

Clues to Neanderthal hunting tactics hidden in reindeer teeth

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A tribe of neanderthals returning from a hunt.

Scientists have found that our cousins the Neanderthal employed sophisticated hunting strategies similar to the tactics used much later by modern humans. The new findings come from the analysis of subtle chemical variations in reindeer teeth.

Reindeer and [caribou](#) are nowadays restricted to the northernmost regions of Eurasia and America. But many thousands of years ago, large reindeer herds roamed throughout Europe and were hunted by the Neanderthal people.

Kate Britton, an archaeologist now at the University of Aberdeen, and her colleagues were part of a team at the Max Planck Institute for Evolutionary Anthropology, Leipzig, that studied the Jonzac Neanderthal site in France - a rock shelter believed to have been used over a long period of time as a hunting camp. The Jonzac site has many layers of flints from [stone-tools](#) and the bones of butchered animals riddled with cut marks.

One of the oldest layers, from about 70,000 years ago, is exceptionally rich in adult reindeer bones. Britton wanted to find out more about these reindeer and their [migratory behaviour](#) to understand Neanderthal hunting strategies better. And the way to do that is to look at the teeth and

their [chemical composition](#).

The reindeer teeth are made of calcium, [phosphorus](#), oxygen, strontium and other elements. But not all the atoms of each element are the same. Some atoms, or isotopes, are heavier than others and may have slightly different chemical properties.

"Strontium isotope analysis is an effective way of looking at animal and human movements in the past," says Britton. "Strontium in your bones and teeth is related to the food and water you consume, and ultimately to the underlying soil and rocks of a particular area."

This means it's possible to look at the strontium isotopes in reindeer teeth and find out if they ate and drank always in the same area, or if they moved around.

Britton and colleagues collected second and third molars from three reindeer remains. The third molars develop a bit later than the second, "but given that both teeth develop incrementally, we can add up the isotope sequence from the two teeth to reconstruct a year in the life of the animal," she explains.

The results, published in the *Journal of Human Evolution*, show that the three reindeer have similar strontium isotope patterns. The ratio between heavy and light strontium isotopes increases slightly towards the crown of the second molar and decreases towards the top of the third molar. The trend suggests that these reindeer moved from one area to another and back again while their teeth were developing, via a similar migration route.

The reindeer were probably hunted close to the Jonzac site. "It could also be possible that these animals were from the same herd, and may even have been hunted at the same time - either during the same hunting episode or over a series of closely timed events," suggests Britton.

But the new isotope analysis suggests that the animals were not local. "The reindeer were probably travelling through the area during their annual spring/autumn migrations," Britton says.

The Neanderthal living at the time were probably aware of the [reindeer](#) migration patterns and planned their stays in Jonzac to make the most out of the moving herd.

"This sophisticated hunting behavior is something we see much later in the Upper Palaeolithic amongst modern human groups, and it's really fascinating to see that Neanderthals were employing similar strategies," concludes Britton.

More information: Britton, K., et al., Strontium isotope evidence for migration in late Pleistocene Rangifer: Implications for Neanderthal hunting strategies at the Middle Palaeolithic site of Jonzac, France, *Journal of Human Evolution* (2011), [doi:10.1016/j.jhevol.2011.03.004](https://doi.org/10.1016/j.jhevol.2011.03.004)

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