# VII JORNADAS PORTUGUESAS DE PALEOPATOLOGIA

PROGRAMA — RESUMOS

**Évora, 24-25 de setembro de 2021**

UNIVERSIDADE DE ÉVORA
CIAS Centro de Investigação em Antropologia e Saúde UID/ANT/00283/2019
GEEvH GRUPO DE ESTUDOS EM EVOLUÇÃO HUMANA
FCT Fundação para a Ciência e a Tecnologia

**VII JORNADAS PORTUGUESAS DE PALEOPATOLOGIA:**
a saúde e a doença no passado | programa-resumos

**7TH PORTUGUESE CONFERENCE ON PALEOPATHOLOGY:**
health and disease in the past | program-abstracts

24-25 DE SETEMBRO DE 2021 | 24TH-25TH SEPTEMBER 2021

RESEARCH CENTRE FOR ANTHROPOLOGY AND HEALTH
DEPARTMENT OF LIFE SCIENCES, UNIVERSITY OF COIMBRA

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# Programa | Program

## 24 de setembro | *24th september*

9:45 – Abertura da plataforma ZOOM | *Opening of the platform ZOOM*

10:00 – 10:20 – Sessão de abertura | *Opening session*

10:20 – 11:15 – **Comunicações orais I** | ***Podium presentations I***

Moderadora / Moderator: Teresa Fernandes

10:20 – ***Diseases in the Portuguese mainland through the ages: preliminary data from paleopathological studies****
Inês BELÉM, Francisca ALVES-CARDOSO
10:30 – ***Estimating age or resilience? Exploring stress-induced changes and age-at-death indicators in an Eighteenth Century sample from Lisbon (Portugal)****
Mariana FERREIRA, Francisca ALVES-CARDOSO
10:40 – ***Evidence of knee Osteochondritis dissecans in the Coimbra Identified Skeletal Collection and proposal of a new classification system for paleopathology****
Ana Rita SAMPAIO, Bruno M. MAGALHÃES, Fernando FONSECA, Rosa Ramos GASPAR, Ana Luísa SANTOS
10:50 – ***Possible case of diffuse idiopathic skeletal hyperostosis in a cremated individual with hypercementosis from Roman Salacia (Alcácer do Sal, Portugal)***
Filipa Cortesão SILVA, Andréa OLIVEIRA, Ana Luísa SANTOS

11:00 – Discussão | *Discussion*

11:15 – Intervalo | *Coffee break*

11:30 – 12:50 – **Comunicações orais II** | ***Podium presentations II***

Moderadora / Moderator: Teresa Fernandes

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11:40 – ***Diseases in the city of Almada (Portugal) during the late 18th century: medical records – years 1788, 1789 and 1792***
Francisco CURATE, Telmo ANTÓNIO
11:50 – ***The many faces of a disease: five possible cases of treponematosis from Tomar (11th - 17th centuries), Portugal***
Ana CURTO, Teresa FERNANDES, Cláudia RELVADO, Célia LOPES
12:00 – ***Possible association between porous skeletal lesions and respiratory infections in juveniles from the Coimbra Identified Skeletal Collection****
Ricardo A.M.P. GOMES, Jimmy PETIT, Olivier DUTOUR, Ana Luísa SANTOS
12:10 – ***Smallpox in past Portuguese populations: three possible examples of osteomyelitis variolosa from Sarilhos Grandes (adult female) and Sertã (two ulnae)***
Bruno M. MAGALHÃES, Filipa Tavares dos SANTOS, Paula Alves PEREIRA, Roger Lee JESUS, Rosa Ramos GASPAR, Ana Luísa SANTOS

12:20 – Discussão | *Discussion*

12:50 – 14:30 – Almoço livre | *Lunch*

14:30 – 15:10 – **Palestra I | *Keynote lecture I*:**
***A closer examination of childhood diet: individual stories***
Julia Beaumont (University of Bradford, UK)

15:10 – 16:20 – **Comunicações orais III | *Podium presentations III***

Moderadora / Moderator: Ana Curto

15:10 – ***The impact of environmental stress on minor congenital defects (MCD): measuring the association between MCD, stress markers and bone length in the Lisbon Identified Skeletal Collection (Portugal), from the 19th/20th century***
Alexandra AMOROSO, Susana J. GARCIA
15:20 – ***Dwarfism in the past: an analytical review of the bioarchaeological literature****
Natalie M. BRANCA, Kirsi O. LORENTZ
15:30 – ***Spina bifida occulta in adult individuals from the Coimbra Identified Skeletal Collection (19th-20th centuries)****
Ana GONZÁLEZ-RUIZ, Ana Luísa SANTOS
15:40 – ***What is spina bifida? Classification protocol and it's introduction into the* Colecção de Esqueletos Identificados do século XXI da Universidade de Coimbra *(CEI/XXI), Portugal****

Maria Torres MANSO, Vítor M.J. MATOS
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M. MATCZAK, M. KRENZ-NIEDBAŁA, S. ŁUKASIK, J. BUIKSTRA, A. M. WYRWA, J. PEARSON
16:00 – ***Evidence of short-limbed dwarfism in an Islamic osteological sample from the Hospital da Misericórdia, Loulé, Portugal (10/11th-13th AD)***
Cláudia RELVADO, Célia LOPES, Ana CURTO, Judith LÓPEZ, Isabel LUZIA, Teresa FERNANDES, Anne-France MAURER

16:10 – Discussão | *Discussion*

16:30 – Intervalo | *Coffee break*

16:45 – **Sessão de apresentações em póster (I)** | ***Poster session (I)***

Moderadora / Moderator: Ana Luísa Santos

***Multiple skeletal injuries in a male of African ancestry from Bucelas (15th-19th centuries AD, Portugal)***
Nathalie ANTUNES-FERREIRA, Francisco CURATE
***A rare heterotopic ossification in a 14th-19th century female skeleton from Constância (Portugal)***
Sandra ASSIS, Joana GARCIA
***Deliberate modifications to the shape of skulls based on the example of Chancay culture anthropomorphic figures, Peru (700/900–1470 CE)***
Judyta BĄK, Katarzyna ZDEB
***Tertiary syphilis in a juvenile individual buried at a rural monastery in early modern Cantabrian Spain***
E. CAMARÓS, S. CARNICERO, M. CUETO, J.I. JIMÉNEZ CHAPARRO, A. Ruiz GUTIÉRREZ
***Digital pathology: research communications and tutorials on YouTube***
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***A unique case of gunshot trauma in a Western lowland gorilla from the Republic of Cameroon***
Vanessa CAMPANACHO
***Pseudo-trauma in a female individual who died from hanging from the Lisbon Identified Skeletal Collection, Portugal***
Vanessa CAMPANACHO, Susana J. GARCIA
***A possible case of osteochondritis dissecans on the proximal articular surface of the tibia of an adult male exhumed from the municipal cemetery (1836-1940) located at Torres Novas Castle, Portugal****

Liliana Matias de CARVALHO, Susana HENRIQUES, Fátima Beja e COSTA, Sofia N. WASTERLAIN

***Is this a case of neonatal scurvy? Widespread bone lesions in an infant from a Late Antique Italian burial****

Viola CECCONI, Alessandra SPERDUTI, Cécile BROUILLARD, Jan GADEYNE

***Ancient parasite analysis and zoonotic potential of feline parasite Spirometra sp. in archaeological sites (984-905 AP) from Pernambuco, Brazil****

Adelianna de Castro COSTA, Morgana CAMACHO, Shênia Patrícia Corrêa NOVO, Joseli Maria da Rocha NOGUEIRA

***Exploring inequality through degenerative joint disease in a colonial Spanish-American city (foundational area in the city of Mendoza, Argentina)***

P. Sebastián GIANNOTTI, Horacio D. CHIAVAZZA, Leandro H. LUNA, Daniela A. MANSEGOSA

***Teeth and lifestyle: oral health of mid-late Holocene sambaqui builders from Saquarema, RJ, Brazil***

Victor GUIDA, Murilo Quintans Ribeiro BASTOS, Claudia RODRIGUES-CARVALHO

18:15 – Encerramento do 1.º dia | *Closing of the first day*

## 25 de setembro | *25th september*

9:45 – Abertura da plataforma ZOOM | *Opening of the platform ZOOM*

10:00 – 10:40 – **Palestra II** | ***Keynote lecture II*:**
***Paleopathology at Qafzeh Cave, Israel (Middle Paleolithic, ca 90 ka): new evidence revealed by Paleoimaging***
Dany Coutinho-Nogueira (Universidade de Coimbra, Portugal)

10:40 – 11:25 – **Comunicações orais IV** | ***Podium presentations IV***

Moderador / Moderator: Francisco Curate

10:40 – ***Health and growth in a peri-urban Roman age (III-V centuries) community: a close look at infant stress, morbidity, and age-at-death (Moinho do Castelinho, Amadora, Portugal)****
Liliana Matias de CARVALHO, Vanessa DIAS, Gisela ENCARNAÇÃO, Sofia N. WASTERLAIN
10:50 – ***Exploring oral health and dietary habits: dental and stable isotope analysis of human remains from the Medieval Necropolis of Rua dos Barcos, Ribeira de Santarém (Portugal)***
Adriana LEITE, Anne-France MAURER, Cláudia RELVADO, Cláudia UMBELINO, Ana Maria SILVA
11:00 – ***Stafne bone cavities in the human mandible: new archaeological cases from Germany and an anthropological perspective***
C. MEYER

11:10 – Discussão | *Discussion*

11:25 – Intervalo | *Coffee break*

11:40 – 13:00 – **Comunicações orais V** | ***Podium presentations V***

Moderador / Moderator: Francisco Curate

11:40 – ***Characterising bone trauma through biomechanical experiments using polyurethane bone simulants and replica prehistoric weapons: experimental approach to interpersonal violence from Nataruk (Kenia, Africa)***
E. CAMARÓS, R. FOLEY, M. MIRAZÓN-LAHR

11:50 – ***Paleopathological analysis of skeletal remains from Avar Period and Hungarian Conquest Period cemeteries of Bodajk from Hungary***
C. LIBOR, K. KISS, T. SZENICZEY, O. MATEOVICS-LÁSZLÓ, F. SZÜCSI
12:00 – ***Orthopaedic treatments between late 19th century and mid-20th century in the Luis Lopes Collection (MUHNAC), Lisbon, Portugal***
Giovanni MAGNO, Susana J. GARCIA
12:10 – ***Severed skulls and trophy heads from Medanitos Estación XI (Tinogasta, Catamarca, Argentina)***
Leandro LUNA, Claudia ARANDA, Julia De STÉFANO, Norma RATTO
12:20 – ***Show me your trauma, I'll tell you what caused it: a preliminary study on sharp instruments' chemical traces in bone****
Joana ROSA, Maria Teresa FERREIRA, David GONÇALVES, Maria Paula M. MARQUES, Luís A.E. Batista de CARVALHO, Francisco GIL
12:30 – ***Stabbed by a blade during the barbarian invasions: the case of multiple perimortem traumas from an Italian Longobard cemetery (6th-8th c. CE)****
Carlotta ZEPPILLI, Ileana MICARELLI, Mary Anne TAFURI, Giorgio MANZI

12:40 – Discussão | Discussion

13:00 – 14:30 – Almoço livre | *Lunch*

14:30 – 15:10 – **Palestra III | *Keynote lecture III*:**
***A One Health Perspective in Paleopathology***
Jane Buikstra (Arizona State University, USA)

15:10 – 16:10 – **Comunicações orais VI | *Podium presentations VI***

Moderadora / Moderator: Eugénia Cunha

15:10 – ***A case of situs inversus in a mummy at the Morgagni Museum of Pathological Anatomy (Padua, Italy)***
Giovanni MAGNO, Alberto ZANATTA
15:20 – ***Double burial from the medieval monastery of Slavkovica (Serbia): paleopathological analysis of human skeletal remains from grave no. 123****
Nevena PANTIĆ, Tamara PAVLOVIĆ, Marija DJURIĆ
15:30 – ***Health and transitions: metabolic disease during the early medieval period at Hemmaberg/gora svete Heme and Jaunstein/Podjuna, Austria****
Magdalena SRIENC, Nina BRUNDKE

15:40 – ***Unravelling the remains of Rushen Abbey, a medieval site (AD 1134-1540) from the Isle of Man****
Marie C. WEALE, Peter DAVEY, Allison FOX

15:50 – Discussão | *Discussion*

16:10 – Intervalo | *Coffee break*

16:30 – **Sessão de apresentações em póster (II) | *Poster session (II)***

Moderador / Moderator: Vítor Matos

***My back is worse than yours: four cases of spondylolysis in skeletons from the Islamic necropolis of* Rua 5 de Outubro*, Santarém, Portugal (9th–12th centuries)****
Francisca HENRIQUES, Teresa MACHADO, Teresa FERNANDES, Cláudia RELVADO

***A proximal femoral fracture in a young female from Rua do Poço do Borratém: a case study from Medieval Lisbon****
Mariana Godinho INVERNO, Inês BELÉM, Cláudia UMBELINO, Rodrigo Banha da SILVA, Vanessa FILIPE, Vasco Noronha VIEIRA, Francisca ALVES-CARDOSO

***The bioarchaeological approach in cemetery analysis with the combination of paleopathological and archaeological data****
Cs. LIBOR, T. SZENICZEY, O. LÁSZLÓ

***Healed and healing: antemortem lesions from the prehistoric Roc de les Orenetes collective burial site (Queralbs, NE Iberian Peninsula)****
Miguel Ángel MORENO-IBÁÑEZ, Palmira SALADIÉ, Iván RAMÍREZ-PEDRAZA, Celia DÍEZ-CANSECO, Eudald CARBONELL, Carlos TORNERO

***Periapical lesions in a Medieval-Modern rural population: the commingled remains from Alto do Calvário necropolis (Miranda do Corvo, Coimbra)****
Dulce NEVES, Ana Maria SILVA, Flávio SIMÕES, Sofia N. WASTERLAIN

***Hip fractures in a well-documented skeletal sample from Argentina***
M. PLISCHUK, G. GARIZOAIN, V. PEÑA, B. DESÁNTOLO, R. GARCÍA MANCUSO, P. PONCE

***Paleopathology of the population inhumed in the megalithic tomb of Santa Rita, Portugal***
Isabella Brandão de QUEIROZ, Luiz OOSTERBEEK, Nuno INÁCIO, Francisco CURATE

***Suprainion lesion in a female individual from Córdoba hills, central Argentina (533 ± 42 14C BP)***
Soledad SALEGA, Mariana FABRA

***Preliminary results of an anthropological analysis of the medieval Muslim necropolis discovered in Macael (Almeria, Spain) and dated from the 13th to 16th centuries***
Nataša ŠARKIĆ, Santiago MORENO, Sofia Garcia CARDOSO, Mario LLORENTE, Jesus HERRERIN

***Investigating patterns of commonality in the experiences of childhood stress in adult skeletal remains of different socio-economic groups, from medieval Canterbury, England****
G.V. SMITHERS

***Dental corrosion in a child from prehistoric Brazil: a case study from burial 2 at Pedra do Cachorro (1470 ± 30 bp – Pernambuco)***
Ana SOLARI, Rodrigo E. OLIVEIRA, Sergio F.S.M. da SILVA, André STRAUSS, Caio SOARES, Anne Marie PESSIS, Gabriela MARTIN

***Health and the city: measuring the Frailty Index of the inhabitants of Velia (Italy, I-II cent. CE)***
Alessandra SPERDUTI, Sara CIMAGLIA, Mariella De RIGGI, Naomi IMPOSIMATO

17:50 – Cerimónia de entrega de prémios | *Awards cerimony*

18:00 – Sessão de encerramento | *Closing session*

Moderadora / Moderator: Ana Luísa Santos

*Concorre ao prémio para melhor apresentação de estudante.

*Competing for the best student presentation award.

# Palestras | Keynote lectures*

*Ordenados alfabeticamente pelo sobrenome do primeiro autor.

*Sorted alphabetically by author's last name.

# A closer examination of childhood diet: individual stories

Julia BEAUMONT[1]*

[1] University of Bradford, UK

*J.Beaumont6@bradford.ac.uk



*Short biography*

Dr Julia Beaumont is a lecturer in Biological Anthropology at the University of Bradford. Her PhD produced isotopic data from 19th century London, and from Famine-period Kilkenny, allowing the identification of migrants to London during this period. She has been developing methods to improve the temporal resolution for the study of diet and physiology in the past by measuring the carbon and nitrogen isotopes in collagen from bone and tooth dentine, hair keratin. As a result, she has been examining evidence for breastfeeding and weaning in past populations, and the health and physiology of mothers and infants. She has been working with colleagues at Durham (Dr Janet Montgomery and Dr Geoff Nowell) and Aberdeen (Kevin Mackenzie) Universities to establish the pathways of mineralization in human enamel using micro-CT and micro-milling.

*Abstract*

In our efforts to understand the health of past populations, bioarchaeologists are at a disadvantage compared to modern human biologists. We have access to human remains that, for many reasons, will not be a representative sample of the population, are usually in very small numbers buried over long time periods. We cannot ask our subjects any questions about their behaviour or medical history and most soft tissue diseases are invisible to us. Many studies therefore make the best use they can of the limited data, extrapolating to give us insight into the lives of our past societies: however, on occasions this will mean that we use statistical methods which exclude the interesting variations within our samples. Means and thresholds applied to such data ignore the outliers and this is where the interesting things happen. Let us consider each of our humans as individuals and see what new interpretations emerge. In this presentation I will discuss the variations in childhood diet which are more visible using stable isotope analysis of incremental dentine. Using modern samples to inform our interpretations we will explore a number of archaeological individual stories.

## A One Health Perspective in Paleopathology

Jane BUIKSTRA[1]*

[1] Arizona State University, USA

*buikstra@asu.edu



*Short biography*

Regents Professor Jane Buikstra is a member of the National Academy of Sciences. She was also the founding director of the Center for Bioarchaeological Research at Arizona State University. Buikstra's international research encompasses bioarchaeology, paleopathology, forensic anthropology and paleodemography. Among her current work is an investigation of the evolutionary history of ancient tuberculosis in the Americas based on archaeologically recovered pathogen DNA. Buikstra is the president of the Center for American Archeology and has served as past president of the American Association of Physical Anthropologists, the American Anthropological Association and the Paleopathology Association. She is the inaugural editor-in-chief of the *International Journal of Paleopathology*.

# Paleopathology at Qafzeh Cave, Israel (Middle Paleolithic, ca 90 ka): new evidence revealed by Paleoimaging

Dany Coutinho NOGUEIRA[1,2,3]*

Olivier Dutour[2,3], Hélène Coqueugniot[2,3], Anne-marie Tillier[2]

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[2] University of Bordeaux, CNRS, MCC, PACEA, UMR 5199, Pessac, France
[3] EPHE- PSL University, Paris, France

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*Short biography*

Dany Coutinho Nogueira holds a doctorate in Paleoanthropology from the École Pratique des Hautes Études and is currently a Fyssen postdoctoral fellow at the University of Coimbra. His research relies on two- and three-dimensional Paleoimaging (photogrammetry, [micro-]CT scan, synchrotron) to characterize the normal and pathological variability of Prehistoric populations. He is more particularly interested in the first Homo sapiens from the Levant (Middle Paleolithic, Qafzeh Cave), and the last hunter-gatherers in Portugal (Final Mesolithic, Muge).

*Abstract*

For the Middle Palaeolithic in the Levant, Qafzeh cave has delivered an unique corpus of individuals documenting all age groups from infancy, childhood and adulthood some of which exhibit evidence of unique funerary practices. Dated to circa 90–100 ka B.P, the hominin fossils document a crucial period for understanding the evolution and dispersal of early anatomically modern humans out of Africa.
Discovered during the 1930's and between 1965 and 1979, the hominin fossils are being revisited using digital technological developments. The application of 2D (radiographs, CT sections) and 3D (virtual reconstructions) technics allows re-evaluating several characteristics present on the fossils and thus characterizing their aetiology: taphonomy, pathology or discrete traits. This study reveals several bone and dental disorders on Qafzeh 9 specimen (Non-ossifying fibroma; Osteochondritis dissecans; Pre-eruptive intracoronal resorption). Such results strengthen the specificity of the site with regard to pathological conditions and developmental abnormalities previously identified on individuals from Qafzeh.

# Resumos – comunicações orais*
# Abstracts – podium presentations*

*Ordenados alfabeticamente pelo sobrenome do primeiro autor.

*Sorted alphabetically by author's last name.

# The impact of environmental stress on minor congenital defects (MCD): measuring the association between MCD, stress markers and bone length in the Lisbon Identified Skeletal Collection (Portugal), from the 19th/20th century

Alexandra AMOROSO[1,2]*, Susana J. GARCIA [1,2]**

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[2] Museu Nacional de História Natural e da Ciência, Lisboa, Portugal

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**ORAL**

A sample of 117 adult individuals (64 females and 53 males, mean age-at-death of 51.47 years old) from the contemporary/modern Lisbon Identified Skeletal Collection (Portugal), is used to test the association between minor congenital defects (MCD) and stress markers. The goal is to assess if MCD might be considered indicators of stress during embryogenesis. The MCD used are manubrium mesosternal joint fusion, sternum hyperplasia, sternal aperture, sternal caudal clefting, notochord defects and hypoglossal canal; the stress markers used are cribra orbitalia, vertebral neural canal size, femur and tibia length. Males with sternum hyperplasia have narrower anteroposterior diameters and wider transverse diameters of thoracic vertebrae. Considering anteroposterior diameters complete their growth, at approximately 4 years old, and transverse diameters continues to grow up to 15-17 years old, possibly a narrower anteroposterior diameter is associated to a harsh environment early in life; and a wider transverse diameter might be linked to an improved environment during childhood and adolescence, allowing growth recovery. Females with double hypoglossal canal have narrower transverse diameters of thoracic vertebrae. Sternum hyperplasia and double hypoglossal canal have potential to capture environmental stress, in utero, but more studies are required to confirm this result in other collections.

**Keywords:** minor congenital defects, *cribra orbitalia*, vertebral neural canal size, femur and tibia length.

## Diseases in the Portuguese mainland through the ages: preliminary data from paleopathological studies

Inês BELÉM[1,2*], Francisca ALVES-CARDOSO[2,3**]

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[2] LABOH – Laboratório de Antropologia Biológica e Osteologia Humana, CRIA – Centro em Rede de Investigação em Antropologia, NOVA FCSH, Lisboa, Portugal
[3] Cranfield Forensic Institute, Cranfield University, Defence Academy of the United Kingdom, UK

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**ORAL**

Paleopathological studies evolved in the last decade. New methods and assumptions on health have been explored, and publications has encouraged interpopulation comparisons across time and space. However, caution is needed when population comparison is used since recording methods and results' presentation differ. Aiming to explore past disease distribution in Portugal's mainland, data resulting from masters dissertations focusing on paleopathological studies were systematised. The dissertations were selected from the National Registry of Theses and Dissertations (RENATES) using the keywords Paleopathology, Biological Anthropology, Funerary Anthropology. The present results are preliminary and comprise information from 21 dissertations published in the last decade. The chronology of the data ranges from prehistory up to the recent decades, from various Portuguese mainland geographic areas (e.g. Minho, Ribatejo and Alentejo). Information on 690 individuals was compiled. Most exhibiting some sort of disease-related bone change. The most frequent changes are associated with degenerative joint diseases and physiological stress. The results also showed a non-normative approach to data presentation: some pathologies are presented per bone, and others per individual, depending on the research topic. Most studies lack a detailed archaeological contextualisation. These preliminary results highlight the fact that any population comparison should not be carried out without data reassessment.

**Keywords:** paleopathology, Portugal methodology, comparison, reassessment.

## Dwarfism in the past: an analytical review of the bioarchaeological literature

Natalie M. BRANCA[1]*, Kirsi O. LORENTZ[1]

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**ORAL**

This study aims to provide an analytical review of the cases of dwarfism described in the published bioarchaeological literature, and to further enhance our current knowledge about dwarfism in the past. Cases were sourced based on published bioarchaeological reports (from journals, books and appendices) in English, French, Spanish, Italian and Portuguese (from 1931-onward). Forty-nine cases were reported ranging from 11.150 BP to historical times. The reports were scrutinised for age, sex, stature, prevalence and geographical distribution of cases of dwarfism in the past and the data compared to modern data from the present clinical literature. In total, eleven different dwarfism related conditions were noted with achondroplasia being the most common (15/49 or 31%). This is also the most common form of dwarfism in the present (1 of 26,000-66,000 births). The majority of recorded cases (45%) were discovered in Europe. Females and probable females made up a total of 44% (22/49) of recorded cases. The majority of cases (73% or 36/49) were adults (20+) years at death. The present literature reveals a wide range of dwarfism related conditions in the past. More research is required into the effects of different dwarfism related conditions on skeletal preservation.

**Keywords**: skeletal dysplasia, achondroplasia, short stature.

## Characterising bone trauma through biomechanical experiments using polyurethane bone simulants and replica prehistoric weapons: experimental approach to interpersonal violence from Nataruk (Kenia, Africa)

E. CAMARÓS[1]*, R. FOLEY[2], M. MIRAZÓN-LAHR[1]

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**ORAL**

The locality of Nataruk, west of Lake Turkana (Kenia), is a key site to understand the emergence of warfare among prehistoric societies. There, exceptional evidence of inter-group violence among early Holocene hunter-gatherers was discovered, contributing to the understanding of violence and conflict in late human evolution. In the present contribution we discuss the results of our experiment conducted with the aim of characterising from a biomechanical perspective the bone trauma observed in the anthropological assemblage from Nataruk. The experiment consisted in the recreation of the injury pattern inferred from the human fossils by using Synbone® polyurethane bone simulants and replica prehistoric tools. Prehistoric artefacts recreated, used as weapons in blunt force and projectile trauma scenarios in the experiment, were inspired in the archaeological record from Nataruk. Experiments confirm lesions were produced by high-speed projectiles at a medium distance, combined with body-to-body lesions. Our results also contribute to the inference of force directionality and the understanding of injury bone patterns in addition to linking bone trauma with lithic studies, bridging the gap between anthropology and archaeology. Our research also shows how necessary biomechanical experiments are to reconstruct useful methodological approaches to characterize bone trauma and understanding interpersonal violence in the past.

**Keywords:** traumatology, bone injury, taphonomy, violence, hunter-gatherers.

## Health and growth in a peri-urban Roman age (III-V centuries) community: a close look at infant stress, morbidity, and age-at-death (Moinho do Castelinho, Amadora, Portugal)

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**ORAL**

Health/disease indicators may reveal information on cultural, social, and economic aspects of a population. This study aims to: estimate the frequency of child stress in a peri-urban sample of adult individuals from the Roman Era (Moinho do Castelinho, Amadora, Portugal, III-V centuries); investigate the relationship between childhood stress and age-at-death; and understand whether individuals who suffered childhood stress were more likely to present higher degrees of morbidity in adulthood. Non-specific stress markers, namely Dental Enamel Hypoplasia (DEH), were recorded in the individuals' anterior teeth and the age at which each defect occurred was estimated. Other stress markers, like porotic hyperostosis (PH) and orbital cribra (OC), were also observed and the stature estimated. Most individuals experienced childhood stress (DEH: 84.6%, n=22 individuals, 49.3%, n=104 teeth). However, adult age morbidity indicators are relatively moderate (OC: 7.7%, n=2; PH: 23.1%, n=6; Mean Stature=159cm, S.D. 3.99-5.45). These results point to infrequent rather than systemic episodes of stress with a mild effect in the individuals' development and adults' morbidity. The comparisons with medieval samples from Soure, Leiria and Coimbra show that, in the Roman period, health indicators were relatively positive.

**Keywords**: paleopathology, childhood stress, DOAhD theory, stress markers.

## Subsidies for paleoparasitology: comparison of quantification methods

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**ORAL**

The investigation of ancient parasites is an important resource for reconstructing the history of human diseases. Experimentally verified approaches to recover human coprolite eggs, which allow inferences about epidemiological variables, are necessary for the field of Paleoparasitology to advance. The study aimed to test and compare, for the first time, the efficiency of three internationally known techniques used for parasite eggs quantification. The experiment started with the production of a laboratory-made coprolite, followed by the application of three analytic methodologies (American, English and Korean). The values obtained were then compared with a control parameter derived from the study of recent feces. Statistical analysis was carried out to test the efficiency and feasibility of each methodology. Of the methodologies studied, none was statistically equal to the parameter. The American and Korean methodologies showed, however, promising results, being recommended as eligible for new paleoepidemiological studies. They are useful to estimate the impact of an infection in a population, in sites with good level of preservation. Taking into account that among the methodologies for obtaining paleoepidemiological variables there is still no established "gold standard", this study constitutes a step forward in its attempt.

**Keywords:** parasites eggs, coprolites, paleoepidemiology.

## Diseases in the city of Almada (portugal) during the late 18th century: medical records – years 1788, 1789 and 1792

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**ORAL**

Between 1784 and 1793, the municipal physician of Almada, Gaspar Lopes Henriques de Chaves, authored a collection of medical case-histories, offering evidence for disease experiences that encompassed individual biographical details, identification and description of diseases, symptoms, and therapies. The three surviving manuscripts (years 1788, 1789 and 1792) consist of the medical histories of 126 individuals (62 females, 59 males, and 5 of unknown sex), with recorded ages between 3 and 90 years. Individual cases were subjected to a retrospective diagnosis, conceding that the historical classification of disease is a social and cultural diagnosis, in order to generate an epidemiological portrait of this sample. «Fevers» were the most frequent recorded condition (61.9%; 78/126), particularly «malarial fevers» (26.9%; 21/78). Additional diseases included measles, tuberculosis, smallpox, and renal colic, as well as others. Circa 20% of the recorded individuals died as a result of the diseases described (19.7%; 24/122). The evaluation of disease symptomatology, medical therapies and environmental factors described by Henriques de Chaves adds significant information to the knowledge of diseases and the practice of medicine in late 18th century Portugal.

**Keywords**: history of medicine, paleopathology, fever, malaria.

## The many faces of a disease: five possible cases of treponematosis from Tomar (11th - 17th centuries), Portugal

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**ORAL**

The origin of treponemal disease is one of the most discussed topics on the History of Medicine. This study aims to present five cases of treponematosis from Tomar osteological collection. Tomar necropolis was used between the 11th and 17th centuries. From the 224 adult skeletons studied so far, five individuals (3 males and 2 females) have lesions compatible with treponematosis. The lesions were analysed macroscopically and radiologically, following Hackett's (1975) and Ortner's (2003) suggestions. Besides the lesions on the skull, these skeletons present bilateral lesions on their long bones but with different severity and at different healing stages. One of the individuals (SMOL.20.240) had a different pattern of lesions than the other individuals, with lesions mostly on the femora and ribs, which were severely thickened. Two of the individuals with *caries sicca* (SMOL.14.22 and SMOL.16.225) were young adults indicating a contact with the treponema at a young age or a rapid development of skeletal lesions. The radiocarbon dating of two of these skeletons (SMOL.20.240: 1426-1515 AD; SMOL.18.188: 1458-1639 AD) places them chronologically close to the beginning of the maritime European expansion suggesting a Pre-Columbian treponemal disease or a rapid progression of the disease to a tertiary phase.

**Keywords**: syphilis, treponema, *caries sicca*, infectious diseases.

Hackett, C.J. 1975. An introduction to diagnostic criteria of syphilis, treponarid and yaws (treponematoses) in dry bones, and some implications. *Virchows Arch. A. Pathol. Anat. Histol*., 368(3): 229-41.
Ortner, D.J. 2003. *Identification of pathological conditions in human skeletal remains*. London, London Academic Press.

## Estimating age or resilience? Exploring stress-induced changes and age-at-death indicators in an Eighteenth Century sample from Lisbon (Portugal)

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**ORAL**

Stress-induced changes (SIC) are used as indicators of an individual's general state of health and disease association. Some changes include porotic hyperostosis, *cribra orbitalia*, *cribra femoralis*, periosteal reactions and enamel hypoplasias. Concurrently, systemic stress also delays bone diaphysis growth and/or epiphyseal fusion, used as age indicators (AI). This research explores the relationship between the mentioned SIC and AI in 11 individuals from the Hospital Real de Todos-os-Santos collection (Lisbon, 18th century). The sample comprises four females, three males and four indeterminate, aged between 1-35 years old. Various methods were used to assess age-at-death considering the sample profile (e.g. tooth and bone development). Concordance between AI, within and between individuals, and correlation with SIC were explored. Results showed that periosteal reactions and enamel hypoplasias existed in all individuals, with *cribra femoralis* as second most common SIC (45.5%). AI revealed different age estimates depending on methods used, with more expressive discrepancies in individuals presenting an earlier maturational stage. Dental development also varied when compared to skeletal development, mostly in younger individuals. Since no specific association was found between age and paleopathological data, other variables need to be considered, including an individual base assessment of development and pathological profile.

**Keywords**: skeletal maturation, dental development, linear growth, individual health, *cribra femoralis*, periosteal reaction.

## Possible association between porous skeletal lesions and respiratory infections in juveniles from the Coimbra Identified Skeletal Collection

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**ORAL**

Albeit frequently reported in skeletal remains, the etiology(ies) of cribra orbitalia (CO), *cribra cranii* (CC), *cribra humeral* (CH) and *cribra femoral* (CF) remains controversial. This research aims to evaluate the frequencies and co-occurrence of these porous skeletal lesions (PSL) in the juveniles from the Coimbra Identified Skeletal Collection. Fifty-six individuals (27 males; 29 females) with age-at-death under 20 years (range=7-20; mean age=15.3; SD=4.43) were examined macroscopically. PSL were recorded for presence/absence, severity, activity, and area (except CC). Binary logistic regression assessed potential relations between PSL and the registered cause-of-death (COD: respiratory, n=18; brain, n=6; cardiovascular, n=7; digestive, n=6; non-respiratory infections, n=12; trauma, n=7). At least one type of PSL was observed in 87.7% (49/56) of the individuals, being CF the most frequent (69.6%, 39/56). No significant relationships were observed PSL and sex and lesions' area. A significant relationship between younger ages and active CO and CF was observed. Respiratory infections as COD, mainly pulmonary tuberculosis (55.6%, 0/18) and pneumonia (22.2%, 4/18), seems a significant predictor for CO (OR=3.8; 95%, CI=1.33-6.3). These results follow observations recently reported by other researchers, both in cadavers and clinical patients. Even tough results may help to elucidate the etiopathology of PSL, further investigations are required.

**Keywords:** cribrous syndrome, *cribra orbitalia*, *cribra cranii*, *cribra humeral*, *cribra femoral*, pulmonary tuberculosis

## Spina bifida occulta in adult individuals from the Coimbra Identified Skeletal Collection (19th-20th centuries)

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**ORAL**

Spina bifida occulta is a congenital failure of fusion of the neural arch. It might cause physical and neural problems. This study aims to evaluate the prevalence of neural arch defects on the spine of 200 individuals (100 males/100 females, ages-at-death= 30-59y.o.) from the Coimbra Identified Skeletal Collection, following Kumar and Tubbs (2011) recommendations, and to compare the results with published data. Sixty-one (30.5%) individuals (26 females/35 males) present median crest defects. As in both living and archaeological populations, asymptomatic hiatus sacralis (n=33, 16.5%) was more common: 32 individuals (14 females/18 males, 16%) present unfused S4+S5 and one male the S5 (0.5%). Two males with unfused S4+S5 had also an open atlas (shoemaker), or C5 (railroad employee). Sacral spina bifida occulta (S1 involved) occurs in 28 individuals (14%) falling within the range reported in clinics (0-23%) or archaeological populations (1-37%) worldwide. Unfused S1 occurred in 14 individuals (7%, 8 females/6 males), unfused S1+S3+S4+S5 in one male and S1+S4+S5 in 10 individuals (5%, 4 females/6 males). Three (1.5%) males present completely open sacral canal which might have provoked clinical implications, however they had occupations recorded (industrial, 'owner', servant). These results show that individuals with multiple affected vertebrae still had active occupations.

**Keywords**: vertebral defects, congenital, neural tube defects, Portugal.

## Exploring oral health and dietary habits: dental and stable isotope analysis of human remains from the Medieval Necropolis of Rua dos Barcos, Ribeira de Santarém (Portugal)

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**ORAL**

To infer diet and explore its relationship with oral health, 27 individuals (15 subadults and 12 adults) from the Medieval Christian Necropolis of Rua dos Barcos (Ribeira de Santarém) were assessed through a combination of oral pathology and stable isotope analysis. Caries were observed in 26.9% (87/323) of the permanent teeth and calculus in 92.1% of the teeth (293/318). The mean dental wear was 2.32±1.4 (n=317). Dental wear differs significantly according to sex and age-at-death, while caries and calculus, on age. Males exhibit a higher mean degree of tooth wear. The dental wear pattern of two males suggests the use of teeth for extramasticatory activities. $\delta^{13}C$ and $\delta^{15}N$ values suggest that diet was predominantly terrestrial (C3 plants and animal protein) with a possible input of $C_4$ plants and/or aquatic protein. No statistically significant differences between sex and age-at-death were observed for $\delta^{13}C$ and $\delta^{15}N$. Differences between the isotopic data and the presence/absence of caries were also non-statistically significant. Isotopic and dental evidence suggest a diet based on carbohydrates. Pathological and isotopic data indicate that overall diet was similar between sexes, although a subtle differentiation in food access was observed in the latter that was not reflected in the pathological conditions.

**Keywords:** paleodiet, oral pathology, carbon and nitrogen isotope analysis, Santarém, Middle Ages.

## Paleopathological analysis of skeletal remains from Avar Period and Hungarian Conquest Period cemeteries of Bodajk from Hungary

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**ORAL**

In 2016, the partial excavation of two cemeteries near Bodajk (Hungary) allowed the exhumation 54 individuals. Of these, 40 individuals (27 adults: 13 females, 11 males, 4 of unknown sex; 13 subadults) came from the Bodajk – Homoki-dűlő site (Avar Period, c. 6-9th AD) and 14 (adults: 2 females, 5 males; 7 subadults) from the Bodajk – Proletárföldek site (Hungarian Conquest Period, c. 10th AD). This study aims to present the anthropological results concerning those cemeteries. The remains were analyzed macroscopically and through portable x-ray. Almost all individuals from the Proletárföldek site showed bone lesions (arthritis, spondylarthrosis, spondylosis deformans, Schmorl's nodes, trauma, periostitis, endocranial lesions, spondylolysis, porotic hyperostosis). Traumatic lesions were noted in 1 female and 4 males, corresponding to 35,7% (5/14) of the individuals. At the Avarian cemetery only 3 females and 2 males, namely 12,5% (5/40) of the individuals show traumatic injuries and the occurrence of other pathological alterations was also lower. The majority of disorders observed were joint alterations of the limbs and the spine, probably related to age and mechanical loading occurring during lifetime. This data suggests that the horse riding lifestyle was typical in this region since clavicle fracture, Schmorl's nodes and spondylolysis presented higher frequencies.

**Keywords:** bioarchaeology, X-ray, trauma, osteoarchaeology, early medieval.

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## Severed skulls and trophy heads from Medanitos Estación XI (Tinogasta, Catamarca, Argentina)

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**ORAL**

The aim of this presentation is to discuss the traumatic lesions recorded at Estación Medanitos XI site (Catamarca, Argentina), a multiple secondary burial consisting of twelve skulls and mandibles with a chronology that refers to the first half of the XV century AD, during the Inca domination of the region. As some of them have earlier chronologies, it is inferred that they were exhumed from their primary location, re-inhumated in a single event and resignified within the Inca strategies of conquest. The biological lesions identified are porotic hyperostosis and both porosity and subperiosteal reactions in the glabellar region. Three of them have circular perforations in the parietals and enlargement of the foramen magnum, which indicates the intention to insert a suspension cord. The location, shape and size of the holes suggest that they were made soon after death and that the skulls were used as "trophy heads". These anthropic modifications were produced by repetitive percussion using a sharp object and were not the cause of death of the individuals. This procedure was sometimes performed on the skulls of captured enemies during violent actions. As the skulls also show evidence of fire exposure and cut marks, an intentional and complex post-mortem rituality was inferred.

**Keywords:** paleopathology, pre-Hispanic, vault perforation, *perimortem* trauma.

## Smallpox in past Portuguese populations: three possible examples of *osteomyelitis variolosa* from Sarilhos Grandes (adult female) and Sertã (two ulnae)

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**ORAL**

Smallpox was a recurrent endemic/epidemic problem in Portugal since Mediaeval period which was only declared eradicated by the WHO in 1980. This work presents three possible examples of *osteomyelitis variolosa*. Pathologically induced lesions were macroscopically and radiologically analysed, and associated parish records were consulted for terms related to smallpox (Sarilhos Grandes: 1769-1864AD; Sertã: 1593-1834AD). A 30 to 49-year-old female from Sarilhos Grandes (14th-19th centuries) shows complete and asymmetrical destruction of the articular surfaces of the left elbow joint, as well as a marked underdevelopment of the left upper limb, evidencing that this physical limitation originated at a young age. An ossuary excavated in the church of Sertã (15th-19th centuries) revealed two proximal ulnar fragments (right and left) with reactive bone formation on their trochlear notches, and in the right one extending into the ulnar tuberosity. These lesions are typical of the osteoarticular sequelae of smallpox, although diagnosis based on commingled bones is challenging. Parish records of Sarilhos Grandes reported smallpox as the cause-of-death of a 6-year-old female in 1842, whilst in Sertã 19 persons died between 1830-1832. The current study presents the first possible examples of *osteomyelitis variolosa* in past Portuguese populations, a condition rarely reported in the paleopathological literature.

**Keywords:** infectious disease, historical records, epidemic, osteoarticular destruction, radiology.

## Orthopaedic treatments between late 19th century and mid-20th century in the Luis Lopes Collection (MUHNAC), Lisbon, Portugal

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**ORAL**

The present study analyzes medical treatments along with a differential diagnosis of the causes of the intervention from three individuals from Lisbon Collection of Identified Skeletons (MUHNAC) Macroscopical and X-ray analysis were conducted to better understand the response of the bones to the treatment. These individuals, died between 1940 and 1954 from cardiovascular diseases, presented a unilateral leg amputation (MB61-0321, male), a bilateral leg amputation (MB61-1022, male) and an orthopedic screw insertion in the proximal left femur (MB61-1044, female). In MB61-0321 a previous fracture on the spinal column may relate the treatment to a traumatic event. Anyway, vascular disease may not be excluded. Lack of information on MB61-1022 may not allow to exclude traumatic events, although analysis highlighted possible cardiovascular diseases. In both cases, osteoarthritis of the upper limb joints suggested the use of crutches. Instead, the type of surgical screw used in MB61-1044 may date the intervention between 1940s and 1950s, following an advanced stage of osteonecrosis of the hip joint and collapse of the femoral head. Despite belonging to mid-low social classes, these individuals accessed to advanced medical treatments, thus confirming that the great period of development in medicine in Portugal with better medical treatment for all population.

**Keywords:** paleopathology, history of medicine, amputation, orthopaedics.

## A case of situs inversus in a mummy at the Morgagni Museum of Pathological Anatomy (Padua, Italy)

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**ORAL**

The Morgagni Museum of Pathological Anatomy at the University of Padua (Italy), founded by Lodovico Brunetti, professor of Pathological Anatomy, in the 1860s, gathers more than 1300 specimens mainly from the 19th and early 20th century, preserved in liquid, dry and using the technique of tannization, an artificial mummification invented by Brunetti. Among these preparations there is a mummy of a young woman, who died in 1915 at 20 years due to tuberculous peritonitis and salpingitis (inflammation of the fallopian tube). During the autopsy it was discovered that its internal anatomy was characterized by a rare malformation called "Situs inversus viscerorum" (inversion of the viscera) with dextrocardia, apparently without other congenital defects. Anyway, the autopsy was not finalized in order to preserve the specimen through the tannization, as it is possible to read in the past pathological report. Recently it was decided to complete the past autopsy using computed tomography to investigate in a non-invasive way the internal condition of the organs. The scan showed the presence of a muscular ventricular septal defect in the heart and calcific deposits on visceral pericardium and aortic walls, confirming tuberculous pericarditis. Apart from the heart, no other lesions were found.

**Keywords**: paleopathology, history of Medicine, dextrocardia, ventricular septal defect.

## What is spina bifida? Classification protocol and it's introduction into the *Colecção de Esqueletos Identificados do século XXI da Universidade de Coimbra* (CEI/XXI), Portugal

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**ORAL**

There is a generalized lack of consensus throughout the anthropological literature, regarding how neural tube defects and spina bifida are addressed. Differences in terminology, classification systems and methodologies lead to quite different and incomparable results, resulting in a wide disparity in the prevalence of spina bifida occulta in various studies (between 1,2% and 50%). This study aims to analyze and debate the standard paleopathological diagnosis of this disorder, and attempts to elaborate on an universal system, premised on the distinction between spina bifida as a pathology, and cleft neural arch as an anatomical variant, according to Barnes (1994). A sample comprised of 209 individuals (88 men and 121 women, ages at death between 44 and 99 years old) from the Colecção de Esqueletos Identificados do século XXI da Universidade de Coimbra (CEI/XXI) was macroscopically analyzed, focusing on the sacrum and remaining vertebrae. Four individuals presented open sacral canal (2,6% [4/156]). The observed morphology, combined with the analysis of the complete skeleton, indicate the possible absence of spina bifida linked to a neural tube defect, and points to a probable cleft neural arch. The viability and applicability of this methodology, in paleopathological and forensic contexts, is discussed, as well as the possibility of a lower prevalence of spina bifida occulta, in the general population, than hypothesized before.

**Keywords:** spina bifida, sacrum, neural arch cleft, neural tube defects.

## Skeletal dysplasia diagnosed as achondroplastic dwarfism in an adult male from the 14th-16th century in Łekno, Poland

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**ORAL**

Achondroplasia is one of the most common form of skeletal dysplasia in current and past populations. It can be transmitted by parents having the genes that cause the disease or result from a mutation. This paper aims to describe the lesions visible on the skeleton of a 30-45 years old male with dysplasia, living during the 14th-16th centuries CE (late medieval-early modern period) in Łekno, Poland. The Łekno settlement complex (site 3) includes a cemetery with approximately 400 burials of monks and peasants. The achondroplastic individual was buried in the same body position and orientation as contemporaries. Through macroscopic examination a differential diagnosis allowed the identification of a probable case of achondroplastic dwarfism, with 115.33 cm of stature, combined with Léri-Weill dyschondrosteosis and ulnar hemimelia. This individual is the third example of achondroplastic dwarfism in Poland. Although his physical differences could be associated with impairment, apparently, he was not socially marginalized. This study describes pathological changes not found in other skeletons with dwarfism, which will help in future identification of rare diseases from archaeological sites. Moreover, it offers insight into the social roles of achondroplastic individuals within the context of late medieval and early modern period of Poland and Central Europe.

**Keywords**: paleopathology, rare disease, ulnar longitudinal deficiency, Cistercian Order.

## Stafne bone cavities in the human mandible: new archaeological cases from Germany and an anthropological perspective

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**ORAL**

Stafne bone cavities (SBCs) are a rare occurrence in human skeletal remains. They are mostly ovoid in shape, smaller than 3 cm in diameter and predominantly occur in older men. They seem to result from close contact of salivary glands with the bone surface of the mandible. Here, five new cases and prevalence data for two sites from Germany are presented: the Neolithic collective grave Wewelsburg I (1.9%) and a 17th century AD crypt from Magdeburg (2.8%). The cases include multilobular and multilocular variants which have rarely been described in the palaeopathological literature. To position the new data within the known variation of SBCs, a review of the literature and comparative analyses of published datasets were carried out. These reveal that SBCs reported in clinical studies are, on average, significantly larger than those in archaeological studies. Additionally, the latter often report prevalences of ca. 2-3% and more, while clinical prevalences usually remain below 1 or even 0.1%. This supports the notion that clinical studies fail to visualize the initial stages of SBC development due to their reliance on imaging techniques. Consequently, smaller lesions are underreported in the medical literature and prevalence data is skewed towards fewer and mainly larger lesions.

**Keywords:** oral condition, literature review, comparative analysis, Germany, Neolithic, 17th century.

## Double burial from the medieval monastery of Slavkovica (Serbia): paleopathological analysis of human skeletal remains from grave no. 123

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**ORAL**

Archaeological excavations at Slavkovica site revealed 120 graves surrounding the monastery, dating between the 13th and 15th centuries AD. Besides sporadic finds of buttons and rings, no grave goods were found. Grave 123 represents a double burial in a stone structure. Individuals were discovered in an extended supine position, W-E oriented, laying over each other, without grave goods. The anthropological analysis followed the standard procedure concerning the biologic profile of the individuals, and paleopathological analysis. Two adults – one female and one male – were identified. Moreover, a left femur and fragments of cranium of a fetus, 10 lunar months old, were identified. Both adults showed numerous pathological conditions. Female individual displays dental diseases, thickness of parietal bones, bilateral cribra orbitalia and femora, bilateral bending of the tibia, a curvature of ribs and sacrum, and osteoarthritic changes while male has, bilateral cribra femora, healed fracture, bending of fibula bones, and femoral neck anteversion. Paleopathological signs detected suggest a poor health status of the deceased. This study aims to present the data achieved and to discuss the differential diagnosis of observed changes, thus health status and potential death causes. Furthermore, the time of the burial will be considered, questioning whether individuals were buried simultaneously or secondary.

**Keywords**: 13th-15th centuries AD, multiple burial, stone grave structure, bone lesions.

## Evidence of short-limbed dwarfism in an Islamic osteological sample from the Hospital da Misericórdia, Loulé, Portugal (10/11th-13th AD)

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**ORAL**

The presence of dwarfs in the past is documented through historical and iconographic sources, as well as in archaeological record. This study aims to present an unusual case of marked shortening limbs in an adult male from the medieval Islamic necropolis of Hospital da Misericórdia, Loulé (n=36). Stature estimation was 143.8±6.9cm (Mendonça, 2000), 21.3cm shorter than other males from the necropolis. The macroscopic analysis revealed shortening of the long bones, arching of the radio diaphysis and robusticity of the upper limbs with morphological changes in the muscular insertions. The epiphyses of the long bones have similar size to that of the other skeletons. Although the axial skeleton was poorly preserved, the fragments present suggest an average cranium size without a frontal prominence. A normal morphology was also noted on the available portion of the mandible, as well as on hands and feet bones. Differential diagnoses include achondroplasia or hypochondroplasia, chondrodysplasia and hypopituitarism. The apparent absence of morphological changes in the skull, face, hands and feet, and the absence of curvature in most of the long bones, suggest a probable case of hypochondroplasia. This study gives a opportunity to study rare human anatomical traits and how they were perceived by the population.

**Keywords:** Medieval, dwarfs, achondroplasia, hypochondroplasia, chondrodysplasia, hypopituitarism.

Mendonça, M. C. 2000. Estimation of height from the length of long bones in a Portuguese adult population. *American Journal of Physical Anthropology*, 112: 39-48.

## Show me your trauma, I'll tell you what caused it: a preliminary study on sharp instruments' chemical traces in bone

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**ORAL**

The analysis of human skeletal remains provides important information from archaeological and forensic contexts. Due to taphonomic events, such as heat exposure and animal bite marks, it can often be hard to interpret certain lesions and what caused them, namely traumatic lesions caused by sharp force instruments. In this study, we aimed to experimentally assess if chemical traces are left in bone traumas caused by knives and axes with different compositions. This was accomplished by prompting sharp force trauma on fresh pig ribs with stainless steel and ceramic kitchen knives, as well as with two different size axes (five ribs per instrument for a total of five instruments). Bones and instruments were probed by X-ray fluorescence (XRF) and Fourier-transform infrared spectroscopy (in attenuated reflectance mode, FTIR-ATR). Results show that both axes and knives with stainless steel blades leave detectable chemical traces on bones (e.g. iron, nickel, copper and chromium). However, the ceramic kitchen knife is less likely to do so. These preliminary data both evaluates the potential of XRF and FTIR-ATR for the identification of sharp force trauma on bone (e.g. in human remains) and suggests that an identification of the kind of instrument that caused it may be attained.

**Keywords**: X-ray fluorescence, infrared spectroscopy, sharp force trauma, stainless steel, ceramic knife, forensic anthropology.

## Evidence of knee Osteochondritis dissecans in the Coimbra Identified Skeletal Collection and proposal of a new classification system for paleopathology

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**ORAL**

Osteochondritis dissecans (OCD) is a pathological condition associated to trauma due to strenuous activity. This work aims to study knee OCD in individuals from the Coimbra Identified Skeletal Collection and to propose a classification system to be used in paleopathology. The sample comprises 296 individuals aged 7-50 years old ($\bar{x}$=31.58; s.d.=10.97), 54.4% (n=161) males and 45.6% (n=135) females. The lesions were observed macroscopically and classified according to the proposed method, which considers four stages: early to nearly complete detachment of the necrotic bone (1A;1B), crater-like (2A), and remodeling lesions (2B). Both inter- (14/15; κ=0.89) and intra- (14/15; κ=0.90) rater agreements are almost perfect. Ten (3.4%) individuals (5 females=3.7%, 5 males=3.1%, *Fisher's Exact Test p*=0.517) present 15 lesions, the medial femoral condyle being the most affected location. Age at death does not play a significant role in OCD (presence=10, $\bar{x}$=38.00, s.d.=10.81; absence=287, $\bar{x}$=31.32, s.d.=10.92; *Mann-Whitney U*=1955.0; p=0.051). This research constitutes one of the few systematic studies regarding OCD in skeletonized individuals and its results are mostly in agreement with clinical data. Due to the lack of specific diagnostic guidelines, the classification system proposed can assist in the identification of lesions and in data standardization and comparison.

**Keywords**: synovial joints, trauma, macroscopic analysis, Portugal, 19th-20th centuries.

## Possible case of *diffuse idiopathic skeletal hyperostosis* in a cremated individual with hypercementosis from Roman *Salacia* (Alcácer do Sal, Portugal)

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**ORAL**

Diffuse idiopathic skeletal hyperostosis (DISH) is a condition involving flowing ossification of the anterior longitudinal ligament (OALL) of the thoracic spine and ossification of extra spinal entheses. This paper aims to present a cremated individual with possible lesions of DISH and discuss if hypercementosis could be linked. The bone remains of a mature adult male (30-50 years-old), recovered from the Roman necropolis of *Azinhaga do Senhor dos Mártires*, Alcácer do Sal (1st-2nd centuries AD) show three thoracic vertebrae (out of eleven) with OALL. The aspect of the lesions, number of vertebrae affected, non-fusion of the vertebral bodies and the entheseal changes visible on fragments of ulna, phalanges, *os coxae*, femur, patella, and calcaneus suggest the presence of DISH. Hypercementosis was noted on two molars roots. Given the nature of "bone former" of this individual, could the excessive formation of cementum on the teeth root be related? The analysis of the dentition of individuals with DISH is suggested to evaluate this hypothesis. DISH was found on individuals from the Roman Empire (e.g. Italy, France, Hungary, Netherlands) but this case on a cremated individual is one of the earliest evidence in the Iberian Peninsula.

**Keywords:** Forestier's disease, burned bone, High Empire, Lusitania.

## Health and transitions: metabolic disease during the early medieval period at Hemmaberg/gora svete Heme and Jaunstein/Podjuna, Austria

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**ORAL**

The early medieval period (7th-11th CE) is an indicative phase that sheds light on the changes in health and living conditions of the populations inhabiting the Eastern Alpine region in Carinthia (Austria). After the fall of the Roman Empire in the 6th century CE, this region saw a large mixture of new cultural groups. This paper will focus on the early medieval populations from the sites at Hemmaberg/gora svete Heme (29 individuals - 22 non-adults, seven adults including four female and three male individuals) and the ongoing analysis of Jaunstein/Podjuna (130 individuals – at the moment 37 non-adults, 20 adults, 15 females, 21 males) and aims to interpret the potential effects that large-scale migrations and the expansion of Christianity across (Eastern Alpine) Europe may have had on the region. Metabolic diseases observed macroscopically, such as scurvy, can suggest a lack of available nutrition; however, in periods of cultural transition, scorbutic morphologies can highlight the relationship communities had with their environment. At Hemmaberg/gora svete Heme 22% of non-adults show signs of scurvy, while the analysis of Jaunstein/Podjuna show that at least 32% of non-adults present signs of scurvy. Those coeval sites provide a unique source of information for bioarchaeological research.

**Keywords**: diet, scurvy, 7th-11th century CE, eastern alpine region.

## Unravelling the remains of Rushen Abbey, a medieval site (AD 1134-1540) from the Isle of Man

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**ORAL**

Rushen Abbey (south of the Isle of Man) was founded in AD1134. This site was used as a Christian burial ground from the 5th century until the 15th, burial sequence spanning 1000 years. Recent work on the human skeletal remains has been carried out with the aim of understanding more about the people and past lifeways on the Isle of Man. Anthropological analysis followed standard morphological and metric methods. The sample comprises at least 246 individuals. Most of them are disarticulated with an MNI of 227 (adult and non-adult), although 19 articulated skeletons (10 non-adult and 9 adults, including 4 males and 3 females) have been assessed. Several paleopathological conditions have been identified including infectious (7/246; 2.8%), metabolic (2/246; 0.81%), two cases of interpersonal violence and one case of osteoid osteoma. Joint (14/246; 5.69%) and dental pathologies have also been observed (89/426; 36.18%). Moreover, a neo-natal skeleton (31-33 weeks) show signs of scurvy and rickets along with a possible underlying systemic infection, indicating poor maternal health. Other individuals present enamel hypoplasia (8/246; 3.25%) suggesting this environment had physical stressors. This analysis has highlighted the importance of studying human remains to have a greater understanding of the past populations of the Isle of Man.

**Keywords**: osteology, paleopathology, differential diagnosis, disarticulated remains, maternal health.

This research has been financially supported by Culture Vannin and the Isle of Man Natural History and Antiquarian Society.

## Stabbed by a blade during the barbarian invasions: the case of multiple *perimortem* traumas from an Italian Longobard cemetery (6th-8th c. CE)

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**ORAL**

Interpersonal violence reveals implications in behaviour, mobility, lifestyle and health of past human populations. These implications are even more visible when seen in relation to historical periods that were characterized by immigration or invasion, with the resulting economic, social and political instability. The archaeological evidence of the Longobard cemetery of Povegliano Veronese (Veneto, Northern Italy), brackets the cemetery between the 6th and 8th c. CE. Over 240 skeletons were recovered within the funerary area. Among them, there is the skeleton of a Longobard male aged 40-50 years, showing multiple *perimortem* injuries without signs of healing. Deep sharp-force traumas are located in the ventral portion of the 5th lumbar vertebra and in four right ribs, likely caused by a blade. From macroscopic and micro-CT observations, we could assess that none of these injuries show signs of bone remodelling or healing. This condition suggests that the sharp-force traumas were *perimortem*. SEM microscopy will allow to investigate the possible presence of metal remains of the alleged weapon. The case-study reported here sheds light on an aspect of Germanic immigrations from Northern Europe to Italy in the Early Middle Ages, while critically contributing to our understanding of interpersonal violence in the post-classical world.

**Keywords**: Medieval, Italy, interpersonal violence, sharp-force injuries, micro-CT scan.

# Resumos – comunicações em póster*
# Abstracts – poster presentations*

*Ordenados alfabeticamente pelo sobrenome do primeiro autor.

*Sorted alphabetically by author's last name.

## Multiple skeletal injuries in a male of African ancestry from Bucelas (15th-19th centuries AD, Portugal)

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**POSTER**

A graveyard associated with the old Chapel of the Holy Spirit (Bucelas), used between the 15th and the 19th centuries, was identified, yielding 157 primary inhumations, of which 98 were adults (60 males, 27 females and 11 of undetermined sex) and 59 non-adults. We discuss a case of multiple skeletal injuries in an aged male (> 50 years old) of probable African ancestry (cranial traits and indirect documentary evidence) within the context of its functional and social consequences. The skeleton exhibited several injuries. Fractures were identified in the left and right distal radio, right distal tibia, left proximal fibula, two left hand bones, second lumbar vertebra, right ischiopubic ramus, and three left and one right foot bones. On both shoulders, the inferior area of the acromion and the greater tubercle of the humeri present with eburnation consistent with dislocation. An exuberant bone growth compatible with an ossifying muscle haematoma was identified in the anterior right femur. The individual consequences of the observed multiple skeletal trauma are interpreted in the broader social, cultural and ecological context of Post Medieval Bucelas, with a particular focus on the issues of structural violence (slavery, poverty and labor exploitation) and the bioarchaeology of care.

**Keyword**: Bucelas, rural, Post-Medieval, multiple trauma, bioarchaeology of care.

## A rare heterotopic ossification in a 14th-19th century female skeleton from Constância (Portugal)

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**POSTER**

Heterotopic ossification (HO) refers to the abnormal formation of lamellar bone, i.e. ectopic bone, in muscles, ligaments and other soft tissues. This study aims to document an unusual ectopic ossification observed in the right femur of an adult female individual (SG.14-SK.7) exhumed from the former necropolis of São Julião Church (Constância, Portugal), and dated from the 14th-19th centuries. This individual, almost complete, belongs to a larger skeletal assemblage composed of 151 skeletons: 106 adults and 45 non-adults. The macroscopic analysis of SG.14-SK.7 revealed a large bony mass (8 cm) located immediately below the small trochanter of the right femur. It exhibited a compact, tubular ("rope-like") appearance. This unusual bone formation was implanted at the site of attachment of the pectineus muscle, projecting outward onto the anterior portion of the femur. No remodeled femoral fracture or bone-bridge formation with the pubic bone was observed. No radiographic analysis was performed. The differential diagnosis points to a possible case of myositis ossificans (MO), a self-limiting condition that may develop following muscle trauma, and less frequently after burns, immobilization, or neurologic dysfunction. Other conditions (e.g., osteosarcomas) were also considered in the diagnosis. The impact of this condition on the individual mobility will be discussed.

**Keywords**: myositis ossificans, ectopic bone, thigh adductors, pectineus muscle, trauma, São Julião Church.

## Deliberate modifications to the shape of skulls based on the example of Chancay culture anthropomorphic figures, Peru (700/900–1470 CE)

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**POSTER**

In antiquity, deliberate body modification was applied in various parts of the world whose tradition is deeply rooted in culture. One procedure consisted in transforming the shape of the skull of infants by applying bandages and small splints around the head, which resulted in a significant elongation of the skull. These practices played an important cultural and social role and their presence have been confirmed both by osteological evidence and iconographic representations. Ceramic products, e.g., anthropomorphic figures, represent a particularly rich category of material sources, whose analysis makes it possible to confirm the universality of skull modification. The purpose of this presentation is to illustrate the phenomenon of intentional skull modification in the Andean culture based on preliminary analyses of ceramic anthropomorphic *cuchimilco* figurines, which the Chancay people, Peru (700/900–1470 CE) deposited in their graves. Forty-nine *cuchimilco* from the collection of the private Larco Museum in Lima will be presented. Our research allowed us to observe changes in the shape of the skulls, e.g., deliberate fronto-occipital modification that clearly deviated from the normal shapes. This study attests the universality, and cultural uniqueness, of practices of skull modification, also showing the role of votive ceramics in perpetuating it through time.

**Keywords:** artificial cranial modification, Andean culture, identity markers, ceramic sculptures, *Cuchimilco* figurines.

## Tertiary syphilis in a juvenile individual buried at a rural monastery in early modern Cantabrian Spain

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**POSTER**

This poster reports evidence of treponemal infection observed on an isolated young adult skull radiocarbon dated to the early modern period (16th to 17th century AD). The skull (with no teeth preserved) was recovered from a burial pit containing the bones of other individuals at the excavated monastery of Santa Maria de Fresno del Río (Cantabria, Spain). A macro- and microscopic study was conducted in order to characterize the bone changes present, which are consistent with the tertiary stage of venereal syphilis. These can be defined as caries sicca (i.e., lytic (active) lesions, but also remodelling and stellate scarring), and are mainly located on the frontal and parietal bones; the lesions represent long standing infection. These gummatous, osteoperiostotic cranial lesions, described in the extant literature, are pathognomonic of treponemal infection; their appearance and distribution are consistent with a diagnosis of (acquired) venereal syphilis. A differential diagnosis (e.g., metastasis, TB) including a taphonomic approach was conducted, in addition to a carbon and nitrogen isotopic analysis searching for a potential distinctive isotopic signal linked to the disease (not evidenced). This skull contributes to the understanding of the prevalence of venereal syphilis in rural settings during the early modern period in Europe.

**Keywords**: treponemal infection, *caries sicca*, differential diagnosis, taphonomy.

## Digital pathology: research communications and tutorials on *YouTube*

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**POSTER**

*YouTube* is one of the most popular video platforms, curating videos on the most diverse topics, including in science. *YouTube* can be a complementary teaching tool and empower early career researchers (ERC), women, and minorities. This paper brings awareness to two distinct *YouTube* models, *BioanthroStudies* and *BioantTalks*, as a potential online education resource and research communication in paleopathology. *BioanthroStudies* is an online teaching tool on biological anthropology. To date, it has 6684 views, 322 subscribers, and 15 videos. The most popular videos are about pathologies, such as phosphorus necrosis of the jaw and *hallux valgus*. *BioantTalks* offers a platform for the organization of virtual conferences and webinars on *YouTube*, with three key events scheduled in 2021. To date, it has 1131 views, 288 subscribers, and 21 videos. *BioantTalks* videos are not live allowing viewers to see them at their leisure. Networking is encouraged through google forms and social media. Although both *YouTube* channels have distinct aims, they reach a broader audience as it is freely accessible worldwide at any time, making them an optimum tool and resource for students and ECR.

**Keywords**: virtual tutorials, videos, online teaching, virtual class, digital events, phossy jaw.

## A unique case of gunshot trauma in a Western lowland gorilla from the Republic of Cameroon

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**POSTER**

The skeleton of an adult male *Gorilla gorilla gorilla* from the American Museum of Natural History (AMNH) was analyzed macroscopically for trauma. He suffered three gunshot wounds, with one event resulting in his death in 1946. However, he survived two gunshot wounds beforehand on the right maxilla and left humerus, possibly years before the fatal shot. The two gunshot wounds show signs of complete healing without the occurrence of an infection. On the right maxilla, the bullet entrance hole is visible, but no exit hole exists. Two bullet fragments on the right mandible and left humerus with bone partially covering them can also be observed. This brings questions about his survival, food access, and mastication. It can be questioned too if the gunshot on the left humerus may have made him slower. Thus, easy prey for hunters, as he was fatally shot a third time on the left maxilla, whose bullet exited through the left palate. To the best of my knowledge, this is a unique case of a gorilla that survived gunshots on his natural habitat but was hunted during a scientific excursion in the 40s for the AMNH. This poster reports preliminary analysis regarding trauma in *Gorilla* sp.

**Keywords**: trauma, *ante mortem* trauma, *Gorilla gorilla gorila*, gunshot wounds, humerus, maxilla.

## Pseudo-trauma in a female individual who died from hanging from the Lisbon Identified Skeletal Collection, Portugal

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**POSTER**

Individuals who died from hanging may show fractures and/or diastasis on the cranial base, on the cervical vertebrae and hyoid bone. Craniocervical elements of a 53 years old female - cause of death was hanging - were macroscopically examined from the Lisbon Collection, Museum of National History and Science, Portugal. This study aims to document the eventual presence of *perimortem* fractures at the cranial, hyoid, and cervical elements as it has been associated in the literature with the cause of death from hanging. *Perimortem* trauma was recorded when bone remodeling was absent and the affected area had the same color as the surrounding bone. Cranial elements exhibited partial or complete separation on the sutures, the face was separated and the cranial base had a transverse fracture. Possible *perimortem* trauma was recorded on the sixth cervical vertebra. The hyoid bone was absent *postmortem*. No *perimortem* fractures on the craniocervical elements was recorded on the autopsy report from the *Instituto Nacional de Medicina Legal e Ciências Forenses*. The fractures on the craniocervical elements were created during the autopsy and did not result from hanging. Close to death, the bone retains its plasticity and any pseudo-trauma that occurs may mimic trauma.

**Palavras-chave:** cranium, autopsy, *postmortem*, *perimortem*, pseudo-trauma.

## A possible case of osteochondritis dissecans on the proximal articular surface of the tibia of an adult male exhumed from the municipal cemetery (1836-1940) located at Torres Novas Castle, Portugal

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**POSTER**

This presentation discusses the lesions presented by an individual buried in the municipal cemetery of Torres Novas (1836-1940). The skeleton represented by the left lower limb and part of the right foot, probably belonged to a young adult male. The proximal end of the left tibia presents a sub-circular depression (c. 10x10 mm), with round/smooth edges and internal porosity, exposing the trabecular bone on the articular surface of the medial condyle. The medial condyle of the left femur also exhibits a small (c. 8x8 mm) circular area with a polished appearance. The distal half of the left fibula presents an expressive thickening. Proliferative periosteal reaction is observable in the calcaneus, talus, tibia, femur, and patella. The differential diagnosis of these lesions was made, including conditions such as direct trauma, trauma resulting from mechanical stress, and/or bone avascularization which probably led to osteochondritis dissecans (OD). OD is characterized by the formation of a cavity in the synovial joint surfaces, being most often identified on the distal joint surface of the femur. The absence of ossicle indicates that the lesion would still be active at the time of the individual's death. This is an important testimony to the understanding of the disease etiology.

**Keywords:** paleopathology, vascular condition, traumatic diseases, joint diseases.

## Is this a case of neonatal scurvy? Widespread bone lesions in an infant from a Late Antique Italian burial

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**POSTER**

Scurvy is a metabolic disease caused by a prolonged vitamin-C deficiency and affects different body tissues. Skeletal manifestations of scurvy are linked to chronic bleeding and include subperiosteal new bone formation (SPNB) and abnormal porosity of the cortex (AP) in cranial and postcranial bones. As frequently reported in clinical and paleopathological studies, the condition mainly affects infants aged between 6 to 24 months, whereas cases in younger individuals have been rarely described. The excavations of the archaeological site of *Piano della Civita* (Artena, near Rome) yielded 15 Late Antique burials scattered around an imperial roman *domus*. Among the sepultures, a pot burial contained the well-preserved skeleton of a 38-40 fetal week-old infant. The visual macroscopic analysis of the individual led to the identification of large areas of SPNB and/or abnormal porosity on all bone sites referred by the current literature as "diagnostic" or "suggestive" of scurvy, with bilateral occurrence in paired ones. The degree and distribution pattern of the lesions rule out normal growth or taphonomic changes and suggest a systemic pathological condition. We present and discuss the case, considering alternative possible etiologies, besides scurvy, including other metabolic diseases (i.e. rickets and anemia), infections, and acquired or inherited bone-forming disorders.

**Keywords:** perinate, metabolic disease, vitamin-C deficiency, subperiosteal new bone formation, abnormal porosity.

## Ancient parasite analysis and zoonotic potential of feline parasite *Spirometra* sp. in archaeological sites (984-905 AP) from Pernambuco, Brazil

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**POSTER**

Pathoecology studies the factors that contribute to the maintenance of infections in past populations and their possible health consequences. Aiming to apply the concept of pathoecology in an archaeological site in the Northeast region of Brazil, six samples of coprolites of animal origin from the Pedra do Tubarão Archaeological Site, dated between 984-905 BP, were analyzed. The samples were rehydrated with an aqueous solution of 0.5% trisodium phosphate and sieved in mesh (250 µm), and analyzed through electron microscope. Of the samples studied, only one showed parasites: 70 well-preserved eggs of *Spirometra* sp., a cestode that require different hosts. The ingestion of contaminated water or of intermediate hosts (primary: copepods; or secondary: amphibians, reptiles, birds, mammals) may cause sparganosis in humans. Our findings seems to suggest the possible presence of this infection in the population. The presence of water sources in the vicinity of the site and the recovery of bone remains of intermediate hosts, possibly food remains, also supports this assumption. This pathoecological study brings evidence on how past populations lived and became ill at the transition from nomadism to sedentary lifestyles. Moreover, it highlights the impact of zoonoses in the health and disease process of past American populations.

**Keywords:** *Spirometra*, pathoecology, coprolites, zoonoses, paleoparasitology.

## Exploring inequality through degenerative joint disease in a colonial Spanish-American city (foundational area in the city of Mendoza, Argentina)

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**POSTER**

The colonial society of Mendoza (middle west of Argentine, 16th-19th century) was a stratified caste system characterized by inequality. These asymmetries were evaluated from a paleopathological perspective in sectorized burials of the temples according to the socioeconomical background of the diseased/family. The objective here is to evaluate the distribution of the Degenerative Joint Disease (DJD) among groups from different socioeconomical (interior vs. exterior) backgrounds buried in five temples at the Foundational Area of Mendoza site. Appendicular joint surfaces of 67 adults of either sex were analized detecting a statistically significant prevalence between male in the interior (I) and the exterior (E) in shoulders (I=35,3%; E=23,8%; p=0,009), wrists (I=35,3%; E=25%; p=0,050) and knees (I=62,2%; E=51,5%; p=0,021). Sex, age and body size are the principal cause of DJD. The Spearman Correlation coefficients (r) on these factors present a statistically significant positive association only between sex (male) and body size for the knee (r = 0.441). The distribution and prevalence associated with biomechanical demand are discussed. In addition, the higher prevalences in female (E) (vs. female I) and the absence of significant differences with male (E), allows exploring the role of women within productive activities and contrasting them with local historical sources.

**Keywords:** mechanical-functional stress, osteoarthrosis, bioarchaeology, physical activity, historical Archaeology.

## Teeth and lifestyle: oral health of mid-late Holocene sambaqui builders from Saquarema, RJ, Brazil

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**POSTER**

The municipality of Saquarema, located on the coast of Rio de Janeiro State, presents 19 shellmound sites known as sambaquis that occur along most of Brazilian coast and where funerary rituals would have played an important role. Previous bioarchaeological studies of individuals from sambaquis in Saquarema provided relevant information regarding similarities and differences in the lifestyles of these populations. Thus, the present study aims to improve the current bioarchaeological information on these populations and to comprehend sociocultural aspects, especially the ones regarding dietary practices. We analyzed the buccal apparatus of 35 individuals excavated from two sambaquis, Sambaqui da Beirada, dated from 5.437 to 3.440 years cal. BP, and Sambaqui do Moa, dated from 4.770 to 3.199 years cal. BP. Analysis of teeth wear score, caries, calculus and periapical cavities were performed based on methods described in Hillson (1996). Field method (Buikstra & Ubelaker, 1994; Hassett, 2012) was used in the analysis of linear enamel hypoplasia; and *antemortem* teeth loss were accounted by alveoli with signs of bone remodeling. Results point to an abrasive and protein-based diet, with low intake of vegetables. Also, variations in prevalence and frequency of oral conditions between sites suggest differences in sociocultural aspects probably related to dietary practices.

**Keywords:** paleopathology, Brazilian prehistory, dental wear, caries, dietary habits.

Buikstra, J.E: Ubelaker, D.H. 1994. *Standards for data collection from human skeletal remains*. Arkansas archaeological survey research series, n.44. Arkansas Archeological Survey: Fayetteville.

Hassett, B.R. 2012. Evaluating sources of variation in the identification of linear hypoplastic defects of enamel: a new quantified method. *Journal of Archaeological Science*, 39: 560–565.

Hillson, S. 1996. *Dental Anthropology*. Cambridge University Press: Cambridge.

## My back is worse than yours: four cases of spondylolysis in skeletons from the Islamic necropolis of *Rua 5 de Outubro*, Santarém, Portugal (9th–12th centuries)

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**POSTER**

Although spondylolysis is a relatively common observation in the archaeological record it is rarely explored. This study aims to present and discuss four cases of spondylolysis from the Islamic necropolis (9th -12th centuries) of *Rua 5 de Outubro*, Santarém. Eighty-nine individuals were exhumed from this necropolis. Nevertheless, only those who presented vertebrae with a complete fusion between the neural arch and the vertebral body were macroscopically investigated (50.6%, 45/89). Bilateral separation of the neural arch from the vertebral body, which is characteristic of spondylolysis, was observed in 8.9% (4/45) of the sample, affecting three adult females (13%) and one adult male (5.8%). Three of the cases (#2242, #2356 and #1135) had lesion in the L5 and one (#2075) in the L4 and L5. Spondylolysis can be unilateral or bilateral and mainly affects the L4 and L5, as observed in this study. It usually affects male twice as often as female, which contrasts with our findings. This may be related to various factors such as a higher genetic predisposition, anatomical stress during pregnancy or different activities between sexes. It is also possible that the results obtained are underestimated, since in many of the individuals the vertebrae were poorly preserved.

**Keywords:** spinal deformities, lumbar vertebrae, stress fractures, congenital conditions.

## A proximal femoral fracture in a young female from Rua do Poço do Borratém: a case study from Medieval Lisbon

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**POSTER**

In 2018 a funerary context, with 47 burials, was identified at Rua do Poço do Borratém, Lisbon, dating from the late 13th to the early 15th centuries. Within the collection, the skeleton of a young adult female (20-35 y.o.) exhibits a non-consolidated left femoral fracture with exuberant bone formation: this case study is here reported. The young female age-at-death estimation and sexual diagnosis were based on the incomplete sacral vertebral fusion, pelvis morphology, and talus maximum length. Due to post-depositional disturbances, only the pelvic area and lower limbs were exhumed: the remains were found in supine position with the legs vertically positioned and flexed at the knee. The remains were only macroscopically assessed. The femoral fracture, located in the subtrochanteric region, has a mixed remodelled and active bone reaction pattern. The remodelled exuberant bone growth forms what appears to be an involucrum, with evidence of cloaca and heterotopic ossification, and extends towards the middle of the diaphysis. The intricate and exuberant bone formation is probably related to bone trauma, muscle trauma with subsequent ossification, and an allied infectious process. Although no additional changes were observed on the remaining bones, both femurs have very gracile proximal sections of the diaphysis.

**Keywords:** myositis ossificans, non-specific infection, trauma, Late Medieval Period, paleopathology.

## The bioarchaeological approach in cemetery analysis with the combination of paleopathological and archaeological data

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**POSTER**

The Paks-Cseresznyés site is in the south region of Hungary, where a deserted village with a churchyard cemetery from the 14th-16th century was found, with 614 individuals. There was a significantly high number of subadults, represented by more than 50% of the individuals. In our study, we combined the anthropological, the paleopathological data with archaeological and spatial analysis of the cemetery. The relatively low frequency of endocranial lesions (9,1%), periostitis (23,3%) implies the presence of pathogen(s) that caused rapid and severe infections leading to high mortality rates among children. In our work, we investigated the spatial distribution of individuals with the examined pathological alterations (endocranial lesions, perisotitis, cribra orbitalia) and those without. Our results show that there wasn't a specific place in the cemetery for individuals with certain disorders and we were also unable to detect burial groups suggesting an epidemic period. Though, we were able to separate groups in the cemetery structure that may be relevant for future investigations. This presentation aims to show the advantages of the use of GIS software in bioarchaeological research which can open new perspectives in cemetery analyzes.

**Keywords:** children, spatial information, GIS, bioarchaeology, social archaeology.

## Healed and healing: *antemortem* lesions from the prehistoric Roc de les Orenetes collective burial site (Queralbs, NE Iberian Peninsula)

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**POSTER**

Healed traumatic injuries are very common in the osteoarchaeological record, both related to accidental blows and interpersonal attacks. This latter scenario becomes very usual from the Neolithic onwards, when a major number of these confrontations is documented. After the healing process of a fracture, the bone remodels but never recovers its original morphology. In this way, it is possible to recognize the damages of injuries suffered and overcome throughout the individuals' life. Here we present the antemortem lesions, both healed and healing, documented at the Roc de les Orenetes site (Queralbs, NE Iberian Peninsula), dated to the Chalcolithic – Early/Mid Bronze Age. This site is a sepulchral cave located at an altitude of 1860 m.a.s.l., in the Eastern Pyrenees. This study aims to discuss the possibility of accidental injuries or cases of interpersonal violence in this assemblage, which is not always possible to discern. In both cases, they reveal a highly active, and conflictive, way of life of this population adapted to high-altitude environments. Particularly striking is the case of a left ulna with a complete fracture in the midshaft, totally healed, with the distal half absent, which may represent a case of amputation of the forearm after severe trauma.

**Keywords:** healed trauma, bone remodeling, interpersonal violence, accidental injury, amputation, sepulchral cave.

## Periapical lesions in a Medieval-Modern rural population: the commingled remains from Alto do Calvário necropolis (Miranda do Corvo, Coimbra)

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**POSTER**

Periapical inflammation is a condition affecting the alveolar bone after bacterial invasion of dental pulp cavity. In skeletal remains, periapical lesions can be distinguished between relatively benign and assyntomatic lesions (periapical granuloma and apical periodontal cyst) and symptomatic and severe lesions (periapical abscess and osteomyelitis). Given the quite distinct consequences to individual's health and quality of life, this study investigates the impact of periapical lesions in a rural Medieval-Modern Portuguese population. In all, 376 fragments of maxillae and mandibulae (NMI: 138 individuals) and 2801 alveoli, recovered from an ossuary exhumed in Alto do Calvário necropolis (Miranda do Corvo, Coimbra) were analyzed according to Dias and Tayles (1997), and Hillson (2001). Periapical lesions were identified in 204 alveoli (7.3%): granulomata/cysts (4.4%; n=122), remodelling lesions (2,2%; n=61), and abscesses (0.7%; n=21). Given the predominance of granulomata/cysts and residual lesions, the impact on the individuals' health was probably minimal. However, some severe cases of abscesses would have significantly affected the quality of life of 17 individuals. The fact that the analysed individuals are only represented by their maxillae prevented an analysis of the frequency of periapical inflammation by sex and age, which would be important for a better understanding of possible gender health differences in this population.

**Keywords:** dentoalveolar paleopathology, odontogenic infections, apical bony cavities, periapical granuloma/cyst, periapical abscess, residual lesion.

## Hip fractures in a well-documented skeletal sample from Argentina

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**POSTER**

Fractures of the proximal epiphysis of the femur exhibit a high level of morbidity and mortality and are considered to be a public health burden in terms of prevention and treatment. However, studies of hip fractures carried out with material from documented skeletal collections are scarce. The objective of the present study is to establish the prevalence of hip fractures in a contemporary skeletal collection. The skeletal material used in this study belongs to the Lambre Osteological Collection (Argentina). The sample analysed was comprised of 163 skeletons, 100 males and 63 females, ranging in age from 22 to 101 years old (averaging 69.4 years) and whose date of death spanned from 1900 to 2001. The fractures were classified as intra or extra capsular and the orthopaedic elements present were described, identified, and classified as partial or total arthroplasties. Eight hip fractures were identified, which represent a prevalence rate of 4.9%, six of them were represented by orthopaedic implants. Three of the individuals showed shortening and widening of the femoral neck whereas two cases exhibited angulation of the femoral head. All the affected individuals were older than 50 years of age, five of them were males (5%) and three were females (4,8%). The complexity of the joint, the extreme mechanical load and the reduction in bone density led to consequences of different severities that are observed and discussed.

**Keywords:** palaeopathology, osteoporosis, fracture, well-documented collection, arthroplasties.

## Paleopathology of the population inhumed in the megalithic tomb of Santa Rita, Portugal

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**POSTER**

The bones analyzed came from the burial chamber of the Megalithic Tomb of Santa Rita (Vila Real de Santo António, Portugal), which was used as a collective funerary space between the end of the IV millennium and the second quarter of the III millennium BCE. The minimum number of individuals was estimated at 21, 20 adults and one non-adult. Four were sexed as male and four as female. The objective of this communication is to present and discuss the pathologies and stress markers identified through macroscopic analysis. A case of possible trauma that fused two rib parts through an heterotopic ossification has been recorded. Five mandibular and maxillary fragments from adults showed signs of periodontal disease, one of which seems to be related to accentuated tooth wear. Two vertebral fragments and one talus showed signs of osteoarthrosis. Finally, three calcanei showed signs of entheseal modification, a musculoskeletal stress marker. The low prevalence of the main types of pathologies is similar to coeval populations. Degenerative disease of the joints, such as osteoarthrosis, present low prevalence in necropolises from the Late Neolithic/Chalcolithic, as well as traumas, stress markers and dental diseases. The absence of caries, however, is a discordant factor.

**Keywords:** fractures, dental disease, degenerative disease, commingled bones.

# Suprainion lesion in a female individual from Córdoba hills, central Argentina (533 ± 42 14C BP)

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**POSTER**

The suprainion lesion is a depression in the occipital bone, with bone thinning and variable shape and size, that has been commonly associated to cultural cranial deformation. Since this pathology has been rarely reported in southern South America, the aim of this work is to present an archaeological case from central Argentina dated in 533 ± 42 years 14C BP. The individual is a middle adult (33-42 years of age) female that displayed a thinned region in the occipital of 65mm long by 45mm wide, with a small oval perforation of the tissue of 6mm long by 2.5mm, with regular and rounded edges. For the paleopathological analysis, first the location and distribution of the abnormality were identified in the bone. Second, radiographic examination of the skull was performed. Finally, a differential diagnosis was attempted, following the classification of lesions in the skull (Kaufman et al. 1997; Verano 2016). We suggest that the analyzed individual displayed a suprainion lesion, which would be a result of the process of cranial deformation – such as the use of a deforming apparatus- that could have compressed the occipital and caused an ischemic ulceration of the surrounding soft tissue. Consequently, a co-ocurrent osteomyelitis cannot be discarded.

**Keywords:** paleopathology, skull, cultural cranial deformation, late Holocene.

Kaufman, M.H.; Witaker, D.; McTavish, J. 1997. Differential diagnosis of holes in the calvarium: application of modern clinical data to palaeopathology. *J. Archaeolog. Sci.*, 24: 193-218.

Verano, J. 2016. Differential diagnosis: trepanation. *Int. J. Paleopathol*. 14: 1-9.

## Preliminary results of an anthropological analysis of the medieval Muslim necropolis discovered in Macael (Almeria, Spain) and dated from the 13th to 16th centuries

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**POSTER**

The foundation of the Islamic farmhouse of Macael Viejo (Macael, Almeria, Spain) in the middle of the 13th century took the place after the Christian conquest of the neighboring Kingdom of Murcia. The population moved to hardly accessible zone of mountains of Almeria. The site remained inhabited until the end of the War of the Alpujarra in 1571, an event that determined its abandonment and the deportation of its population. The research carried out so far on this cemetery (2018-2021) allowed the recovery of 47 individuals. This study presents the preliminary results of the macroscopic analysis of the remains, shading a light to living condition of Muslim population in Spain in its last phase, after losing most of the territory and the fall of the Nasrid kingdom of Granada in 1492. The results showed a high infant mortality (47% were non-adults), hard physical stress, traumas (15.7% of total sample) and nutritional deficits (31.5% of total sample). Additionally, a case of death during pregnancy/childbirth, and a case of interpersonal violence were recorded. Our findings brought to light that transition to the arid and isolated zone of mountains influenced negatively on this population.

**Keywords:** *reconquista*, paleopathology, bioarcheology, interpersonal violence, bioarcheology of children, metabolic diseases.

# Investigating patterns of commonality in the experiences of childhood stress in adult skeletal remains of different socio-economic groups, from medieval Canterbury, England

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**POSTER**

Research has been conducted as part of an undergraduate dissertation aiming to identify similarities in expressions of biological stress, in adult skeletal remains of differing socioeconomic status, from two medieval sites (11th – 16th century), in Canterbury, England - St. Gregory's Priory (n = 38) and St. Augustine's Friary (n = 9). Cribra orbitalia identified the frequency of biological stress and enamel hypoplasia estimated the age biological stress was experienced. An independent methodology, consisting of 5 developmental stages, was devised to assess cribra orbitalia, focusing on overall population symmetry in indicators of stress. Furthermore, the original identification of cribra orbitalia within the St. Gregory's sample was revaluated. It was hypothesised that this initial assessment focused on severity, meaning mild signs of stress were disregarded, resulting in the unrecognition of the feature. This study, instead, detected the development of cribra orbitalia in 31 individuals. Significant inferential statistics suggested richer individuals experienced greater commonality in development of stress, whereas poorer individuals were more likely to undergo systemic periods of stress. This outcome highlights that focusing on frequency of markers of stress is more valuable in indicating population health through shared experiences of biological stress, than classifying health through the intensity of a feature.

**Keywords:** cribra orbitalia, enamel hypoplasia, biological stress, social status, development.

## Dental corrosion in a child from prehistoric Brazil: a case study from burial 2 at Pedra do Cachorro (1470 ± 30 bp – Pernambuco)

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**POSTER**

A 3-year-old child, dated to 1470 ± 30 BP (Cal AD 585 to 655 - Cal BP 1365 to 1295), from the archaeological site of *Pedra do Cachorro* (Buique, Pernambuco, Brazil), had the teeth and bones macroscopically, radiographically (X-ray and computer tomography) and microscopically (SEM) analyzed. This child shows a peculiar pattern of dental wear as well as long bones length that was below the expected for the infant's dental age. The severe loss of mineralized tissue resulted in the exposure of dentin on the lingual surface and the presence of a very thin enamel on the lingual surface. The unique pattern of dental chemical wear on the lingual surfaces of the upper incisors seems to be compatible with dental corrosion, probably caused by frequent vomiting episodes or chronic reflux generated by an unknown gastric disorder. Gastric disorder leading to vomiting or chronic reflux can be caused by a broad range of conditions such as gastrointestinal inflammatory diseases, malignant tumors, intracranial hypertension, central nervous system infection, metabolic diseases, and toxic food intake. The presence of Harris lines, linear enamel hypoplasia and low height suggests chronic malnutrition or other physiological stressors associated with growth disorders.

**Keywords:** paleopathology, dental chemical wear, gastroesophageal reflux disease.

## Health and the city: measuring the Frailty Index of the inhabitants of Velia (Italy, I-II cent. CE)

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**POSTER**

It is common knowledge that during the Imperial times, living conditions in the urban contexts might be affected by population density, poor hygiene and working load levels. For Italy, several studies have addressed this issue but rarely comprehensively and comparatively. The Marklein (2016) Skeletal Frailty Index was applied to obtain a general evaluation of the health status of the adult population of Velia, a seaport town in the Campania region. To this end, we recorded the presence/absence of 13 biomarkers related to growth faltering, nutrition and infection, biomechanical stresses and degenerative changes, and trauma on 84 skeletal individuals (38 females and 46 males) from the Porta Marina necropolis (I-II century CE). The results show high levels of frailty with a clear and expected increase by age. As for sex differences, the females appear healthier than the males, except for the 36-45 age-at-death group. Notwithstanding the inherent limitations of the method, as it is based on a limited number of features and does not consider the severity of the pathological conditions, the Frailty Index has proven to be a useful summary measure of health, allowing us to compare Velia with other Roman Imperial age communities.

**Keywords:** cranium, autopsy, *postmortem*, *perimortem*, pseudo-trauma.

Marklein et al. 2016. In sickness and in death: assessing frailty in human skeletal remains. *Am J Phys Anthropol.*, 161: 208-225.

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