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J. Bíšková (DRD NPI & Department of archaeology and Museology, Masaryk University): *Reservoirs in bone collagen as a significant factor affecting radiocarbon dating in archaeology*

Abstract:
Radiocarbon dating has become a cornerstone methodology in archaeological research, enabling the chronological placement of artefacts and remains. However, the reliability of radiocarbon dates derived from bone collagen is significantly influenced by various factors, particularly the preservation state of collagen and the presence of reservoir effects. The freshwater reservoir effect (FRE) is a significant factor influencing the accuracy of radiocarbon dating, particularly in archaeological contexts where human and faunal remains are derived from freshwater environments. This phenomenon occurs when carbon from aquatic organisms, which is often depleted in radiocarbon due to the uptake of ancient carbon sources, is incorporated into the diets of humans and animals, leading to radiocarbon dates that appear older than their actual chronological context. Recent studies have demonstrated that the FRE can cause substantial offsets in radiocarbon ages, particularly in regions with significant freshwater resource exploitation. As researchers continue to explore the complexities of dietary influences on radiocarbon ages, it is essential to incorporate a comprehensive understanding of the FRE into archaeological methodologies. This will enhance the accuracy of chronological reconstructions and provide a clearer picture of past human behaviours and environmental interactions.