

A study of genetic contributions to changes in prehistoric human stature

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A team of researchers affiliated with several institutions in the U.S. has found that genetics played a large role in changes in height for Europeans over the past 38,000 years. In their paper published in *Proceedings of the National Academy of Sciences*, the group explains their comparison of skeletal and DNA data from early Europeans.

Prior research has shown that genetics and [environmental factors](#) both contribute to height—those whose parents pass on "tall" genes will likely grow tall, for example, unless they have inadequate nutrition. In this new effort, the researchers wondered whether genetics or environment played a role in the changes in [average height](#) that occurred in European people over the past 38,000 years. To find out, they looked at data describing height for 1,100 [skeletal remains](#) and compared it with DNA extracted from the remains of 1,071 individuals who once lived in Europe. More specifically, they looked at people living during known periods when there were clearly changes in height.

Prior research has shown that there was an

average reduction in height between the Early Upper Paleolithic and the Mesolithic. The reverse occurred between the Mesolithic and Neolithic. Prior studies have also shown that changes in height are generally more pronounced in standing individuals than in those that are sitting, suggesting such changes are due more to leg length, than torso.

In their work, the researchers applied what they describe as polygenic risk (PRS) scores to describe [genetic factors](#) contributing to height. They note that such scores have been used to show that approximately 30 percent of variants in modern Europeans can be used to explain [height](#) averages. They report that they found that the changes in stature over the past 38,000 years were mostly due to genetic effects caused by population replacements, rather than environmental effects. They note that there were some periods when environment played a larger role, such as during the Bronze Age—and that geography sometimes played a role, as well. Modern northern Europeans are on average taller than southern Europeans, for example.

More information: Samantha L. Cox et al. Genetic contributions to variation in human stature in prehistoric Europe, *Proceedings of the National Academy of Sciences* (2019). [DOI: 10.1073/pnas.1910606116](https://doi.org/10.1073/pnas.1910606116)

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