Study confirms 3 Neanderthal sub-groups

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The Reconstruction of the Funeral of Homo neanderthalensis. Captured in the Hannover Zoo. (Via Wikipedia)

The Neanderthals inhabited a vast geographical area extending from Europe to western Asia and the Middle East 30,000 to 100,000 years ago. Now, a group of researchers are questioning whether or not the Neanderthals constituted a homogenous group or separate sub-groups (between which slight differences could be observed). A new study published April 15 in the online, open-access, peer-reviewed journal *PLoS ONE* may provide some answers.

Paleoanthropological studies based on morphological skeletal evidence have offered some support for the existence of three different sub-groups: one in Western Europe, one in southern Europe and another in the Levant.

Researchers Virginie Fabre, Silvana Condemi and Anna Degioanni from the CNRS Laboratory of Anthropology (UMR 6578) at the University of Marseille, France, have given further consideration to the question of diversity of Neanderthals by studying the genetic structure of the mitochondrial DNA (mtDNA) and by analyzing the genetic variability, modeling different scenarios. The study was possible thanks to the publication, since 1997, of 15 mitochondrial DNA (mtDNA) sequences (the mtDNa is maternally transmitted) that originated from 12 Neanderthals.

The new study confirms the presence of three separate sub-groups and suggests the existence of a fourth group in western Asia. According to the authors, the size of the Neanderthal population was not constant over time and a certain amount of migration occurred among the sub-groups. The variability among the Neanderthal population is interpreted to be an indirect consequence of the particular climatic conditions on their territorial extension during the entire middle Pleistocene time period.

Degioanni and colleagues obtained this result by using a new methodology derived from different biocomputational models based on data from genetics, demography and paleoanthropology. The adequacy of each model was measured by comparing the simulated results obtained using BayesianSSC software with those predicted based on nucleotide sequences.

The researchers hope that one day this methodology might be applied to questions concerning Neanderthal cultural diversity (for example the lithic industry) and to the availability of natural resources in the territory. This could provide new insights into the history and extinction of the Neanderthals.

More information: Fabre V, Condemi S, Degioanni A (2009) Genetic Evidence of Geographical Groups among Neanderthals. PLoS ONE

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