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Data Article

Collagen stable isotope data from East and Northeast Asia, c. 7000 BC–1000 AD

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ABSTRACT

Stable isotope analysis is routinely used in archaeology to answer questions related to past diets. As the technique matures, data from archaeological sites have been generated at an exponential rate over the past several decades, thus provided an invaluable opportunity to examine past dietary practices and subsistence economies in much larger geographical and temporal settings. In Asia, a significant proportion of isotopic data is published in non-English journals or in grey literature, therefore remains largely inaccessible to general researchers. In order to provide easier access to these data, and to encourage future large-scale meta-data analyses in Asia, this collection presents the most comprehensive set of collagen stable isotope data of carbon, nitrogen, and sulfur from East and Northeast Asia (29–51°N, 96–136° E) to date, including sites located within the modern territories of the People's Republic of China, Mongolia, the Russian Federation, and the Republic of Korea. Using academic search engines such as Google Scholar, the Chinese National Knowledge Infrastructure (CNKI), and ScienceON, a total of 3,304 previously published archaeological human and faunal stable isotope data from 136 archaeological sites in East and Northeast Asia, spanning over a period of 8,000 years (c. 7000 BC to AD 1000) are collected. The collated data are deposited

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on the open-access platform IsoArcH (https://isoarch.eu/) for any interested parties to use.

Specifications Table

Subject	Social Sciences – Archaeology
Specific subject area	Stable isotope analysis Collagen (bone and dentine) Carbon Nitrogen Sulfur Palaeodiet Subsistence economy Archaeology Anthropology
Type of data	Table Figure
How data were acquired	Collated from published articles, dissertations/theses, and book chapters.
Data format	Raw
Parameters for data collection	This compilation only includes data that are reported alongside atomic C/N ratios. For those that are published along with any additional collagen quality control (QC) criteria, only those that has passed the conventional criteria are included: %C between 15.3% and 47%; %N between 5.5% and 17.3%; and atomic C/N ratio between 2.9 and 3.6 [1–4]. Sulfur isotope data are not screened, and are included with %S, C/S, and N/S ratios as reported (please refer to the main text for more discussion on the QC for sulfur isotope measurements).
Description of data collection	A systematic literature review was conducted using Google Scholar, the China National Knowledge Infrastructure, and ScienceON, focusing on reports published before December 2019.
Data source location	This collection of data is consisted of a total of 3,304 previously published human and faunal collagen (bone and dentine) stable carbon and nitrogen isotope data (δ^{13}C and δ^{15}N) from archaeological sites (n = 136) located between 29–51°N, 96–136° E. The area covers parts of the modern territories of the People's Republic of China (PRC), Mongolia, the Russian Federation, and the Republic of Korea. Coordinates of the sites are provided in Table 1, reported in the geodetic reference system WGS 84. In addition, 249 corroborating stable sulfur isotope data (δ^{34}S) from 15 sites are also included. All sites are dated between 7000 BC to AD 1000. For details of primary data sources please refer to Table 1 below.
Data accessibility	The dataset is deposited in IsoArcH (www.isoarch.eu) [5] with the following digital object identifier (DOI): https://doi.org/10.48530/isoarch.2021.001

Value of the Data

- Numerous studies have shown that meta-analyses of stable isotopic data can help connect between past human subsistence patterns and larger social issues such as long-distance trading networks, socio-political transitions, and climatic/environmental changes [6–10]. These patterns are usually hidden in smaller scale studies, and are only revealed when sample sizes are large enough.
- Stable isotope analysis has been increasingly applied in archaeological research in Asia, however, many data are being published in non-English journals or grey literature. In order to help make these data more accessible, this collection brings together stable isotopic data from 136 archaeological sites across East and Northeast Asia.
- The area in concern is chosen specifically to help better understand the spread and effect of agriculture in Northeast Asia. All sites concerned are dated from the early Neolithic to later

historical periods (c. 7000 BC–1000 AD), covering key dates concerning major changes in subsistence economies in the region, including the origin of agriculture, and the subsequent spread of millet (westward), rice (northward), and wheat (eastward) across the continent.
- Sometimes, subsets of stable isotope data from the same site are published in separate reports. This is especially common in larger sites, such as Yinxu. However, smaller data subsets can be overlooked in larger studies of the site/region. Here, effort has been made to ensure data from the same sites are organized together so that all associated data can be located easily.
- This collection is consisting of data coming from sites located within the modern territories of four countries, none of which's official language is English. Therefore, site names and bibliographic information are provided in both the local language as well as English, whenever possible/necessary. This shall allow users to locate these sites/original references easier, should the need arise.
- The data are curated carefully. All $\delta^{13}C$ and $\delta^{15}N$ values that are not published with conventional quality control (QC) criteria, or have failed these criteria, are excluded. This is to ensure that the data are reliable and directly comparable. As the QC for $\delta^{34}S$ is less well established, all S isotope measurements are included as reported.

1. Data Description

This collection is consisted of a total of 3,304 entries of stable carbon and nitrogen isotope data, of which 3,224 (2,343 human, 881 fauna) come from unique individuals, with additional 249 entries of stable sulfur isotope data from 241 (190 human, 51 fauna) unique individuals. Multi-tissue measurements are available from 80 individuals. All stable carbon and nitrogen isotope data come from 136 archaeological sites, where 15 sites also have corroborating stable sulfur isotope data (Fig. 1). An interactive map showing the locations of all sites is also available on IsoArcH (https://database.isoarch.eu/map.php). The dataset is deposited in IsoArcH [5] under the following DOI: https://doi.org/10.48530/isoarch.2021.001. Table 1 provides a summary of all the sites involved, describing the locations, archaeological cultures and time periods, and numbers of human and/or faunal samples from each respective site. All stable carbon and nitrogen isotope data included in this collection have passed all accompanied collagen QC criteria. For most sites, the excluded data only constituted a small portion of the total data reported. However, data from a number of sites are entirely excluded, please see Table 2 for more information. As the QC for $\delta^{34}S$ is less well established, all S isotope measurements are included as reported.

2. Experimental Design, Materials and Methods

The area in concern is designed to collect isotopic data that can capture the development and spread of agriculture in Northeast Asia. The earliest evidence of crop domestication in Northeast Asia is found at an early Neolithic site Nanzhuangtou 南莊頭, (c. 9,550–9,050 cal. BC) [124], located about 100km southwest of the modern city of Beijing, PRC (see Fig. 1) – unfortunately, no isotopic data is available from this site. Treating this site as the tentative "ground zero" of the Northeast Asian agricultural revolution, a circle with a radius of roughly 1,500 km is drawn around the site, where isotopic data are collected from within.

In terms of time period, all sites involved are dated between c. 7000 BC to AD 1000. Note that as a majority of the publications describe the chronological periods of archaeological sites using the BC/AD (or BCE/CE) framework, all periods described in BP will be converted to BC/AD. All reported time periods are gathered from the studies reporting the stable isotope data, more refined chronology of the sites may be available in other associated reports.

Geographically, this area is consisted of several distinctive geological features, including plains, mountains, steppes, plateaus, deserts, and islands. A general description of the geographic

Table 1
Site ID, names, references, cultural phases and time periods, coordinates (latitudes and longitudes), elevations, general description of geographic zones, and numbers of $\delta^{13}C$ and $\delta^{15}N$ data from all sites included in the database. Bracketed numbers are the number of samples with corroborating $\delta^{34}S$ values. Site ID corresponds to the numbers shown on Fig. 1. * indicates that the faunal assemblage is not contemporaneous with the human assemblage.

Site ID	Site	Local name	Location (modern reference)	Time period/culture	Latitude	Longitude	Altitude (m.a.s.l.)	Geographic zones	Total number of data	
									Human	Faunal
1	Zongri [11]	宗日	Qinghai, PRC	2200-1800 BC/Zongri Culture	33.552134	96.380682	4242	Tibetan Plateau	24	
2	Huoshaogou [7]	火燒溝	Gansu, PRC	1900 - 1300 BC/Siba Culture	39.960279	97.655051	1761	Hexi Corridor	30	
3	Ganguya [7]	乾骨崖	Gansu, PRC	1350-950 BC/Siba Culture	39.382711	98.856553	1827	Hexi Corridor	30	12*
4	Huoshiliang [12]	火石梁	Gansu, PRC	2135-1682 BC*/Siba Culture	40.26	99.305	1195	Hexi Corridor	2	18
5	Wuba [7]	五壩	Gansu, PRC	2490-1950 BC/Banshan – Machang Cultures	39.380785	99.890372	1360	Hexi Corridor	55	
6	Xichengyi [13]	西城驛	Gansu, PRC	4100-3600 BC/Machang – Siba Cultures	39.014436	100.365415	1460	Hexi Corridor	4	4
7	Hupo [14]	護坡	Gansu, PRC	2234-2094BC*/Banshan – Machang Cultures	36.4	102	2512	Hexi Corridor	6	
8	Sanheyi [14]	三合乙	Gansu, PRC	1961-1881 BC/Qijia Culture	36.4	102	2512	Hexi Corridor	5	
9	Wenbuju [15]	文卜具	Qinghai, PRC	ca. 2000 BC/Majiayao Culture	36	102	2000	Hexi Corridor	1	
10	Lajigai [14]	拉吉蓋	Gansu, PRC	1328-1082 BC*/Kayue Culture	36	102.3	2382	Hexi Corridor	5	
11	Lajia [16]	喇家	Qinghai, PRC	2300-1600 BC/Qijia Culture	35.8543	102.8278	1760	Linxia Basin	4	
12	Xiahaishi [17,18]	下海石	Gansu, PRC	1920-1800 BC*/Machang Culture	36.344608	102.856376	1771	Hexi Corridor	14 (4)	9
13	Mozuizi [7,15]	磨嘴子	Gansu, PRC	2350-2000 BC/Machang Culture	37.801425	102.86876	1599	Hexi Corridor	16	
14	Lianhuatai [18]	蓮花台	Gansu, PRC	1470-1080 BC/Xindian Culture	35.769601	103.165769	1757	Hexi Corridor	6 (2)	
15	Mogou [7,14]	磨溝	Gansu, PRC	1750-1100 BC/Qijia – Siwa Cultures	34.977773	103.780975	2348	Wei River valley	85	
16	Zhanqi [7,18]	占旗	Gansu, PRC	1100-950 BC/Siwa Culture	34.714335	103.844992	2263	Wei River valley	45 (8)	2 (1)
17	Qijiaping [19]	齊家坪	Gansu, PRC	1515-1264 BC/Qijia Culture	35.887345	104.062574	2037	Hexi Corridor	42	19
18	Buziping [17]	堡子坪	Gansu, PRC	2126-1744 BC/Qijia Culture	35.4	104.5	2298	Hexi Corridor	1	7
19	Buzishan [17]	堡子山	Gansu, PRC	2126-1744 BC/Qijia Culture	35.4	104.5	2298	Hexi Corridor	1	5
20	Maojiaping [20]	毛家坪	Gansu, PRC	1046-221 BC/Western and Eastern Zhou	34.756619	105.099274	1380	Hexi Corridor	51	
21	Bayanbulag [21]	Баянбулаг	Umnugovi, Mongolia	365 - 107 BC/Pre-Han	42.6	105.175	1246	Steppe	15	
22	Lixian [22]	禮縣	Gansu, PRC	2832-2470 BC/ Longshan Culture; 803-543 BC/Zhou; AD 1027-1201 Song Dynasty	34.189345	105.17864	1414	Wei River Valley	3	

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Table 1 (*continued*)

Site ID	Site	Local name	Location (modern reference)	Time period/culture	Latitude	Longitude	Altitude (m.a.s.l.)	Geographic zones	Total number of data	
									Human	Faunal
23	Xishan [23]	西山	Gansu, PRC	475-221 BC/Western Zhou to Warring States	34.192296	105.183033	1414	Hexi Corridor	19	
24	Dadiwan [24]	大地灣	Gansu, PRC	4500-2900 BC/ Yangshao Culture	35.01948	105.92631	1585	Wei River Valley		5
25	Baga Gazaryn Chuluu [25]	Бага Газарын Чулуу	Dundgovi, Mongolia	2000-500 BC/Bronze Age; 1000-400 BC/Iron Age; 300 BC-AD 200/Xiongnu; AD 600-800/Turkic; AD 1200-1400/Mongol	46.2034	106.0299	1584	Desert	38	14*
26	Jianhe [23]	建河	Shaanxi, PRC	480-221 BC/Warring States period	34.515439	106.364578	964	Wei River valley	14	
27	Fenggeling [22]	鳳閣嶺	Shaanxi, PRC	533-361 BC/Eastern Zhou	34.529939	106.44783	903	Wei River Valley	4	
28	Nalin Taohai [26]	納林套海	Inner Mongolia, PRC	202 BC- 8 AD/Western Han	40.487159	106.6411	1042	Desert	6	
29	Shigushan [18]	石鼓山	Shaanxi, PRC	1200-1000 BC/Predynastic Zhou to early Western Zhou	34.343362	107.190987	607	Wei River valley	1 (1)	
30	Sunjianantou [27]	孫家南頭	Shaanxi, PRC	770-221 BC/Eastern Zhou	34.472717	107.24411	686	Wei River valley	25	
31	Zhouyuan [18,23]	周原	Shaanxi, PRC	1200-1000 BC/Predynastic Zhou to early Western Zhou	34.486595	107.602417	774	Wei River valley	20 (5)	
32	Zhanguo [22]		Shaanxi, PRC	511-376 BC/Eastern Zhou	34.296124	107.96717	541	Wei River Valley	1	
33	Xunyi [22]	旬邑	Shaanxi, PRC	2447-2034 BC/Longshan Culture	35.107672	108.332886	976	Wei River Valley	3	
34	Jichang [28]	機場	Shaanxi, PRC	AD 25-220/Eastern Han	34.429958	108.738685	488	Wei River valley	30 (27)	1 (1)
35	Guanzhong Prison [29]	關中監獄	Shaanxi, PRC	475-221 BC/Warring States	34.360057	108.752309	378	Wei River valley	25	
36	Yuhuazhai [22]	魚化寨	Shaanxi, PRC	3779-3347 BC/Yangshao Culture	34.233445	108.860317	406	Wei River Valley	2	
37	Guandao [28]	官道	Shaanxi, PRC	141 BC-AD 220/Mid-Western Han to Eastern Han	34.752401	108.90653	629	Wei River valley	5 (5)	1 (1)
38	Guangming [28]	光明	Shaanxi, PRC	141 BC-AD 24/Western Han	34.440213	108.976327	405	Wei River valley	7 (7)	2 (2)
39	Dongying [30]	東營	Shaanxi, PRC	2600-2000 BC/Kexingzhuang II	34.44333	109.0153	374	Wei River valley	5	28*
40	Banpo [31]	半坡	Shaanxi, PRC	4800-4300 BC/Banpo Culture	34.2729	109.053402	421	Wei River valley	1	
41	Lintong [22]	臨潼	Shaanxi, PRC	391-4 BC/Eastern Zhou to Western Han; AD 426-585 Six Dynasties	34.3673	109.21376	471	Wei River Valley	3	
42	Jiangzhai [31,32]	姜寨	Shaanxi, PRC	4900-4000BC/Banpo and Shijia Cultures	34.377858	109.218143	446	Wei River valley	20	

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Table 1 (*continued*)

Site ID	Site	Local name	Location (modern reference)	Time period/culture	Latitude	Longitude	Altitude (m.a.s.l.)	Geographic zones	Total number of data	
									Human	Faunal
43	Shijia [31]	史家	Shaanxi, PRC	4300-4000 BC/Shijia Culture	34.725018	109.357346	384	Wei River valley	9	
44	Baijia [33]	白家	Shaanxi, PRC	5709-5389 BC*/Laoguantai Culture	34.55209	109.4107	350	Wei River valley	1	21
45	Beiliu [34]	北劉	Shaanxi, PRC	6000-5000 BC/Laoguantai and 4000-3500 BC/Miaodigou cultures	34.374866	109.555338	583	Wei River valley	9	
46	Shengedaliang [35]	神圪墶梁	Shaanxi, PRC	1825-1615 BC/Yongxingdian-Dakou II culture	38.63355	109.93335	1220	Ordos Plateau	28	25
47	Muzhuzhuliang [36]	木柱柱樑	Shaanxi, PRC	1950-1780 BC/ Late Longshan Culture	38.639179	110.043702	1164	Ordos Plateau	8	
48	Xinhua [22]		Shaanxi, PRC	2014-1770 BC/Longshan Culture	38.734138	110.099833	1156	Ordos Plateau	1	
49	Zhukaigou [22]	朱開溝	Inner Mongolia, PRC	2195-1696 BC/ Longshan Culture	39.644967	110.432119	1338	Ordos Plateau	2	
50	Shimao [22]	石峁	Shaanxi, PRC	2107-1746 BC/ Shimao Culture	39.064226	110.453179	1124	Ordos Plateau	4	
51	Liangdaicun [23,37]	梁帶村	Shaanxi, PRC	1200-1000 BC/Western Zhou to Spring-Autumn	35.507316	110.502839	366	Wei River valley	30	
52	Neiyangyuan [38]	内陽垣	Shanxi, PRC	770-476 BC/Xia and Spring-Autumn	35.98988	110.785445	1079	Lüliang Mountains	23	
53	Xipo [39]	西坡	Henan, PRC	3300-3000 BC/Yangshao Culture	34.35444	110.846353	871	Wei River valley	30	3*
54	Qinglongquan [40-42]	青龍泉	Hubei, PRC	3500-3000 BC/Yangshao, 3000-2600 BC/Qujialing and 2600-2200 BC/Shijiahe Cultures, 770-221 BC/Eastern Zhou	32.83979	110.851701	189	North China Plain	36 (26)	36 (32)
55	Qiangliang Temple [43]	清涼寺	Shanxi, PRC	3300-3000 BC/Miaodigou and 2300-1800BC/Longshan cultures	34.76158	110.894048	532	Yellow River valley	27	
56	Dakou [22]	大口	Inner Mongolia, PRC	2339-2041 BC/Longshan Culture	39.403118	111.136222	852	Ordos Plateau	2	
57	Xiazhai [44]	下寨	Henan, PRC	2600-2000 BC/Longshan Culture	33.011159	111.273355	171	North China Plain	22	
58	Shenmingpu [45]	申明鋪	Henan, PRC	480-221 BC/Warring States and 220 BC-220 AD/the Han Dynasties	33.002771	111.303279	166	North China Plain	32	9
59	Gouwan [46]	溝灣	Henan, PRC	5000-3500 BC/Yangshao and 3000-2600 BC/Qujialing Cultures	33.078699	111.47917	176	North China Plain	41	

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Table 1 (*continued*)

Site ID	Site	Local name	Location (modern reference)	Time period/culture	Latitude	Longitude	Altitude (m.a.s.l.)	Geographic zones	Total number of data	
									Human	Faunal
60	Tuchengzi [47]	土城子	Inner Mongolia, PRC	475-221 BC/Warring States	40.441392	111.800105	1150	Loess Plateau	17	
61	Xindianzi [48]	新店子	Inner Mongolia, PRC	770-221 BC/Eastern Zhou	40.241491	112.07507	1190	Loess Plateau	20	
62	Dabaoshan [49]	大堡山	Inner Mongolia, PRC	410-180 BC/Late Warring States	40.228893	112.157243	1228	Loess Plateau	41	
63	Xinhuacun [22]	杏花村	Shanxi, PRC	2337-2050 BC/Longshan Culture	37.808167	112.311249	1661	Lüliang Mountains	2	
64	Zhonggou [50]	中溝	Henan, PRC	3010-2921 BC/Late Yangshao Culture	34.7	112.4	167	Luoyang Basin	26	5
65	Wanggedang [50]	王圪塄	Henan, PRC	2500-1750 BC/Late Longshan to early Erlitou Culture	34.63333	112.46667	140	Luoyang Basin	14	17
66	Xiaonanzhuang [51]	小南莊	Shanxi, PRC	770-221 BC/Eastern Zhou	37.7515	112.725311	828	Jinzhong Basin	16	
67	Neidan [52]	聶店	Shanxi, PRC	2070-1600 BC/Xia Dynasty	37.751272	112.741538	855	Taihang Mountains	60	
68	Meishan [44]	煤山	Henan, PRC	2600-2000 BC/Longshan Culture	34.175594	112.832212	219	North China Plain	4	
69	Tunliu Yuwu [53]	屯留余吾	Shanxi, PRC	480-221 BC/Warring States and 220 BC-220 AD/the Han Dynasties	36.376475	112.843458	964	Taihang Mountains	21	
70	Sandaowan [54]	三道灣	Inner Mongolia, PRC	AD 120-386/Eastern Han	41.710605	113.102828	1485	Ulanqab grassland	2	
71	Huhewusu [55]	呼和烏素	Inner Mongolia, PRC	206 BC - AD 9/Western Han	40.737092	113.134797	1361	Hill/Plateau	5	
72	Chenjiagou [56]	陳家溝	Henan, PRC	770-221 BC/Eastern Zhou	34.939501	113.149566	103	North China Plain	39	
73	Xuecun [56]	薛村	Henan, PRC	141 BC-220 AD/Western and Eastern Han	34.865228	113.238266	141	North China Plain	53	
74	Huayu Square [57]	華宇廣場	Shanxi, PRC	~AD 534/Late Northern Wei	40.06092	113.292698	1052	Datong Basin	16	
75	Dongxin Square [57]	東信廣場	Shanxi, PRC	~AD 398/Early Northern Wei	40.055731	113.299989	1053	Datong Basin	26	
76	Nanjiao [58]	南郊	Shanxi, PRC	AD 386-534/ Northern Wei	40.050959	113.304452	1053	Datong Basin	42	29

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Table 1 (*continued*)

Site ID	Site	Local name	Location (modern reference)	Time period/culture	Latitude	Longitude	Altitude (m.a.s.l.)	Geographic zones	Total number of data	
									Human	Faunal
77	Yuchang Jiayuan [57]	御昌佳園	Shanxi, PRC	~AD 439/Middle Northern Wei	40.077464	113.347343	1047	Datong Basin	21	
78	Miaozigou [59]	廟子溝	Inner Mongolia, PRC	~3500 BC/Miaozhigou Culture	40.766093	113.347685	422	Hill/Plateau	9	
79	Guanzhuang [60]	官莊	Henan, PRC	1045-476 BC/ Late Western Zhou to Mid Spring Autumn Period	34.854892	113.37718	127	North China Plain	21	
80	Wadian [61]	瓦店	Henan, PRC	2200-1900 BC/Longshan Culture	34.18744	113.4049	130	North China Plain	12	38
81	Yangdi [56]	陽翟	Henan, PRC	770-221 BC/Eastern Zhou	33.866937	113.446075	85	North China Plain	5	
82	Jiazhuang [44]	賈莊	Henan, PRC	2600-2000 BC/Longshan Culture	33.809822	113.508243	82	North China Plain	1	
83	Jiahu [62]	賈湖	Henan, PRC	7000-6200 BC/Jiahu Culture	33.612622	113.667383	70	North China Plain	9	
84	Tianli [9,63]	天利	Henan, PRC	770-256 BC/ Eastern Zhou	34.368713	113.736025	114	North China Plain		13
85	Xinzheng City [56]	新鄭市	Henan, PRC	1046-221 BC/Western and Eastern Zhou	34.396609	113.753075	107	North China Plain	75	
86	Laodaojing [64]	老道井	Henan, PRC	476-221 BC/Warring States	35.4065	113.913412	106	North China Plain	24	
87	Bagou [54]	叭溝	Inner Mongolia, PRC	AD 120-386/Eastern Han	40.951547	113.937875	1576	Ulanqab grassland	5	
88	Haojiatai [44]	郝家台	Henan, PRC	2600-2000 BC/Longshan Culture	33.592542	114.031276	64	North China Plain	11	
89	Liuzhuang [65]	劉莊	Henan, PRC	1750-1600 BC/Proto-Shang	35.605103	114.132122	98	North China Plain	21	
90	Songzhuang [63]	宋莊	Henan, PRC	770-220 BC/Eastern Zhou	35.562036	114.244393	69	North China Plain		48
91	Jiangjialiang [66]	姜家梁	Hebei, PRC	3300-3000 VC/Xiaoheyan Culture	40.2	114.283333	1347	Yongding River Basin	25	
92	Yinxu [18,67-70]	殷墟	Henan, PRC	1250 - 1046 BC/Late Shang Dynasty	36.13944	114.3031	82	North China Plain	142 (71)	120 (9)
93	Gu'an [71]	固岸	Henan, PRC	AD 534-550/Eastern Wei to AD 550-577/ Northern Qi	36.229459	114.311262	91	North China Plain	4	
94	Nancheng [72]	南城	Hebei, PRC	2000-1600 BC/Proto-Shang	36.50347	114.375754	81	North China Plain	75 (20)	

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Table 1 (*continued*)

Site ID	Site	Local name	Location (modern reference)	Time period/culture	Latitude	Longitude	Altitude (m.a.s.l.)	Geographic zones	Total number of data	
									Human	Faunal
95	Pingliangtai [44]	平糧台	Henan, PRC	2600-2000 BC/Longshan Culture	33.683665	114.907931	44	North China Plain	8	
96	Liujiazhuang [73]	劉家莊	Shandong, PRC	1086-919 BC/Shang Dynasty	36.421557	116.838755	142	North China Plain	20	
97	Xiaojingshan [74]	小荊山	Shandong, PRC	6060-5750 BC/Houli Culture	36.496515	116.844681	67	North China Plain	10	
98	Oupan kiln [75]	歐盤窯	Anhui, PRC	AD 534-644/Sui-Tang Dynasty	34.137875	117.054959	36	North China Plain	1	
99	Dawenkou [76]	大汶口	Shandong, PRC	3700-2450 BC/Dawenkou Culture	35.939856	117.09958	97	North China Plain	26	24
100	Xigongqiao [77]	西公橋	Shandong, PRC	3000-2500 BC/Dawenkou Culture	34.937363	117.23151	53	North China Plain	3	
101	Houjiazhai [78]	候家寨	Anhui, PRC	5350-3250 BC/Houjiazhai Culture	32.517778	117.272222	33	Jianghuai Plain		52
102	Zhalainuoer [79]	扎賚諾爾	Inner Mongolia, PRC	220 BC-150 AD/Eastern Han	49.451343	117.750787	543	Steppe	1 (1)	1 (1)
103	Liangwangcheng [80]	梁王城	Jiangsu, PRC	3000-2500BC/Dawenkou Culture	34.505537	117.793111	26	North China Plain	27	12
104	Jinggouzi [81]	井溝子	Inner Mongolia, PRC	650-350 BC/Jinggouzi Culture	43.382352	118.250093	1030	Inner Mongolian Plateau	10	
105	Boyangcheng [82]	薄陽城	Anhui, PRC	1122-771 BC/Western Zhou	32.200878	118.295896	39	Yangtze River Delta	39	29
106	Dashanqian [83]	大山前	Inner Mongolia, PRC	800-300 BC/Upper Xiajiadian	42.203063	118.81785	694	Yan Mountains	9	
107	Junzhuang [84]	軍莊	Jiangsu, PRC	206 BC-25 AD/Western Han	32.947137	118.886298	23	Jianghuai Plain	9	
108	Sanxingcun [85]	三星村	Jiangsu, PRC	4500-3500 BC/Sanxingcun Culture	31.681159	119.493831	5	Yangtze River Delta	18	
109	Dongwuzhuer [79]	東烏珠爾	Inner Mongolia, PRC	222 BC-150 AD/Eastern Han	49.23139	119.70473	627	Steppe	4 (4)	4 (4)
110	Tuanjie [79]	團結	Inner Mongolia, PRC	221 BC-150 AD/Eastern Han	49.228	119.80145	641	Steppe	1 (1)	1 (1)
111	Beiqian [86,87]	北遷	Shangdong, PRC	4100-3500 BC/Dawenkou Culture and 1046-256 BC/Zhou Dynasty	36.600228	120.740882	33	North China Plain	42	32

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Table 1 (*continued*)

Site ID	Site	Local name	Location (modern reference)	Time period/culture	Latitude	Longitude	Altitude (m.a.s.l.)	Geographic zones	Total number of data	
									Human	Faunal
112	Lamadong [88]	喇嘛洞	Liaoning, PRC	300-450 AD/Sanyan Culture	41.800152	120.770245	220	Highland	20	
113	Tianluoshan [89]	田螺山	Zhejiang, PRC	5050-3050 BC/ Hemudu Culture	30.036505	121.400808	49	Yangtze River Delta	9	33
114	Tashan [90]	塔山	Zhejiang, PRC	3950-2250 BC/Liangzhu Culture	29.478818	121.883833	5	Yangtze River Delta	1	6
115	Tianrui Cement Plant [91]	天瑞水泥廠	Liaoning, PRC	220 BC-220 AD/the Han Dynasties	40.275651	122.197996	20	Coastal	12	6
116	Xiaozhushan [92]	小珠山	Liaoning, PRC	4750-2150 BC/Xiaozhushan Culture	39.187535	122.359547	27	Island		81
117	Tuerji Mountain Tomb [93]	吐爾基山遼墓	Inner Mongolia, PRC	AD 916-1125/ Liao Dynasty	43.652	122.8376	166	Sanhe Plain	1	
118	Shuangta [94]	雙塔	Jilin, PRC	4500-4000 BC/Huangjia Weizi Culture	45.3946	122.95867	153	Horqin Grassland		5
119	Daejuk-ri [95]	대죽리	Chungcheongnam-do, Republic of Korea	2500-1900 BC/Late Chulmun	37.003235	126.401251	12	Coastal	1	
120	Gonam-ri [96]	고남리	Chungcheongnam-do, Republic of Korea	2100-1100 BC/Late Chulmun	36.416	126.41	6	Coastal	1	
121	Yeongdong-ri [97]	영동리	Jeollanam-do, Republic of Korea	AD 300-600/Baekje Period	35.003	126.64	7	Naju Plain	9	
122	Pungnap Toseong Fotress [98]	풍납 토성	Gyeonggi-do, Republic of Korea	18 BC-AD 475/Baekje Period	37.538214	127.122025	20	Han River Plain		17
123	Ando [95]	안도	Jeollanam-do, Republic of Korea	6000-5000 BC/Incipient Chulmun	34.488231	127.810068	70	Island	5	8
124	Troitskiy Cemetery [99]	Трóицкое кладбище	Amur Oblast, Russian Federation	AD 698-926/Balhae	50.740585	127.933789	138	Amur-Zeya Plain	4	
125	Neukdo [100]	늑도	Gyeongsangnam-do, Republic of Korea	550-300 BC/Late Mumun to 300 BC-AD 1 /early Iron Age	34.924232	128.034867	18	Island	48	45

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Table 1 (*continued*)

Site ID	Site	Local name	Location (modern reference)	Time period/culture	Latitude	Longitude	Altitude (m.a.s.l.)	Geographic zones	Total number of data	
									Human	Faunal
126	Sunheung Mural Tomb [101]	순흥 벽화 고분	Gyeongsangbuk-do, Republic of Korea	AD 300-688/ Three Kingdoms Period	36.912756	128.565621	233	Jungnyeong Mountain	7 (7)	
127	Janghang [102]	장항	Gyeongsangbuk-do, Republic of Korea	Early Neolithic	35.057563	128.80703	6	Island	10	
128	Yean-ri [103]	예안리	Gyeongsangnam-do, Republic of Korea	AD 300-688/ Gaya Culture	35.259	128.955	181	Hill	109	
129	Daepo [104]	대포	Gyeongsangnam-do, Republic of Korea	5000-4400 BP/Early Chulmun	35.259	128.955	181	Island	5	
130	Dongsam-dong [105]	동삼동	Gyeongsangnam-do, Republic of Korea	3500-2000 BC/Middle Chulmun	35.07113	129.079751	5	Island	1	20
131	Dongnae Paechong [106]	동래 패총	Gyeongsangnam-do, Republic of Korea	AD 21-337	35.205	129.082	10	Coastal	1	16
132	Gyeongju [107]	경주	Gyeongsangbuk-do, Republic of Korea	57 BC-AD 935/ Silla Kingdom	35.82748	129.21327	39	Gyeongju Basin	1	
133	Donggung palace and Wolji pond [108]	동궁과 월지 3호	Gyeongsangbuk-do, Republic of Korea	AD 856-1025/	35.834747	129.226382	56	Gyeongju Basin	4	
134	Boisman 2 [109]	Бойсмана-2	Primorye, Russian Federation	4500-2700 BC/Boisman Culture	42.783333	131.28333	0	Coastal	10	
135	Cherepakha 13 [110]	Черепаха-13	Primorye, Russian Federation	1410-930 BC/Yankovsky Culture	43.283333	132.3	0	Coastal	11	
136	Chertovy Vorota [109]	Чертовые ворота	Primorye, Russian Federation	4800-3900 BC	44.483333	135.5	371	Khanka Lowlands	2	

Table 2
Summary of sites that are entirely excluded, listed in chronologically order.

Site	Local name	Location (modern reference)	Period/Culture	Excluded reason	Note
Xinglongwa [111]	興隆窪	Inner Mongolia, PRC	c. 6200-5400 BC/Xinlongwa Culture; 4700-2900BC/Hongshan Culture; 2200-1600 BC/Lower Xiajiadian Culture	Collagen QC not provided	
Beishouling [112]	北首嶺	Shaanxi, PRC	c. 5100-3790 BC/ Yangshao Culture	Collagen QC not provided	
Xiaowu [113]	曉塢	Henen, PRC	c. 5000-3000 BC/ Yangshao Culture	Collagen QC not provided	
Xipo [114]	西坡	Shaanxi, PRC	c. 5000-3000 BC/Yangshao Culture	Collagen QC not provided	
Xishan [114]	西山	Henan, PRC	c. 5000-3000 BC/ Yangshao Culture	Collagen QC not provided	
Yuhuazhai [114]	魚化寨	Henen, PRC	c. 5000-3000 BC/Yangshao Culture	Collagen QC not provided	
Banpo [112]	半坡	Shaanxi, PRC	c. 4800-3300 BC/Banpo Culture	Collagen QC not provided	
Guanjia [115]	關家	Henan, PRC	c. 4000-3500 BC/ Middle Yangshao	Raw data not provided in report	Raw data provided in Liu et al., [116].
Songze [111]	崧澤	Shanghai, PRC	c. 4000-3300 BC/Songze Culture	Collagen QC not provided	
Changdao Beizhuang [111]	長島北莊	Shandong, PRC	c. 4000-1900 BC/Dawenkou Culture	Collagen QC not provided	
Lingyanghe [112]	凌陽河	Shandong, PRC	c. 4000-1900 BC/Dawenkou Culture	Collagen QC not provided	
Qixia Guzhendu [111]	栖霞古鎮	Shanxi, PRC	c. 4000-1900 BC/Dawenkou Culture	Collagen QC not provided	
Baishicun [112]	白石村	Shandong, PRC	c. 3900-3400 BC/ Baishicun Culture	Collagen QC not provided	
Guchengzhai [114]	古城寨	Henen, PRC	c. 3000-1900 BC/Longshan Culture	Collagen QC not provided	
Hemudu [111]	河姆渡	Zhejijang, PRC	c. 3000-1000 BC/Hemudu Culture	Collagen QC not provided	
Wadian [114]	瓦店	Henen, PRC	c. 3000-1900 BC/Longshan Culture	Collagen QC not provided	
Xinzhai [117]	新砦	Henen, PRC	c. 3000-1900 BC/Longshan Culture; 1870-1720 BC/Xinzhai Culture; 1750-1530 BC/Erlitou Culture	All C/N ratios fall outside of acceptable threshold.	
Huxizhuang [112]	滸西莊	Shaanxi, PRC	c. 2700-2400 BC/ Miaodigou Culture	Collagen QC not provided	
Taosi [112,118]	陶寺	Shanxi, PRC	c. 2300-1900 BC/Taosi Culture	Collagen QC not provided	
Guojiashan [119]	郭家山	Gansu, PRC	2463-1525 BC/Machang Culture	Elemental concentrations too high	
Qipanshan [119]	棋盤山	Gansu, PRC	2194-2034 BC/Machang Culture	Elemental concentrations too high	
Shuikou [119]	水口	Gansu, PRC	2192-1982 BC/Machang Culture	Elemental concentrations too high	
Xihuishan [119]	西灰山	Gansu, PRC	1915-1531 BC/Siba Culture	Elemental concentrations too high	

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Table 2 (*continued*)

Site	Local name	Location (modern reference)	Period/Culture	Excluded reason	Note
Yichuan Nanzhai [111]	伊川南寨	Henen, PRC	c. 1900-1500 BC/Erlitou Culture	Collagen QC not provided	
Lijiageleng [119]	李家圪楞	Gansu, PRC	1860-1638 BC/Qijia Culture	Elemental concentrations too high	
Erlitou [118,120]	二里頭	Henen, PRC	c. 1750-1500 BC/ Erlitou Culture	Collagen QC not provided	
Yanshi Shangcheng [111]	偃師商城	Henen, PRC	c. 1600-1400 BC/ Early Shang	Collagen QC not provided	
Dadunwan [119]	大墩灣	Gansu, PRC	1495-1268 BC/Siba Culture	Elemental concentrations too high	
Tuba [119]	土壩	Gansu, PRC	1218-1056 BC/Dongjiatai Culture	Elemental concentrations too high	
Yinxu [121]	殷墟	Henen, PRC	c. 1250-1046 BC/ Late Shang	Collagen QC not provided	Sacrificial victims from M54
Yinxu [111]	殷墟				Context not specified
Qianzhangda [122]	前掌大	Shandong, PRC	c. 1200-800 BC/Late Shang to early Zhou	Collagen QC not provided	
Liulihe [111]	琉璃河	Beijing, PRC	c. 1045-771 BC/Western Zhou	Collagen QC not provided	
Xujianian [112]	徐家碾	Gansu, PRC	c. 1000-700 BC/Siwa Culture	Collagen QC not provided	
Shangsunjia [111]	上孫家	Qinghai, PRC	c. 900-600 BC/Kayue Culture; 202 BC - AD 220/Han Dynasty	Collagen QC not provided	
Zhaojiashuimo [119]	趙家水磨	Gansu, PRC	820-415 BC/Shanma Culture	Elemental concentrations too high	
Gudongtan [119]	古董灘	Gansu, PRC	794-431 BC/Shanma Culture	Elemental concentrations too high	
Minqin Sanjiaocheng [119]	(民勤)三角城	Gansu, PRC	775-539 BC/Shajing Culture	Elemental concentrations too high	
Shichengshan [119]	石城山	Gansu, PRC	c. 770-220 BC/Eastern Zhou	Elemental concentrations too high	
Changxinyuan [115]	暢馨園	Henan, PRC	c. 770-220 BC/Eastern Zhou	Raw data not provided in report	Raw data provided in Liu et al., [116].
Linxi Daijing	林西大井	Inner Mongolia, PRC	c. 770-220 BC/Eastern Zhou	Cannot locate reference	Raw data provided in Liu et al., [116].
Xiyasi [115]	西亞斯	Henan, PRC	c. 770-220 BC/Eastern Zhou	Raw data not provided in report	Raw data provided in Liu et al., [116].
Puge Xian [112]	普格縣	Sichuan, PRC	c. 475 BC – AD 220/Warring States to Han	Collagen QC not provided	
Qilangshan [123]	七郎山	Inner Mongolia, PRC	c. 220 BC-150 AD/Eastern Han (early Xianbei)	Raw data not provided in report	
Yangtun [112]	楊屯	Liaoning, PRC	c. 698-926 AD /Balhae Kingdom	Collagen QC not provided	

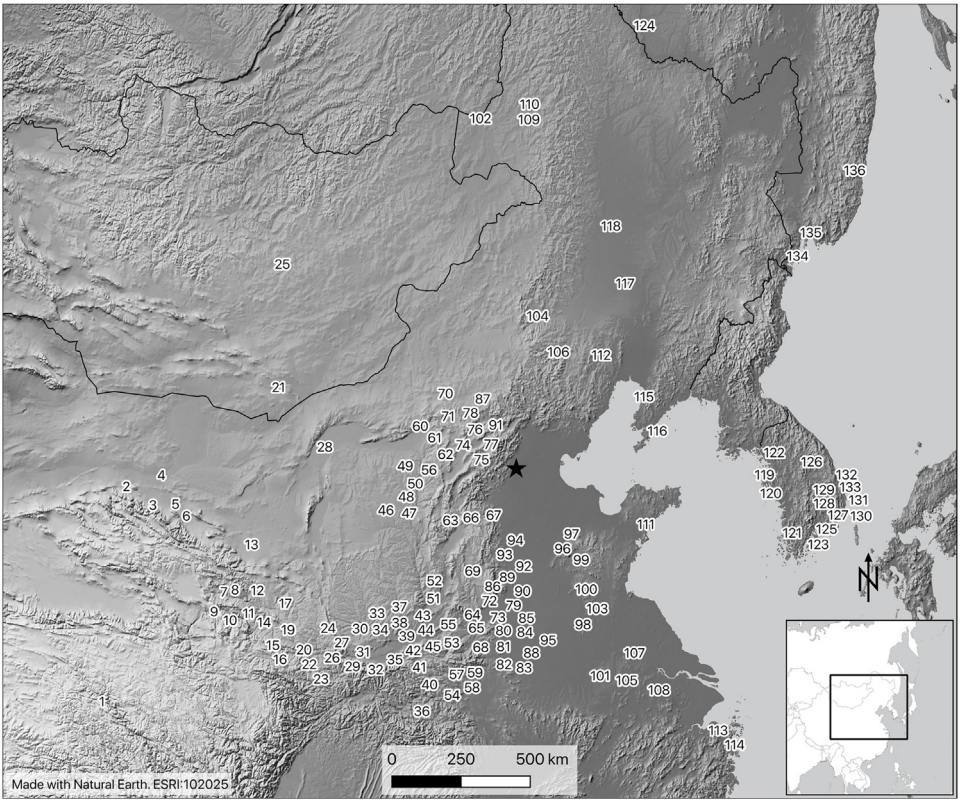

Fig. 1. Map showing all sites included in this collection. A key to site IDs is provided in Table 1. The black star indicates the location of Nanzhuangtou, the site with the earliest evidence of domesticated crop in Northeast Asia (no isotope data is available from this site). Modern geopolitical borders included for reference.

zones, altitude, and cultural affiliations are included in Table 1. Few coordinates are exact. For a vast majority of the sites, coordinates are extrapolated from textual descriptions, therefore only represent the approximated locations of the sites. Elevations are obtained from mapcoordinates.net (https://www.mapcoordinates.net/en) using the approximated coordinates described above. Distances to the coast (online database only, not shown in Table 1) are estimated using the "measure distance" function on Google Maps. Note that the "coast" refers to the modern coastline as shown on the satellite view on Google maps. Therefore, all these measurements should only be treated as a general reference.

Meta-datasets from archaeological contexts should not be constrained by modern geopolitical borders, therefore, the area chosen for data collection is not limited by such. The data included in this dataset come from archaeological sites traversing several modern countries. Therefore, wherever possible, bibliographic information (i.e. author names, article/book/thesis titles), and site names are provided in both the original published language as well as English. This is an important point, as Romanization of site names can be inconsistent across publications: e.g. 乾骨崖 can be spelled as Ganguya [18,119] or Ganguai [7]; and 순흥 벽화 고분 was spelled as Sunhung Mural Tomb in one study [101], and as Sunheung Mural Tomb in others [125,126]. By providing bibliographic information and site names in its original language, users of this dataset should be able to locate the original publication(s) regarding particular site(s), or to pursue more information on particular site(s) beyond the references provided here. Note that the original site names cannot be recovered for two of the sites, Xinhua (Shaanxi, PRC) and

Zhanguo (Shaanxi, PRC), due to the lack of precise information provided in the original report [22]. Three other site names from the same report: Lintong, Lixian, and Xunyi are county names and therefore offer little information about the sites. Hence, the coordinates of these five sites are only estimated from the figure provided in the original report.

Data are systemically collected using academic search engines Google Scholar (https://scholar.google.com/), the China National Knowledge Infrastructure (https://www.cnki.net/), and ScienceON (https://scienceon.kisti.re.kr/main/mainForm.do), with keywords such as "archaeology", "stable isotope analysis", "collagen", "carbon isotope", "nitrogen isotope", "palaeodiet", in English, Chinese, and Korean. Search results included publications in peer-reviewed journals, research dissertations/theses, and book chapters. Focusing on reports published before December 2019, only collagen (bone and dentine) stable isotope data are collected. In some instances, the same dataset is published in multiple languages. In that case, only one publication is cited. This collection is by no means an exhaustive list of all stable isotopic data from within the described geographical and temporal zones. It is hoped that this effort can serve to initiate more active research sharing and collaborations among Asian archaeologists, and more importantly, to encourage more scholars to contribute their research data from the region to help filling in the temporal and geographical gaps in the current dataset.

Descriptions of the collagen extraction protocol are provided in all reports, mostly following the standard procedure after the Longin method [127], with various minor modifications. Not all studies report conventional QC criteria for collagen. In this collection, only studies that include at least the atomic C/N ratios are included. All data in this dataset has atomic C/N ratios between 2.9 and 3.6, and has passed all other QC criteria, whenever included [1–4]. While there are certain advantages to also include data that is not reported with, or did not pass the QC criteria, the key priority of this database is to allow users to obtain data that is immediately comparable. Therefore, users interested in those excluded data are recommended to seek out the original reports. For stable sulfur isotope data, even though most studies follow the QC outlined in Nehlich & Richards' report [128], the efficacy of using %S to determine whether diagenetic changes have taken place is debated [129]. Therefore, before a universally accepted QC for stable sulfur isotope measurements in collagen is established, all previously published $\delta^{34}S$ values are included in this dataset, along with information of their elemental compositions (%S, C/S, N/S). Users are encouraged to check the elemental compositions associated with all S isotope data in this dataset carefully before selecting the data for analysis.

Most studies report isotopic measurements to 1 significant figure. However, some report up to 3 significant figures. To ensure consistency, all isotope measurements are round up to 1 significant figure. Regarding precision, accuracy, and overall uncertainty of measurements, unfortunately, very few studies reported detailed information regarding check standards and calibration methods. Furthermore, it has been noticed that non-matrix matched materials (i.e., non-collagen) were used as internal standards in some instances. Unfortunately, there is little that can be done post-hoc, therefore users are warned that a level of assumption has to be made concerning the comparability and compatibility of the data. Future studies are thus urged to report carefully and fully on their calibration methods, as detailed in Szpak et al.'s study [130].

Last but not the least, high elemental concentrations (e.g. averages of %C and %N higher than 45% and 15%, respectively) have been observed in several studies [21,22,35,54,119]. As the collagen yields, atomic C/N ratios, and isotopic measurements appear to be admissible for most samples, it is speculated that the unusually high elemental concentration was a result of calibration error, which could be rectified if the elemental concentrations of the standards were provided. Another possibility is that the higher than usual elemental concentrations may be a result of contamination. At current stage, it is not possible to draw any conclusion without detailed measurements from the standards used in these analytical sessions. Herein, data from all but one report [119] are still included in this collection, provided the samples still meet the conventional QC criteria. Data from Yang et al., [119] are excluded for now, as the elemental concentrations (%C and %N) for more than half of the samples analysed are higher than those of the conventional acceptable thresholds [3]. It is hoped that these data can be added to the collection in the future if the problem proves to be a calibration issue.

Ethics Statement

This study does not involve any modern human or animal subject.

CRediT Author Statement

Christina Cheung: Conceptualization, Methodology, Data curation, Writing.

Declaration of Competing Interest

The author declares that they have no known competing financial interests or personal relationships which have or could be perceived to have influenced the work reported in this article.

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References

[1] S.H. Ambrose, Preparation and characterization of bone and tooth collagen for isotopic analysis, J. Archaeolog. Sci. 17 (4) (1990) 431–451.
[2] M.J. DeNiro, Postmortem preservation and alteration of in vivo bone collagen isotope ratios in relation to palaeodietary reconstruction, Nature 317 (1985) 806–809, doi:10.1038/317806a0.
[3] M. Harbeck, G. Grupe, Experimental chemical degradation compared to natural diagenetic alteration of collage: Implications for collagen quality indicators for stable isotope analysis, Archaeol. Anthropol. Sci. 1 (1) (2009) 43–57.
[4] G.J. van Klinken, Bone collagen quality indicators for palaeodietary and radiocarbon measurements, J. Archaeolog. Sci. 26 (6) (1999) 687–695.
[5] K. Salesse, R. Fernandes, X. de Rochefort, J. Brůžek, D. Castex, É Dufour, Isoarch.Eu: an open-access and collaborative isotope database for bioarchaeological samples from the Graeco-Roman world and its margins, J. Archaeol. Sci. (2017), doi:10.1016/j.jasrep.2017.07.030.
[6] E. Lightfoot, X.Y. Liu, M.K. Jones, Why move starchy cereals? A review of the isotopic evidence for prehistoric millet consumption across Eurasia, World Archaeol. 45 (4) (2013) 574–623, doi:10.1080/00438243.2013.852070.
[7] X.Y. Liu, E. Lightfoot, T.C. O'Connell, H. Wang, S.C. Li, L.P. Zhou, Y.W. Hu, G. Motuzaite-Matuzeviciute, M.K. Jones, From necessity to choice: dietary revolutions in west China in the second millennium BC, World Archaeol. 46 (5) (2014) 661–680.
[8] C. Cheung, H. Zhang, J.C. Hepburn, D.Y. Yang, M.P. Richards, Stable isotope and dental caries data reveal rapid adoption of wheat in ancient China, PLoS One 14 (7) (2019) e0218943, doi:10.1371/journal.pone.0218943.
[9] L.G. Zhou, S.J. Garvie-Lok, W.Q. Fan, X.L. Chu, Human diets during the social transition from territorial states to empire: Stable isotope analysis of human and animal remains from 770 BCE to 220 CE on the central plains of China, J. Archaeol. Sci. 11 (2017) 211–223.
[10] G. Müldner, M.P. Richards, Stable isotope evidence for 1500 years of human diet at the city of York, UK, Am. J. Phys. Anthropol. 133 (1) (2007) 682–697.
[11] Y.P. (崔亞平) Cui, Y.W. (胡耀武) Hu, H.H. (陳洪海) Chen, Y. (董豫) Dong, L. (管理) Guan, Y. (翁屹) Weng, C.S. (王昌燧) Wang, 宗日遺址人骨的穩定同位素分析 Stable isotopic analysis on human bones from Zongri site, 第四紀研究 Q. Sci. 26 (4) (2006) 604–611.
[12] P. Atahan, J. Dodson, X.Q. Li, X.Y. Zhou, S.M. Hu, F. Bertuch, N. Sun, Subsistence and the isotopic signature of herding in the Bronze Age Hexi corridor, NW Gansu, China, J. Archaeol. Sci. 38 (7) (2011) 1747–1753.
[13] X.L. (張雪蓮) Zhang, J. (張君) Zhang, Z.P. (李志鵬) Li, L.R. (張良仁) Zhang, G.K. (陳國科) Chen, P. (王鵬) Wang, H. (王輝) Wang, 甘肅張掖市西城驛遺址先民食物狀況的初步分析 (Palaeodietary reconstruction of the Siba-Machang population from Xichengyi site, Gansu), 考古 (Kaogu) 7 (2015) 110–120.
[14] M.M. Ma, G.H. Dong, X. Jia, H. Wang, Y.F. Cui, F.H. Chen, Dietary shift after 3600 cal yr BP and its influencing factors in northwestern China: evidence from stable isotopes, Quat. Sci. Rev. 145 (2016) 57–70, doi:10.1016/j.quascirev.2016.05.041.
[15] M.M. (馬敏敏) Ma, 公元前兩千紀河湟及其毗鄰地區的食譜變化與農業發展 - 穩定同位素證據 Human Dietary Changes and Agriculture Developments in the Hehuang And Contiguous Regions In The Second Millennium BC - Stable Isotopic Evidence Lanzhou, Lanzhou University, 2013.

[16] X.L. (張雪蓮) Zhang, M.L. (葉茂林) Ye, S.H. (仇士華) Chou, 喇家遺址先民食物的初步探討 - 喇家遺址災難現場出土人骨的碳氮穩定同位素分析 Preliminary discussion on the food of ancestors in Lajia site - the stable isotope analysis on the carbon and nitrogen of human bone unearthed the disaster scene in Lajia site, Cult. Relics Southern China 南方文物 4 (2016) 197–202.

[17] M.M. Ma, G.H. Dong, E. Lightfoot, H. Wang, X.Y. Liu, X. Jia, K.R. Zhang, F.H. Cheng, Stable isotope analysis of human and faunal remains in the western loess plateau, approximately 2000 cal BC, Archaeometry 56 (Suppl. 1) (2014) 237–255, doi:10.1111/arcm.12071.

[18] C. Cheung, Z.C. Jing, J.G. Tang, M.P. Richards, Social dynamics in early Bronze Age China: a multi-isotope approach, J. Archaeol. Sci. 16 (2017) 90–101, doi:10.1016/j.jasrep.2017.09.022.

[19] M. Ma, G. Dong, X. Liu, E. Lightfoot, F. Chen, H. Wang, H. Li, M.K. Jones, Stable isotope analysis of human and animal remains at the Qijiaping site in middle Gansu, China, Int. J. Osteoarchaeol. 25 (6) (2015) 923–934, doi:10.1002/oa.2379.

[20] Y.S. (王奕舒) Wang, X. (凌雪) Ling, Y. (梁雲) Liang, H.W. (候宏偉) Hou, X.Y. (洪秀媛) Hong, L. (陳靚) Chang, 甘谷毛家坪遺址秦人骨的碳氮同位素研究 Study on the Qin ancestors' bones in Maojiaping site at Gangu country by carbon and nitrogen isotope analysis, 西北大學學報 (J. Northwest University) 49 (5) (2019) 729–735.

[21] L. Zhou, E. Mijiddorj, Stories behind the fortress: Stable isotope analysis and 14C dating of soldiers' remains from the Bayanbulag site, Mongolia, Archaeometry 62 (4) (2020) 863–874, doi:10.1111/arcm.12556.

[22] P. Atahan, J. Dodson, X.Q. Li, X.Y. Zhou, L. Cheng, L. Barry, F. Bertuch, Temporal trends in millet consumption in northern China, J. Archaeolog. Sci. 50 (2014) 171–177, doi:10.1016/j.jas.2014.07.012.

[23] X. (凌雪) Ling, 秦人食譜研究 (Dietary Reconstruction of the Qin People), Northwest University, Xian, 2010.

[24] L. Barton, S.D. Newsome, F.H. Chen, H. Wang, T.P. Guilderson, R.L. Bettinger, Agricultural origins and the isotopic identity of domestication in northern China, PNAS 106 (14) (2009) 5523–5528.

[25] M.L. Machicek, Reconstructing Diet, Health and Activity Patterns in Early Nomadic Pastoralist Communities of Inner Asia, University of Sheffield, Sheffield, 2012.

[26] Q.C. (張全超) Zhang, Y.C. (胡延春) Hu, J. (魏堅) Wei, H. (朱泓) Zhu, 內蒙古巴彥淖爾市納林套海漢墓出土人骨的隱定同位素分析 Stable isotope analysis of human bones from Nalintaohai cemetery, Baiyanaoer, Inner Mongolia, 人類學學報 Acta Anthropologica Sinica 31 (4) (2012) 407–414.

[27] X. (凌雪) Ling, L. (陳靚) Chen, Y.Q. (田亞岐) Tian, Y. (李迎) Li, C.C. (趙叢蒼) Zhao, Y.W. (胡耀武) Hu, 陝西鳳翔孫家南頭秦墓山土人骨中C和N同位素分析 Carbon and nitrogen stable isotopic analysis on human bones from the Qin tomb of Sunjianantou site, Fengxiang, Shaanxi province, 人類學學報 Acta Anthropologica Sinica 29 (1) (2010) 54–61.

[28] G.W. (張國文) Zhang, Y.W. (胡耀武) Hu, O. Nehlich, W.Z. (楊武站) Yang, D.Y. (劉呆運) Liu, G.D. (宋國定) Song, C.S. (王昌燧) Wang, M.P. Richards, 關中兩漢先民生業模式及與北方遊牧民族間差異的穩定同位素分析 (Stable isotope evidence of differences in subsistence strategies between the Hans and the northern nomads), 華夏考古 (Huaxia Archaeol.) 3 (2013) 131–141.

[29] X. (凌雪) Ling, Y.S. (王奕舒) Wang, Q. (岳起) Yue, G.W. (謝高文) Xie, L. (陳靚) Chang, D. (蘭棟) Lan, 陝西關中監獄戰國秦墓出土人骨的碳氮同位素分析 Stable carbon and nitrogen isotope analysis of human bones from burials of the Qin state in the Warring-states period excavated at Guangzhong prison in Shaanxi, 文博 (Relics Museol.) 3 (2019) 69–73.

[30] X.L. Chen, S.M. Hu, Y.W. Hu, W.L. Wang, Y.Y. Ma, P. Lü, C.S. Wang, Raising practices of Neolithic livestock evidenced by stable isotope analysis in the Wei River Valley, north China, Int. J. Osteoarchaeol. 26 (1) (2016) 42–52, doi:10.1002/oa.2393.

[31] E.A. Pechenkina, S.H. Ambrose, X.L. Ma, R.A. Benfer Jr., Reconstructing northern Chinese Neolithic subsistence practices by isotopic analysis, J. Archaeolog. Sci. 32 (8) (2005) 1176–1189.

[32] Y. (郭怡) Guo, Y.W. (胡耀武) Hu, Q. (高強) Gao, C.S. (王昌燧) Wang, M.P. Richards, 姜寨遺址先民食譜分析 Stable carbon and nitrogen isotope evidence in human diets based on evidence from the Jiangzhai site, China, 人類學學報 Acta Anthropologica Sinica 30 (2) (2011) 149–157 10.16359/j.cnki.cn11-1963/q.2011.02.004.

[33] P. Atahan, J. Dodson, X.Q. Li, X.Y. Zhou, S.M. Hu, L. Chen, F. Bertuch, K. Grice, Early Neolithic diets at Baijia, Wei River Valley, China: Stable carbon and nitrogen isotope analysis of human and faunal remains, J. Archaeolog. Sci. 38 (10) (2011) 2811–2817, doi:10.1016/j.jas.2011.06.032.

[34] Y. (郭怡) Guo, Y. (夏陽) Xia, Y.F. (董艷芳) Dong, B.Y. (俞博雅) Yu, Y.L. (范怡露) Fan, F.Y. (聞方園) Wen, Q. (高強) Gao, 北劉遺址人骨的穩定同位素分析 (Stable isotope analysis of human remains from the Beiliu site), 考古與文物 (Kaogu yu Wenwu) 1 (2016) 115–120.

[35] X.L. Chen, X.N. Guo, W.L. Wang, S.M. Hu, M.M. Yang, Y. Wu, Y.W. Hu, The subsistence patterns of the Shengedaliang site (~4,000 yr bp) revealed by stable carbon and nitrogen isotopes in northern Shaanxi, China, Sci. China 60 (2) (2017) 268–276, doi:10.1007/s11430-016-5123-8.

[36] X.L. (陳相龍) Chen, X.N. (郭小寧) Guo, Y.W. (胡耀武) Hu, W.L. (王煒林) Wang, C.S. (王昌燧) Wang, 陝西神木木柱柱梁遺址先民的食譜分析 (Palaeodietary study of the Neolithic population at Muzhuzhuliang, Shenmu county, Shaanxi), 考古與文物 (Kaogu yu Wenwu) 5 (2015) 112–117.

[37] X. (陳曦) Chen, 梁帶村芮國墓地出土西周時期人骨的骨化學特徵研究 (A Study of the Bone Chemical Compositions of Human Remains from Liangdai Village of the Western Zhou Period), Northwest University, 2012.

[38] D.M. (裴德明) Pei, Y.W. (胡耀武) Hu, Y.M. (楊益民) Yang, Q.C. (張全超) Zhang, G.W. (張國文) Zhang, J.W. (田建文) Tian, C.S. (王昌燧) Wang, 山西鄉寧內陽垣遺址先民食物結構分析 Palaeodietary analysis of humans from the Neiyangyuan site of Xiangning, Shanxi province, 人類學學報 Acta Anthropologica Sinica 27 (4) (2008) 379–384.

[39] X.L. (張雪蓮) Zhang, 食性分析 (palaeodietary reconstruction), in: 靈寶西坡墓地 Xipo cemetery in Lingbao, Cultural Relics Press, Beijing, 2010, pp. 197–222.

[40] Q.C. (張全超) Zhang, M. (周蜜) Zhou, J.Y. (周俊英) Zhu, 湖北青龍泉遺址東周時期墓葬出土人骨的穩定同位素分析 Stable isotopic analysis on human bones excavated from Eastern Zhou tombs in Qinglongquan site of Hubei, 江漢考古 (Jianghan Kaogu) 123 (1) (2012) 93–97.

[41] Y. Guo, Y. Fan, Y. Hu, J. Zhu, M.P. Richards, Diet transition or human migration in the Chinese Neolithic? Dietary and migration evidence from the stable isotope analysis of humans and animals from the Qinglongquan site, China, Int. J. Osteoarchaeol. 28 (2) (2018) 85–94, doi:10.1002/oa.2465.
[42] Y. (郭怡) Guo, Y.W. (胡耀武) Hu, J.Y. (周俊英) Zhu, M. (周蜜) Zhou, C.S. (王昌燧) Wang, M.P. Richards, 青龍泉遺址人和豬骨的C, N 穩定同位素分析 Stable C and N isotope analysis of human and pig bones from Qinglongquan, 中國科學:地球科學 Scientia Sinica Terrae 41 (1) (2011) 52–60.
[43] X. (凌雪) Ling, L. (陳靚) Chen, X.M. (薛新明) Xue, C.C. (趙叢蒼) Zhao, 山西芮城清涼寺墓地出土人骨的穩家同位素分析 Stable isotopic analysis of human bones from the Qiangliang temple graveyard, Ruicheng county, Shanxi province, 第四紀研究 Q. Sci. 30 (2) (2010) 415–421.
[44] L.G. (周立剛) Zhou, 穩定碳氮同位素視角下的河南龍山墓葬與社會 A study of the tombs and society of the Henan Longshan culture by means of stable carbon and nitrogen isotope analysis, 華夏考古 (Huaxia Archaeol.) 3 (2017) 145–152.
[45] L.L. (候亮亮) Hou, N. (王寧) Wang, P. (吕鵬) Lü, Y.W. (胡耀武) Hu, G.D. (宋國定) Song, C.S. (王昌燧) Wang, 申明鋪遺址戰國到兩漢先民食物結構和農業經濟的轉變 Transition of human diets and agricultural economy in Shenmingpu site, Henan, from the Warring States to Han dynasties, 中國科學:地球科學 Sci. China 55 (2012) 978–982, doi:10.1007/s11430-012-4409-0.
[46] Q.M. (付巧妹) Fu, S.A. (靳松安) Jin, Y.W. (胡耀武) Hu, Z. (馬釗) Ma, J.C. (潘建才) Pan, C.S. (王昌燧) Wang, 河南淅川沟灣遺址農業發展方式和先民食物結構變化 Agricultural development and palaeodietary study of Gouwan site, Sichuan, Henan, Chin. Sci. Bull. 55 (2010) 614–630.
[47] Y.C. (顧玉才) Gu, 內蒙古和林格爾縣土城子遺址戰國時期人骨研究 A Research on the Skeletons of Warring-States Period from Tuchengzi Site, Helinge'er County, Inner Mongolian Province, Jilin University, 2007.
[48] Q.C. (張全超) Zhang, H. (朱泓) Zhu, Y.W. (胡耀武) Hu, Y.Z. (李玉中) Li, J.E. (曹建恩) Cao, 內蒙古和林格爾懸新店子墓地古代居民的食譜分析 (Palaeodietary study of human remains from Xindianzi cemetery, Helinge'er xian, Inner Mongolia), 文物 (Wenwu) 1 (2006) 87–91.
[49] X.Y. Zhang, X. Zhang, M.J. Suo, D. Wei, Y.W. Hu, The influence of agriculture in the process of population integration and cultural interaction during the Eastern Zhou period in central-south, Inner Mongolia: Carbon and nitrogen stable isotope analysis of human bones from the Dabaoshan cemetery, Helingeer county, Sci. China Earth Sci. 61 (2) (2018) 205–214.
[50] X.L. (陳相龍) Chen, Y.H. (吳業恆) Wu, Z.P. (李志鵬) Li, 從中溝與王圪塔遺址看公元前三千紀前後洛陽盆地的生業經濟 Subsistence around 3rd millennium B.C. In Luoyang Basin evidenced by human diets at Zhonggou and Wanggedang sites, 第四紀研究 Q. Sci. 39 (1) (2019) 197–208.
[51] M. (唐森) Tang, X.Y. (王曉毅) Wang, K. (候侃) Hou, L.L. (候亮亮) Hou, 山西晉中小南莊墓地人骨的c,n穩定同位素:試析小麥在山西的推廣 Carbon and nitrogen stable isotope of the human bones from the Xiaonanzhuang cemetery, Jinzhong, Shanxi: A preliminary study on the expansion of wheat in ancient Shanxi, China, 人類學學報 Acta Anthropologica Sinica 37 (2) (2018) 318–330.
[52] Y. (王洋) Wang, P.H. (南普恒) Nan, X.Y. (王曉毅) Wang, D. (魏東) Wei, Y.W. (胡耀武) Hu, C.S. (王昌燧) Wang, 相近社會等級先民的食物結構差異 - 以山西聶店遺址為例 Dietary differences in humans with similar social hierarchies: Example from the Niedian site, Shanxi, Acta Anthropologica Sinica 人類學學報 33 (1) (2014) 82–89.
[53] P.J. (薛鵬錦) Xue, 屯留余吾戰國至兩漢時期人骨的c,n穩定同位素分析 C, N Stable Isotope Analysis of the Tunliuyuwu Site from the Warring States To Han Dynasty, Shanxi University, Taiyuan, 2015.
[54] G.W. Zhang, Y.W. Hu, L.M. Wang, C.M. Cao, X.S. Li, X.N. Wu, Z.D. Sun, F.S. Chen, J.S. Bai, P. Lv, G.D. Song, C.S. Wang, M.P. Richards, A paleodietary and subsistence strategy investigation of the Iron Age Tuoba Xianbei site by stable isotopic analysis: a preliminary study of the role of agriculture played in pastoral nomad societies in Northern China, J. Archaeol. Sci. 2 (2015) 699–707, doi:10.1016/j.jasrep.2014.12.003.
[55] Q.C. (張全超) Zhang, L. (郭林) Guo, H. (朱泓) Zhu, 內蒙古察右前旗呼和烏素漢代墓地出土人骨的穩定同位素分析 (Stable isotope analysis of human remains from Huhewusu cemetery, Chayouqianqi, Inner Mongolia), 草原文物 (Caoyuan Wenwu) 2 (2012) 99–101.
[56] L.G. Zhou, From state to Empire: Human Dietary Change on the Central Plains Of China from 770 BC to 220 AD, University of Alberta, 2016.
[57] L.L. (候亮亮) Hou, S.F. (古順芳) Gu, 大同地區北魏時期居民食物結構的轉變 Transition of human diets in Datong area, Shanxi, during Northern Wei Dynasty, 邊疆考古研究 (Bianjiang Kaogu Yanjiu) 23 (2018) 297–313.
[58] G.W. (張國文) Zhang, Y.W. (胡耀武) Hu, D.M. (裴德明) Pei, G.D. (宋國定) Song, C.S. (王昌燧) Wang, 大同南郊北魏墓群人骨的穩定同位素分析 (Stable isotope analysis of human bones from the Northern Wei cemetery at Datong Nanjiao), 南方文物 Cult. Relics Southern China 1 (2010) 127–131.
[59] Q.C. (張全超) Zhang, J.T. Eng, J. (魏堅) Wei, H. (朱泓) Zhu, 內蒙古察右前旗廟子溝遺址新石器時代人骨的穩定同位素分析 Palaeodietary studies using stable carbon and nitrogen isotopes from human bone: an example from the Miaozigou site, Qahar Youyi Qianqi, Inner Mongolia, 人類學學報 Acta Anthropologica Sinica 29 (3) (2010) 270–275.
[60] D.W. (陶大衛) Tao, G.W. (張國文) Zhang, Y.W. (周亞威) Zhou, Z.Y. (陳朝雲) Chen, G.H. (韓國河) Han, 生物考古所見兩周時期官莊聚落的人群與社會 Population and society in Guanzhuang settlement during Zhou Dynasty based on bioarchaeological perspective, 人類學學報 Acta Anthropologica Sinica 38 (2019) 699–706.
[61] X.L. Chen, Y.M. Fang, Y.W. Hu, Y.F. Hou, P. Lü, J. Yuan, G.D. Song, B.T. Fuller, M.P. Richards, Isotopic reconstruction of the late Longshan period (ca. 4200-3900 BP) dietary complexity before the onset of state-level societies at the Wadian site in the Ying river valley, Central plains, China, Int. J. Osteoarchaeol. 26 (2016) 808-807. 10.1002/oa.2482.
[62] Y.W. Hu, S.H. Ambrose, C.S. Wang, Stable isotopic analysis of human bones from Jiahu site, Henan, China: Implications for the transition to agriculture, J. Archaeolog. Sci. 33 (9) (2006) 1319–1330, doi:10.1016/j.jas.2006.01.007.
[63] L. Zhou, Y. Hou, J. Wang, Z. Han, S.J. Garvie-Lok, Animal husbandry strategies in Eastern Zhou China: An isotopic study on faunal remains from the Central Plains, Int. J. Osteoarchaeol. 28 (3) (2018) 354–363, doi:10.1002/oa.2660.
[64] D.W. Tao, G.W. Zhang, Y.W. Zhou, H.Z. Zhao, Investigating wheat consumption based on multiple evidences: Stable isotope analysis on human bone and starch grain analysis on dental calculus of humans from the Laodaojing cemetery, central plains, China, Int. J. Osteoarchaeol. 30 (5) (2020) 594–606, doi:10.1002/oa.2884.

[65] L.L. Hou, Y.W. Hu, X.P. Zhao, S.T. Li, D. Wei, Y.F. Hou, B.H. Hu, P. Lv, T. Li, G.D. Song, C.S. Wang, Human subsistence strategy at Liuzhuang site, Henan, China during the proto-Shang culture (~2000-1600BC) by stable isotope analysis, J. Archaeolog. Sci. 40 (5) (2013) 2344–2351.
[66] X.D. (劉曉迪) Liu, T.T. (王婷婷) Wang, D. (魏東) Wei, Y.W. (胡耀武) Hu, 小河沿文化生活方式初探:以河北姜家梁遺址為例 Preliminary exploitation on human lifestyles during Xiaoheyan culture period: a case study of the Jiangjialiang site, 人類學學報 Acta Anthropologica Sinica 36 (2) (2017) 280–288.
[67] Y. (司藝) Si, 2500bc-1000bc 中原地區家畜飼養策略與先民肉食資源消費 Feeding Practices of Domestic Animals and Meat Consumption of Ancients in the Central Plain of China: 2500BC –1000BC, University of Chinese Academy of Sciences, 2013.
[68] C. Cheung, Z.C. Jing, J.G. Tang, D. Weston, M.P. Richards, Diets, social roles, and geographical origins of sacrificial victims at the royal cemetery at Yinxu, Shang China: new evidence from stable carbon, nitrogen, and sulfur isotope analysis, J. Anthropol. Archaeol. 48 (2017) 28–45, doi:10.1016/j.jaa.2017.05.006.
[69] L.T. (閆靈通) Yan, 穩定同位素雄陸生動物礦化組織研究中的應用 The Stable Isotopes Analysis of Biomineral Tissues from Terrestrial Animal, University of Chinese Academy of Sciences, 2010.
[70] C. Cheung, Z.C. Jing, J.G. Tang, Z.W. Yue, M.P. Richards, Examining social and cultural differentiation in early Bronze Age China using stable isotope analysis and mortuary patterning of human remains at Xin'anzhuang, Yinxu, Archaeol. Anthropol. Sci. 9 (5) (2017) 799–816, doi:10.1007/s12520-015-0302-z.
[71] J.C. (潘建才) Pan, Y.W. (胡耀武) Hu, W.B. (潘偉斌) Pan, T. (裴濤) Pei, T. (王濤) Wang, C.S. (王昌燧) Wang, 河南安陽固岸墓地人牙的C,N穩定同位素分析 the analysis of C, N stablized isotope of teeth found in Anyang Gu'an burial site, Henan, 江漢考古 (Jianghan Kaogu) 4 (2009) 114–120.
[72] Y. Ma, B.T. Fuller, D. Wei, L. Shi, X.Z. Zhang, Y.W. Hu, M.P. Richards, Isotopic perspectives (d13C, d15N, d34S) of diet, social complexity, and animal husbandry during the proto-Shang period (ca.2000-1600BC) of China, Am. J. Phys. Anthropol. 160 (3) (2016) 433–445, doi:10.1002/ajpa.22980.
[73] W. (宮瑋) Gong, 濟南大辛莊,劉家莊商化先民食物結構研究 - 植物大遺存與碳,氮穩定同位素結果 Research of Human Diet in Shang Period of the Daxinzhunag Site and Liujiazhuang Site - Results from the Plant Remains and the Stable Isotope of Carbon And Nitrogen, Shandong University, Jinan, 2016.
[74] Y.W. Hu, S.G. Wang, F.S. Luan, C.S. Wang, M.P. Richards, Stable isotope analysis of humans from Xiaojingshan site: Implications for understanding the origin of millet agriculture in China, J. Archaeolog. Sci. 35 (11) (2008) 2960–2965, doi:10.1016/j.jas.2008.06.002.
[75] B. Yi, J.L. Zhang, B.T. Cai, Z.Y. Zhang, Y.W. Hu, Osteobiography of a seventh-century potter at the Oupan kiln, China by osteological and multi-isotope approach, Sci. Rep. 9 (1) (2019) 12475, doi:10.1038/s41598-019-48936-1.
[76] S.T. Chen, Q.W. Yu, M.K. Gao, M. Miller, G.Y. Jin, Y. Dong, Dietary evidence of incipient social stratification at the Dawenkou type site, China, Quat. Int. 521 (2019) 44–53, doi:10.1016/j.quaint.2019.05.024.
[77] Y.W. (胡耀武) Hu, D.L. (何德亮) He, Y. (董豫) Dong, C.S. (王昌燧) Wang, M.K. (高明奎) Gao, Y.F. (蘭玉富) Lan, 山東滕州西公橋遺址人骨的穩定同位素分析 Stable isotopic analysis on human bones from the Xigongqiao site, Tengzhou, Shandong, 第四紀研究 Q. Sci. 25 (5) (2005) 561–567.
[78] L.L. Dai, X.H. Kan, X.Y. Zhang, An investigation into the strategy of pig husbandry combining zooarchaeological and stable isotopic approaches at Neolithic Houjiazhai, China, Int. J. Osteoarchaeol. 29 (5) (2019) 772–785, doi:10.1002/oa.2788.
[79] G.W. (張國文) Zhang, F.S. (陳鳳山) Chen, Z.D. (孫祖棟) Sun, M. Richards, 早期鮮卑人和動物骨骼的穩定同位素分析 Stable isotope analysis of early Xianbei human and faunal bones, 人類學學報 Acta Anthropologica Sinica 36 (1) (2017) 110–118.
[80] Y. Dong, L.G. Lin, X.Y. Zhu, F.S. Luan, A.P. Underhill, Mortuary ritual and social identities during the late Dawenkou period in China, Antiquity 93 (368) (2019) 378–392, doi:10.15184/aqy.2019.34.
[81] Q.C. (張全超) Zhang, J.T. Eng, L.X. (王立新) Wang, L. (塔拉) Ta, 內蒙古林西縣井溝子西區墓地人骨的穩定同位素分析 Palaeodiet studies using stable carbon isotopes from human bone: Example from Jinggouzi cemetery, Inner Mongolia, 邊疆考古研究 (Bianjiang Kaogu Yanjiu) 7 (2008) 322–327.
[82] Y. Xia, J.L. Zhang, F. Yu, H. Zhang, T.T. Wang, Y.W. Hu, B.T. Fuller, Breastfeeding, weaning, and dietary practices during the Western Zhou dynasty (1122–771 BC) at Boyangcheng, Anhui province, China, Am. J. Phys. Anthropol. 165 (2) (2018) 343–352, doi:10.1002/ajpa.23358.
[83] Q.C. (張全超) Zhang, Q. (張群) Zhang, S.G. (彭善國) Peng, L.X. (王立新) Wang, Y.P. (朱延平) Zhu, Z.Z. (郭治中) Guo, 內蒙古赤峰市大山前遺址夏家店上層文化"祭祀坑"出土人骨穩定同位素分析 (Stable isotope analysis of human remains from a "sacrificial pit" at the Dashanqian site, Chifeng town, Inner Mongolia), 考古與文物 (Kaogu yu Wenwu) 4 (2015) 107–110.
[84] Y. (郭怡) Guo, S.S. (周杉杉) Zhou, G. (陳剛) Chen, Z.B. (李則斌) Li, 江蘇盱眙東陽軍莊漢墓群出土人骨的穩定同位素分析 Stable isotope analysis of human bones unearthed from the Han tombs at the Junzhuang site located in Dongyang, Xuyi, Jiangsu province, 南方文物 Cult. Relics Southern China 6 (2016) 56–63.
[85] Y.W. (胡耀武) Hu, G.F. (王根富) Wang, Y.P. (崔亞平) Cui, Y. (董豫) Dong, L. (管理) Guan, C.S. (王昌燧) Wang, 江蘇金壇三星村遺址先民的食譜研究 (Palaeodietary study of the Jintan Sanxingcun site, Jiangshu), 科學通報 (Kexue Tongbao 52 (1) (2007) 85–88.
[86] F. (王芬) Wang, Y.B. (宋艷波) Song, B.S. (李賓碩) Li, R. (樊榕) Fan, G.Y. (靳桂雲) Jin, S.L. (菀世領) Wan, 北遷遺址人和動物的C, N穩定同位素分析 C and N stable isotope analysis of human and animal bones at the Beiqian site, 中國科學:地球科學 Scientia Sinica Terrae 43 (2013) 2029–2036.

[87] F. Wang, R. Fan, H.T. Kang, G.Y. Jin, F.S. Luan, H. Fang, Y.H. Lin, S.L. Yuan, Reconstructing the food structure of ancient coastal inhabitants from Beiqian village: Stable isotopic analysis of fossil human bone, Chin. Sci. Bull. 57 (17) (2012) 2148–2154, doi:10.1007/s11434-012-5029-y.
[88] Y. (董豫) Dong, Y.W. (胡耀武) Hu, Q.C. (張全超) Zhang, Y.P. (崔亞平) Cui, L. (管理) Guan, C.S. (王昌燧) Wang, X. (萬欣) Wan, 遼寧北票喇嘛洞遺址出土人骨穩定同位素分析 Stable isotopic analysis on human bones of the Lamadong site, Beipiao, Liaoning province, 人類學學報 Acta Anthropologica Sinica 26 (1) (2007) 77–84.
[89] M. (南川雅南) Minagawa, A. (松井章) Nakamura Matsui, S. (中村慎一), G.P. (孫國平) Sun, 由田螺山遺址出土的人類與動物骨骼膠質炭氮同位素組成推測河姆渡文化的食物資源與家畜利用 (Examining the dietary and animal husbandry practices during the Hemudu period, through stable isotope analysis of human and animal bones from Tianluoshan), in: 田螺山遺址自然遺存綜合研究 (Studies of Eco-remains from Tianluoshan Site), Wenwu Publisher 文物出版社, Beijing, 2011, pp. 262–269. editors. (Eds.).
[90] G.W. (張國文) Zhang, L.P. (蔣樂平) Jiang, Y.W. (胡耀武) Hu, Y. (司藝) Si, P. (呂鵬) Lü, G.D. (宋國定) Song, C.S. (王昌燧) Wang, M.P. Richards, Y. (郭怡) Guo, 浙江塔山遺址人和動物骨的c,n穩定同位素分析 (Stable carbon and nitrogen isotope analysis of human and animal bones from the Tashan site, Zhejiang), 華夏考古 (Huaxia Archaeol.) 2 (2015) 138–146.
[91] Q.C. (張全超) Zhang, T. (韓濤) Han, Q. (張群) Zhang, Z.C. (孫志超) Sun, 遼寧營口鮀魚圈漢代貝殼墓出土人骨的穩定同位素分析 Stable isotope analysis of human bones from shell tombs of Han dynasty in Bayuquan, Yingkou, Liaoning, 邊疆考古研究 (Bianjiang Kaogu Yanjiu) 24 (2018) 341–347.
[92] X.L. (陳相龍) Chen, P. (呂鵬) Lü, Y.X. (金英熙) Jin, X.B. (賈笑冰) Gu, X. (趙欣) Zhao, J. (袁靖) Yuan, 從漁獵採集到食物生產:大連廣鹿島小珠山遺址動物馴養的穩定同位素記錄 From hunting and gathering to food production - record of stable isotope about the animal domestication in Xiaozhushan site, Guanlu island, Dalian city, 南方文物 Cult. Relics Southern China. 1 (2017) 142–149.
[93] Q.C. (張全超) Zhang, 吐爾基山遼墓墓主人骨骼的穩定同位素分析 (Stable isotope analysis of the human remains from the Liao Dynasty tomb at Tuerji mountain), 內蒙古文物考古 (Inner Mongolia Wenwu Kaogo) 1 (2006) 106–108.
[94] Q.C. (張全超) Zhang, Z.W. (湯卓煒) Tang, L.X. (王立新) Wang, T.J. (段天璟) Duan, M. (張萌) Zhang, 吉林白城雙塔遺址一期動物骨骼的穩定同位素分析 Stable isotopic analysis on animal bones from period I of Shuangta site, Baicheng, Jilin province, 邊疆考古研究 (Bianjiang Kaogu Yanjiu) 11 (2012) 355–360.
[95] K.C. Choy, D.G. An, M.P. Richards, Stable isotopic analysis of human and faunal remains from the incipient Chulmun (Neolithic) shell midden site of Ando island, Korea., J. Archaeol. Sci. 39 (7) (2012) 2091–2097, doi:10.1016/j.jas.2012.03.005.
[96] D.I. (안덕임) An, 동위원소 분석을 통한 식생활 복원 연구-고남리패총을 중심으로 Dietary reconstruction by stable isotopic analysis: The Konam-ri shell midden in Korea, J. Korean Ancient Histo. Soc. 韓國上古史學報 54 (2006) 5–20.
[97] H.G. (최현구) Choe, J.Y. (신지영) Shin, 뼈 콜라겐의 탄소와 질소 안정동위원소에 기록된 6세기대 나주 영동리 고분군 피장자 집단의 식생활 양상 Palaeodietary reconstruction of 6th century Naju Yeongdong-ri people recorded in stable carbon and nitrogen isotope analysis of human bone collagen, J. Conserv. Sci. 33 (6) (2017) 533–539, doi:10.12654/JCS.2017.33.6.11.
[98] H.G. (최현구) Choe, J.Y. (신지영) Shin, J.S. (한지선) Han, 풍납토성 출토 동물뼈의 탄소와 질소 안정동위원소 분석을 통해 본 백제시대의 가축사육 양상 Inferring animal husbandry practice in the Baekje period using stable isotope analysis of animal bones from the Pungnaptoseong fortress, J. Conserv. Sci. 32 (2) (2016) 179–188, doi:10.12654/JCS.2016.32.2.07.
[99] Q.C. (張全超) Zhang, E.X. (馮思學) Feng, H. (朱泓) Zhu, 俄羅斯遠東地區特羅伊茨基墓地人骨的穩定同位素分析 Palaeodiet studies using stable carbon and nitrogen isotope from human bones: an example from the Troitskiy cemetery of Mohe, Far Eastern area of Russia, 人類學學報 Acta Anthropologica Sinica 28 (3) (2009) 300–305.
[100] K.C. Choy, M.P. Richards, Stable isotope evidence of human diet at the Nukdo shell midden site, South Korea, J. Archaeolog. Sci. 36 (7) (2009) 1312–1318, doi:10.1016/j.jas.2009.01.004.
[101] K. Choy, S. Jung, O. Nehlich, M.P. Richards, Stable isotopic analysis of human skeletons from the Sunhung mural tomb, Yeongju, Korea: Implication for human diet in the Three Kingdoms period, Int. J. Osteoarchaeol. 25 (3) (2015) 313–321, doi:10.1002/oa.2303.
[102] J.Y. (신지영) Shin, D.Y. (강다영) Kang, S.H. (김상현) Kim, E.D. (정의도) Jung, 부산 가덕도 장항 유적 출토 인골의 안정동위원소분석을 통해 본 신석기시대의 식생활 양상 Isotopic dietary history of Neolithic people from Janghang site at Gadeok island, Busan, Anal. Sci. Technol. 26 (6) (2013) 387–394.
[103] K.C. Choy, O-R Jeon, B.T. Fuller, M.P. Richards, Isotopic evidence of dietary variations and weaning practices in the Gaya cemetery at Yeanri, Gimhae, South Korea, Am. J. Phys. Anthropol. 142 (1) (2010) 74–84, doi:10.1002/ajpa.21202.
[104] H.S. (김헌석) Kim, 대포패총출토 인골의 연대와 식성에 관해서 The age and dietary concerned about human remain of Daepo shell midden, 韓國新石器研究 J. Korean Neolith. Soc. 20 (2010) 89–111.
[105] K.C. Choy, M.P. Richards, Isotopic evidence for diet in the middle Chulmun period: a case study from the Tongsamdong shell midden, Korea, Archaeol. Anthropol. Sci. 2 (1) (2010) 1–10, doi:10.1007/s12520-010-0022-3.
[106] H.S. (김헌석) Kim, 석실묘 출토 인골의 안정동위원소 분석을 통해 본 백제시대 생계경제의 지역적 계층적 특징 The diet and breeding system of Dongnae people by isotope analysis at Korea, 고고광장 16 (2014) 33–49.
[107] W-J Lee, E.J. Woo, C.S. Oh, J.A. Yoo, Y-S Kim, J.H. Hong, A.Y. Yoon, C.M. Wilkinson, J.O. Ju, S.J. Choi, S.D. Lee, D.H. Shin, Bio-anthropological studies on human skeletons from the 6th century tomb of ancient Silla Kingdom in South Korea, PLoS One 11 (6) (2016) e0156632, doi:10.1371/journal.pone.0156632.
[108] H.G. (최현구) Choe, J.Y. (신지영) Shin, 경주 동궁과 월지 3호 우물 출토 옛사람 뼈의 동위원소에기록된 고려시대 식생활 양상 Isotopic palaeodiet studies of human bone from Gyeongju Donggung palace and Wolji pond site (pond no.3), Goryeo period, Anal. Sci. Technol. 32 (6) (2019) 262–270, doi:10.5806/AST.2019.32.6.262.
[109] Y.V. Kuzmin, M.P. Richards, M. Yoneda, Palaeodietary patterning and radiocarbon dating of Neolithic populations in the Primorye province, Russian Far East, Ancient Biomole. 4 (2) (2002) 53–58, doi:10.1080/1358612021000010695.

[110] Y.V. Kuzmin, V.S. Panov, V.V. Gasilin, S.V. Batarshev, Paleodietary patterns of the Cherepakha 13 site population (early Iron Age) in Primorye (maritime) province, Russian Far East, based on stable isotope analysis, Radiocarbon 60 (5) (2018) 1611–1620, doi:10.1017/RDC.2018.84.
[111] X.L. (張雪蓮) Zhang, J.X. (王金霞) Wang, Z.Q. (冼自強) Xian, S.H. (仇士華) Qiu, 古人類食物結構研究 (Dietary study of the ancient humans), 考古 (Kaogu) 2 (2003) 62–75.
[112] L.Z. (蔡蓮珍) Cai, S.H. (仇士華) Chou, 碳十三測定和古代食譜研究 (Carbon 13 analysis and palaeodietary research), 考古 (Kaogu) 10 (1984) 949–955.
[113] T. (舒濤) Shu, X.T. (魏興濤) Wei, X.H. (吳小紅) Wu, 曉塢遺址人骨的碳氮穩定同位素分析 (Stable carbon and nitrogen isotope analysis of human bones from the Xiaowu site), 華夏考古 (Huaxia Archaeol.) 1 (2016) 48–55.
[114] X.L. (張雪蓮) Zhang, S.H. (仇士華) Qiu, J. (鐘建) Zhong, X.P. (趙新平) Zhao, F.X. (孫福喜) Sun, L.Q. (程林泉) Cheng, Y.Q. (郭永淇) Guo, X.W. (李新偉) Li, X.L. (馬蕭林) Ma, 中原地區幾處仰韶文化時期考古遺址的人類食物狀況分析 Studies on diet of the ancient people of the Yangshao cultural sites in the Central Plains, 人類學學報 Acta Anthropologica Sinica 29 (2) (2010) 197–207.
[115] Y. Dong, C. Morgan, Y. Chinenov, L.G. Zhou, W.Q. Fan, X.L. Ma, Shifting diets and the rise of male-biased inequality on the central plains of China during Eastern Zhou, PNAS 114 (5) (2017) 932–937, doi:10.1073/pnas.1611742114.
[116] R.L. Liu, M. Pollard, R. Schulting, J. Rawson, C. Liu, Synthesis of stable isotopic data for human bone collagen: a study of the broad dietary patterns across ancient China, Holocene 31 (2) (2021) 302–312, doi:10.1177/0959683620941168.
[117] X.H. (吳小紅) Wu, H.D. (肖懷德) Xiao, C.Y. (魏彩雲) Wei, Y. (潘岩) Pan, Y.P. (黃蘊平) Huang, C.Q. (趙春青) Zhao, X.M. (徐曉梅) Xu, N. Ogrinc, 河南新砦遺址人,豬食物結構與農業形態和家豬馴養的穩定同位素證據 (Implications for agriculture subsistence and pig husbandry from stable isotope evidence of human and pig diets in Xinzhai, Henan province), in: 科技考古 Science for Archaeology, 2, Science Press, Beijing, 2007, pp. 49–58.
[118] X.L. (張雪蓮) Zhang, S.H. (仇士華) Qiu, G.C. (薄官成) Bo, J.X. (王金霞) Wang, J. (鐘建) Zhong, 二里頭遺址,陶寺遺址部分人骨碳十三,氮十五分析 (Stable carbon and nitrogen isotope analysis of selected human bones from the Erlitou and Taosi sites, in: 科技考古 Science for Archaeology, 2, Science Press, Beijing, 2007, pp. 41–48.
[119] Y. Yang, L. Ren, G. Dong, Y. Cui, R. Liu, G. Chen, H. Wang, S. Wilkin, F. Chen, Economic change in the prehistoric Hexi corridor (4800–2200 BP), north-west China, Archaeometry 61 (4) (2019) 957–976, doi:10.1111/arcm.12464.
[120] (中國社會科學考古研究所) IA CASS二里頭:1999-2006 Erlitou: 1999-2006, Wenwu Publisher, Beijing, 2014.
[121] X.L. (張雪蓮) Zhang, G.D. (徐廣德) Xu, Y.L. (何毓靈) He, S.H. (仇士華) Chou, 殷墟54號墓出土人骨的碳氮穩定同位素分析 The carbon and nitrogen stable isotope analyses of human bones unearthed from the burial M54 at Yinxu site, 考古 (Kaogu) 3 (2017) 100–109.
[122] X.L. (張雪蓮) Zhang, S.H. (仇士華) Qiu, J. (鐘建) Chung, C.H. (梁中合) Liang, 山東滕州市前掌大墓地出土人骨的碳,氮穩定同位素分析 (Stable carbon and nitrogen isotope analysis of human bones from Qianzhangda cemetery in Tengzhou city, Shandong), 考古 (Kaogu) 9 (2012) 83–96.
[123] Q.C. (張全超) Zhang, H. (朱泓) Zhu, 内蒙古察右中旗七郎山墓地人骨的穩定同位素分析 (Stable isotopic analysis on human bones from Qilangshan, Chayouzhongqi, Inner Mongolia), 草原文物 (Caoyuan Wenwu) 1 (2012) 87–89, doi:10.16327/j.cnki.cn15-1361/k.2012.01.002.
[124] X.Y. Yang, Z.W. Wan, L. Perry, H.Y. Lu, Q. Wang, C.H. Zhao, J. Li, F. Xie, J.C. Yu, T.X. Cui, T. Wang, M.Q. Li, Q.S. Ge, Early millet use in northern China, PNAS 109 (10) (2012) 3726–3730.
[125] H.S. Lee, Y.G. Yu, K.S. Han, Mortar characteristics for reinforcement of ancient tomb murals using oyster shells, J. Conserv. Sci. 34 (4) (2018) 295–303.
[126] N. Kobori, Cultural diffusion into Japan interpreted on the decorated tombs on the world heritage, Geogra. Rep. Tokyo Metropol. Uni. 50 (2015) 65–72.
[127] R. Longin, New method of collagen extraction for radiocarbon dating, Nature 230 (1971) 241–242.
[128] O. Nehlich, M.P. Richards, Establishing collagen quality criteria for sulphur isotope analysis of archaeological bone collagen, Archaeol. Anthropol. Sci. 1 (1) (2009) 59–75, doi:10.1007/s12520-009-0003-6.
[129] H. Bocherens, D.G. Drucker, H. Taubald, Preservation of bone collagen sulphur isotopic compositions in an early Holocene river-bank archaeological site, Palaeogeogr. Palaeoclimatol. Palaeoecol. 310 (1–2) (2011) 32–38, doi:10.1016/j.palaeo.2011.05.016.
[130] P. Szpak, J.Z. Metcalfe, R.A. Macdonald, Best practices for calibrating and reporting stable isotope measurements in archaeology, J. Archaeol. Sci. 13 (2017) 609–616, doi:10.1016/j.jasrep.2017.05.007.