

## Reply to Bocherens: Dental microwear and stable isotopes on bone collagen are complementary to sort out cave bear diets

Based on a dental microwear analysis, we demonstrated that cave bears from Goyet, Belgium, were generalist omnivores before dormancy (1). Bocherens (2) states that this interpretation may have been biased by the taxonomic composition of our comparative database, specifically by the absence of brown and black bears. First, the statement that these extant bears have a diet composed of grass, nuts, berries, and underground plant parts (2) provides an incomplete picture of the dietary ecology of bears. Actually, as expected for omnivores, diets of extant brown and black bears may be much more diverse, ranging from carnivory to herbivory depending on a great number of parameters (e.g., refs. 1, 3–5). Second, we do not believe that the addition of these extant species in our database would have altered our conclusions. It has been demonstrated that the differences in dental microwear pattern between extant species of carnivores do not reflect phylogenetic relationships, but feeding habits (6). Our database therefore aimed to cover all diets known in carnivorous mammals, which was more pertinent than completely covering one family only, e.g., Ursidae. Third, isotopic data mentioned by Bocherens (2) do not contradict our results. Isotopic studies provide an average diet over several years to a lifetime, whereas dental microwear analysis provides a perspective on seasonal variation in cave bear diet, e.g., the predormancy period (1). This finding indicates that studies only based on multiple approaches (morphology, geochemistry, dental microwear analysis) may provide a rather complete knowledge of the biology of an extinct species.

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The authors declare no conflict of interest.

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