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Molluscs in the Levantine Upper Palaeolithic: implications for modern human diets and subsistence behaviour

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1. Oxygen isotope analysis of *Phorcus turbinatus* shells found at Ksâr 'Akil indicates that shellfish formed a regular nutritional supplement to diet throughout the year during the Early Ahmarian and most later Palaeolithic periods, suggesting that coastal foraging strategies have been in place since at least 43 ka cal BP.
2. In the Eastern Mediterranean region, Early Ahmarian hunter-gatherers had broader diets than their Initial Upper Palaeolithic forbearers, both in terms of the diversity of faunal resources as well as different habitats that were exploited, signifying a broadening of subsistence-related strategies.
3. The presence of modern humans carrying an Upper Palaeolithic toolkit at Ksâr 'Akil predates any known European modern human fossils to date, supporting the hypothesis that the Levantine region served as a corridor for the dispersal of modern humans into Eurasia and allows rejection of recent claims that European Upper Palaeolithic modern humans predate those in the Levant.
4. At Ksâr 'Akil, shellfish exploitation became increasingly important from the Early Ahmarian onwards, but shellfish were never over-exploited to the point that it left visible traces in the archaeological record, suggesting that shellfish were gathered in low quantities and were more important as a supplement of essential nutrients than a source of calories.
5. Because it is difficult to distinguish between repeated dispersals followed by population extinctions and continuous settlement of a new territory due to the fragmented character of most if not all archaeological sequences, genomic studies of human and animal remains in conjunction with those on the horizontal and vertical cultural transmission of material culture may help resolve these questions.
6. Seasonality studies are usually conducted on a single proxy to gain a more complete view of past subsistence strategies, landscape use, timing of site occupation, and mobility patterns; thus, it would be beneficial to use an integrative approach incorporating methods such as stable isotope analysis, zooarchaeological ageing approaches, and when possible, techniques to identify plant food exploitation.
7. Dating shells remains challenging, but reasonable age estimates can be obtained with careful sample selection that considers the ecology, context, and integrity of samples and uses several independent lines of evidence to question the validity of models generated with and without Bayesian statistics.
8. The quality of Palaeolithic diets is at least as important as its quantity; therefore, to generate more informative results we should use a combination of Nutritional Ecology and Optimal Foraging approaches when investigating past human diets.
9. Faunal assemblages can be informative on, e.g., past foraging behaviour, landscape use, habitat exploitation, and seasonality of site occupation only after potential biases are adequately understood, especially for sites excavated long ago when excavator bias played a bigger role than at more recently excavated localities.
10. For archaeologists, fieldwork is crucial for gathering primary data, gaining experience, and building the professional network needed to develop a career in either commercial archaeology or academia; therefore, the reduction of fieldwork requirements and opportunities at many European universities in recent years is counterproductive.