

UCL INSTITUTE OF ARCHAEOLOGY

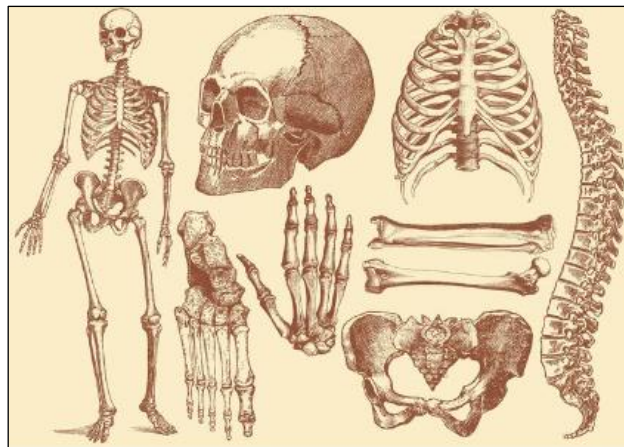
ARCL0114: MORPHOLOGY AND PALAEOPATHOLOGY OF THE HUMAN SKELETON

2023 – 2024

Term 1

MSc module

15 Credits



Module Co-ordinator: Dr Katie A. Hemer, Room 301, 3rd Floor, IoA

Teaching Associate: Conner Welty

In person Drop-in hours: Tuesdays 3pm – 4pm & Wednesdays 3pm – 4pm or available on Teams by prior arrangement (please email to arrange a Teams meeting).

Please be aware that some weeks, I run sessions with my Third-Year students on a Tuesday afternoon (Term 1) – if I'm not in my office, I'll put a note on my door.

Please refer to the online IoA Student Handbook <https://www.ucl.ac.uk/archaeology/current-students/iaa-student-handbook> and Study Skills Guide <https://www.ucl.ac.uk/archaeology/current-students/iaa-study-skills-guide> for instructions on coursework submission, IoA referencing guidelines and marking criteria, as well as UCL policies on penalties for late submission.

1. MODULE OVERVIEW

Module Description

In this half-unit, students will build a detailed knowledge of human post-cranial skeletal anatomy, including its normal microscopic and macroscopic appearance and the processes involved in its growth and maturation. The module will also introduce students to the factors that influence the development of disease in the skeleton, how categories of disease affect the skeleton, and it will teach them how to recognize osteological features of disease upon the skeletal system.

Module Aims

This module will provide students with a comprehensive knowledge of the anatomy and function of the post-cranial skeleton, including an understanding of its growth and development. Students will also learn basic pathological mechanisms that affect the skeletal system, and will develop the ability to recognise common pathological conditions that affect the post-cranial skeleton.

Learning Outcomes

On successful completion of this module, students are expected to:

- recognise the main elements of the human post-cranial skeleton in both the adult and non-adult (juvenile) skeleton
- identify the main features and landmarks of individual bones
- have an understanding of the pathological processes that affect bone
- be able to identify and record common types of pathological conditions and developmental anomalies seen in the skeleton, and understand the ways in which they may be interpreted

Methods of Assessment

This module is assessed by means of:

- (a) a report of approx. 1,500 words (500 words x 3), which provides a description and differential diagnosis for three pathological specimens (50% of the final module mark)
- (b) a practical examination (25% of the final module mark)
- (c) a written examination (25% of the final module mark)

Communications

- Moodle is the main hub for this module
- Important information will be emailed by staff via the Moodle page, and you will automatically receive an email notification of these
- Please post any general queries relating to the module content, assessments, and administration in the Microsoft Teams Module forum. The forum will be checked regularly by the module co-ordinator
- For personal queries, please contact the module co-ordinator by email

Module summary

The module is taught through lectures, practical classes, and online resources.

Lectures

The lectures are one hour long and will introduce students to the fundamental principles of microscopic and macroscopic anatomy of the post-cranial skeleton, including the processes involved in growth and maturation, and the theory and methods used to recognise pathological conditions.

Each week, you will have a lecture delivered in person using a Powerpoint presentation. Each lecture includes 'core / essential' information about a particular topic; you are expected to build on this foundational knowledge by keeping up with your independent study (e.g. own reading, note-taking, practising in the lab)

Copies of each lecture's slides will be available to access through Moodle (a password-controlled platform for all teaching and learning at UCL). Whilst every effort will be made to provide these slides in advance of the lecture, this might not always be possible (for example, due to unforeseen circumstances).

The lectures will take place each week on **Tuesdays, 12.00pm – 13:00pm in Room 433 of 16 Taviton Street** (aka 'UCL School of Slavonic and East European Studies').

Online Quiz

Each week, a Moodle quiz focusing on the content of that week's lecture will be released after class. You are expected to complete this quiz online in your own time. *Important:* These online quizzes are to consolidate your learning and do not count towards your final module mark.

Practical classes

Practical classes, each of which has its own objective, consist of two-hour classes in the osteology laboratory, Room 308 IoA. Their objective is to teach students to identify fragmentary components of the post-cranial skeleton, and to recognise abnormal and pathological lesions.

Practical classes will take place on **Wednesdays in Room 308** of the Institute of Archaeology. You will be asked to join one of two groups for these classes (Group A: 10am -12pm / Group B: 1pm - 3pm); due to the size of the cohort and space constraints, it is not possible to switch between groups each week so please do let me know if there is an issue with the group you've been allocated to.

These practical classes cover a lot of information in a short amount of time; you are expected to come into the laboratory outside of the timetabled classes in order to reinforce your learning and gain further experience of handling and identifying bones and fragments.

Every few weeks, at the end of the practical class, you will take part in short '**Bone identification test**'. These tests are *formative* and are designed to aid your learning by giving you an idea of what you know and what you need to work on – the marks don't count towards the module, but they do give you a useful benchmark for establishing your progress on the module up to the point of the test.

A summary of weekly topics can be found here:

Week	Lecture	Practical
1	Macroscopic structure, function & Joints	Upper Limb (Arms / Shoulder)
2	Microscopic structure & bone histology	Lower Limb (Legs / Pelvis)
3	Growth and development	Vertebrae and Ribs
4	Introduction to Pathology	Hands and feet
5	Infection and Inflammation	Non-specific inflammation
6	Reading week	Reading week
7	Metabolic disease	Assessment 1: Practical Exam
8	Metastatic and congenital conditions	Metabolic diseases and stress markers
9	Joint diseases (arthropathies)	Pathological joints / Congenital conditions
10	Tuberculosis & Leprosy	Specific infections 1 and metastatic disease
11	Treponemal disease	Specific infections 1 / Revision

Workload

This is a 15-credit module which equates to 150 hours of learning time including session preparation, background reading and research, and writing your assignments. You should expect to complete 30 hours of staff-led teaching sessions (lectures and practical sessions), 70 hours of self-guided preparation (reading, listening, note-taking, and online activities), plus 50 hours of independent research in preparation for the assessed work; this includes coming into the laboratory in your own time to go over the practical work you have done with the skeletal remains in class.

2. AIMS, OBJECTIVES AND ASSESSMENT

The module is assessed by means of one practical examination, a pathological report, and one written examination. Each assignment will be discussed in class in advance of the submission deadline, and information will be provided on Moodle. If students are unclear about the nature of an assignment, they should discuss this with the module coordinator in advance (via drop-in hours or by prior appointment). You will receive feedback on your written assignments via Moodle and have the opportunity to discuss your marks and feedback with the module coordinator during their drop-in hours or by prior appointment.

Assessment 1: Practical Examination

The practical examination will take place on **Wednesday 15th November 2023**. The examination consists of 20 post-cranial specimens (bones and fragments) which students are asked to identify and write brief notes on each one; for example, the name of the element, the side of the body it comes from, and which anatomical landmarks are present.

Assessment 2: Written Examination

The written examination will take place on **Wednesday 10th January 2024**. The examination consists of two parts; Part 1 includes 10 bone specimens; Part 2 is a short-question and answer paper. In Part 1, students are asked to identify each specimen and provide a written description of any pathological changes present on each bone. Part 2 involves writing short answers in response to a series of text- and image-based questions. These questions will draw on all content covered in the module as discussed in the lectures and practical classes.

Assessment 3: Pathological Report

Three pathological specimens will be provided from the collections in the bone lab. You are required to write three detailed descriptions (one for each bone) including (a) the state of preservation and completeness of the specimen (including element(s), side, maturity e.g. non-adult or adult) and (b) the location and appearance of any pathological changes. You should also (c) describe in detail any bone changes and which pathological condition is present, and (d) provide a differential diagnosis.

An electronic copy of your report *must* be submitted by midnight on **Friday 19th January 2024** (Term 2). The maximum word count is 1,500 words (up to/no more than 500 words per specimen).

For more details see the 'Assessment' section on Moodle. The marking criteria <https://www.ucl.ac.uk/archaeology/current-students/ioa-student-handbook/12-information-assessment> and IoA writing guidelines <https://www.ucl.ac.uk/archaeology/current-students/ioa-study-skills-guide> are useful guides. **Penalties for late submission:** see guidance in UCL Student Handbook <https://www.ucl.ac.uk/academic-manual/chapters/chapter-4-assessment-framework-taught-programmes/section-3-module-assessment#3.12>

2.1 USE OF GENERATIVE AI FOR ASSESSMENT

Generative Artificial Intelligence is a form of artificial intelligence (AI) that can be used to produce new content including images, audio, video, and text. The use of AI software to generate content for your essay is *not* permitted and its use will be taken very seriously. You can, however, use AI software for 'language and writing review', specifically using software for checking the grammar, spelling, and punctuation of your writing. Should you choose to use AI software in any way, it must be acknowledged in the relevant section of the coursework coversheet following the Library's guidance below (e.g. noting its use in your 'Acknowledgments'):

<https://library-guides.ucl.ac.uk/referencing-plagiarism/acknowledging-AI>

3. RESOURCES AND PREPARATION FOR CLASS

Preparation for class

You are expected to **read 1- 4 sources of the weekly reading list, and complete any online activities on Moodle each week**. Completing the reading is essential preparation for your participation in the in-class activities and it will greatly enhance your understanding of the material

covered. **Further readings are provided via the online reading list** for you to get a sense of the range of current work on a given topic and for you to draw upon for your assessments.

Online reading list: [ARCL0114 Morph & Path Reading list](#)

Recommended basic texts and online resources

- Aufderheide, A.C. & Rodriguez-Martin, C. 1998. *The Cambridge Encyclopedia of Human Paleopathology*. Cambridge: Cambridge University Press. IoA Library JF Qto AUF
- Bass, W.M., 1979. *Human Osteology, a Laboratory and Field Manual of the Human Skeleton*. Columbia: Missouri Archaeological Society. IoA Library BB 2 BAS
- Brothwell, D.R. 1981. *Digging Up Bones*. London & Oxford: British Museum & Oxford University Press. IoA Library BB2 BRO
- Buikstra, J.E. & Ubelaker, D.H. 1994. *Standards for data collection from human skeletal remains*. Arkansas Archeological Survey Research Series No 44. Fayetteville: Arkansas Archeological Survey. Available in room 308, or IoA Library BB 2 BUI
- Cox, M. & Mays, S. 2000. *Human Osteology in Archaeology and Forensic Science*. Cambridge: Cambridge University Press. IoA Library JF COX
- Larsen, C.S. 2015. *Bioarchaeology: Interpreting Behaviour from the Human Skeleton. Second Edition*. Cambridge Studies in Biological and Evolutionary Anthropology. Cambridge: Cambridge University Press. IoA Library BB 2 LAR <https://www-cambridge-org.libproxy.ucl.ac.uk/core/books/bioarchaeology/33B8316F5DF02D06BECD553DF62AC714>
- Lewis, M.E. 2007. *The Bioarchaeology of Children. Perspectives from Biological and Forensic Anthropology*. Cambridge: Cambridge University Press. IoA Library BB 2 LEW <https://www-cambridge-org.libproxy.ucl.ac.uk/core/books/bioarchaeology-of-children/AE18D0323BC1F49700ECC42DA79AF011>
- Ortner, D.J. 2003. *Identification of Pathological Conditions in Human Skeletal Remains. Second Edition*. Amsterdam, London: Academic Press. IoA Library JF ORT <https://repository.si.edu/handle/10088/1364>
<https://www.dawsonera.com/abstract/9780080525631>
- Roberts, C. & Manchester, K. 1996. 2005. *The Archaeology of Disease. Second & Third Edition*. Stroud: Sutton Publishing. IoA Library JF ROB
- Waldron, T. 2007. *Palaeoepidemiology*. Walnut Creek: Left Coast Press. IoA Library JF WAL
- Waldron, T. 2008. *Palaeopathology*. Cambridge Manuals in Archaeology. Cambridge University Press. IoA Library JF WAL <https://www-cambridge-org.libproxy.ucl.ac.uk/core/books/palaeopathology/C7A91F13FD03CAC2E13C21324BCB1251>
- White, T.D. & Folkens, P.A. 2005. *The Human Bone Manual*. New York: Academic Press. IoA Library BB 2 WHI <https://www-sciencedirect-com.libproxy.ucl.ac.uk/book/9780120884674/the-human-bone-manual>

DIRECTED READING

WEEK 1 & 2: Form, Function, and Structure

- Augat, P. & Schorlemmer, S. 2006. The role of cortical bone and its microstructure in bone strength. *Age and Aging*, 35: 27-31.
- Carter, D.R. 1984. Mechanical loading histories and cortical bone remodelling. *Calcified Tissue International*, 36: s19-s24.

- Franz-Odenaal, T.A., Hall, B.K. & Witten, P.E. 2005. Buried alive: how osteoblasts become osteocytes. *Developmental Dynamics*, 235: 176-190.
- Katsimbri, P. 2017. The biology of normal bone remodelling. *Cancer Care*, 26: e12740.
- Steele D.G. & Bramblett, G.A. 1988. *The Anatomy and Biology of the Human Skeleton*. College Station, Texas: Texas A & M University Press. Available in room 308, or IoA Library BB 2 STE
- Currey, J.D., 2006. *Bones: Structure and Mechanics. Second Edition*. Princeton, Princeton University Press. Medical Sciences Library JB 5 CUR <https://www-jstor-org.libproxy.ucl.ac.uk/stable/j.ctt4cg9wv>
- Gray's Anatomy. Available in room 308, Orthopaedics Library QS 4 GRA, or in App form (Search 'Gray's Student Anatomy' wherever you get your apps).
- Gunn, C. 2002. Bone and Joints. A Guide for Students. Edinburgh: Churchill Livingstone. Orthopaedics Library WE 200 GUN
- <https://rad.washington.edu/muscle-atlas/> For muscles of the appendicular skeleton
- Haywood, L. & Walsh, D.A. 2001. Vasculature of the normal and arthritic synovial joint. *Histology and Histopathology*, 16: 277-284.
- Stone, R.J. & Stone, J.A. 1990. *Atlas of Skeletal Muscles. Second Edition*. Boston: McGraw-Hill. Medical Sciences Library JD 20 STO

WEEK 3: Growth and Development

- Lewis, M.E. 2007. Growth and development. In: Lewis, M.E. *The Bioarchaeology of Children. Perspectives from Biological and Forensic Anthropology*. Cambridge: Cambridge University Press. pp. 60-80. IoA Library BB 2 LEW <https://www-cambridge-org.libproxy.ucl.ac.uk/core/books/bioarchaeology-of-children/AE18D0323BC1F49700ECC42DA79AF011>
- Schaefer, M., Black, S. & Scheuer, L. 2009. *Juvenile Osteology. A Laboratory and Field Manual*. Oxford: Academic Press. IoA Library BB 2 SCH <https://www-sciencedirect-com.libproxy.ucl.ac.uk/book/9780123746351/juvenile-osteology>
- Scheuer, L. & Black, S. 2000. *Developmental Juvenile Osteology*. San Diego: Academic Press. IoA Library BB 2 SCH <https://www-sciencedirect-com.libproxy.ucl.ac.uk/book/9780126240009/developmental-juvenile-osteology>

WEEK 4: Introduction to Pathology

- Waldron, T. 2008. *Palaeopathology*. Cambridge Manuals in Archaeology. Cambridge University Press. IoA Library JF WAL <https://www-cambridge-org.libproxy.ucl.ac.uk/core/books/palaeopathology/C7A91F13FD03CAC2E13C21324BCB1251>
- Brickley, M. & McKinley, J.I. 2004. *Guidelines to the Standards for Recording Human Remains*. BABA0 / IFA Paper Number 7. Available on Moodle
- Lovell, N.C. 2000. Paleopathological description and diagnosis. In: Katzenberg, M.A. & Saunders, S.R. (eds). *Biological Anthropology of the Human Skeleton*. Chichester: Wiley-Liss. pp. 217-248. Anthropology Library B 25 KAT <https://www.dawsonera.com/abstract/9780470245835>
- Pokines, J.T. & Higgs, N. 2015. Macroscopic taphonomic alterations to human bone recovered from marine environments. *Journal of Forensic Identification*, 65: 953-984.
- Wood, J.W., Milner, G.R., Harpending, H.C. & Weiss, K.M. 1992. The osteological paradox: problems of inferring health from skeletal samples. *Current Anthropology*, 33: 343-370.

WEEK 5: Infection and Inflammation

- Lee, Y.J., Sadigh, S., Mankad, K., Kapse, N. & Rajeswaran, G. 2016. The imaging of osteomyelitis. *Quantitative Imaging in Medicine and Surgery*, 6: 184-198.

- Lewis, M.E. 2004. Endocranial lesions in non-adult skeletons: understanding their aetiology. *International Journal of Osteoarchaeology*, 14: 82-97.
- Lewis, M.E., Roberts, C.A. & Manchester, K. 1995. Comparative study of the prevalence of maxillary sinusitis in later medieval urban and rural populations in northern England. *American Journal of Physical Anthropology*, 98: 497-506.
- Melzer, R. & Schmid, L. 2018. Cocaine-induced periostitis and vasculopathy. *Rheumatology*, 57: 450.
- Pineda, C.J., Martinez-Lavin, M., Goobar, J.E., Sartoris, D.J., Clopton, P. & Resnick, D. 1987. Periostitis in hypertrophic osteoarthropathy: relationship to disease duration. *American Journal of Roentgenology*, 148: 773-778.
- Roberts, C. 2000. Infectious disease in biocultural perspective: past, present and future work in Britain. In: Cox, M. & Mays, S. (eds). *Human Osteology in Archaeology and Forensic Science*. Cambridge: Cambridge University Press. pp. 145-162. IoA Library JF COX
- Roberts, C.A. 2007. A bioarchaeological study of maxillary sinusitis. *American Journal of Physical Anthropology*, 133: 792-807.
- Shuler, K.A. 2011. Life and death on a Barbadian sugar plantation: historic and bioarchaeological views of infection and mortality at Newton Plantation. *International Journal of Osteoarchaeology*, 21: 66-81.
- Vynichakis, G., Chandrinou, M., Angelis, S., Bogris, E. & Michalarakis, J.N. 2019. Salmonella osteomyelitis of the proximal tibia in a previously healthy adolescent: a case report. *Cureus*, 11L e5672.
- Weston, D.A. 2008. Investigating the specificity of periosteal reactions in pathology museum specimens. *American Journal of Physical Anthropology*, 137: 48-59.

WEEK 6: Reading Week (No classes)

WEEK 7: Metabolic Disease

- Brickley, M. 2000. The diagnosis of metabolic disease in archaeological bone. In: Cox, M. & Mays, S. (eds). *Human Osteology in Archaeology and Forensic Science*. Cambridge: Cambridge University Press. pp. 183-198. IoA Library JF COX
- Brickley, M. & Ives, R. 2008. *The Bioarchaeology of Metabolic Bone Disease*. Oxford, Academic Press. IoA Library JF BRI <https://www-sciencedirect-com.libproxy.ucl.ac.uk/book/9780123704863/the-bioarchaeology-of-metabolic-bone-disease>
- Davit-Beal, T., Gabay, J., Antonioli, P., Masle-Farquhar, J. & Wolikow, M. 2014. Dental complications of rickets in early childhood: case report on 2 young girls. *Pediatrics*, 133: e1077.
- Geber, J. & Murphy, E. 2012. Scurvy in the Great Irish Famine: evidence of vitamin C deficiency from a mid-19th century skeletal population. *American Journal of Physical Anthropology*, 148: 512-524.
- Halcrow, S.E., Harris, N.J., Beavan, N. & Buckley, H.R. 2014. First bioarchaeological evidence of probably scurvy in southeast Asia: multifactorial etiologies of vitamin C deficiency in a tropical environment. *International Journal of Paleopathology*, 5: 63-71.
- Jacobi, K.P. & Danforth, M.E. 2002. Analysis of interobserver scoring patterns in porotic hyperostosis and cribra orbitalia. *International Journal of Osteoarchaeology*, 12: 248-258.
- Lane, N.E. 2006. Epidemiology, etiology, and diagnosis of osteoporosis. *American Journal of Obstetrics and Gynecology*, 194: S3-11.
- Malla, K.K., Malla, T., Shaw, C. & Thapalial, A. 2010. Type II vitamin D dependent rickets: a case report. *Journal of Nepal Paediatric Society*, 30: 46-49.
- Ortner, D.J. & Mays, S. 1998. Dry bone manifestations of rickets in infancy and early childhood. *International Journal of Osteoarchaeology*, 8: 45-55.

- Peixoto, M.J., Nunes, P., Melo, R. & Timoteo, S. 2018. Scurvy in anorexia nervosa: a case report. *International Journal of Clinical Neurosciences and Mental Health*, 5: 9.
- Seya, M., Handa, A., Hasegawa, D., Matsui, T. & Nozaki, T. 2016. Scurvy: from a selective diet in children with developmental delay. *The Journal of Pediatrics*, 177: 331.
- Singer, F.R. & Roodman, D. 2020. Paget's disease of bone. In: Feingold, K.R., Anawalt, B., Boyce, A. et al. (eds) *Principles of Bone Biology* (Fourth edition). Academic Press pp. 1601-1613.
- Walker, P.L., Bathurst, R.R., Richman, R., Gjerdrum, T. & Andrushko, V.A. 2009. The causes of porotic hypersostosis and cribra orbitalia: a reappraisal of the iron-deficiency anemia hypothesis. *American Journal of Physical Anthropology*, 139: 109-125.
- Watts, R. & Valme, S-R. 2018. Osteological evidence for juvenile Vitamin D deficiency in a 19th century suburban population from Surrey, England. *International Journal of Paleopathology*, 23: 60-68.

WEEK 8: Congenital Conditions

- Duncan, W.N. & Stojanowski, M. 2008. A case of squamosal craniosynostosis from the 16th century southeastern United States. *International Journal of Osteoarchaeology*, 18: 407-420.
- Garcia, S.J. & Santos, A.L. 2019. Osteological evidence of short stature and parieto-squamosal arch craniosynostosis in a non-adult male from the 13th century Leiria, Portugal. *International Journal of Osteoarchaeology*, Early View.
- Phillips, S.M. & Sivilich, M. 2006. Cleft palate: a case study of disability and survival in prehistoric north America. *International Journal of Osteoarchaeology*, 16: 528-535.
- Rivollat, M., Castex, D., Hauret, L. & Tillier, A-M. 2014. Ancient Down syndrome: an osteological case from Saint-Jean-des-Vignes, northeastern France, from the 5-6th century AD. *International Journal of Paleopathology*, 7: 8-14.
- Roberts, C.A., Knusel, C.J. & Race, L. 2004. A foot deformity from a Romano-British cemetery at Gloucester, England, and the current evidence for Talipes in palaeopathology. *International Journal of Osteoarchaeology*, 14: 389-403.
- Wright, L.E. 2011. Bilateral talipes equinovarus from Tikal, Guatemala. *International Journal of Paleopathology*, 1: 55-62

WEEK 8: Metastatic Conditions

- Antunes-Ferreira, N., Cunha, E. & Marques, C. 2014. Multiple osteochondromas in a 16th-19th century individual from Setúbal (Portugal). *Anthropological Science*, 122: 157-163.
- Molnar, E., Marcsik, A., Bereczki, Z., Schmidt-Schultz, T.H., Schultz, M. & Palfi, G. 2009. Malignant tumours in osteoarchaeological samples from Hungary. *Acta Biologica Szegediensis*, 53: 117-124.
- Rando, C. & Waldron, T. 2018. Extensive periosteal new bone formation in a skeleton from post-medieval Chichester, England: a probable case of metastatic prostatic carcinoma. *International Journal of Paleopathology*, 21: 121-127.

WEEK 9: Joint Disease

- Domett, K., Evans, C., Chang, N., Tayles, N. & Newton, J. 2017. Interpreting osteoarthritis in bioarchaeology: highlighting the importance of a clinical approach through case studies from prehistoric Thailand. *Journal of Archaeological Science: Reports*, 11: 762-773.
- Hacking, P., Allen, T. & Rogers, J. 1994. Rheumatoid arthritis in a medieval skeleton. *International Journal of Osteoarchaeology*, 4: 251-255.
- Kacki, S. 2013. Erosive polyarthropathy in a late Roman skeleton from northern France: a new case of rheumatoid arthritis from the pre-Columbian Old World? *International Journal of Paleopathology*, 3: 59-63.

- Mays, S., Watt, I. & Loe, L. 2017. An unusual erosive arthropathy from medieval England. *International Journal of Osteoarchaeology*, 27: 693-699.
- McKinnon, K., Van Twest, M.S. & Hatton, M. 2013. A probable case of rheumatoid arthritis from the middle Anglo-Saxon period. *International Journal of Paleopathology*, 3: 122-127.
- Rogers, J. 2000. The palaeopathology of joint disease. In: Cox, M. & Mays, S. (eds). *Human Osteology in Archaeology and Forensic Science*. Cambridge: Cambridge University Press. pp. 163-182. IoA Library JF COX
- Rogers, J. & Waldron, T. 2001. DISH and the monastic way of life. *International Journal of Osteoarchaeology*, 11: 357-365.
- Waldron, T., Rogers, J. & Watt, I. 1991. Erosive osteoarthritis in a medieval skeleton. *International Journal of Osteoarchaeology*, 1: 151-153.
- Swinson, D., Snaith, J., Buckberry, J. & Brickley, M. 2010. High performance liquid chromatography (HPLC) in the investigation of gout in palaeopathology. *International Journal of Osteoarchaeology*, 20: 135-143.
- Waldron, T. & Rogers, J. 1991. Inter-observer variation in coding osteoarthritis in human skeletal remains. *International Journal of Osteoarchaeology*, 1: 49-56.

WEEK 10: Venereal Syphilis

- Baker, B.J., Crane-Kramer, G., Dee, M.W., Gregoricka, L.A., Henneberg, M., Lee, C., Lukehart, S.A., Mabey, D.C., Roberts, C.A., Stodder, A.L.W., Stone, A.C. & Winingear, S. 2020. Advancing the understanding of treponemal disease in the past and present. *Yearbook of Physical Anthropology*, 171: 5-41.
- Cole, G. & Waldron, T. 2010. Apple Down 152: a putative case of syphilis from sixth century AD Anglo-Saxon England. *American Journal of Physical Anthropology*, 144: 72-79.
- Hansen, K., Hvid-Jacobsen, K., Lindewald, H., Sorensen, P.S. & Weismann, K. 1984. Bone lesions in early syphilis detected by bone scintigraphy. *Sexually Transmitted Infections*, 60: 265-268.
- Harper, K.N., Zuckerman, M.K., Harper, M.L., Kingston, J.D. & Armelagos, G.J. 2011. The origin and antiquity of syphilis revisited: an appraisal of Old World pre-Columbian evidence for treponemal infection. *American Journal of Physical Anthropology*, 146: 99-133.
- Kumar, B., Gupta, R., Sharma, S.C. & Khandelwal, N. 1989. Bilateral sabre-like tibial deformity in secondary syphilis: case report. *Genitourinary Medicine*, 65, 394-396.
- Mays, S., Crane-Kramer, G. & Bayliss, A. 2003. Two probable cases of treponemal disease of medieval date from England. *American Journal of Physical Anthropology*, 120: 133-143.
- Park, K-H., Lee, M.S., Hong, I.K., Sung, J-Y., Choi, S-H., Park., S.O., Shin, M.J., Chung, H.W. & Lee, S.H. 2014. Bone involvement in secondary syphilis: a case report and systematic review of the literature. *Sexually Transmitted Diseases*, 41: 532-537.

WEEK 10: Leprosy

- Andersen, J.G. & Manchester, K. 1992. The rhinomaxillary syndrome in leprosy: a clinical, radiological and palaeopathological study. *International Journal of Osteoarchaeology*, 2: 121-129.
- Andersen, J.G., Manchester, K. & Roberts, C. 1994. Septic bone changes in leprosy: a clinical, radiological and palaeopathological review. *International journal of Osteoarchaeology*, 4: 21-30.
- Karat, S., Karat, A.B.A. & Foster, R. Radiological changes in bones of the limbs in leprosy. *Leprosy Review*, 39: 147-169.
- Kustner, E.C., Cruz, M.P., Dansis, C.P., Iglesias, H.V., Rodriguez de Rivera campillo, M.E. & Lopez, J.L. 2006. Lepromatous leprosy: a review and case report. *Medicina Oral Patologia Oral Y Cirugia Bucal*, 11: e474-479.

- Lewis, M.E. 2002. *Infant and Childhood Leprosy: Past and Present*. BAR International Series.
- Lewis, M.E., Roberts, C.A. & Manchester, K. 1995. Inflammatory bone changes in leprosy skeletons from the medieval hospital of St. James and St. Mary Magdalene, Chichester, England. *International Journal of Leprosy*, 63: 77-85.
- Manchester, K. & Roberts, C. 2010. The palaeopathology of leprosy in Britain: a review. *World Archaeology*, 21: 265-272.
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