

Dietary reconstruction in Migration Period Central Germany: a carbon and nitrogen isotope study

Corina Knipper · Daniel Peters · Christian Meyer ·
Anne-France Maurer · Arnold Muhl · Bernd R. Schöne ·
Kurt W. Alt

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Abstract This study presents bone collagen carbon and nitrogen isotope data from the Migration Period cemeteries (fifth/sixth century AD) of Obermöllern and Rathewitz in Central Germany. The human average $\delta^{13}\text{C}$ ratios of -19.8 ± 0.3 ‰ and $\delta^{15}\text{N}$ ratios of 9.6 ± 0.9 ‰ ($n=43$) reflect a mixed diet in a temperate C3-based ecosystem without significant difference between the two sites. The average offset between human and faunal $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values indicates a significant contribution of plant food to the human diet that has different isotope ratios from the forage of the animals. It furthermore suggests the influence of land management on the $\delta^{15}\text{N}$ values. One adult male from Obermöllern stands out due to his elevated nitrogen isotope ratio, body height, grave goods, and burial position. The collagen isotope data of this study are comparable with data from other central European sites and confirm rather stable communities with moderate variation in the environmental conditions of arable land.

Keywords Central Germany · Cemetery · Diet · Stable isotopes · Carbon · Nitrogen

Introduction

The Migration Period (375/376–568 AD) was an eventful historical episode between Classical Antiquity and the Middle Ages. Sporadic written sources provide glimpses of the ethnogenesis and movement of Germanic tribes (Pohl 2005, 2008), and archaeological research has documented numerous cemeteries with remarkably richly furnished graves that indicate far-reaching interregional contacts. The first mention of the *gens* (people) of the Thuringians occurs in written sources of the late fourth century AD. The core territory of this multiethnic group is Central Germany from the Thuringian Basin to the Harz Mountains (Springer 2005; Theune 2005). After about 454 AD, when they were freed from Hunnic sovereignty, the Thuringians quickly evolved into one of the mightiest Germanic kingdoms outside the borders of the former Roman Empire. With their far-reaching regime and alliances, they became the most powerful factor east of the Rhine against the expanding Franconian Kingdom (Werner 1999, p. 750), which defeated them in 531 AD (Springer 2005). Although the written record conveys crucial information on the history of political power and events of victory and defeat, many aspects of daily life were not recorded. One of these features that became increasingly accessible through stable isotope analyses in the last decades is dietary composition. Such investigations also include first examples from the Migration Period and Early Middle Ages (Hakenbeck et al. 2010; Schutkowski et al. 1999; Jørvkov et al. 2010; Privat et al. 2002). They do not only allow for a general characterization of the human diet (Ambrose 1993; Katzenberg 2000), but can also inform about subsistence strategies, land use patterns, and domestic animal management (Britton et al. 2008; Hamilton et al. 2009; Mulville et al. 2009).

C. Knipper (✉) · C. Meyer · K. W. Alt
Institute of Anthropology, University of Mainz,
Colonel-Kleinmann-Weg 2,
55099 Mainz, Germany
e-mail: knipper@uni-mainz.de

D. Peters
Institute of Prehistoric Archaeology, Free University of Berlin,
Altensteinstraße 15,
14195 Berlin, Germany

A.-F. Maurer · B. R. Schöne
Earth System Science Research Center, Department of Applied
and Analytical Paleontology, Institute of Geosciences,
University of Mainz,
Johann-Joachim-Becher-Weg 21,
55128 Mainz, Germany

A. Muhl
State Office for Heritage Management and Archaeology/State
Museum of Prehistory of Saxony-Anhalt,
Richard-Wagner-Str. 9,
06114 Halle (Saale), Germany