Abstract

We studied the dietary behavior and health status of a population that lived in the context of rapid change, including the development of the economic and political structures of states, the adoption of Christianity as well as the subsequent disruption of social structure and the recovery of society.

Carbon ($\delta^{13}$C) and nitrogen ($\delta^{15}$N) isotopic values were measured in a sample of 189 adult individuals of both sexes and 74 animals representing different socio-economic contexts (power centers versus the hinterlands) and chronology: the Great Moravian (9th -10th century AD) versus late Hillfort (11th century AD) period. A sample of 41 sub-adults aged 0–6 years, representative of both Great Moravian power centers (Mikulčice) and its rural hinterlands (Josefov), was selected for isotopic analyses of breastfeeding and weaning behavior.

Data on growth and frequency of nonspecific stress indicators (cribra orbitalia, porotic hyperostosis, and endocranial lesions) were analyzed in a sub-adult group. In adults, we focused on dental health (caries, periapical lesions, dental wear, and periodontal disease), the presence of *cribra orbitalia* and estimated adult stature.

Isotopic data of the adult sample showed that the Great Moravian population had a terrestrial diet with a substantial proportion of C₄ plants. Our data does not reflect significant consumption of freshwater fish. Dietary analysis revealed statistically significant differences in the consumption of animal protein between power centers and the hinterlands. In power centers, significant relationships were found between nitrogen isotopic values and indicators of socio-economic status in males but not in females. Diachronic changes in the diet were observed: the diet of the 11th century sample was characterized by higher consumption of C₄ plants (millet) in both sexes and lower consumption of animal protein in males.

For sub-adults, the isotopic results suggested there was not solely one established norm for the duration of breastfeeding in the Great Moravian population. In the sample from the power center in Mikulčice, some children may have been weaned during their second year, while others may have still been consuming breast milk substantially up to four to five years of age. By contrast, data from the hinterland sample in Josefov showed more homogeneity, with a gradual cessation of breastfeeding starting after the age of two.

These results confirmed that Great Moravia represented a highly stratified society socio-economically. Social status appears to have determined the consumption of animal protein much more in males than in females. The diet of females also proved to be more uniform in the diachronic frame. The diachronic change in dietary behavior suggested that even after the apparent recovery in the 11th century, Moravian society did not reach its original level of welfare at least in terms of the quality of diet.

The quality of diet significantly influenced dental health in the Great Moravian population sample. The observed relationship between nitrogen isotopic values versus dental caries and periodontitis agreed well with the generally shared opinion that a diet low in animal protein and rich in carbohydrates promoted both cariogenesis and periodontitis.

In contrast, there is no evidence that observed weaning strategies affected the level of biological stress, which the sub-adult population of the Great Moravian power center had to face compared to those in the hinterland.