

Early human ancestors had more variable diet: Dietary preferences of 3 groups of hominins reconstructed

August 8 2012

An international team of researchers will be publishing their latest research on what our early ancestors ate online in the journal *Nature* today.

The paper titled 'Evidence for [diet](#) but not [landscape](#) use in South African early hominins' was authored by Vincent Balter from the Ecole Normale Supérieure in Lyon, France; Jose' Braga from the Université de Toulouse Paul Sabatier in Toulouse in France; Philippe Te'louk from the Ecole Normale Supérieure in Lyon in France; and Thackeray from the University of the Witwatersrand in Johannesburg in South Africa.

The latest research sheds more light on the diet and home ranges of early hominins belonging to three different genera, notably *Australopithecus*, *Paranthropus* and *Homo* – that were discovered at sites such as Sterkfontein, Swartkrans and Kromdraai in the Cradle of Humankind, about 50 kilometres from Johannesburg. *Australopithecus* existed before the other two genera evolved about 2 million years ago.

The scientists conducted an analysis of the fossil teeth, indicating that *Australopithecus*, a predecessor of early *Homo*, had a more varied diet than early *Homo*. Its diet was also more variable than the diet of another distant human relative known as *Paranthropus*.

According to Thackeray, the results of the study show that *Paranthropus*

had a primarily herbivorous-like diet, while *Homo* included a greater consumption of meat.

Signatures of essential chemical elements have been found in trace amounts in the tooth enamel of the three fossils genera, and the results are indicators of what South African [hominins](#) ate and what their habitat preferences were.

Strontium and barium levels in organic tissues, including teeth, decrease in animals higher in the food chain. The scientists used a laser ablation device, which allowed them to sample very small quantities of fossil material for analysis. Since the laser beam was pointed along the growth prisms of dental enamel, it was possible to reconstruct the dietary changes for each hominin individual.

Thackeray states that the greater consumption of meat in the diet of early forms of *Homo* could have contributed to the increase in brain size in this genus.

Australopithecus probably ate both meat and the leaves and fruits of woody plants. The composition of this diet may have varied seasonally.

Apart from the dietary differences, the new results indicate that the home-range area was of similar size for species of the three hominin genera.

The scientists have also measured the strontium isotope composition of dental enamel. Strontium isotope compositions are free of dietary effects but are characteristic of the geological substrate on which the animals lived.

According to the results all the hominids lived in the same general area, not far from the caves where their bones and teeth are found today.

Professor Vincent Balter of the Geological Laboratory of Lyon in France, suggests that up until two millions years ago in South Africa, the Australopithecines were generalists, but gave up their broad niche to *Paranthropus* and *Homo*, both being more specialised than their common ancestor.

More information: The paper has been selected for Advance Online Publication (AOP) on www.nature.com

Provided by University of the Witwatersrand

Citation: Early human ancestors had more variable diet: Dietary preferences of 3 groups of hominins reconstructed (2012, August 8) retrieved 19 September 2024 from <https://phys.org/news/2012-08-early-human-ancestors-variable-diet.html>

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