

Citation: The ancient history of Neanderthals in Europe (2019, June 26) retrieved 13 March 2024 from <https://phys.org/news/2019-06-ancient-history-neanderthals-europe.html>

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