Dinosaurs may have been warm-blooded: study

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A baby Tyrannosaurus Rex shows its teeth as it promotes a theatrical show in New York in 2010. Dinosaurs may have been warm-blooded, scientists said Wednesday, in a finding that could debunk one of the most commonly-held images of the extinct giants.

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Researchers in Spain and Norway reported in the journal *Nature* they had found tree-like growth rings on the bones of mammals, a feature that until now was thought to be limited to cold-blooded creatures ... and dinosaurs.

They also found evidence that dinosaurs probably had a high metabolic

rate to allow fast growth -- another indicator of warm-bloodedness.

"Our results strongly suggest that dinosaurs were warm-blooded," lead author Meike Koehler of Spain's Institut Catala de Paleontologia told AFP.

If so, the findings should prompt a rethink about reptiles, she said.

Modern-day reptiles are cold-blooded, meaning they cannot control their body temperatures through their own metabolic system -- relying instead on external means such as basking in the sun.

While the dinosaurs may have been warm-blooded, their other characteristics kept them squarely in the reptile camp, said Koehler.

Palaeontologists have long noted the ring-like markings on the bones of cold-blooded creatures and dinosaurs, and taken them to indicate pauses in growth, perhaps due to cold periods or lack of food.

The bones of warm-blooded animals such as birds and mammals had never been properly assessed to see if they, too, exhibit the lines.

Koehler and her team found the rings in all 41 warm-blooded animal species they studied, including antelopes, deer and giraffes.

The finding "eliminates the strongest argument that does exist for cold-bloodedness" in dinosaurs, she said.

The team's analysis of bone tissue also showed that the fast growth rate of mammals is related to a high metabolism, which in turn is typical of warm-bloodedness.

"If you compare this tissue with dinosaur tissue you will see that they are

indistinguishable," said Koehler.

"So this means that dinosaurs not only grew very fast but this growth was sustained by a very high metabolic rate, indicating warm-bloodedness."

A comment by University of California palaeontologist Kevin Padian that was published with the paper said the study was the latest to chip away at the long-held theory that dinosaurs were cold-blooded.

"It seems that these were anything but typical reptiles, and Koehler and colleagues' findings remove another false correlation from this picture."

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Press release