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ENVIRONMENTAL CONTEXTS OF EARLY OLDOWAN TOOL MAKERS: STABLE  
CARBON ISOTOPES OF MAMMALIAN TOOTH ENAMEL FROM THE LOKALALEI  
ARCHAEOLOGICAL SITE IN THE NACHUKUI FORMATION, NORTHERN KENYA

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**Abstract**

Scholars have hypothesized that increasing aridity and an expansion of grasslands facilitated several adaptations in genus *Homo* including improved cognitive function that allowed the development of stone tool technology and diversified foraging. As one of the oldest archaeological sites linked with Oldowan stone tool technology in the Turkana Basin of southern Ethiopia and northern Kenya, Lokalalei, dated to 2.34 Ma, provides archaeological and palaeoecological contexts for testing if climate-mediated changes in environmental conditions influenced technological adaptations. This study reconstructs the paleoenvironment at Lokalalei by using large mammal paleodiet as a proxy for past vegetation structures. Paleodiet is inferred by interpreting carbon isotopic values ( $\delta^{13}\text{C}$ ) of large mammalian tooth enamel samples collected from Lokalalei. Previously published pedogenic carbonate  $\delta^{13}\text{C}$  values indicate that the site was situated in woodland habitat, but new enamel  $\delta^{13}\text{C}$  data reported here indicate that the majority of mammalian taxa consumed  $\text{C}_4$  grass-based diets. The contrast between the two vegetation structure proxy records may indicate that tool-using hominins transported carcasses from basin grasslands to Lokalalei for consumption, demonstrating significant bipedalism and cognitive capability.