

Genetic study pushes back timeline for first significant human population expansion

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Using new genetic tools, the authors conclude that the first significant expansion of human populations appears to be much older than the emergence of farming and herding, dating back to the Paleolithic (60,000-80,000 years ago) rather than Neolithic age (10,000 years ago). They also suggest that strong Paleolithic expansions may have favored the emergence of sedentary farming in some populations during the Neolithic.

About 10,000 years ago, the Neolithic age ushered in one of the most dramatic periods of human cultural and technological transition, where independently, different world populations developed the domestication of [plants and animals](#). The hunter-gatherers gave rise to herders and farmers. Changes to a more [sedentary lifestyle](#) and larger settlements are widely thought to have contributed to a worldwide human population explosion, from an estimated 4-6 million people to 60-70 million by 4,000 B.C.

Now, researchers Aimé, et al., have challenged this assumption using a large set of populations from diverse geographical regions (20 different [genomic regions](#) and mitochondrial DNA of individuals from 66 African and Eurasian populations), and compared their genetic results with archaeological findings. The dispersal and expansion of Neolithic culture from the Middle East has recently been associated with the distribution of human genetic markers.

They conclude that the first significant expansion of [human populations](#)

appears to be much older than the emergence of farming and herding, dating back to the Paleolithic (60,000-80,000 years ago) rather than Neolithic age. Therefore, hunter-gatherer populations were able to thrive with cultural and social advances that allowed for the expansion. The authors also speculate that this Paleolithic human [population expansion](#) may be linked to the emergence of newer, more advanced hunting technologies or a rapid environmental change to dryer climates.

Finally, they also suggest that strong Paleolithic expansions may have favored the emergence of sedentary farming in some populations during the Neolithic. Indeed, the authors also demonstrate that the populations who adopted a sedentary farming lifestyle during the Neolithic had previously experienced the strongest Paleolithic expansions. Conversely, contemporary nomadic herder populations in Eurasia experienced moderate Paleolithic expansions, and no expansions were detected for nomadic hunter-gatherers in Africa. "Human populations could have started to increase in Paleolithic times, and strong Paleolithic expansions in some populations may have ultimately favored their shift toward agriculture during the Neolithic," said Aimé.

Provided by Oxford University Press

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