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# Human Occupation and Adaptation to the Andean Highlands during the Early Holocene: Evidences from Oxygen and Strontium Isotopic Analyses

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## Abstract

The settlement of the Americas challenges us to detail the process of adaptation that people experienced when occupied new environments. In the case of the occupation of the Andean highlands, there is a debate around the mobility and settlement strategies that people could implement for surviving at such altitudes. Recent investigations at the Cuncaicha rock shelter (4480 m.a.s.l) in the Peruvian Andes, bring new insights about the way people occupied and settled the highlands. At this site, Sr and O isotopes of dental enamel carbonates of buried individuals as well as meteoric water samples were analyzed. Both analyses helped to characterize biochemically the highland environment surrounding the rock shelter (Pucuncho Basin) as well as the other ecological zones at lower altitudes. They also helped to detail the mobility strategies and the ecologic zone where human individuals lived since their childhood. The results suggest that people from the Cuncaicha rock shelter occupied permanently the Pucuncho Basin and they were likely already adapted to the harsh conditions of the highlands.

**Keywords:** Isotopes, highlands, mobility, adaptation, dental enamel

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