



# II MEETING NAZIONALE

Gruppo Italiano di Paleopatologia

L'AQUILA, AUDITORIUM DEL PARCO

31 OTTOBRE 2015 ore 9:00

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of a skeletal sample reveals a high mortality rate for infants (0-6 years-45,8%). This report considers abnormal lesions found in two infants at least. The individual T.71 (18-24 months of age) is represented by the right lower limb, *ilium* and *ulna*. Flaring and swelling of distal metaphyses, fraying bone margins growth plate, porosity growth plate, cupping deformities of growth plate metaphyses are present. The tibia and the fibula show medial bending deformities. Angulation of femoral neck and angulation of knee are visible as well. The described features lead to a likely rickets diagnosis. The specimen T.78 (6-12 months of age) exhibits bilateral porosity on the external surface of the sphenoid's greater wing, on the endo-ectocranial surface and also on the orbital roof. Other recorded features are abnormal porosity at the palate, on the coronoid process of the mandible, around the infraorbital foramen of the maxilla and along the alveolar process, which could be associated with the bleeding gums phenomenon. Postcranial features include: slight porosity and new bone formation on the supra- and infraspinous fossae of the scapulae. Subperiosteal hemorrhages are inferred from the presence of porosity and hypertrophic new bone formation on any limb bone. The other skeletal features consist of: prominent frontal and parietal bossing, slight medial angulation of the mandibular ramus and the enlargement of costochondral rib junctions. Lastly the cortex of the distal and proximal metaphyses of the limbs is irregular and porous and the growth plates display porous frayed and flared surfaces. The metaphyses of long bones show bending and cupping. The skeleton reveals a set of lesions indicating that this individual probably suffered from rickets and scurvy.

#### References

- Brickley M, Ives R. *The Bioarchaeology of Metabolic Bone Disease*. Oxford: Elsevier, 2008.
- Lewis M. *The bioarchaeology of children: Perspectives from biological and forensic anthropology*. Cambridge: University Press 2007.
- Ortner D, Butler W, Cafarella J, et al. *Evidence of probable scurvy in subadults from archaeological sites in North America*. *Am J Phys Anthropol* 2001;114:343-51.

### Health status and isotopic variability: possible correlation in the metabolic disorders in the community of Piazza Madonna di Loreto (Rome, VII- VIII century AD)

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*Paper not received*

### Paleonutrition of the rural Italian population from the Middle Ages to the Contemporary Age: isotopic analysis of some Tuscan skeletal samples

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The studies on paleodiet through stable isotope evidence of carbon ( $\delta^{13}\text{C}$ ) and nitrogen ( $\delta^{15}\text{N}$ ) content in bone collagen represent a line of investigation widely practiced in archaeology and anthropology. The application of this method in prehistoric American and European skeletal series, as well as in historical age groups, has provided new investigative tools to reconstruct environment, food economies, access to resources and social characterization of human groups in the past. This method was recently applied by the Division of Paleopathology of University of Pisa, in collaboration with the second University of Naples, in several samples from rural Tuscan cemeteries. These skeletal series are different in chronology, related to contexts of the Medieval (11<sup>th</sup>-14<sup>th</sup> century) and Post Medieval Ages (19<sup>th</sup> century), from the inner Apennine and the hilly Tuscany. The comparison of sites with different settling characteristics (Parish cemeteries, graveyards of Castle), as well as within a site with individuals occupying different spatial hierarchical positions (in proximity or away from the church), provides useful data to interpret the diet as social indicator. Our analysis also offers some insights to interpret correctly the meaning of results in relation to the material characteristics of burials, settlements and of the written sources. Finally isotope models allow us to advance some hypotheses on food and diet in different human groups.

#### References

- Fornaciari G, "Tu sei quello che mangi": le economie alimentari nelle analisi isotopiche di campioni medievali e post-medievali della Toscana. Atti della LXIII settimana di studio del CISAM (Spoleto, 9-14 aprile 2015), in press.
- Sutton MQ, Sobolik KD, Gardner JK. *Paleonutrition*. Tucson: University of Arizona Press 2010.
- Reitsema LJ, Vercellotti G. *Stable Isotope evidence for sex- and status-based variations in diet and life history at Medieval Trino Vercellese, Italy*. *Am J Phys Anthropol* 2012;148:589-600.

### Dentoalveolar diseases and dietary habits in the social upper classes of the Italian Renaissance: the Guinigi family from Lucca

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Teeth and their pathologies are very important when studying

the life-style, social behaviour, health condition and diet of ancient populations. Many articles in paleoanthropological literature describe dentoalveolar diseases in the Antiquity, mainly in the low-class societies, and only a few reports regard the oral conditions of the social upper classes.

The purpose of this research is to examine the dental condition in an upper-class family of the Italian Renaissance, in terms of dietary habits and food resources. The research was carried out on the skeletal remains of the Guinigi family from Lucca (Tuscany), dated back between the end of the 14<sup>th</sup> and first half of the 17<sup>th</sup> century.

The study of dentoalveolar diseases was performed on 45 individuals and 325 teeth, equally distributed between males and females, and isotopic analysis of <sup>13</sup>C and <sup>15</sup>N was performed on 13 samples.

The frequency of dentoalveolar diseases was very high in the upper class samples, and varied from 27% to 60% of the teeth/alveoli affected, while the frequencies were lower (16-20%) in the rural samples. Caries was extraordinary frequent in the Guinigi family with a prevalence of 70.8% in females and 43.5% in males, while *ante-mortem* tooth loss and abscesses were more frequent in males, whose life span was higher.

Different factors may promote tooth decay, but dietary habits, as well as physiological or behavioural factors, certainly play an important role in caries development, and may explain the differences observed between sexes.

The results of isotopic analysis indicated a diet based on higher protein intake with respect to the lower social classes, with a good presence of vegetables, but gave no indication about cariogenic foods.

A large consumption of not complex sugars may be responsible, at least in part, for the high frequency of caries among the wealthy classes and in particular in the Guinigi family.

It is well known that expensive and elaborate foods, including sweets, sugar cane and honey, adorned the banquet tables of Renaissance Princes. Moreover, some members of the Guinigi family, in the middle of the 16th century, founded a company for sugar cane refining and trade, probably due to the consumption of very large quantities of this elitarian food.

## References

- Fornaciari G. *Food and disease at the Renaissance courts of Naples and Florence: A paleonutritional study*. *Appetite* 2008;51:10-4.
- Fornaciari G. "Tu sei quello che mangi": le economie alimentari nelle analisi isotopiche di campioni medievali e post-medievali della Toscana. Centro Italiano di Studi sull'Alto Medioevo, LXIII Settimana di Studio (Spoleto, 9-14 aprile 2015). In press.
- Grieco AJ. *Alimentazione e classi sociali nel tardo Medioevo e nel Rinascimento in Italia*. In: Flandrin JL, Montanari M, *Storia dell'alimentazione*. Bari 2003, pp. 371-380.

## Paleonutrition and Paleopathology: Food and Disease at the Renaissance Courts of Naples and Florence

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The study concerns 25 individuals from the Basilica of S. Domenico Maggiore in Naples (15<sup>th</sup>-17<sup>th</sup> centuries) and of 20 individuals from the Medici Chapels of the Basilica of S.

Lorenzo in Florence (16<sup>th</sup>-17<sup>th</sup> centuries). The isotopes clearly reflect the large intake not only of meat but also of marine foods by the Italian aristocratic classes, especially from southern Italy, in the 15<sup>th</sup>-17<sup>th</sup> centuries.

I present three important "clinical" cases. The left foot of Ferdinando I de' Medici, Grand Duke of Tuscany (1549-1609), shows, at the peri-articular and articular surface of the interphalangeal joint of the *hallux dorsum* a lesion typical of chronic gout. High values of  $\delta^{15}\text{N}$  demonstrate a diet very rich in meat from terrestrial animals. This isotopic profile well correlates with the frequent attacks of gout referred by court chroniclers and with the diagnosis of chronic gout of the left big toe revealed by the paleopathological study. The skull of Don Filippino de' Medici (1577-1582) shows non-severe external hydrocephaly. The  $\delta^{15}\text{N}$  isotope values of don Filippino reveal a diet very rich in proteins of animal origin. The hereditary prince, was a frail and sickly child, affected by rickets. Probably for this reason, his parents and the court doctors forced him to eat more meat, considered at that time "the first source of physical strength". Autopsy of the mummy of Ferrante I d' Aragona, king of Naples (1431-1494), revealed a moderately differentiated colon adenocarcinoma extensively infiltrating the muscles of the small pelvis. Ancient DNA amplification of the neoplastic cells by PCR in the mummy of Ferrante I evidenced a typical point mutation of the K-ras gene codon. The portraits of Ferrante reveal growing obesity from youth to maturity. Examination of the mummy of Ferrante, confirms his obesity. The paleonutritional data, with their high level of  $\delta^{15}\text{N}$ , show a massive intake of animal proteins. The alimentary "environment" of the Neapolitan court of the XV century and the sovereign's habits, with his abundance of natural endogenous alkylating agents, well explain the K-ras mutation causing the tumor which killed the Aragonese king over five centuries ago.

## References

- Fornaciari G. *Food and disease at the Renaissance courts of Naples and Florence: A paleonutritional study*. *Appetite* 2008;51:10-4.
- Grieco AJ. *Alimentazione e classi sociali nel tardo Medioevo e nel Rinascimento in Italia*. In: *Storia dell'alimentazione*, Flandrin JL and Montanari M Eds, Bari 2003, pp. 371-380.
- Ottini L, Falchetti M, Marinuzzi S, et al. *Gene-environment interactions in the pre-Industrial Era: the cancer of King Ferrante I of Aragon (1431-1494)*. *Human Pathology* 2010;42: 332-9.

## Pulmonary antracosis on natural mummies of XVI-XVIII century AD from Roccapelago (MO, Italy)

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Roccapelago is a small town of the Apennines; during the restoration of the local parish church it was found a burial crypt containing the remains of 300 individuals who lived between the sixteenth and seventeenth century AD, of which at least 60 in natural mummification. Natural mummification was made possible by the unique location of the crypt built on the ruins of the ancient fortress of Roccapelago and equipped