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New psittacosaurid highlights skull enlargement in horned dinosaurs

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A new psittacosaurid is based on a nearly complete articulated skeleton from northeastern China that differs principally in skull size as compared to the most common and widespread species, *Psittacosaurus mongoliensis*. The skull of *Psittacosaurus major* sp. nov., is 25% larger despite very similar postcranial skeletal dimensions. Such selective skull enlargement is very unusual. Skull size in ceratopsians, in general, scales with positive allometry relative to body mass: species of greater mass have proportionately larger skulls. This pattern stands in marked contrast to that for other vertebrate herbivores, in which larger-bodied species either have proportionately similar or smaller skulls relative to body mass. Larger-bodied ceratopsians evolved skulls that are 50% or more of trunk length as measured without their expansive cranial frill. Although contemporaneous duck-billed dinosaurs also exhibit some positive allometry in the skull, skull length remains approximately 35% of trunk length. The evolution of extraordinary absolute and relative skull size among ceratopsians appears to have been driven by sexual selection and involved the tandem evolution of reduced head mobility and an obligate quadrupedal posture.

Key words: Dinosauria, Ornithischia, Marginocephalia, Psittacosaurus, Cretaceous, Yixian Formation, China.

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