

Decompression syndrome and diving behavior in *Odontochelys*, the first turtle

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Odontochelys semitestacea, the oldest known turtle, from the Late Triassic of China, shows a pathology. Sharply defined, focal depressions were noted on the articular surfaces of both humeri, documenting avascular necrosis. Diving habits of Mesozoic marine reptiles have been characterized on the basis of this localized form of bone death attributed to decompression syndrome. Pursuit by a predator was likely the cause of dangerously rapid depth changes by swimming turtles. The prevalence of avascular necrosis decreased geometrically from the Cretaceous to the Pleistocene. This study suggests that the habit of repetitive diving in turtles was already present in the Late Triassic, but that protective physiological and behavioral adaptations had not yet evolved.

Key words: Testudines, *Odontochelys*, turtle, diving behavior, bone pathology, avascular necrosis, Triassic, China.

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