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solved looking into the skeletons of these individuals.

In this study, we analysed skeletons of males and females, mostly adults, who registered the dietary habits of the last decade of their life into their bones. Most of the protein intake was stored in the organic part of their bones (collagen), while the mineral fraction (apatite), reflects all dietary components, i.e., carbohydrates, lipids and proteins. We deciphered their diet measuring the carbon isotopic ratios of collagen and apatite, which mirrors that of C3 versus C4 plants, whose composition differs according to their photosynthetic pathways. Nitrogen isotopic ratios of collagen was used for decoding their trophic level. Finally, bone apatite oxygen isotopic ratios were used for investigating whether or not they had access to similar water sources, which can provide insight into their mobility.

Around 60 human bones as well as 60 faunal samples were analysed. Contemporaneous fauna, wild and domestic, associated to each site was concomitantly analysed for establishing a proper local baseline for each human settlement. This allows to discuss dietary habits and mobility patterns independently from environmental contexts. Additionally, these results are also interpreted in terms of husbandry practices.

10 DIETARY SHIFTS AT THE LATE ANTIQUITY TO THE EARLY MIDDLE AGES TRANSITION IN THE NORTHEAST IBERIAN PENINSULA

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Presentation Format: Oral

The transition between Late Antiquity and the Early Medieval period in the Northeast Iberian Peninsula was characterized by several demographic and socio-political changes. Different peoples (Germanics and North Africans) settled in this region in successive migratory waves. The impact of these population movements on the customs and cultural habits of the local population has been scarcely explored. Here, we explore dietary changes of the population buried in the necropolis of the Sant Pere Churches of Terrassa (Barcelona) during the Visigoth and Carolingian periods (5th to 10th centuries). Our study investigates carbon and nitrogen stable isotope values in bone collagen from 75 human samples related to both periods. Faunal remains were also analyzed to define the local baseline of the trophic food chain for the human paleodietary reconstruction. Results show an influence of terrestrial sources in diet not revealing the influence of the sea on the human diet during both periods. Both populations here analyzed describe a diet based on C3 terrestrial resources with a major protein component. There is no evidence of the consumption of C4 plants in their diet. However, the occasional consumption of freshwater resources cannot be ruled out, specially during the Visigoth period. While δ13C values remain stable through both periods, a shift in mean human δ15N values provides evidence for a significant change in diet in the Carolingian, probably through an attenuation of animal protein in diet. Differences between male and female adult individuals remains stable within both periods, although Visigoth males and Carolingian females represent major opposite ends. Finally, an important factor ruling our isotopic data is related with grave typology, where more complex funerary structures documented during the Visigoth period where used by male individuals with a high requirements in animal-protein through life.

11 EXPLORING DIET IN A RURAL COMMUNITY OF THE EARLY MIDDLE AGES: SANTA MARÍA DE TEJUELA (BURGOS)

Author(s): Jiménez-Brobeil, Sylvia A. - Maroto, Rosa M. - Laffranchi, Zita (University of Granada) - Delgado Huertas, Antonio (IACT - CSIC)

Presentation Format: Oral

Osteological material from the medieval necropolis of Sta. María de Tejuela, better known as Villanueva de Soportilla (Burgos-Spain), was studied from a bioarchaeological and isotopic perspective (δ15N and δ13C). In the cemetery more than 300 burials were located of which approximately one third contained human remains. These are tombs excavated in the rock with different typology, all dating back to the Early Middle Ages. The cemetery belonged to a community of Christian peasants, in a rural enclave far from political and power centers.

We selected 48 human ribs samples and 11 animal samples from the near site of S. Martín de Lantarón for isotopic analysis with the aim of exploring diet and lifestyle condition in this population. We also performed 14C dating that ranged between the 8th and 10th centuries. The analyzes were carried out at the Stable Isotope Laboratory of the Andalusian Earth Sciences Institute, following the protocol of Bocherens.

The δ13C collagen values of the 48 selected individuals range between -19.4 ‰ and -16.9 ‰ (V-PDB) with a mean of -18.4 ± 0.6 ‰ (V-PDB) while their δ15N data vary between 8.0 ‰ and 10.2 ‰ with an average of 9.4 ± 0.5 ‰ (AIR). Isotopic delta values of the fauna samples pointed to an exclusive consumption of C3 plants (≈20.3 ‰ V-PDB). The δ13C values of humans are characteristic of a diet with vegetables type C3 and those of δ15N suggest a slightly increased consumption of proteins of animal origin. There are no differences between the diet of males and females. This study is a fundamental contribution to the study of the High Medieval populations of the north of the Iberian Peninsula.

This paper has been supported financially by the Research Project HAR-2016-75788 funded by the Spanish Government.

15 EATING IN SILENCE: ISOTOPIC APPROACHES TO NUNS´ DIET OF THE CONVENT OF SANTA CATALINA DE SIENA (BELMONTE, SPAIN)

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Presentation Format: Oral

The advances in geochemical and physical anthropological studies have provided new tools to reconstruct ancient lifestyles, especially on those minorities not commonly mentioned in the texts. In comparison with males, little is known about everyday life in female monastic communities and how it changed over time. Here we present a paleodietary (δ13C and δ15N in bone collagen) study of human (n=53) and animal (n=13) remains recovered from Santa Catalina de la Siena in Belmonte (Cuenca, Central Spain). Two funerary areas used by Dominican nuns were sampled: one dated in the 16th (n=28) and 17th (n=15), and the other dated in 19th-20th(n=10) centuries AD. The isotopic values suggest the presence of different management strategies or diverse ecosystems origin in the animals consumed at the convent. Human sample reflects a terrestrial diet with presence of C4 plants (millet, maize or sugar cane). The 16th and 17th century individuals show a continuous shift in δ15N (9.7-12.7‰), with no isotopic differences according to period, age or pathologies (osteoporosis, periostitis and brucellosis). The 19th- 20th century series are divided in two groups: a) one that fits into previous centuries trend with higher δ15N possibly related to a large access to animal protein; and b) a second group with elevated δ13C values (up to -15.7‰). Different customs in the assumed homogeneous monastic life are discussed as possible sources of isotopic variation, including access to luxury products such as animal protein or sugar, or practice of food abstinence periods, especially popular on those communities according to texts.

16 TIME TO START AN IBERIAN ARCHAEOISOTOPE ASSOCIATION?

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Presentation Format: Oral

During the last decade, isotopic analysis on bioarchaeological remains (i.e. humans, fauna, plants) has seen a boost in its application in the Iberian Peninsula, discovering a complex scenario connected to the diverse cultural backgrounds, wide climatic transitions and biogeographical resource differences existing in this region of the Western Mediterranean. As a result, our detailed knowledge on past human dietary patterns, territorial mobility, animal husbandry, farming and other aspects of our ancestor's lives in Iberia is today broader than years ago. Each time more researchers, both local and non-local, apply stable isotope analysis on Iberian archaeological remains, and a plethora of projects and Doctoral Thesis are coming up. In this context, we consider necessary for the Isotope community working in Iberia to establish a network in which to share knowledge and contacts. New debates about ethic aspects, equipment acquisition, the relationship with institutions, and the demand of a scientific and ecological approach, are now more than ever necessary. We do think that creating an Association is a good start to promote collaboration and quick transfer of knowledge amongst the isotope community. With this slot we would like to open the discussion of this possibility to the people present in the session who work on stable isotope analysis in any Iberian country.

a. CORRELATION BETWEEN STATURE AND STABLE ISOTOPES

Author(s): Maroto, Rosa M. - Roca, María G. - Espinar, Manuel - Román, Carmen M. (University of Granada)
Presentation Format: Poster

A medieval osteological sample (n=20) from the rural community of San Baudelio of Berlanga (Soria, North of Spain) was studied from a bioarchaeological and isotopic (δ15N and δ13C) perspective. The cemetery was dated by Radiocarbon between the 11th and the mid-13th centuries AD. The main objective of this poster is to present the finding of a positive correlation between stature of the individuals and δ13C values.

The isotopic δ15N and δ13C values were obtained by Bocherens procedures from rib bone collagen. Analyzes were performed in the Andalusian Earth Science Institute (IACT-CSIC). The stature was calculated using Olivier-Tissier (1975) formulae. Statistical analysis was performed with the program SPSS.

The found correlation between stature and δ13C values may be related to the fact that the shortest individuals are precisely those with the more positive values. These skeletons are also those dated in the first half of the 13th century AD. The reduced size of the sample did not allow valid conclusions, because it is impossible to know for sure if these individuals, with a presumably somewhat different diet, have a different origin or the first half of the 13th century AD brought a change in the type of vegetable consumed.

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