Forget the caveman myth: Neanderthal brains challenge what we thought we knew

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We appear to have more in common with our Neanderthal cousins than outward appearances would suggest. New research published in the journal *Proceedings of the National Academy of Sciences* suggests that

the differences between Neanderthal brains and the brains of early modern humans (Homo sapiens) were no greater than the differences we see between various groups of people living today. The findings could challenge the long-held theory about why Neanderthals disappeared around 40,000 years ago.

The popular narrative suggests that Neanderthals were not as smart as the early humans who colonized their territory in Eurasia and ultimately replaced them.

Anatomy could've led science astray

The stock image of Neanderthals as brutish, cognitively inferior cavemen largely stems from differences in the shape of their skulls. Because theirs were more elongated and less round than ours, scientists assumed their brain organization was less advanced. Consequently, it was thought they lacked the memory and language skills that would have been necessary to compete with us. But this may not be correct.

A team of scientists took brain scans (MRIs) from two large modern groups of people: one made up of ethnic Han Chinese individuals and the other composed of Americans with European ancestry. They measured the volumes of 13 different brain regions in these groups and compared them with previously reported differences between Neanderthals and early modern humans who lived alongside them. These measurements were taken from endocasts, 3D models of the inside of Neanderthal skulls used to estimate brain shape and size.

They found that in 9 of the 13 brain regions, the volume differences between the modern Chinese and modern US samples were larger than those between Neanderthals and early humans. "The differences between modern human and Neanderthal brains, as estimated from endocranial reconstructions, do not meaningfully exceed those among different

modern human populations," explained the study authors in their paper.

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Rethinking Neanderthal intelligence

The researchers estimate that any cognitive differences would be very small at only 0.14 standard deviations. This is based on the weak links between brain anatomy and cognitive performance seen in modern humans. That suggests that the mental abilities of the two groups living

in Eurasia were similar on average.

Therefore, according to the team, the range of intelligence in Neanderthals and in humans would have overlapped heavily. So some Neanderthals could have been more capable than some early humans.

"If cognitive differences between modern human populations are not considered significant, Neanderthal differences from their contemporaries should not be either," said the researchers.

In other words, we shouldn't treat Neanderthal differences as especially meaningful if similar differences among humans aren't.

More information: P. Thomas Schoenemann et al, Neanderthal brain and cognition reconsidered, *Proceedings of the National Academy of Sciences* (2026). DOI: 10.1073/pnas.2426638123