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The ground sloth *Megatherium americanum*: Skull shape, bite forces, and diet

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Megatherium americanum (late Pleistocene of South America) has traditionally been regarded a herbivore, but its dietary habits have not been considered in terms of a morpho-functional analysis. This study describes and analyses the morphology of the masticatory apparatus in order to interpret the jaw mechanics of *M. americanum*, and thus to infer its diet and behaviour. The results are compared with those for the mylodontid *Glossotherium robustum* and the extant sloth *Bradypus variegatus*. The areas of origin and insertion of the masticatory musculature were reconstructed, and the moment arms generated by this musculature were estimated so that the mechanics of the feeding apparatus might be described. These analyses indicate that *M. americanum* was well adapted for strong and mainly vertical biting. The teeth are extremely hypsodont and bilophodont, and the sagittal section of each loph is triangular with a sharp edge. This suggests that the teeth were used mainly for cutting, rather than grinding, and that hard and fibrous food was not the main dietary component. The diet of *M. americanum* merits more rigorous analysis, but the evidence provided here indicates that it probably had a browsing diet in open habitats, but also could have fed on moderate to soft tough food.

Key words: Xenarthra, Tardigrada, *Megatherium*, biomechanics, mastication, diet.

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