

Diet and paleoecology of early hominins

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Diet provides a direct link between an animal and its environment. It should come as no surprise then that paleoanthropologists are interested in reconstructing diets for what they might tell us about the biology and ecology of early hominins. Several recently developed tools focus on teeth to glean new insights into food preferences and adaptations. Examples include a new, objective approach to measuring microwear textures using confocal microscopy and scale-sensitive fractal analyses, and the study of functional aspects of dental morphology using laser scanning and GIS modeling. Results are giving us unprecedented information on within- and between-species variation in diet.

Two concepts of interest to studies of environmental dynamics and human evolution will be discussed. The first, the idea of species-specific dietary adaptations, suggests that early hominin conspecifics may have found foods with similar physical and chemical properties even when they lived in different environments. New microwear texture data on *Australopithecus afarensis* molars spanning the temporal and geographic range of this species show remarkable homogeneity in surface complexity. The second concept, that dietary adaptations may reflect occasional but critical fallback resources rather than preferred foods may explain the combination of morphological differences but microwear overlap recently reported for *Australopithecus africanus* and *Paranthropus robustus*,

This research was funded by the US National Science Foundation and the LSB Leakey Foundation.