WERE MALES BURIED WITH WEAPONS BETTER NOURISHED THAN THE OTHER PART OF THE POPULATION IN THE LA TÈNE PERIOD?

Pilot study of diet of selected individuals buried at Celtic cemetery in Dubník,
district of Nové Zámky, southwestern Slovakia¹

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Carbon and nitrogen stable isotope values were measured on tissues from human individuals buried at eight graves in the Early La Tène cemetery in Dubník situated in south-west Slovakia. Collagen suitable for isotope analysis for dietary reconstruction was extracted from bone of 9 human individuals of different social status determined archaeologically by grave goods and grave arrangement. Isotope values from bone collagen obtained from six samples of pig and a cattle individual, placed within the graves, were used as a control group.

The isotope data indicated that males with weapons had access to more and/or better quality food stuffs. Their diet was richer in animal proteins than of other individuals. The results of isotope analyses support the hypothesis that the human individuals buried with different grave goods in Dubník were of different social status also during their lives and had a different access to high quality foods.

INTRODUCTION

Within a frame of a project VEGA 1/0680/16 *Armament from warrior graves at the territory of Middle Danube Region as an indicator of territorial, cultural-historical and social identity of the chieftain layer of Celtic society* carbon and nitrogen stable isotope analyses were carried out on a pilot collection of samples of human and animal bone tissues from the La Tène cemetery in Dubník. The aim of the analyses was two-fold. First, to test if the osteological material from the cemetery is suitable for this type of stable isotope analyses. And second, to establish whether the individuals identified by their grave goods and grave arrangement to be of different social status, had a different position in social hierarchy and different access to higher quality foods during their lives.

The pilot assemblage represents a range of inhumation burials of male, female and non-adult individuals with various grave goods, grave pit arrangement and location of the grave at the cemetery in Dubník. Sampled were three graves of males buried with weapons in above-average size burial pits situated in so-called tomb gardens (17, 18 and 19), grave of a young male buried with weapons (31), grave of a probably young male buried probably with a spear (32), grave of a female with average grave goods in superposition above a child burial (20A, B), grave of a female buried with a newborn (21) and with non-local grave goods and a burial of a non-adult individual (29) with average grave goods.

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ARCHAEOLOGICAL CONTEXT

The cemetery from the Early La Tène period is situated on a high loess terrace northeast of the village of Dubník, Nové Zámky district. Rescue excavations unearthed only part of the cemetery. About 30 graves were uncovered and inventory from other three was saved. The total extent of the cemetery could not have been detected as it lies under the vineyard located north of the excavated trenches. There were 5 cremation burials among the 33 uncovered graves. The excavations revealed eight rectangular ditches, so-called tomb gardens – *viridaria*, two of them interconnected (Bujna 1989). Swords occurred in eight graves. The uncovered part of the cemetery dates to stages LTB1–LTB2 (Bujna 1991).

Grave 17 (Bujna 1989, 261–263, fig. 20; 21; pl. XIII B; XIV–XVI; XLI: 6, 8, XLII: 5, 8, 9; XLIV: 1; XLVI: 2; XLVII: 9; XLVIII: 1, 4, 6; LIII: 3, 4; LIV: 1, 2; LVII: 3).

Grave pit of above-average size of 3.5 x 3.5 m, depth of 1.1 m, with a specific arrangement (construction?), stake holes (?) sunken in the corners of the pit. The pit situated in an area delimited by a rectangular ditch of 13.5 x 13.2–14 m.

Buried: a 40–50 year-old man, *maturus* I, of high body height (Jakab/Vondráková 1989, 356 f.).

Taken sample: costa (DUB01).

Weapons: an iron sword in an iron scabbard (f. no. 8); 3 hollow iron rings – parts of the sword's suspension system (f. no. 5–7); an iron spearhead (f. no. 9) of above-average length of 46 cm; an iron shield boss and rim (f. no. 10–14).

Items of clothing: 4 iron fibulae (f. no. 10–14), from one of them only an extremely long coil spring on the axis is preserved, length of 113 mm (f. no. 4).

Items of everyday use: an iron razor (f. no. 15).

Earthenware: 8 vessels (f. no. 16–23) making up a large ceramic set (c.f. Bujna 1991, 237 f.: Gruppe V, Table 4) + parts of 7 other vessels (f. no. 24–30).

Animal bones (Ambros 1989, 372): domestic pig (*Sus scrofa domestica*) – 2 individuals, taken samples: metapodium (DUBF01); chicken (*Gallus gallus domestica*) in a wide bowl (f. no. 17); goose (*Anser anser domestica*).

Grave 18 (Bujna 1989, 263–265, fig. 22; 23; pl. XVII–XIX; XLVII: 8; XLIX: 11, 21; LIII: 4, 5).

Grave pit of above-average size of 3.3 x 3.3 m, depth of 1 m, with wooden chamber construction. The grave previously opened and the skeleton as well as grave goods disturbed. The pit is situated in an area delimited by a rectangular ditch of 13.3 x 13.8 m. The tomb garden connected with another one delimiting grave 19.

Buried: a 20–30 year-old man, *adultus* I (Jakab/Vondráková 1989, 357).

Taken sample: costa (DUB02).

Weapons: an iron sword in an iron scabbard (f. no. 10); 3 hollow iron rings and two iron pendants – parts of the sword's suspension system (f. no. 5–9); an iron spearhead (f. no. 11); an iron shield boss and rim (f. no. 12–15).

Items of clothing: 4 iron fibulae (f. no. 1–4).

Items of everyday use: an iron razor, iron scissors, an iron knife (?) and a whetstone (f. no. 16–19).

Fragments of two unidentifiable iron artifacts (f. no. 20, 21).

Earthenware: 6 vessels (f. no. 22–27) making up a large ceramic set (c.f. Bujna 1991, 237 f.: Gruppe V, Table 4) + a handmade vessel (f. no. 28).

Animal bones (Ambros 1989, 372): domestic pig (*Sus scrofa domestica*), goose (*Anser anser domestica*), fish (*Pisces*).

Grave 19 (Bujna 1989, 265–269, fig. 22; 24; pl. XX; XXI; XXII B; XLI: 11; XLII: 11, 13; XLIV: 2; XLVI: 3; XLVIII: 5; XLIX: 7, 16, 17; LIII: 4–6; LIV: 3–6; LVI: 6; LVII: 4, 5).

Grave pit of above-average size of 3.5 x 3.5 m, depth of 1 m with wooden chamber construction. Pit situated in an area delimited by a rectangular ditch of 14.3 x 17 m.

Buried: a 50–60 year-old man, *maturus* II, robust figure and tall (Jakab/Vondráková 1989, 357 f.).

Taken sample: costa (DUB03).

Weapons: an iron sword in an iron scabbard (f. no. 8); 3 hollow iron rings – parts of the sword's suspension system (f. no. 5–7), an iron spearhead (f. no. 9); an iron shield boss and rim (f. no. 10–15).

Items of clothing: 3 iron fibulae (f. no. 1–3).

Personal ornaments: a ring made of golden plate, on the right ring finger (f. no. 4).

Items of everyday use: an iron razor, iron scissors and a whetstone (f. no. 16–18).

Earthenware: 5 vessels (f. no. 14; 19–21, 25) making up a ceramic set (c.f. Bujna 1991, 237; gruppe IV, Table 4) + 2 handmade vessels (f. no. 22, 23).

Animal bones (Ambros 1989, 372 f.): cattle (*Bos taurus*), taken sample: costa (DUBF02), domestic pig (*Sus scrofa domestica*) – 2 individuals, taken samples: 2 x metapodium (DUBF03, DUBF04); goose (*Anser anser domestica*), fish (*Pisces*).

Grave 20 (Bujna 1989, 269 f., fig. 25; pl. XXII A; XXIII; XLII: 1, 7; XLVIII: 9; XLIX: 5, 6).

Two graves in superposition.

Grave pit of average size 1.25 x 2.1 m, depth of 0.4 m.

Grave A

Buried: a 50–60 year-old woman, *maturus* II (Jakab/Vondráková 1989, 358). Deposited in the eastern half of the burial pit, 0.2 m deep, above the ceramic set of grave B.

Taken sample: metacarpus (DUB04).

Items of clothing: 2 bronze fibulae (f. no. 1, 2); 3 iron fibulae (f. no. 3, 8, 9).

Personal ornaments: 2 bronze bracelets of various types, on the right and left wrists (f. no. 4; 5); 2 bronze anklets (f. no. 6, 7).

Earthenware: a vessel (f. no. 16).

Grave B

Buried: a 3–4 year-old child, infans II (*Jakab/Vondráková 1989, 358 f.*). Deposited on the bottom, 0.4 m deep, in the western half of the grave pit. Skeleton disturbed probably during burial A.

Taken sample: costa (DUB05).

Earthenware: 5 vessels (f. no. 10–14) making up a ceramic set (c.f. *Bujna 1991, 237 n.*: groupe IV, Table 4) + sherds from a handmade vessel (f. no. 15).

Animal bones (*Ambros 1989, 373*): domestic pig (*Sus scrofa domesticus*).

Grave 21 (*Bujna 1989, 270 f.*, fig. 26; pl. XXIV; XXVA; XLII: 2, 3; XLVII: 5; XLVIII: 1, 6; XLIX: 15, 18, 19, 22; LII: 3).

Grave pit of average size of 1.45 x 1.9 m, depth of 0.55–0.7 m.

A – buried: a 50–60 year-old woman, maturus II (*Jakab/Vondráková 1989, 359*).

Taken sample: metacarpus (DUB06).

B – buried: a new-born, infans I, along the outer side of the right femur of skeleton A.

Items of clothing: a bronze bracelet on the left wrist (f. no. 5); a splendid necklace: more than 90 drilled sticks of red coral, 23 vase-shaped glass beads, at least 43 globular/biconical colourless or blue glass beads, min. 1 biconical amber bead (f. no. 6–10).

Other items: 2 clay spindle whorls (f. no. 11, 12).

Earthenware: 3 vessels (f. no. 13–15) + 2 handmade pots (f. no. 16, 17) + 3 small cups with handles, handmade (f. no. 18–20) making up a non-standard ceramic set.

Animal bones (*Ambros 1989, 373*): domestic pig (*Sus scrofa domesticus*), taken sample: scapula (DUBF05); chicken (*Gallus gallus domesticus*?).

Grave 29 (*Bujna 1989, 279, fig. 37; pl. XXXVIA*).

Grave pit of average size of 1.5 x 1.85 m, depth of 0.5 m. Grave previously disturbed.

Buried: a 9–10 year-old child, infans III (*Jakab/Vondráková 1989, 361*).

Taken sample: humerus (DUB07).

Items of clothing: 1 iron fibula (f. no. 1).

Other items: a clay spindle whorl (f. no. 2).

Earthenware: 3 vessels (f. no. 3–5) making up a small ceramic set (*Bujna 1991, 236 f.*: groupe III, Table 4).

Animal bones (*Ambros 1989, 374*): domestic pig (*Sus scrofa domesticus*).

Grave 31 (*Bujna 1989, 280 f.*, fig. 39; pl. XXXIII; XXXIV; XXXVIB; XLI: 3, 10; XLIV: 3; XLV: 4; LII: 5, 6).

Spacious burial pit of 2.2 x 2.7 m, depth of 0.8 m, with wooden chamber construction.

Buried: a 20–25 year-old man, adultus I (*Jakab/Vondráková 1989, 361*).

Taken sample: phalanx (DUB09).

Weapons: an iron sword in an iron scabbard decorated with a motif of a dragon lyra (f. no. 5); an iron chain (belt) for suspension of the sword (f. no. 4), an iron spearhead (f. no. 6) with above-average length of 45 cm; an iron shield boss and rim (f. no. 7–9).

Items of clothing: 3 iron fibulae (f. no. 1–3).

Items of everyday use: an iron razor, iron scissors, a whetstone (f. no. 10–12).

Other items: 4 small cramp irons (f. no. 13–16), fragment of an iron point (f. no. 17), fragment of an unidentifiable iron artifact (f. no. 18).

Earthenware: 5 vessels (f. no. 19–23) making up a ceramic set (c.f. *Bujna 1991, 237*: groupe IV, Table 4) + sherds of a vessel (f. no. 24) in the grave pit's backfill.

Animal bones (*Ambros 1989, 374*): domestic pig (*Sus scrofa domesticus*), taken samples: 2 x metapodium (DUBF06, DUBF07).

Grave 32 (*Bujna 1989, 281–283, fig. 40; pl. XXXV; XLI: 9; XLIII: 4; LII: 4*).

Burial pit of average size of 1.2 x 1.7 m, depth of 0.3 m. Grave previously disturbed.

Discrepancy in determination of the buried individual's age: 3–4 year-old child, infans II (*Jakab/Vondráková 1989, 361*).²

Taken sample: ulna (DUB08), comes from an older individual, probably a man of Juvenis-Adultus age (identified by: S. Drtikolová Kaupová).

Items of clothing: 5 iron fibulae (f. no. 1–5).

Personal ornaments: an iron bracelet (?; f. no. 6); an bronze ring (?; f. no. 7).

Other items: fragment of an iron socket, possibly from a spearhead (f. no. 8).

Earthenware: 7 vessels (f. no. 9–15) making up a large ceramic set (c.f. *Bujna 1991, 237 f.*: groupe V; Table 4).

² Discrepancy in age estimation: according to the sampled bone, it is an individual, probably a male in the age of Juvenis-Adultus (identified by S. Drtikolová-Kaupová); *J. Jakab and M. Vondráková (1989, 361)* mention a child of 3–4 years of age.

Table 1. Animal offerings in studied graves from the La Tène cemetery in Dubník.

Grave No.	Jakab/ Vondráková 1989		Sample code	<i>Sus scrofa dom.</i>	<i>Bos taurus</i>	<i>Anser anser dom.</i>	<i>Gallus gallus dom.</i>	<i>Pisces</i>	<i>Ambros 1989</i>	<i>Bujna 1989</i>
	Male	Female								
17	Mat. I	–	DUBF01	2 individuals	–	–	–	–	p. 372, 375	Fig. 21: 31
			–	–	–	x	–	–	p. 372	Fig. 21: 31
			–	–	–	–	x	–	p. 372	Fig. 21: 32 in a wide bowl (f. no. 17)
19	Mat. II	–	DUBF02	–	x	–	–	–	p. 372, 375	Fig. 24: 26
			DUBF03 DUBF04	2 individuals	–	–	–	–	p. 372	Fig. 24: 27, 28
			–	–	–	x	–	–	p. 372	Fig. 24: 27, 28
			–	–	–	–	–	x	p. 372	Fig. 24: 27
21	–	Mat. II	DUBF05	x	–	–	–	–	p. 373	Fig. 26: 21
			–	–	–	–	x	–	p. 373	Fig. 26: 22
31	Ad. I	–	DUBF06 DUBF07	x	–	–	–	–	p. 374	Fig. 39: 25

Table 2. Complete faunal isotope data of the pilot assemblage from the La Tène cemetery in Dubník.

Sample code	Grave No.	Species	Bone sampled	Yield (mg/g)	Carbon content (%)	Nitrogen content (%)	C:N	$\delta^{13}\text{C}$ (‰)	$\delta^{15}\text{N}$ (‰)
DUBF01	17	<i>Sus scrofa dom.</i>	metapodium	91.1	40.9	15.2	3.1	-20.3	7.2
DUBF02	19	<i>Bos taurus</i>	costa	134.1	43.7	16.3	3.1	-20.6	6.2
DUBF03	19	<i>Sus scrofa dom.</i>	metapodium	96.1	41.4	15.4	3.1	-20.0	7.5
DUBF04	19	<i>Sus scrofa dom.</i>	metapodium	107.6	43.1	16.1	3.1	-19.9	7.4
DUBF05	21	<i>Sus scrofa dom.</i>	scapula	87.7	39.4	14.6	3.1	-19.6	7.9
DUBF06	31	<i>Sus scrofa dom.</i>	metapodium	133.2	44.5	16.7	3.1	-20.5	7.6
DUBF07	31	<i>Sus scrofa dom.</i>	metapodium	151.0	41.9	15.7	3.1	-20.6	7.5

Table 3. Complete human isotope data of the pilot assemblage from the La Tène cemetery in Dubník.

Sample code	Grave No.	Bone sampled	Sex	Age	Yield (mg/g)	Carbon content (%)	Nitrogen content (%)	C:N	$\delta^{13}\text{C}$ (‰)	$\delta^{15}\text{N}$ (‰)	$\Delta^{13}\text{C}_{\text{human-fauna}}$	$\Delta^{15}\text{N}_{\text{human-fauna}}$
DUB01	17	costa	Male	40–50	199.9	44.4	16.7	3.1	-18.5	10.9	1.7	3.6
DUB02	18	costa	Male	20–30	173.2	42.6	15.9	3.1	-18.4	10.3	1.8	3.0
DUB03	19	costa	Male	50–60	146.9	44.4	16.6	3.1	-18.2	10.7	2.0	3.4
DUB04	20A	costa	Female	50–60	139.5	41.3	15.5	3.1	-18.1	8.6	2.1	1.3
DUB05	20B	metacarpus	ND	3–4	81.4	39.7	14.7	3.1	-18.4	9.4	1.8	2.1
DUB06	21	metacarpus	Female	50–60	203.4	43.6	16.3	3.1	-18.0	9.7	2.2	2.4
DUB07	29	humerus	ND	9–10	49.0	39.6	14.6	3.1	-19.0	10.3	1.2	3.0
DUB08	32	ulna	ND	3–4	69.7	41.2	15.4	3.1	-17.5	7.8	2.7	0.5
DUB09	31	falanx	Male	20–30	185.9	43.8	16.4	3.1	-18.0	10.1	2.2	2.8

ARCHAEOBOTANICAL DATA ON AVAILABLE PLANT FOODS FROM THE REGION

The picture on plant foods available to people buried in Dubník in La Tène period can be drawn only from data available from other sites in the region (Hajnalová 1989, 21–25, 88–92). The main staple crops for human consumption during the La Tène period in south-western Slovakia were cereals and pulses from C3 group. The most common in archaeological records are emmer (*Triticum dicoccum*), free-threshing wheat (*Triticum aestivum/durum/turgidum*) and barley (*Hordeum vulgare*). Less numerous in finds are spelt (*Triticum spelta*), einkorn (*Triticum monococcum*) and oat (*Avena sativa*). Finds of millet (*Panicum miliaceum*), the only C4 crop are documented regularly, but, in low quantities. The legumes, like the pea (*Pisum sativum*), lentil (*Lens culinaris*) and broad bean (*Vicia faba*) are also less common in archaeobotanical finds.

The less frequent occurrence of millet and legumes in the archaeological contexts from the La Tène period does not necessarily indicate their less important role in the diet. It can be a result of different method of food preparation (cooking in water, not baked in fire), or storage practices (in ceramic vessels) which prevent their direct contact with fire, thus lower chance of becoming charred and preserved in archaeological record.

SAMPLING AND METHOD

Sampling of human and animal skeletal material was carried out in the Department of documentation and research depositories of the Institute of Archaeology of Slovak Academy of Sciences in Nitra, where the material is deposited. The pilot assemblage consists of 9 human and 7 animal bone tissue samples. Human samples were taken from 8 graves and animal samples were taken from 4 graves (Table 1).

Collagen for the isotope analysis was extracted by the method according to R. Longin (1971) modified according to H. Bocherens (1992) from 9 samples of human bone tissue and from 7 samples of fauna in the laboratory of the Anthropology Department of the National Museum in Prague. As for humans, preferably ribs were sampled – 4 individuals. In case of absence of ribs, tubular bones of upper or lower limb were sampled in 3 cases – metacarpal bones, phalanges and in two cases long bones were used – ulna and humerus (Table 3). As for animal samples, various bones were used – metapodium, rib and scapula (Table 2).

All 16 samples provided sufficient amount of collagen for isotope measurements and also met the criteria of well preserved sample with collagen yield exceeding 10mg/g (Van Klinken 1999). Elemental analyses were performed using a Europa Scientific EA elemental analyser connected to a Europa Scientific 20–20 IRMS for carbon and nitrogen isotope analysis at Iso-Analytical Limited, Crewe (UK). The standard deviation at repeated measurements using several laboratory standards (IA-R042: beef liver, L-alanine, IA-R006: cane sugar and IA-R046: ammonium sulphate) was less than 0,1 ‰ for both $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$. These standards verify the exactness of measuring and calibrate the values with regard to internationally accepted standards provided by the International Atomic Energy Agency in Vienna. All analysed samples satisfied the requirements for good preservation, as far as the content of nitrogen, carbon and their ratio within the defined intervals (DeNiro 1985; Van Klinken 1999) are concerned.

ISOTOPE ANALYSIS OF DIET

Isotope values of the animals

Isotope values of the animals ($N = 7$, $\delta^{13}\text{C} = -20.2 \pm 0.4$; $\delta^{15}\text{N} = 7.3 \pm 0.5$) show values typical of terrestrial environment based on C3 plants (Fig. 1; Table 2). These values are similar to the archaeological sites of early medieval Great Moravia (Table 4). Values of stable carbon isotopes ($\delta^{13}\text{C}$) are – identically with Great Moravia – slightly higher compared to the sites from the region of Bohemia. This phenomenon fits in the wider context of Central Europe and probably reflects the natural variability of the environment. Values of stable nitrogen isotopes are again slightly higher compared to other sites. This is probably caused

Table 4. Faunal isotope data (average of ± 1 SD) from the site of Dubník in comparison with values from archaeological sites in the territory of the Czech Republic.

Site/context	Dating	Cattle			Pig			Sheep/Goat			References
		N	$\delta^{13}\text{C}$	$\delta^{15}\text{N}$	N	$\delta^{13}\text{C}$	$\delta^{15}\text{N}$	N	$\delta^{13}\text{C}$	$\delta^{15}\text{N}$	
Dubník	La Tène	1	-20.6	6.2	6	-20.2 $\pm$ 0.4	7.5 $\pm$ 0.2	0	–	–	This study
Great Moravia (more sites)	9 th –10 th c. AD	10	-19.7 $\pm$ 1.0	6.8 $\pm$ 1.0	11	-20.3 $\pm$ 0.4	7.5 $\pm$ 1.3	10	-20.6 $\pm$ 0.6	7.2 $\pm$ 1.4	<i>Kaupová et al. 2018</i>
Kutná Hora	La Tène	1	-21.0	5.2	1	-20.8	5.8	0	–	–	<i>Le Huray/Schutkowski 2005</i>
Praha, Levý Hradec	9 th –11 th c. AD	6	-20.8 $\pm$ 0.3	6.6 $\pm$ 1.3	6	-20.7 $\pm$ 0.7	7.2 $\pm$ 1.7	4	-21.1 $\pm$ 0.5	6.0 $\pm$ 1.3	<i>Kaupová et al. 2019</i>
Basel, Switzerland	La Tène	7	-21.3 $\pm$ 0.4	6.8 $\pm$ 1.0	5	-21.3 $\pm$ 0.2	6.3 $\pm$ 0.6	4	-21.1 $\pm$ 0.7	7.2 $\pm$ 0.7	<i>Knipper et al. 2016</i>

Table 5. Basic statistics of the human sample from the site of Dubník.

	N	$\delta^{13}\text{C}$ (‰)				$\delta^{15}\text{N}$ (‰)			
		Median	1 st –3 rd quartile	Min – Max	$\Delta^{13}\text{C}_{\text{human-fauna}}$	Median	1 st –3 rd quartile	Min – Max	$\Delta^{15}\text{N}_{\text{human-fauna}}$
All individuals	9	-18.2	-18.4 to -18.0	-19.0 to -17.5	2.0	10.1	9.4 to 10.3	7.8 to 10.9	2.5
Subadults	3	-18.4	-18.7 to -18.0	-19.0 to -17.5	1.9	9.4	8.6 to 9.8	7.8 to 10.3	1.9
All adults	6	-18.2	-18.3 to -18.1	-18.5 to -18.0	2.0	10.2	9.8 to 10.6	8.6 to 10.9	2.8
Males with weapons	4	-18.3	-18.4 to -18.2	-18.5 to -18.0	1.9	10.5	10.3 to 10.8	10.1 to 10.9	3.2

Table 6. Human isotope data (average of ± 1 SD) from the site of Dubník in comparison with the other sites in the Central European context.

Context	Site	Dating	N	$\delta^{13}\text{C}$	$\delta^{15}\text{N}$	$\Delta^{13}\text{C}_{\text{human-fauna}}$	$\Delta^{15}\text{N}_{\text{human-fauna}}$	References
Slowakia	Dubník	La Tène	9	-18.2 $\pm$ 0.4	9.8 $\pm$ 1.0	2.0	2.5	This study
Switzerland	Basel	La Tène	53 (adults only)	-19.2 $\pm$ 1.1	9.2 $\pm$ 0.8	2.2	2.7	<i>Knipper et al. 2016</i>
Czechia	Kutná Hora, Radovesice	La Tène	65	-18.9 $\pm$ 0.7	9.7 $\pm$ 0.7	2.2	3.6	<i>Le Huray/Schutkowski 2005</i>

by the fact that the animals are (with one exception) exclusively pigs. As omnivores, they often show higher values compared to herbivores, depending on specific farming practices (*Hammond/O'Connor 2013*). When comparing nitrogen isotope values ($\delta^{15}\text{N}$) in the group of pigs only, the average values are similar in all collections from the Czech Republic and Slovakia. The isotope values of pigs from Dubník show – compared to other sites – a relatively low variability, which could point to uniform practices of breeding at the site. Confirmation of this hypothesis would, however, need a considerably higher number of individuals. With regard to the fact that in two cases the isotope values of bones from the same grave are almost identical (samples DUBF03 and DUBF04 from grave 19 and DUBF06 and DUBF07 from grave 31), we cannot exclude multiple sampling of bones from the same individual. However, due to the presence of an archaeozoologist at the sampling and sampling of the same bone (metapodium), this possibility can be ruled out.

Interpretation of the isotope values of the human assemblage included comparison of human data with the comparative collection of animals ($\Delta_{\text{humans-fauna}}$) and modelling of quantitative dietary estimates using statistical software FRUITS 3.0 (*Fernandes et al. 2014*). With the software, it is possible to estimate the percentages of individual isotopeally distinct foodgroups in the diet. In our case, we took four groups of food into consideration: C3 plants, C4 plants, terrestrial animals (includes meat and milk) and freshwater fish. Faunal data from Dubník were used in the modelling process to define the

Fig. 1. Human and faunal isotope data of the pilot assemblage from the La Tène cemetery in Dubník. Legend: a – Human; b – *Bos taurus*; c – *Sus scrofa domesticus*.

Fig. 2. Human isotope data of the pilot assemblage from the La Tène cemetery in Dubník according to sex and age. Legend: a – Males; b – Females; c – Subadults.

isotope composition of the group of terrestrial animals. For other foodgroups, data obtained from literature for the region of Central Europe were used. For these values and other parameters of the model (c.f. Kaupová et al. 2019).

Isotope values of the human assemblage

Isotope values of the human assemblage ($N = 9$) and their differences in comparison with the assemblage of animals ($\Delta_{\text{humans-fauna}}$) point to food of terrestrial origin, on the border of detectable consumption of C4 plants, i. e. in the Central European context of millet (Fig. 1; Table 3; 5). In general, in groups with significant consumption of millet in the diet, $\Delta^{13}\text{C}_{\text{humans-fauna}}$ above 2 ‰ is observed; thus, our assemblage is just on the limit.

The relatively low values of $\delta^{15}\text{N}$ and $\Delta^{15}\text{N}_{\text{humans-fauna}}$ which are about 2.5 ‰ in the assemblage from Dubník, practically exclude possible considerable consumption of fish (either freshwater or sea species).³ Actually, the value of 2.5 ‰ is relatively low and thus shows a limited share of animal products in the diet and potentially the consumption of legumes. Similar values (Table 6) were observed with the La Tène population of Switzerland (Knipper et al. 2016). At the Czech sites of Kutná Hora and Radovesice, a higher value of $\Delta^{15}\text{N}_{\text{humans-fauna}}$ is observed, but it must be emphasized that for the above mentioned study, only two animals were sampled and possibly not the full variability of the assemblage had been detected. The relatively low value of $\Delta^{15}\text{N}_{\text{humans-fauna}}$ in our assemblage can also be influenced by the fact that – with one exception – only pigs were sampled.

Comparison of human isotope values by age and gender (Fig. 2) shows a higher proportion of animal products in the diet of males than females and sub-adults. Isotope values for males are relatively homogeneous and manifest higher nitrogen isotope values. Number of studied individuals is very low, to test the difference statistically. Given that in all four cases the graves of males contain also warrior equipment, it cannot be clarified, whether their isotope exclusivity is due to their gender or their social status.

3 Fish bones presented by C. Ambros (1989, 372) from graves 18 and 19 were not found during sampling.

QUANTITATIVE DIET RECONSTRUCTION

Results of the quantitative estimation of the diet of the studied population group (Fig. 3) confirm the above mentioned conclusions. Despite the rather wide confidence intervals, most of the consumed foods were of plant origin. The average estimation of millet consumption in the studied population group makes 18 % of the consumed food. For animal products (meat and milk), the average value of the model is 12 %, however, we must mention that mainly in this category of food, the confidence interval is wide, with regard to the isotope similarity with plant group C3. On the contrary, low confidence intervals are observed in case of fish which were consumed only marginally (the average value of the model is 2 %, FRUITS, however, cannot count with zero representation of the given foodgroup). These estimations must be only regarded as approximate, since most reference values for individual groups of food were obtained from literature and the fauna assemblage is small, with uneven shares of species.

Fig. 3. Modelled estimate of dietary composition of the Dubník population group. The boxes represent the 16th and 84th percentiles (68 % of the data) and the whiskers the 2.5 and the 97.5 percentiles (95 % of the data) for the contribution of each food source. The continuous lines illustrate means and the discontinuous lines median values.

DISCUSSION

Although not all animal bones in the grave context can be associated with food offerings, many of them can be regarded as such on the basis of selection of type and quality of meat and of place and way of deposition in the grave. For instance, in most cases of animal bone remains in Hallstatt tumuli from Dunajská Lužná, Nové Košariská, Senec district, P. Kmeťová (2017b, 149) assumes their function of food, also with regard to their arrangement in the grave and relation with small and larger ceramic bowls. Within the short extent of this pilot study, it is not possible to pay more attention to this topic which has been widely discussed in archaeological literature in the last two decades (c.f. e. g. Stadler 2010 and the review Gramsch 2013).

Bones of domestic pig (*Sus scrofa domesticus*) occurred in all graves of the studied part of the cemetery in Dubník (Ambros 1989, 372, pl. I; Bujna 1991, 240, table 5) with the exception of grave 2 – it is a double grave of a 40–50 year-old male, maturus I and a 12–13 year-old individual (Jakab/Vondráková 1989, 355). Complete individuals of pig were deposited only in four inhumation burials (17, 19, 28 and 31), while in graves 17 and 19, there were two individuals. To these four burial complexes, two severely disturbed graves 18 and 24 can be added, where almost complete individuals of pig were detected. The above mentioned 6 graves have the richest grave goods from all graves at the cemetery. Four of them (graves 17, 18, 19 and 31) are graves of men buried with complete armament (sword, spearhead and shield).

This discovery corresponds with observations of C. Ambros (1985, 158) at the LaTène cemetery at the site of Palárikovo-Dolný Kerestúr, Nové Zámky district, where out of 65 graves containing meat offerings only four (graves 58, 59, 62 and 86) contained complete individuals of pig. They are graves with rich grave goods and chamber wooden construction; one of the graves was situated in a tomb garden (Benadik 1975, 98). Only smaller pieces of various body parts of pig were deposited in graves with average grave goods – usually those with a smaller quantity of edible meat. We can agree with the notion of C. Ambros (Ambros 1985, 158) that they represented symbolic grave goods, mainly heads of pigs.

Parts of cattle (*Bos taurus*) were in Dubník included among grave goods of only one man buried with a golden ring and complete armament in grave 19 and a woman buried with rich grave goods in grave 28. Both graves were situated in tomb gardens. The male grave 19 contained bigger and more meaty parts, while the female grave 28 contained considerably smaller pieces (Ambros 1989, 372, grave 19: f. no.

26 and 374; grave 28: f. no. 23). Occurrence of meat from cattle is much rarer in LaTène graves than meat from domestic pig, as follows from the review in the catalogue of animal offerings in La Tène graves in Slovakia (Ambros 1984).

On the basis of this short review, we assume that the quality and mass of meat as grave goods – especially cattle but also domestic pig – represented a significant symbol of social status in the La Tène period. N. Müller-Scheeßel and P. Trebsche (2007, 80 ff., fig. 10) analysed Hallstatt graves in Central Europe and arrived to a similar conclusion, that females in general were given less meat to their graves than males. Similar results were obtained by J. Stadler (2010, 72), who analysed an extensive complex of graves from the western Hallstatt sphere from the territory of Baden-Württemberg and Bavaria. Meat offerings were added in a half of male burials, but only a third of the buried females – and only in smaller volumes. As for males, the meat was mainly from pig, as for women, it came mainly from small ruminants. Graves of males buried with weapons and wagons contained – with no exception – meat offerings. Also P. Kmeťová (2017a) analysed animal offerings from Hallstatt graves of social elites from the Eastern Alpine sphere and discovered differences in choices of animal species, volume and selection of deposited parts of meat.

Among works dealing with isotope reconstruction of diet, diversity of food conditioned by social status was stated also by J. D. Le Huray and H. Schutkowski (2005, 144 f., fig. 6). They note that males buried with weapons at the La Tène cemetery at the site of Kutná Hora-Karlov in Central Bohemia, had more positive $\delta^{15}\text{N}$ values than the rest of male population. According to the cited authors, it suggests that the differences in food in the male group could have been conditioned by social status, which was also expressed by weapons added to grave goods. Identically, the population buried at the La Tène cemetery in Münsingen-Rain, Bern Canton, Switzerland, revealed differences in nutrition of males whose diet was richer in animal proteins (Moghaddam/Müller/Lösch 2018, 1082; Moghaddam et al. 2016).

CONCLUSION

The stable isotope studies of carbon and nitrogen indicate that consumption of food was much more important for prehistoric societies than just a satisfaction of existential needs. Rules related to diet and processing of food were different depending on gender, age and gender status. Thus, food was a significant social determinant and played an important role in creation of a group identity.

Increased nitrogen isotope values ($\delta^{15}\text{N}$) observed in males buried with weapons point to higher levels of animal proteins in their diet, which suggests that access to meat and/or dairy products could have been affected by other factors than simple availability. Several studies (Le Huray/Schutkowski 2005; Moghaddam/Müller/Lösch 2018; Moghaddam et al. 2016; Müller-Scheeßel/Trebsche 2007; Stadler 2010) show differences in nitrogen isotope values ($\delta^{15}\text{N}$) between individuals, locations and phases of the Iron Age in Central Europe and they suggest differences in access to animal proteins, which could be associated with social status.

Based on results of isotope data from our pilot study, we make a justified assumption that larger amounts of meat placed in graves of males buried with armament is not only a specific feature of the burial rite but also reflects a different diet during their lives. The number of studied individuals is, however, too small to verify the observed difference statistically. Currently, further analyses of human and animal bones from other sites in south-western Slovakia – another 16 individuals from the site of Dubník, altogether 24 individuals from 33 studied graves; 25 individuals from the La Tène cemetery in Malé Kosihy, Nové Zámky district, with 102 studied graves (Bujna 1995) and 20 individuals from the La Tène cemetery in Palárikovo, Nové Zámky district, with 94 studied graves (unpublished) – are being carried out. We hope that new results will reveal prevalence of the results of this pilot study.

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Boli muži pochovaní s výzbrojou lepšího života než ostatní část populace v době laténské?

Pilotná štúdia stravy vybraných jedincov pochovaných na keltskom pohrebisku v Dubníku, okres Nové Zámky, juhozápadné Slovensko

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Súhrn

V pilotnej štúdii projektu, zameraného na izotopové analýzy potravy pochovaných na laténskych pohrebiskách z juhozápadného Slovenska, je testovaná pracovná hypotéza, či pochovaní s rozdielnou pohrebnou výbavou a úpravou hrobov mali aj za života rozdielny sociálny status, ktorý sa okrem iného mohol prejaviť tiež v rozdielnom prístupe k hodnotnejšej strave. Reprezentatívnu vzorku tvorí deväť vzoriek ľudského a sedem vzoriek zvieracieho kostného tkaniva z ôsmich kostrových hrobov z keltského pohrebiska v Dubníku, okres Nové Zámky (tabuľka 1). Z počtu 33 hrobov odkrytých záchranným výskumom na tejto lokalite bolo iba päť kremačného ritu (Bujna 1989). Meč sa vyskytol v ôsmich hroboch. Odkrytá časť pohrebiska patrí do stupňa LTB1 až do staršej fázy stupňa LTB2 (Bujna 1991).

Reprezentatívnu vzorku tvoria tri hroby mužov (17, 18 a 19) pochovaných s výzbrojou v nadpriemerne veľkých hrobových jamách, situovaných v priestoroch ohraničených štvoruholníkovými žlabmi, v tzv. hrobových záhradkách, viridaria, ďalej hrob mladého muža (31) pochovaného s výzbrojou, hrob pravdepodobne mladého muža (32) pochovaného pravdepodobne s kopijou, hrob ženy (20A) s priemernou výbavou v superpozícii nad hrobom dieťaťa (20B), hrob ženy (21) pochovanej s novorodencom a s cudzorodou hrobovou výbavou a hrob nedospelého jedinca (29) s priemernou hrobovou výbavou. Pilotná vzorka teda reprezentuje škálu kostrových hrobov mužských, ženských a nedospelých jedincov naprieč rozmanitosťou ich pohrebnej výbavy, úpravy hrobovej jamy a umiestnenia hrobu na pohrebisku.

Obraz o rastlinnej potrave dostupnej pre ľudí pochovaných v Dubníku v dobe laténskej možno čerpať iba z údajov dostupných na iných miestach v regióne (Hajnalová 1989, 21–25, 88–92). Základnými plodinami pre ľudskú spotrebu počas doby laténskej na juhozápadnom Slovensku boli obilniny a strukoviny zo skupiny C3 rastlín. Najčastejšie sa v archeologických nálezoch vyskytuje pšenica (*Triticum dicoccum*, zriedkavejšie *Triticum aestivum/durum/turgidum*) a jačmeň. Menej početne zastúpená je pšenica špaldová (*Triticum spelta*), pšenica jednozrnná (*Triticum monococcum*) a ovos siaty (*Avena sativa*). Nálezy prosa siateho (*Panicum miliaceum*), jedinej plodiny zo skupiny C4 rastlín, sú v archeologických nálezoch doložené pravidelne, ale v malom množstve. Strukoviny ako hrach (*Pisum sativum*), šošovica (*Lens culinaris*) a bôb konský (*Vicia faba*) sú v archeobotanických nálezoch tiež menej bežné. Menej častý výskyt prosa a strukovín v archeologických kontextoch z doby laténskej nemusí nevyhnutne naznačovať ich menej dôležitú úlohu v strave. Môže to byť dôsledok odlišných spôsobov prípravy potravín (varenie vo vode, nepečené

v ohni) alebo skladovacích postupov (v keramických nádobách), ktoré zabraňujú ich priamemu kontaktu s ohňom a tým znižujú pravdepodobnosť spálenia a uchovania v archeologických prameňoch.

Izotopová analýza bola uskutočnená jednak v laboratóriu antropologického oddelenia Národného múzea v Prahe, kde bol extrahovaný koloagén, jednak v laboratóriu Iso-Analytical Ltd., Crewe, Veľká Británia, kde boli vyhotovené izotopové merania (EA-IRMS). Izotopové hodnoty súboru zvierat ($N = 7$, $\delta^{13}C = -20,2 \pm 0,4$; $\delta^{15}N = 7,3 \pm 0,5$) vykazujú hodnoty typické pre suchozemské prostredie založené na C3 rastlinách (obr. 1; tabela 2). Tieto hodnoty sú obdobné ako v prípade archeologických lokalít z veľkomoravského obdobia (tabela 4).

Interpretácia izotopových hodnôt ľudského súboru zahŕňala porovnanie ľudských dát s komparatívnym súborom zvierat ($\Delta_{\text{ľudia-fauna}}$) a výpočet modelu kvantitatívnej rekonštrukcie pomocou štatistického softwaru FRUITS 3.0 (Fernandes et al. 2014), ktorý umožňuje odhadnúť percentuálne zastúpenie jednotlivých izotopovo odlišných skupín potravy v strave. V našom prípade sa brali do úvahy štyri skupiny potravín: C3 rastliny, C4 rastliny, suchozemské zvieratá (zahŕňa mäso i mlieko) a sladkovodné ryby. Ako izotopové zloženie skupiny „suchozemských zvierat“ boli použité hodnoty komparatívneho súboru fauny z lokality Dubník. Pre ostatné skupiny boli použité dáta získané z literatúry pre oblasť strednej Európy (pozri Kaupová et al. 2019).

Hodnoty ľudského súboru ($N = 9$) a ich rozdiely oproti súboru zvierat ($\Delta_{\text{ľudia-fauna}}$) ukazujú na stravu suchozemského pôvodu, na hranici dokázateľnej konzumácie C4 rastlín, t. j. v stredoeurópskom kontexte prosa (obr. 1; tabela 3; 5). Relatívne nízke hodnoty $\delta^{15}N$ a $\Delta^{15}N_{\text{ľudia-fauna}}$, ktoré sa v súbore z Dubníka pohybujú okolo 2,5 ‰, ukazujú na obmedzený podiel živočíšnych produktov v strave. Obdobné hodnoty (tabela 6) boli pozorované tiež u laténskej populácie zo Švajčiarska (Knipper et al. 2016).

Výsledky kvantitatívneho odhadu stravy danej populačnej skupiny (obr. 3) potvrdzujú nasledovné závery. Aj napriek pomerne rozsiahlym intervalom spoľahlivosti možno konštatovať, že rastlinná strava tvorila väčšinu prijatej potravy. Priemerný odhad konzumácie prosa v danej populačnej skupine predstavuje 18 % prijatej stravy. Pre živočíšne produkty (mäso a mlieko) je priemerná hodnota modelu 12 %, je však treba uviesť, že najmä v tejto kategórii potravy je interval spoľahlivosti široký vzhľadom k izotopovej podobnosti so skupinou C3 rastlín. Naopak nízke intervaly spoľahlivosti pozorujeme v prípade rýb, ktoré boli konzumované maximálne okrajovo [kosti rýb uvádzané C. Ambrosom (1989, 372), z hrobov 18 a 19 sa nepodarilo počas vzorkovania nájsť].

Porovnanie izotopových hodnôt jedincov podľa veku a pohlavia (obr. 2) ukazuje na vyšší podiel živočíšnych produktov v strave mužov oproti ženám a nedospelým jedincom. Skupina mužov je pomerne homogénna a vykazuje vyššie hodnoty stabilných izotopov dusíka. Počet jedincov je však malý na to, aby bolo možné pozorovaný rozdiel overiť štatisticky.

Aj keď nie všetky zvieracie kosti v hrobovom kontexte možno spájať s potravinovými prídavkami, mnohé na základe výberu druhu a kvality mäsa, miesta a spôsobu uloženia v hrobe môžeme v tomto zmysle ponímať. V rámci krátkeho rozsahu tejto pilotnej štúdie nie je možné venovať väčšiu pozornosť tejto problematike, v ostatných dvoch desaťročiach hojne diskutovanej v odbornej spisbe (pozri napr. Stadler 2010 a recenziu Gramsch 2013).

Kosti svine domácej (*Sus scrofa domesticus*) sa s výnimkou jedného hrobu (2) vyskytli vo všetkých hroboch preskúmanej časti pohrebiska v Dubníku (Ambros 1989, 372, tab. I; Bujna 1991, 240, tab. 5). Celé jedince svine domácej boli uložené iba v štyroch kostrových hroboch (17, 19, 28 a 31), pričom v hroboch 17 a 19 boli až dva jedince. K týmto štyrom hrobovým celkom možno priradiť ešte dva silne porušené hroby 18 a 24, v ktorých boli zistené temer celé jedince svine domácej. Uvedených 6 hrobov má najbohatšiu výbavu na pohrebisku. V štyroch prípadoch (hroby 17, 18, 19 a 31) ide o hroby mužov pochovaných s kompletnou výbrou. Tomuto zisteniu zodpovedá pozorovanie C. Ambrosa (1985, 158) na laténskom pohrebisku v lokalite Palárikovo-Dolný Kerestúr, okres Nové Zámky, kde sa spomedzi 65 hrobov, ktoré obsahovali mäsité prídavky, iba v štyroch prípadoch (hroby 58, 59, 62 a 86) vyskytli celé jedince svine domácej. Ide opäť o hroby s bohatou výbavou a komorovou drevenou konštrukciou a v jednom prípade o hrob umiestnený v priestore ohraničenom štvoruholníkovým žlabom, v tzv. hrobovej záhradke (Benadik 1975, 98).

Časti tura domáceho (*Bos taurus*) sa na pohrebisku v Dubníku vyskytli iba v hrobe muža (19) pochovaného so zlatým prsteňom a kompletnou výbrou a v hrobe ženy (28) pochovanej s bohatou výbavou v hrobe 28. Pritom v mužskom hrobe 19 boli väčšie a viac mäsité časti, zatiaľ čo v ženskom hrobe 28 podstatne menšie kusy (Ambros 1989, 372). Výskyt mäsa z tura domáceho v laténskyh hroboch na Slovensku je oveľa vzácnejší než výskyt mäsa zo svine domácej (Ambros 1984).

Na základe uvedeného prehľadu možno vysloviť predpoklad, že kvalita a hmotnosť mäsa ako hrobového prídavku, najmä čo sa týka tura domáceho, ale tiež svine domácej, predstavovali v dobe laténskej výrazný znak sociálneho statusu. Vyššie hodnoty stabilných izotopov dusíka ($\delta^{15}N$) u mužov pochovaných s výbrou ukazujú na vyššie hladiny živočíšnych bielkovín v strave týchto jedincov, čo naznačuje, že prístup k mäsu a/alebo mliečnym výrobkom mohol byť vystavený iným faktorom, než je jednoduchá dostupnosť. Viaceré štúdie (Le Huray/Schutkowski 2005; Moghaddam/Müller/Lösch 2018; Moghaddam et al. 2016; Müller-Schaeffl/Trebsche 2007; Stadler 2010) ukazujú, že v hodnotách stabilných izotopov dusíka ($\delta^{15}N$) možno pozorovať rozdiely medzi jednotlivcami, lokalitami a obdobiami doby železnej v strednej Európe, čo naznačuje rozdiely v prístupe k živočíšnym proteínom, ktoré sa môžu týkať sociálneho postavenia.

Pravidlá týkajúce sa potravy a zaobchádzania s ňou sa líšili v závislosti od pohlavia, veku i rodového statusu. Jedlo tak bolo významným sociálnym determinantom a plnilo dôležitú úlohu pri utváraní skupinovej identity.

Na základe výsledkov izotopovej analýzy výživy z nášho pilotného súboru môžeme vysloviť opodstatnený predpoklad, že väčšie množstvo mäsa, ktoré dostávali do hrobu muži pochovaní s výzbrojou, nepredstavuje iba špecifický znak pohrebného rituálu, ale odráža rozdielny spôsob výživy počas života. Počet jedincov je však príliš malý na to, aby bolo možné pozorovaný rozdiel overiť štatisticky. V súčasnosti prebiehajú ďalšie analýzy ľudského a zvieracieho kostrového materiálu z ďalších lokalít z juhozápadného Slovenska, konkrétne 16 jedincov z lokality Dubník, sumárne 24 jedincov z 33 preskúmaných hrobov; 25 jedincov z laténskeho pohrebiska Malé Kosihy, okres Nové Zámky, preskúmaných 102 hrobov (*Bujna 1995*), a 20 jedincov z laténskeho pohrebiska Palárikovo, okres Nové Zámky, preskúmaných 94 hrobov (nepublikované). Nádejame sa, že nové výsledky odhalia platnosť výsledkov tejto pilotnej štúdie.

Obr. 1. Ľudské a zvieracie izotopové dáta pilotného súboru z laténskeho pohrebiska v Dubníku.

Obr. 2. Ľudské izotopové dáta pilotného súboru z laténskeho pohrebiska v Dubníku podľa pohlavia a veku.

Obr. 3. Modelovaný odhad zloženia potravy populačnej skupiny z Dubníka. Boxy predstavujú 16 a 84 percentilov (68 % dát) a úsečky 2,5 a 97,5 percentilov (95 % dát) pre prínos každého zdroja potravy. Plné čiary znázorňujú priemerné a prerušované čiary stredné hodnoty.

Tabela 1. Zvieracie prídavky v analyzovaných hroboch z laténskeho pohrebiska v Dubníku.

Tabela 2. Kompletne zvieracie izotopové dáta pilotného súboru z laténskeho pohrebiska v Dubníku.

Tabela 3. Kompletne ľudské izotopové dáta pilotného súboru z laténskeho pohrebiska v Dubníku.

Tabela 4. Zvieracie izotopové dáta (priemerná hodnota ± 1 SD) z lokality Dubník v porovnaní s hodnotami z archeologických lokalít na území Českej republiky.

Tabela 5. Základná štatistika ľudských vzoriek z laténskeho pohrebiska v Dubníku.

Tabela 6. Ľudské izotopové dáta (priemerná hodnota ± 1 SD) z lokality Dubník v porovnaní s ďalšími lokalitami v stredoeurópskom kontexte.

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