For giant carnivorous dinosaurs, big size didn’t mean a big bite



“And then you have the *Spinosaurus* which was kind of weird in general,” Rowe says. “There was a study by Dave Hone and Tom Holtz about how it was waiting on the shorelines, waiting for food to go by that it could fish out.” But *Spinosaurus’* foraging wasn’t limited to fishing. There was a pterosaur found preserved in its stomach and there were iguanodon remains found in the maw of a *Baryonyx*, another large carnivore belonging to the same lineage as the *Spinosaurus*. “They had great diversity in their diet. They were generalists, but our results show they weren’t these massive bone-crunching predators like the *T. rex*,” Rowe says. Because the *T. rex* was just built different.

King of the Cretaceous jungle

The *Tyranosauroidea* lineage had stiff, akinetic skulls, meaning they had very little mobility in the joints. The *T. rex* skull could and most likely did withstand very high stress as the animal pursued a “high stress, high power” strategy, entirely different from other large carnivores. “They were very much like big crocodiles with extremely strong, reinforced jaws and powerful muscles that could pulverize bones,” Rowe claims.

The *T. rex*, he argued, was a specialist—an ambush predator that attacked large, highly mobile prey, aiming to subdue it with a single bite. “And we have fossil evidence of that,” Rowe says. “In the Museum of Natural History in New York, there is a *Hadrosaur*, a large herbivorous dinosaur with a duck-like beak, and there’s a *T. rex* tooth embedded in its back.” This, he thinks, means the *T. rex* was actively preying on this animal, especially since there are healing marks around the stuck tooth. “Even with this super strong bite, the *T. rex* wasn’t always successful,” Rowe adds.

Still, the fight with the *Spinosaurus* most likely wouldn’t go the way it did in *Jurassic Park III*. “The *T. rex* was built to fight like that; the *Spinosaurus* really wasn’t”, Rowe says.

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