Osteoarchaeology Cheat Sheet

by Anais (Anais_Pe) via cheatography.com/151793/cs/46553/

Definitions

Osteoarchaeology	Study of bones in an archaeological context.
Linear Enamel Hypoplasia (LEH)	Pits/linear lesions in teeth, provide information surrounding nutrition from 4 weeks *in utero*. Caused by vitamin A and D deficiencies.
Cribra orbitalia	Porosity on orbital roof as a response to anaemia or physiological trauma *e.g. rickets and scurvy*.
Periostitis	Reaction of periosteum to stress. Osteoperiostitis = pitting/striations associated with nutritional deficiencies.

Bioarchaeology of care

Borneo, *31 kya*

Found in an area rich in rock art dated to *40 kya*.

Geophysical survey used to find site, excavated in a 2x2m trench through 9 stratigraphical units (SUs) and uncovering a fully articulated burial.

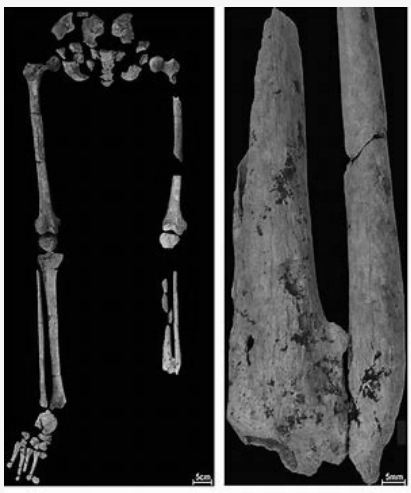
Burial features	Limestone rocks positioned at the head and each arm of the individual buried (*TB1*).
	TB1 was found in a flexed position and is considered to be an anatomically modern *Homo sapiens*.
	Aged around 19-20 years of age - evidence from epiphyseal fusion adn auricular surface stages (pelvis).
	Sex = indeterminate, but stature suggests male rather than female.
Surgical amputation	Absence of left foot. Left tibia + fibula shaft = unusual distal bony growth.
	Pattern = consistent with clinical amputation as non-surgical amputations (e.g. blunt force trauma) woudl cause crushing of bones rather than oblique sectioning as found here. Remodelled lamellar bone suggests healing prior to death - care for individual. Lack of infection post-injury.
	Lived for 6-9 years after amputation.

Bioarchaeology of care (cont)

Significance of results	Medicinal knowledge in foraging cultures prior to this discovery always considered rudimentary. Care for the wounded limited to trepanation, sutures and dentistry. More complex surgeries thought to be beyond capabilities of foraging communities.
	TB1 suggests a foraging community with complex knowledge of limb + muscular anatomy and vascular systems, as well as the knowledge that hte removal of this limb was necessary for survival.
	Living with the altered mobility of an amputated leg also suggests altruism and care for the individual, especially in this mountainous environment.
	Post-surgical care such as regular bathing and disinfection would have also been necessary to avoid infection.

(Maloney, *et al.*, 2022)

Bornean amputation



Secondary Contexts - Funerary Taphonomic Processes

Additions to archaeothanatology:	Disposition + effects of decomposition on disarticulation and inferences we can draw from this.
Çatalhöyük, Turkey	*c. 7100-6000 calBCE*

Bodies buried bound with rope, with a delay between eath and burial

Burials underneath settlements with younger indivs buried in central/side rooms.

Evidence for secondary context	Disartiulated and commingled context of bodies. Could suggest bodies were left out to decopose before burial.
Evidence for primary context	Remains = very tightly flexed.

(Knüsel and Robb, 2016)

Trauma

Dakleh Oasis, Egypt	*Romano-Byzantine period*
Age sex and pathology of remains identified as physiological consequences of political, economic, subsistence processes, etc changes.	
Social context - Egypt well known for its agricultural specialities.	
Age estimations	Dental formation, epiphysial development + fusion.
	Cranial development + fusion.
Health + physiological stress	**Cribra orbitalia, LEH and osteoperiostitis* all = main signs of physiological stress in juveniles of the Kellis 2 burial on site.*
Combining data of age + health -> better idea of demographic of population, with majority of indivs showing active lesions perimortem.	

Trauma (cont)

LEH in older stratum of the group (around 15 yrs old), always accompanied by other lesions (CO, osteoperiostitis, or both).

Discussion	To what extent is the burial record generalisable to living demographics?
	Ultimately, the burial record is designed, decided and modified by living populations to either symbolically represent significance or consciously alter perspectives of living demographics.
	So the Kellis 2 burial, for example, cannot necessarily be applied to say that all children underwent malnutrition with a high juvenile mortality rate. What if younger or sickly individuals were separated in burial contexts from the general population?

(Wheeler, 2012)

Amarna workers

North cemetery of Amarna, Egypt.

Site shows evidence of early life stress from work.

Demographic constituted mainly of females, 7-25 years old.

Evidence suggests stress in very early life from physical labour.

Linear Enamel Hypoplasia (LEH)	High frequency of LEH.

(Dabbs, 2019)

Movement and Interconnectivity

Using chemical analysis on bones - multidisciplinary approach.

Genomic data and stable isotopic analysis on the *Amesbury archer*.

Amesbury archer = related to Bell beaker culture, found near Stonehenge.

Stable isotope	*Strontium* - associated with groundwater of region. *Oxygen* - associated with typical temperature of a region.
	Suggested inidiv had travelled from Alps to place of burial.
Genomic data	Comparison of aDNA with modern people, determined admixture between Beaker people and steppe ancestry.

(Olalde et al., 2018; Renfrew, Bahn and DeMarrais, 2024)

References for your humble perusal

Dabbs, G.R. (2019) 'Bioarchaeology of the Non-elite North Tombs Cemetery at Amarna: A Preliminary Assessment of the Non-elite Individuals of the North Tombs Cemetery at Tell el-Amarna, Egypt', Bioarchaeology International, 3(3), pp. 174–186. Available at: https://doi.org/10.5744/bi.2019.1012.

Maloney, T.R. et al. (2022) 'Surgical amputation of a limb 31,000 years ago in Borneo', Nature, 609(7927), pp. 547–551. Available at: https://doi.org/10.1038/s41586-022-05160-8.

Olalde, I. et al. (2018) 'The Beaker phenomenon and the genomic transformation of northwest Europe', Nature, 555(7695), pp. 190–196. Available at: https://doi.org/10.1038/nature25738.

Renfrew, C., Bahn, P. and DeMarrais, E. (2024) Arcaheology Theories, Methods and Practice. 9th edn. London: Thames and Hudson.

References for your humble perusal (cont)

Wheeler, S.M. (2012) 'Nutritional and Disease Stress of Juveniles from the Dakhleh Oasis, Egypt', International Journal of Osteoarchaeology, (22), pp. 219–234. Available at: https://doi.org/10.1002/oa.1201.