

Population size may be clue to why Neanderthals suffered and Neo-African humans survived

A new paper in PNAS, Patterns of coding variation in the complete exomes of three Neanderthals, reiterates what seems to be an emerging fact about ancient northern Eurasian hominins: they were rather inbred. The ratio of benign to deleterious for Neanderthals is obviously not optimal. As noted in the paper the authors suggest that this implies small population sizes which could not purge the deleterious variants through negative selection. The operative dynamic here is that when populations are small, drift becomes very strong relative to selection, and can therefore increase frequencies of mutations which would otherwise be swept out of the genome.

And it is clear from a variety of standard population genetic metrics that these Neanderthals, separated geographically by the expanse of all of Eurasia, and distinct over ~20,000 years, would be considered quite inbred if they were examined today. This is curious because it is often stated that humans, our own neo-African lineage, are a relatively homogeneous population which expanded rapidly in size recently. We haven't had that much time to diverge, and non-Africans tend to have genomes suggestive of bottlenecks in the deep past.

Read the full, original story: [Neanderthals on the Edge of Existence](#)