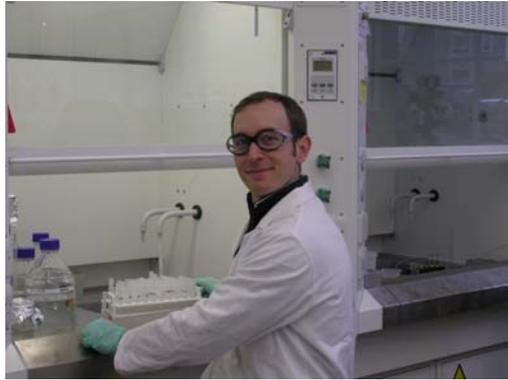


Two Isotopic Approaches to Archaeological Questions: Examples from Anglo-Saxon Diet and Turkish Carpet Provenance



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Anglo-Saxon Diet: In order to assess dietary variability across a population/culture group, 801 bone collagen samples from 17 inhumation cemeteries and 4 settlements were analysed for $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$. In this paper we question the universality of human diet in a single cultural group, in the same time period at a variety of sites. Stable isotope results from Anglo-Saxon inhumations were compared with six different types of burial evidence: sex, age, height, body position, grave orientation and grave goods. A mosaic of dietary patterns was present at the sites sampled in Hampshire, Norfolk and Suffolk. Sites appear to have had dissimilar social controls over consumption of food (stable isotopes) and social expressions represented in the grave. An accurate interpretation of human isotopic data can not be made without a sufficiently large amount of equivalent animal data. Isotopic differences between the human data from Hampshire and East Anglia ($p < 0.01$) would have been identified as a different dietary/cultural pattern without the inclusion of 358 animal bone collagen samples. The $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ shift may be due to climatological, geological, and ecological factors.

Turkish Carpet Provenance: Previous research into establishing the provenance of ancient textiles using stable isotopes presented a surprising amount of variation in modern biological samples. Geographical isotopic differences were present in C, N and S as incorporated into modern sheep wool (Hedges et al 2005). In order to establish isotopic patterns, two series of sites were sampled across Turkey for modern sheep wool. Nearly 500 wool samples (2003-2005 winter growth) were collected from 30 sites from different regions across Anatolia. In this paper, we report the C, N and S results from modern wool sampling. Five sites produced enriched $\delta^{15}\text{N}$ values ($>9.5\text{‰}$) representing a meaningful/unusual shift in nitrogen content of the diet. The implications of this pattern are very significant, especially within archaeological research into ancient diet, and will be discussed.

Geographical variation in stable isotope values across Turkey is also present. Taken together, C, N and S present a general indicator of isotopic provenance of source material, but not an exact marker. To refine/strengthen our ability to identify the source for wool samples, $\delta^2\text{H}$ and $^{87}\text{Sr}/^{86}\text{Sr}$ were also analysed from wool collected in the 2003/2004 series. The hydrogen and strontium results present a further isotopic pattern, which, when used in accordance with carbon, nitrogen and sulphur, may allow for the geographical placement of ancient textiles.

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