

Priests Food taboos in ancient Egypt,
Priests Food taboos in ancient Egypt,
A case study from Dakahlia governorate.*

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ABSTRACT

The life of priests followed by strict rules, especially in purification and rituals practices. One of these rules was abstained to eating some kinds of food to guarantee purification. Food taboos are an extremely complex subject, not only because most of our information date back to late periods (e.g. Herodotus and Plutarch writings) but also because it was different between literary and illustrative evidence. According to Herodotus and Plutarch writings, some kinds of food were forbidden to eat for priests, for religious duty and other for purity before cult, while some kinds of food were related to God symbols themselves. The balanced diet which contains differing kinds of food ensure good health. Therefore, the stopping of eat onions, garlic, salt, and beans additionally some kinds of fish and meat probably effect negatively on priests' health. Despite, the skeletal and mummified remains are one of the main sources to study the health and diseases in ancient populations alongside the medical papyri and artistic representations, the bioarchaeological studies are still limited in Egypt. The mummified and skeletal remains date back from late period to Ptolemaic period based on the analysis of the pottery by Sayed Talhawy. The microscopic analysis for ten individuals at Tell Tebilla displayed pathological cases including healed fractures, dental pathologies, degenerative joint diseases and possibly a Hyperostosis Frontalis Interna (HFI) case. Although, the sample was small, it is important not only to compare Tell Tebilla results with the previous bioarchaeological studies around Mendes which held by many other scholars, but also to investigate more information about the daily life activities, wealth, state of health and the occupation. The paper will focus on the correlation between the occupation of priests, food taboos and some specific diseases.

KEYWORDS: Tell Tebilla, Bioarchaeology, Palaeopathology, Priests, mummified remains, food taboos.

* نوقش هذا البحث ضمن أبحاث المؤتمر الدولي الرابع لكلية الآداب – جامعة المنوفية
(العلوم الإنسانية ومسارات التحول) في الفترة من ٢ إلى ٣ مارس ٢٠٢٢ م
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المخلص

اتبعت حياة الكهنة قواعد صارمة وخاصة فيما يتعلق بالتطهر وممارسة الطقوس الدينية. أحد أهم هذه القواعد كانت التوقف عن تناول بعض أنواع الطعام لضمان الطهارة. تعد دراسة محرمات الطعام من الموضوعات الصعبة للغاية ليس فقط لاعتماد معلوماتنا على كتابات المؤرخين ولكن أيضا لأن تلك الكتابات تتناقى مع التصاوير الجدارية على المعابد والمقابر. طبقا لكتابات هيرودوت وبلوتارخ حرمت بعض الأطعمة على الكهنة لأسباب تتعلق بالواجبات الدينية والتطهر، في حين كانت بعض أنواع الطعام رموزاً دينية للآلهة أنفسهم. إن الطعام المتوازن والذي يحتوى على أنواع متنوعة من الطعام يضمن الصحة الجيدة، لذا فالامتناع عن تناول بعضها مثل البصل والثوم والملح والفاصوليا بالإضافة الى بعض أنواع الأسماك واللحوم قد يؤثر سلباً على صحة الكهنة. تعد البقايا العظمية والمحنطة واحدة من اهم مصادر دراسة صحة وامراض المجتمعات القديمة بجانب البرديات الطيبية و التصاوير الجدارية ، الا ان الدراسات البيواركيولوجية لا تزال محدودة في مصر للغاية. تؤرخ البقايا العظمية والمحنطة موضوع الدراسة إلى ما بين نهاية العصر المتأخر وبداية العصر البطلمي اعتمادا على تأريخ الفخار بواسطة سيد طلحاوي. كشف الفحص المجهرى عن حالات مرضية بالعينة التي تم الكشف عنها بحفائر تل تيلة لعدد عشرة افراد تتمثل فى الكسور الملتئمة، أمراض الأسنان، أمراض المفاصل التنكسية، وربما حالة فرط التعظم الجبهي الداخلي HFI، وعلى الرغم من صغر العينة الا انها مهمة ليس فقط لاستكمال المقارنة بين نتائج البحث في تل تيلة بالدراسات البيواركيولوجية السابقة بالمنطقة المحيطة بمنديس والتي أجراها العديد من الباحثين الآخرين، ولكن أيضاً للتحقيق في مزيد من المعلومات حول أنشطة حياة الكهنة اليومية والثروة وارتباطها بالحالة الصحية. وتهدف هذه الورقة البحثية الى التركيز على العلاقة بين مهنة الكهنة والمحرمات من الطعام وارتباط ذلك ببعض الامراض التي ظهرت بالعينة.

الكلمات الدالة:

تل تيله، البيواركيولوجيا، الامراض القديمة، الكهنة، البقايا المحنطة، الطعام المحرم

Priests Food taboos in ancient Egypt, INTRODUCTION

The anthropological and paleopathological analysis of skeletal and mummified human remains are not crucial only to reveal information about the deceased and their life¹, but also, to investigate both osteobiography and paleobiography², in large samples, it is possible to reconstruct health and wealth of ancient populations³. The mummified and skeletal remains in this study were found by the Egyptian mission directed by Saad Mansour in the mudbrick mastaba of the high priest *Wahibra*⁴ approximately 4m south of an enclosure wall of Tell Tibilla temple⁵, which located approximately 12km north of ancient Mendes “*Tell el-Roba*” 5km south of *Dikirnis*, Daqahlia governorate (fig1).

1 Larsen, CS., (1997).

2 Nováček, J & Nováček, S., & Schultz, M., (2017), 318-338 ; Schultz M, (2010), 163-171; Schultz M, Walker R (2013), 64-78; Schultz M, Walker R, Strouhal E, Schmidt-Schultz TH, (2003), 75-86.

3 Schultz & Schmidt-Schultz, (2017)

4 Hashesh, Z. & Herrerin, J, (2019)

5 Malek, (1934), p 39; Porter, Moss (1934) IV, p 39 and 271 map (Tel Balala)

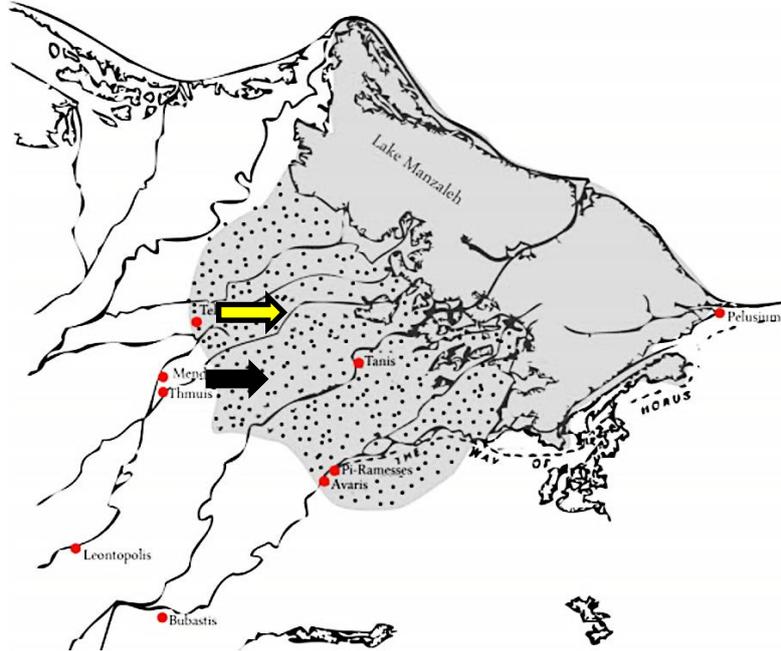


Figure 1. Tell Tebilla (yellow arrow) and Mendes (black arrow) location at eastern Delta.
(<http://www.deltasinai.com/delta-01>)

Although, ancient Tebilla city consider one of the most famous eastern delta cities during the third Intermediate period and late period, the site was abandoned during the first and second Intermediate periods¹. Additionally, the archaeological survey at the site by Toronto University mission between 1999-2001 suggested that the site was occupied from the late old Kingdom, Middle Kingdom, early new kingdom, Ptolemaic and Roman period². During the old kingdom Tell Tebilla used as a Mendes harbor. During the third intermediate period and late period the reactive again as a harbor. Possibly, the lack of water by the changing in the course of the Mendesian river branch was the

1 Mumford, G.(2004), pp. 267-286.

2 Mumford, G. (2004), pp. 267-286.

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reason¹.The site has the focus of salvage excavations by the Ministry of Tourism and Antiquities since 1970s, as it was under threat from rising ground water levels, local constructions and encroaching agriculture. The previous excavation by Toronto university investigated the skeletal materials of 36 individuals which discovered between 2000-2003². In 2014 the Egyptian archaeological mission discovered during a salvage excavation a new intact mudbrick mastaba with three mummified individuals, while other human remains discovered in the top layer of the mastaba. The paper investigates new archaeological evidence belong to 10 individuals, three of them [skeletons no.5,6,7] were intact inside the mastaba and seven individuals [skeletons no.1,2,3,4,8,9,10] located on the top layer. all are placed on the surface of limestone blocks, which simultaneously served as the roof of the mastaba beneath. The mastaba was divided into three parts, the interior walls of the mastaba, built of limestone and measured from north-south 11.5 m and 8.5 m east west, all of which contained mummies and disarticulated human remains³.

Finds and Methods

Selected pathological conditions from human remains of 10 individuals (2 males, 5 female, 2 children, 1 adult unknown sex)⁴ investigated a new bioarchaeological evidence belong to the individuals who lived on Tell Tebilla between 1st and 2nd millennium according to pottery sherds dating and the mummification technique (Table1).

Each individual skeletal and mummified element was carefully cleaned dry with a small brush and wooden tools and a visual examined by using a 10× magnifying glass. Minimum Number of Individuals' (MNI) technique used to analyze the

1 Parcak, S.(2010), pp. 3-22.

2 Mumford, G.(2004), pp. 267-286.

3 Hashesh, Z. (2015; 2016).

4 Hashesh, Z. (2015; 2016).

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human skeletal remains which were scattered in the top layer of the mastaba (cf. Jasch et al. 2015). Sex anthropological examinations were based on discrete traits of the skull, pelvis, and long bones (e.g., Bass 1985; Brothwell 1981; Buikstra and Ubelaker 1994; Ferembach et al. 1979; Phenice 1969; Sjøvold 1988), age at death (e.g., Bass 1985; Brothwell 1981; Buikstra and Ubelaker 1994; Ferembach et al. 1979; Szilvássy 1988; Buikstra and Ubelaker 1994). Skull features like the brow development, glabellar projection, mastoid size, supramastoid crest development, nuchal rugosity, external occipital protuberance projection, palate size, chin shape, corpus robusticity and gonial fare¹.

Pelvis dimorphic features, such as pubic length, subpubic arch shape, ischiopubic ramus robusticity, ventral arc expression, greater sciatic notch breadth, auricular surface shape and elevation, dorsal pubic pitting, preauricular sulcus expression and sacral width, also indicated male sex estimation². When examining the skeletal findings for vestiges of diseases of the skeleton and the teeth that had occurred during lifetime were based on (e.g., Aufderheide 2003; Brothwell 1981; Lukacs 1989; Nováček 2017; Ortner 2003; Ortner 2003; Waldron T 2012; Brothwell 1981; Buikstra and Ubelaker 1994; Galloway 1999) care was taken to accurately document the individual findings.

All photographs were taken by the author.

¹ D. Ferembach, I. Schwidetzky, M. Stloukal, "Empfehlungen für die alters-und Geschlechtsdiagnose am Skelett," *Homo* 30 (1979), 1–32; Buikstra, Ubelaker, Standards for Data Collection from Human Skeletal Remains, 1–32

² Bruzek, "Fiabilité des procédés de détermination du sexe á partir de l'os coxal," 431.

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Table 1. Age and sex distribution in the great priest Wahibra a mudbrick mastaba at Tell Tebilla.

	Male (M)	Female (F)	Unknown (Ambiguous)	Total
Subadult	--	--	2	2
Young adult		3	--	3
Old adult	2	2	--	4
Adult	--	--	1	1
Total	2	5	3	10

Results and discussion

The selected pathological conditions of the 10 individuals from the high priest *Wahibra* mudbrick mastaba at Tell Tebilla, were ordinary findings and they did not show any signs of a serious or even life-threatening disease. The sample displayed a range of pathological conditions including the general categories such as dentition diseases, joint disease, healed fractures, ligaments ossifications, Hematological disorders, Trauma, Infection disease and a Tumor (Table 2). However, there is no congenital disease recorded. The selected pathological conditions from Tell Tebilla are similar to the pathological lesions from Mends¹, which began in 1947 by Habachi and followed by various scholars².

Joint diseases were the most recorded lesion in the sample followed by Hematological Disorders as Cribra Orbitalia, Enamel Hypoplasia, osteoporosis.

Table 2. Number of occurrences of pathological lesions, divided into groups according to Aufderheide and Rodriguez-Martin.

1 Madeleine Mant 2014.

2 Lovell (1992); Hansen (1967); Wilson (1982); Bothmer (1988); Brewer & Wenke (1992); Redford 1988, 2004, 2009; Lang 2004); Mant, M.(2014)

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Pathology Group	Examples of possible conditions	Mummy No.	No. Occurrences
Dentition disease	Attrition, Caries, Periodontal disease, calculus, abscess.	Excav. No. [1,2, 5,6]	4
Joint diseases	Degenerative joint disease, Arthritis, Osteophytic growth, Schmorl's nodes	Excav. No. [1,2, 4,5,6,7]	6
Hematological Disorders	Cribrra Orbitalia, Enamel Hypoplasia, osteoporosis.	Excav. No. [1,2,3, 5,7]	5
Trauma	Long bone Fractures, head injury, vertebrae compression fractures	Excav. No. [4,5, 7]	3
Infection diseases	Woven layer	Excav. No. [8,9]	2
Tumors	HIF	Excav. No. [1]	1

Commonly, these kinds of diseases are related to poverty and heavy work. Priests are commonly elite individuals in ancient Egyptian society, The sample belongs to a family priest from eastern Delta, which paradox appeared in this research.

Who were these people?

According to the gilded cartonnage [skeleton no.5], the owner of the mastaba was the high priest *w3h ib r' s3 Nt*. Even, the bad preservation of the cartonnage, we can read: *Wahibre* Son of Neith, son of the priest *Hor-si-e-se*, and his mother's name, which is damaged, began with *ti*. Neith goddess was the deity of *Sais* in the western Nile Delta of Lower Egypt and *Esna* in upper Egypt¹.

¹Richter, A. (2016); Kaper, E. (2003)

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Figure 2. Inscriptions on the cartonnage of the individual located in the center of the set, reading Hm nTr, 'priest.' In two locations (yellow arrows).

The second line of text from the right probably has the name of *Wahibre's* son, *Heem sekhe*. The name *Wahibre*, was written inside a cartouche. It occurs in two places on the fragments of the left side of the cartonnage. This individual, as his title records, was a Hm nTr, priest of Sekhmet, that known as physicians and arts linked to ritual and magic. According to Gardiner, Hm nTr Hm nTr used only with the highest grade of priests¹. Other deities attested at this site include Isis, Horus, Anubis, Sobek, and the four sons of Horus (Imsety, Duamutef, Qebehseuef, and Hapy).

¹ Gardiner, A. (1957), 581.

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According to ancient Egyptian legends the nearby Nome capital of *Mendes* was associated with the phallus of Osiris, one of 14 body parts disposed of throughout Egypt by the god Seth. The inscribed statuary and wall blocks from Tell Tebilla, and inscriptions found outside the site, have revealed that its temple lay in the district of Ro-nefer and was dedicated primarily to Osiris-khes the local form of Osiris at Tell Tebilla¹. Which confirmed by traces of Osiris-khes temple name “Hwt- Xs²” at Tell Tebilla which recorded on the cartonnage of [skeleton no.7]. Additionally, trace of *nfr* sign, which possibly part of the name of Tell Tebilla “rA nfrt³” which recorded on the same skeleton cartonnage. (fig3)

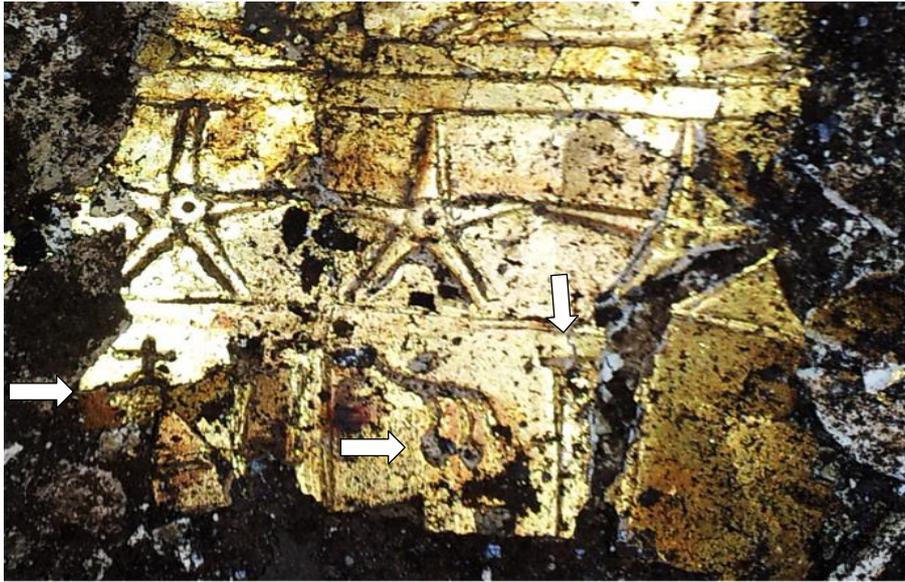


Figure.3 Inscriptions on the cartonnage of the individual 7, reading traces of Hwt Xs the name of Osiris temple and rA nfr the name of Tell Tebilla.

¹ Mumford, G. (2004), pp. 267-286

² Brugsch, H. (1877–81)

³ Mumford, G. (2013). 38-67.

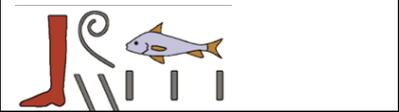
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The mastaba itself and the *Wahibra* cartonnage inscriptions probably date back to the Late Period (664-332 BCE); however, artifacts found with the mummies, as well as the mummification techniques employed, date the remains to the early Ptolemaic period (c. 332-250 BCE), suggesting that the mastaba was reused at this later date¹.

Prohibitions words in ancient Egypt

In ancient Egypt there are three words used to express prohibition, according to Pierre Montet's analysis of cult-topographical lists of the Late period “*bwt*” concept used from the old kingdom until the Graeco-Roman period², and it has first appeared in the mastaba of the vizier “*Ankh-maho-re*” at Saqqara from 6th Dynasty³. The term was referring to abomination, having the same kind of fish as a determinative. The tomb is known as the Physician's Tomb as it contains scenes of medical practices⁴.

Table3. the translation and transliterations of prohibition words in ancient Egypt.

	bwt	the opposite of order and purity ⁵ .
	jhAbw	an unlawful act ⁶ .
	Hm	prohibited lewd act ⁷ .

¹ Hashesh, Z & Herrerín, J., (2019).

² Montet (1950), 85; Frandsen (1986), 135

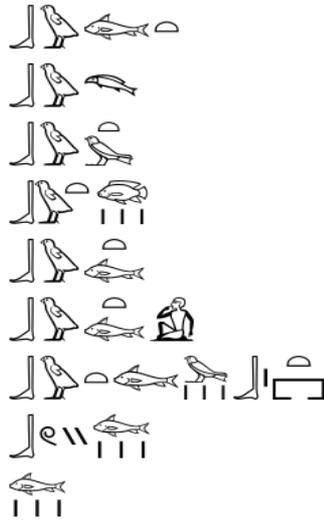
³ Kamal, S.(2009).

⁴ Montet (1950), 89; Shaw & Nicholson, (1997), 281.

⁵ Frandsen, P.(1998; 2000: 12 n. 10; 2001)

⁶ Wb 1, 118.11

⁷ Wb 3, 80.6; Van der Molen, (2000), 331



The determinative of “*bwt*” word used mostly many kinds of fish which suggests that it was divine or forbidden. Moreover, the bird was occasionally used as a determinative for the word “*bwt*”, as a sign of bad things, impurity, mischief; sinful; Dirt; infection, and prohibited behaviors in Egypt¹. The other two words “*jhAbw*” and “*Hm*” used to express an awful act and prohibited lewd act. “*bwt*” words determinative used three kinds of fish, catfish was one of five kinds of other fish forbidden to eat in *Esna* and *Mendes*².

1 Frandsen, P.J. (1998; 2000: 12 n. 10 ; 2001); Wb 1, 174.15-18; Quack, ZÄS 128, 2001, 174

2 Montet (1950), 85; Frandsen (1986), 135

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In many European languages Taboos mean “prohibition” or “ban”¹. Mostly, taboos used for religion or custom reasons, associated with local cultural aspects such as sacred, fear, mischief or disgusting². One of the most common taboos in ancient Egypt was food taboos, which mostly because of sacred or compassion toward specific animals which were a portion of the god's symbols³. One of the main sources for taboos studies was mentioned by Greek and Latin historians such as Herodotus and Plutarch between 5th century B.C to 50 AD. They alleged that ancient Egyptians abstained some kinds of plant and animal food such as onions, garlic, beans, and Chick- pea⁴ for sacred reasons. For instance, ancient Egyptians believed that onions round shape symbolized eternal life and associated to *Soker* festivals in Thebes in *Akhet* season⁵ and *Bastet* festival at the beginning of *Shemo* season, therefore, onions were a religious symbol of priests⁶. In general the priests stopped to eat most sorts of pulse⁷. Even, they cultivated since old kingdom and strongly represented in most of tombs. Moreover, some kinds of animal food were prohibition such as fish, egg, goat meat, pork, cattle beef, especially before ceremonies cults. In the new kingdom, such food prohibitions were recorded in calendar lists⁸.

1 A Polynesian concept read more about food tabus (Frazer 1935, Frandsen (2001), 345 ; Frandsen, P.J. (1986), 6:135-142; Frandsen, J. (2017), pp. 165-192 28; Dixon, R. (1988). p. 368; Kamal, S.(2009).

2 Encyclopædia Britannica Online, (2012); Frandsen, J. (2017), pp. 165-192.
<http://riull.ull.es/xmlui/handle/915/19122>

3 Grivetti.L., (2000).

4 The Histories F 48,152

5 Graindorge, C. (1992), pp. 87-105; George, H. (1986); Mary Anne, M. (2000); Madeleine, P. (2005).

6 Graindorge, C. (1992), pp. 87-105; George, H. (1986); Mary Anne, M. (2000); Madeleine, P. (2005).

7 Baines, J. & Jaromir, M. (1980).

8 Loret (1892); Keimer (1924); Darby, W.& Ghalioungui, P.& Grivetti, L. (1977).

Sometimes cow beef consumption was restricted to protect cows from extinction, therefore probably it was only slaughter banned when the numbers of cows become low¹. In the third century A.D, Porphyry mentioned that "**with the Egyptians, anyone would sooner taste human flesh than the flesh of a cow**" which indicates that cow beef was from food taboos².

The argument between cow meat prohibition texts and archaeological evidence recorded on tombs and temples art presented an emphatic argument. literary and illustrative evidence for pork consumption or avoidance in Egypt reveals the same conflict by late dynastic times and during the subsequent Greek and Roman, pork consumption evidences from Naucratis³, Naucratis⁴, near Memphis⁵, Heit el Ghorab in Giza, and Aswan⁶. Aswan⁶. Additionally, Pliny reported that swineherds fed their animals dates and lotus stems⁷. By the opposite, many Greek and Roman writers (e.g Plutarch, Aelian, and Sextus Empiricus)⁸ confirmed that ancient Egyptians consider swine as an impurity animal. The investigation of pork consumption or avoidance probably associated with the god *Seth*, therefore, sometimes were forbidden to eat and other times available to eat based on the political periods and *Osiris* worship situation depending on the ascendancy and descending of *Osiris* cults⁸. As well as fish were certainly forbidden for some population. Sometimes they can eat fish, but some kinds of fish were never

¹ Athenaeus, (1927), 41,9:375:C

² Taylor,T.(1965), 2:11.

³ Athenaeus.(1927), 4, 149:F

⁴ Redding,R.(2015), pp 325–368

⁵ Heliiodorus.E. (1895). pp 130

⁶ Pliny (1962)13:50

⁷ Plutarch. (1936). 353: 5; Sextus Empircus(1933).

⁸ Sumner, W.(1906)., pp. 338-9; Singer, J. (1927) article 4; Darby et al. (1977); Ikram, S. (2001), 390

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eaten such as Pesh at Esna¹. Instead, it was mummified and buried with the deceased as an offering for Hathor or Sekhmet², which matched with Herodotus writings about priests abstained to eat fish. He mentioned that, fish were rarely given as offerings to the dead³. Although, fish was a fairly common element of the ordinary Egyptians diet, the kings supplied soldiers by fish and meat despite the fact that they were often considered to be unclean by wealthy Egyptians and the priesthood. “*Anyone who has eaten such 'disgust' should not enter the cult room of a tomb*”⁴.

Also, fish was a taboo, in regard with the association of fish with certain gods and goddesses, and according to the Myth of *Osiris*, fish was believed that had consumed the phallus of *Osiris*⁵. As well as *Hatmehit* goddess was associated with fish at *Mendes* the Nome 16 symbol of Lower Egypt. *Hatmehit*'s name is typically translated as "Foremost of fish" and sometimes mean "Foremost of the Inundation"⁶. *Hatmehit* was depicted either as a fish or a woman with a fish on her crown. Moreover, it appeared as Isis and Hathor figures with a crown replaced by the horns and sun disk that both shared in later periods⁷. She was part of Mendesian triad (ba nb Dd, and Harpocrates)⁸. According to the book of the heavenly cow, “Ram of Mendes” was the Ba of *Osiris*⁹. Therefore, fish and ram probably were forbidden for Mendes and Tell Tebilla priests. Generally, five kinds of Nile fish (e.g., latus,

¹ Darby et al.(1977)

² Darby et al.(1977)

³ Darby et al.(1977),

⁴ Kees,H.(1977); Eschweiler, P. (1994)

⁵ Danneskiold (1988), 18

⁶ Mittelman (2006), pp. 11–14

⁷ Chassinat (1910), p. 12, pl. XII

⁸ Capel, A.& Markoe,G.(1996).p 72.

⁹ Pinch, G. (2004), p 114-115.

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lepidotus, Maeotes, oxyrhynchus, phagrus)¹ were banned for same religious reasons. In Mendes, a species of the family elephantfish called “*Medjed*” was worshipping also at *Al-Bahnasa* the town of the sharp-snouted fish². *Esna*, *Al-Bahnasa* and *Mendes* cities are a good example presented the relation between worshipping symbols and prohibition food³. According to Myths and Magic in Ancient Egypt, eggs were a symbol of gods *Amun* and *Geb*, which were more likely to equate the goose. Thus, it probably was one of food taboos for priests⁴. Hence, food taboos were partially forbidden for population as (e.g. beans, pork, fish), and others were certainly forbidden only for priests as garlic, onion, fish, pork, meat and salt, according to the religious of their original city.

Food Taboos and health of priests and priestesses at Tell Tibella

According to the osteological analysis many diseases are recorded associated with nonspecific stress markers assessed (i.e. *Cribra orbitalia*, *porotic hyperostosis*, *linear enamel hypoplasia*, *degenerative joint disease*, *skeletal trauma*, and *general infections*) (table4). The



lack of vitamins in the body probably due to specific diseases⁵ as lack of vitamin D caused rickets or osteomalacia, while the lack of vitamin C probably caused scurvy. In addition,

¹ The lepidotus (*Barbus bynni*), the maeotes (possibly a siluride), the oxyrhynchus (*Mormyrus* spp.), the phagrus (identification uncertain, *Hydrocyon forskalii*)

² Blumell, H. (2012) p. 1

³ Darby et al. (1977); Danneskiold, S. (1988),18.

⁴ Eilenstein, H. (2015), 413, 104.

⁵ Ortner .(2003), 371-372

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lack of Iron cause anemia which called in Latin *Cribra orbitalia* which has appeared as a pitting and porosity occurred on orbital roof as a result of marrow hypertrophy¹. A slight healed anemia recorded in an old adult female [skeleton no.1] which probably as a result of nutrition deficiency (e.g. lack of Iron or vitamin B12 or folate) or chronic diarrhea due to bacterial infection, or for genetic hemolytic anemias² (fig 4).

Figure 4. Healed *cribra orbitalia* on left orbital roof

Hyperostosis frontalis interna (HFI), skeleton no.1

In the internal aspect of fragmentary frontal bone of an old adult priestess, a lesion represented an irregular endocranial bony buildup possibly Hyperostosis frontalis interna (HFI)³, according to Hershkovitz et al.'s (1999) the bony lesion is Type "A"⁴. This case appears quite likely that a combination of factors relating to diet, physical activity, hormonal shifts over a lifetime, and genetics may underlie the development of HFI⁵. A case recorded from Mendes by Mant (2014) for an adult female between 19-45 years at death suggested that same circumstances specially diet⁶ (fig 5).

¹ Waldron, (2009),137

² Waldron, (2009), p.137; Ortner (2003), pp. 371-372

³ (Mann & Hunt (2005). 197-201.

⁴ Hershkovitz I., Greenwald C., Rothschild B.M., Latimer B., Dutour O., Jellema L.M., Wish-Baratz S. (1999).

⁵ Baker, B. & Gabr, A. (2021)

⁶ Mant, M (2014), 17-18



Figure 5. Hyperostosis frontalis interna (HFI), endocranium view, [skeleton no.1] (white arrows)

Enamel hypoplasia, skeleton no. 5

Enamel Hypoplasia used as an indicator of non-specific metabolic stress, as a result of the lack of diet or probably as a result of a parasitic activity which affects nutrient absorption during childhood¹. *Wahibra* teeth had at least two such unspecific stress episodes in his childhood², namely at the age of 3 years \pm 12 months, 5 years \pm 12 months. Thus, *Wahibra*'s presumed social affiliation, a lack of food seems rather unlikely, which suggests that the food taboos and the lack of vitamins probably caused that lesion (fig 6). In addition, calculus and abscess lesions recorded in skeletons no. [1,2, 5,6].

¹ Goodman et al. (1987); White et al. (2012): 455-456

² Hashesh, Z & Herrerín, J., (2019)

Priests Food taboos in ancient Egypt,

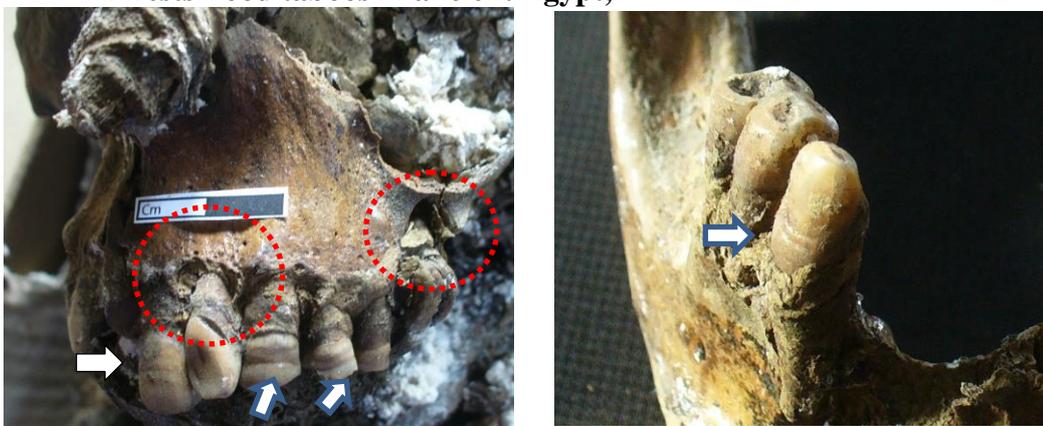


Figure 6. *Enamel Hypoplasia* in left maxilla I¹, C, and PM¹ (yellow arrows), abscess (red circles) in I² and M¹, [skeleton no. 5]

Osteoarthritis & Degenerative Joint Diseases (DJD)

The joint diseases is including a large number of conditions with different reasons, which all affect the articular joints of the skeleton such as physical activity, workload and advancing age. Therefore, when the cartilage deteriorate on the synovial joints and the bony joint surface exposure lead to osteoarthritis¹, leading to bone-on-bone grinding (eburnation), or bony lipping around joint margins. Commonly, there are two types of osteoarthritis:

1. Primary osteoarthritis: chronic degenerative disorder which affects the joint surfaces (age-related), additionally, it can also have a genetic component².
2. Secondary osteoarthritis (congenital disorders, trauma, activity-related, obesity, and

¹ Rogers (2000), Roberts & Manchester (2005), pp133, 136

² Weiss, E. & R. D. Jurmain (2007). 437–450

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diabetes¹. Six individuals in the sample [skeletons no.1, 2, 4, 5, 6, 7] represented sever osteoarthritis and degenerative joint diseases. The cases recorded on the shoulders, hands, hips, knees, and feet which suggests that osteoarthritis lesions associated to aging and repetitive movements for daily worshipping instead of workload (fig 7&8).

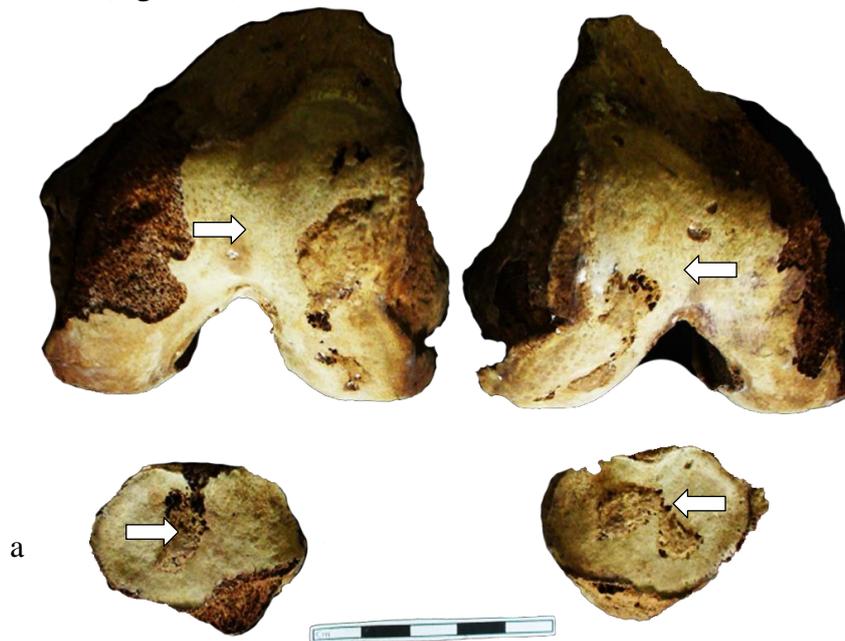


Figure 7. Osteoarthritis lesions in both skeleton 5, DJD in both knees and distal femurea.

¹ Roberts & Manchester (2005), 133, 136.

Priests Food taboos in ancient Egypt,

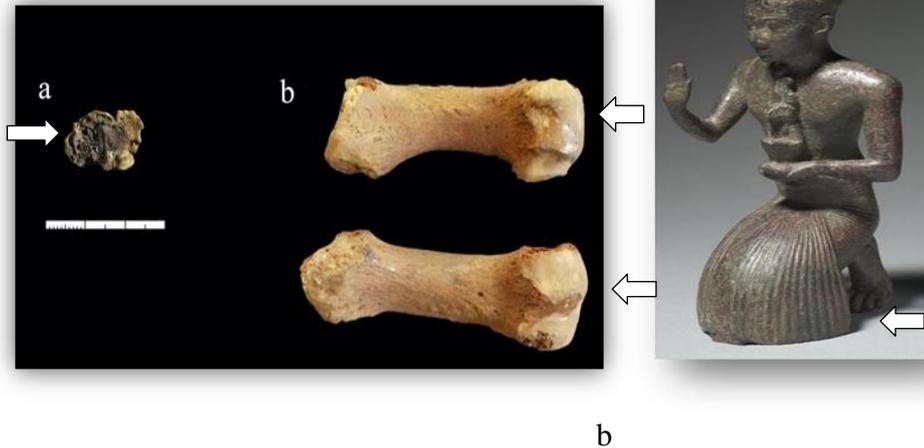


Figure 8. a) 1st proximal feet represented Eburnation. Skeleton no.5 b) 1st Metacarpal represented Eburnation. Skeleton no.5 c) Tin-bronze alloy statuette of a kneeling priest, new Kingdom.

Skeleton no. 5 affected with vertebrae inflammation that caused loss of cartilage of 4th and 5th lumbar vertebrae and sacrum, which suggests that *Whibra* suffered from functional impotence in his last days. In addition, skeleton no. 1 represented osteoarthritis and osteophytes in 8th and 12th thoracic vertebrae. Recent studies assumed that there is a connection between diet and osteoarthritis. For instance, food contains long-chain omega-3 fatty acids from oily fish possibly enhancing the osteoarthritis lesion¹. Additionally, lack of some vitamins in micronutrients such as vitamin K, which has a role in bone/cartilage mineralization could be increase osteoarthritis lesions. Meat, fish, and eggs are vitamin K and vitamin D sources. Hence, abstained them causing increase of the lesions. Other factors as obesity and

¹ Thomas, S., & Browne, H., & Mobasheri, A., & Rayman, M. P. (2018)

diabetes probably were a reason of sever osteoarthritis lesion in [skeleton no.5]¹ (fig.9).

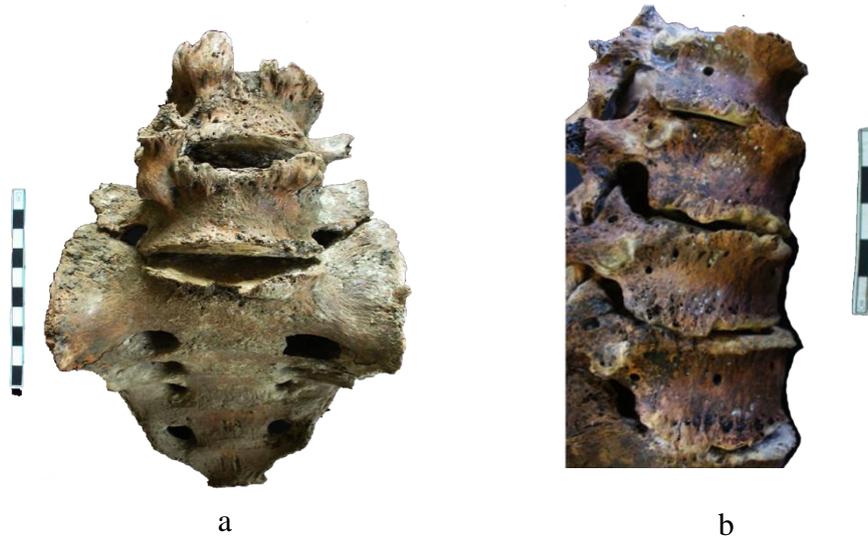


Figure 9. Osteoarthritis and osteophytes on thoracic and lumbar vertebrae. a) osteoarthritis with fusion on 4th and 5th lumbar vertebrae and sacrum [skeleton no.5], anterior view. b) osteoarthritis and osteophytes on 8th and 12th thoracic vertebrae of [skeleton no.1], lateral view.

Schmorl's nodes of skeleton no.1

Skeleton no.1 of an old adult priestess presented a case of thoracic and lumbar vertebrae trauma occurred in endplate, so-called schmorl's nodes which occurred as a result of stress on spine heavy workloads or related to elite athletes such as dancing movements or a result of trauma or acute spinal injuries². The occupation of this woman as a priestess suggested that she was

¹ Thomas, S., & Browne, H., & Mobasheri, A., & Rayman, M. P. (2018)

² Waldron (2009), 45

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 doing athletic movements such as ritual dancing in the temple¹.
 Mostly, schmorl's nodes related to menopausal women more
 than younger women². Recent studies connected with this kind of
 lesions and vitamin D deficiency, the spinal disc becomes weak,
 wearing, slipping, and tearing
 (fig.10)³.



a



b

Figure 10. a) skeleton no. 1 of the priestess presented a case of schmorl's nodes with osteophytes. b) Dancer in Kheruef's tomb at Luxor, TT 192.

Healed Fractures in skeleton no. 5 & 6

Trauma is not only important to record the medical treatment in the ancient population, but also to interpret a social attitude toward the sick people. Moreover, provide information about the violence spreading in ancient society. The balanced diet with macro- and micronutrients is fundamental for protecting bones and decreasing fracture risk and also speed recovery and healing

¹ Ortner (2003), p. 561, p549; Waldron (2009), pp.118-119; Aufderheide, A. C. & C. Rodriguez-Martin (1998) p. 96.; Roberts, C. & K. Manchester (1995); Swärd, L. (1992). 357-364

² Yi-Xiang J. Wang, James F. Griffith,(2011).

³ De Luca, P., de Girolamo, L., Perucca Orfei, C., Viganò, M., Cecchinato, R., Brayda-Bruno, M., & Colombini, A. (2018).

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after fracture¹. Priests' food taboos, stopping to eat meat, egg and some vegetables will cause lack of vitamins as calcium and vitamin D². Thus, increase osteoporosis and fractures lesions (fig11). Well healed fracture recorded on [skeleton no. 6] in left proximal feet phalanges. In Addition, [skeleton no. 5] represented a well healed fracture in right radius probably as a result of fall down from height³ (fig 12)



Osteoporosis in proximal third

femur, superior view, [skeleton no. 1]

Figure 11. right

¹ Karpouzos, A., Diamantis, E., Farmaki, P., Savvanis, S., & Troupis, T. (2017). 4218472. <https://doi.org/10.1155/2017/4218472>

² Tucker KL. (2009) Dec;7(4):111-7. doi: 10.1007/s11914-009-0020-5. PMID: 19968914.

³ Dupras et al. (2010) a,b; Jurmain, R. (1999); Judd, M. A. (2004).

Priests Food taboos in ancient Egypt,

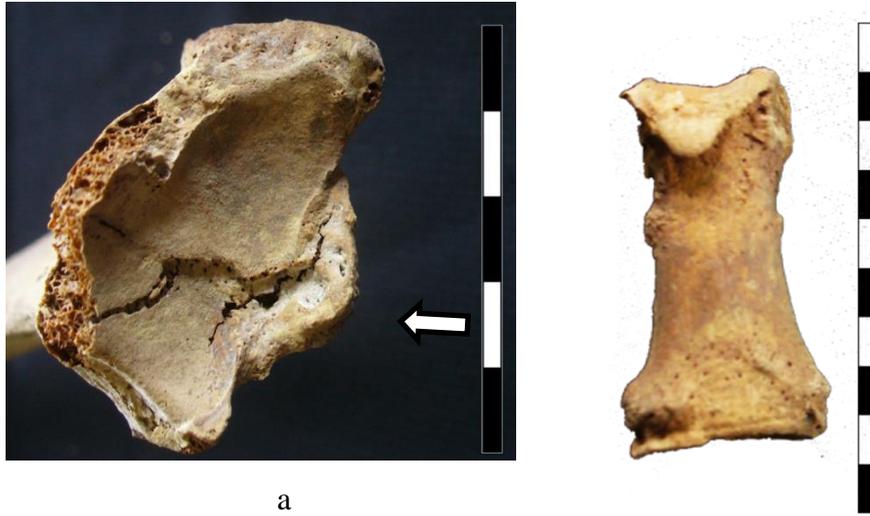


Figure 12. a) Well healed Fracture on distal radius, [skeleton no. 5]. b) Well healed Fracture on 1st proximal feet phalanges, [skeleton no. 6].

Table 4. Summary of lack dietary interventions that may be caused diseases

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Pathology Group	Examples of possible conditions	skeletons No.	No. Occurrences	dietary interventions	Kind of food taboos
Dentition disease	Attrition, Caries, Periodontal disease, calculus, abscess	1,2, 5,6	4	lack of uses salt and protein	Salt Eggs Meat Fish
Joint diseases	Degenerative joint disease, Arthritis, Osteophytic growth,	1,2,4,5,6,7	6	Lack of vitamins D, C, E, B, K, B12, and folate	Eggs Meat Fish
Hematological Disorders	Cribrra Orbitalia, Enamel Hypoplasia, osteoporosis	1,2,3, 5,7	5	Lack. of Fe B12, folate	Eggs Meat Fish
Trauma	Long bone Fractures, Schmorl's nodes	4,5, 7	3	Lack of protein and calcium	Meat Fish eggs
Infection diseases	Woven layer	8,9	2	Lack of protein	Meat Fish eggs
Tumors	HFI	1	1	Related to diet and elite individuals	Hermon changes and diet

Conclusion

The skeletal and mummified remains of ten individuals of a family priest at Tell Tebilla represented elite individuals in the eastern delta families. The cartonnage of [skeleton no.5 and 7] confirmed that the owner of the mastaba was a high priest in *Osiris khes* temple. In addition, his father was a priest and his son was also a priest. Thus, the mastaba was a high priest family

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tomb. The correlation between the occupation, nutrition and health appeared clearly in this study case. As a priest of *Osiris* and his triad (*Horus* and *Hatmehit* or *Isis*) they probably abstained to eat fish and meat, as they were religious figures for *Hatmehit* and *Osiris* in *Tell Tebilla* and *Mendes*. Recording some pathological cases identified by the researchers as poverty diseases were unreliable in this family. No doubt that the ancient Egyptian priests were on the top of society pyramid, but their commitments toward the gods and the society due to hard life and effect negatively on their health. Food taboos for priests were related to both religion and purity commitments more than aesthetics and compassion. Abstained some kinds of protein and vegetables by priests were sort of reinforce moral discipline. The recent nutrition studies investigate the correlations between nutrition and some diseases, and most of these studies refer that food systems and balanced nutrition include differ elements are the best for good health and lesions healing.

Not all metabolic and vitamins deficiency diseases related to wealth. Environmental and cultural factors probably have same effect. Generally, it is not suggested to sort some diseases in ancient Egypt as poverty diseases (e.g. *cribra orbitallia*, infectious diseases and enamel hypoplasia, *DJD*, osteoporosis). Osteological examination for the sample presented dietary disorders or malnutrition stress, suggests that meat, fish and eggs were taboos by parallel of archaeological context and Historian writings. The sever of *osteoarthritis lesions*, *dental pathology*, *Cribra Orbitallia* and *Hyperostosis Frontal interna*, osteoporosis and *fractures* probably associated with lack of Iron, vitamin A, vitamin K, vitamin D, folate, vitamin B12 deficiency when the priests stop to eat some kinds of food daily and fasting.

fasting was common priest habit and their food while fasting were only bread and water which suggest that the lifestyle

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of priests probably caused some nutrition disorders. In the end, the problems of the elites always differ substantially from the have-nots.

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