

## Isotopes in teeth suggest two megalithic cultures were separate groups

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Alto de la Huesera megalithic grave (Basque Country, northern Spain), one of the sites analyzed in the study. Credit: Javier Ordoño

A team of researchers from the U.K., Belgium and Spain has found evidence that two groups of people in Late Neolithic Europe living approximately 5,500 years ago belonged to two distinct communities. In their paper published in the journal *Science Advances*, the group describes their study of isotopes from two burial sites and what they found.

Several years ago, scientists studying the remains of two groups of Late Neolithic people living within four to six kilometers of one another in what is now the Rioja Alavesa region in Spain concluded that the two groups were actually just one group—they suggested the distance



between the two groups was due to status and wealth. The researchers had come to this conclusion because of the way the two groups buried their dead. Those that lived in the foothills used caves. Those in the valley created megalithic gravesites. In this new effort, the researchers found evidence that suggests the two groups were actually separate communities.

The new work involved studying the molars of 27 adults who had been buried in the caves and graves—or more specifically, the isotopes they contained. Teeth, unlike bones, do not change their isotope signals as a person ages. That allows for tracking the lifestyle of the person under study, particularly the foods they ate.

The researchers found several differences in diet—the people buried in the megalithic graves ate more plants than did those buried in the caves, particularly when they were children. Conversely, those in the foothills ate more meat. Those living in the valley also had more cavities due to a diet richer in carbohydrates. Also, the children that had grown up in the cave community had more calcium in their teeth, suggesting they were weaned at a later age. Taken together, the evidence suggests that the people in the groups lived apart for most, if not all of their lives, making them separate entities. The researchers suggest that the <u>close proximity</u> likely meant that people from the two communities interacted regularly, including sexually. They also note that it was likely that there were occasional violent encounters, as well—but not enough to justify building protective barriers.







Lead author, Dr. Teresa Fernández-Crespo, loading collagen samples into a mass spectrometer for isotope analysis. Credit: Javier Ordoño

**More information:** T. Fernández-Crespo et al. Multi-isotope evidence for the emergence of cultural alterity in Late Neolithic Europe, *Science Advances* (2020). DOI: 10.1126/sciadv.aay2169

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