



ABSTRACT SUBMISSION

Uncovering Mobility and Subsistence in Neolithic Southeastern Arabia: Isotopic and Bioarchaeological Evidence

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Abstract

Despite the growing number of Neolithic sites in Southeastern Arabia, mobility and subsistence patterns still remain poorly understood. The prevailing view is that local communities practised a hunter-fisher-gatherer lifestyle with increasing reliance on pastoralism, yet there is a lack of concrete evidence. The arid conditions of the Arabian Peninsula hinder the preservation of human remains, preventing standard collagen-based analyses and necessitating reliance on the bioapatite (inorganic) part of bones and enamel.

The current potential of geochemical and bioarchaeological analysis for studying complex Neolithic communities is demonstrated through a unique 5th millennium BC megalithic collective burial site excavated at Wadi Nafʿn, Sultanate of Oman. Isotope analysis of $^{87}\text{Sr}/^{86}\text{Sr}$ and $\delta^{18}\text{O}$ shows that individuals buried in this grave came from diverse regions, with some potentially travelling significant distances.

Dietary reconstructions are more difficult to assess under current conditions, but $\delta^{13}\text{C}$ isotopes, marine reservoir effect calculations, and elemental concentrations of the bioapatite indicate a mix of terrestrial and marine food sources. For the first time, $\delta^{15}\text{N}$ isotopes from dental enamel indicate Neolithic coastal groups' protein intake. Dietary insights are complemented by dental wear patterns and analysis of starch grains and phytoliths in dental calculus.

Keywords

subsistence, mobility, diet, bioapatite, isotopes

Session

5. Neolithic paths

Workshop

Type of paper

Oral presentation