

Prehistoric speedway: Super-sized muscle made twin-horned dinosaur a speedster

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(PhysOrg.com) -- A meat-eating dinosaur that terrorized its plant-eating neighbours in South America was a lot deadlier than first thought, a University of Alberta researcher has found.

Carnotaurus was a seven-metre-long predator with a huge tail muscle that U of A paleontology graduate student Scott Persons says made it one of the fastest running hunters of its time.

A close examination of the tail bones of *Carnotaurus* showed its caudofemoralis muscle had a tendon that attached to its upper [leg bones](#).

Flexing this muscle pulled the legs backwards and gave *Carnotaurus* more power and speed in every step.

In earlier research, Persons found a similar tail-muscle and leg-power combination in the iconic predator [Tyrannosaurus rex](#). Up until Persons published that paper, many dinosaur researchers thought *T. rex*'s huge tail might have simply served as a teeter-totter-like counterweight to its huge, heavy head.

Persons' examination of the tail of *Carnotaurus* showed that along its length were pairs of tall rib-like bones that interlocked with the next pair in line. Using 3-D computer models, Persons recreated the tail muscles of *Carnotaurus*. He found that the unusual tail ribs supported a huge caudofemoralis muscle. The interlocked [bone structure](#) along the dinosaur's tail did present one drawback: the tail was rigid, making it difficult for the hunter to make quick, fluid turns. Persons says that what *Carnotaurus* gave up in [maneuverability](#), it made up for in straight ahead speed. For its size, *Carnotaurus* had the largest caudofemoralis muscle of any known animal, living or extinct.

Persons published these findings in *PLoS ONE* on Oct.14, with supervisor Philip Currie, a paleontology professor at the U of A.

Provided by University of Alberta

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