

Tiny Titan

By looking at fossilized dinosaur nests, scientists have determined that most dinosaur babies needed to be nurtured by their parents, like modern birds. However, a new discovery points to a different upbringing for some of the biggest dino species.

Recently, paleontologists discovered the fossil of a baby titanosaur from Madagascar. As an adult, this species could grow to 50 ft long. Yet their eggs were smaller than soccer balls, and their hatchlings weighed just 7 lb. How did they get from the size of a human baby to bigger than a city bus?

While the infants of many species look very different from adults, this fossil baby was almost a perfect copy. The scientists used CT scans to look inside its bones and discovered patterns of very rapid growth showing that, since hatching, it had added 10 times its weight in a matter of weeks. A study of its joints then showed it would have been much more agile than its lumbering parents.

Taken together, its adultlike proportions, rapid growth, and athleticism suggest that this little sauropod—unlike humans—would have had to fend for itself right after hatching, like many modern lizards. Its ability to find large quantities of food to be able to grow that quickly must have been key to its success.

Scientists still don't know much about the parenting habits of dinosaurs, but this tiny titan is shedding new light.



Size comparison of an adult Rapetosaurus, a baby Rapetosaurus, and a human.

Credit: Dr. Kristi Curry Rogers

Tiny Titan

BACKGROUND

Synopsis: Some dinosaur parents had to nurture their young because the babies could not care for themselves, but other dinosaur parents had babies that were less than 1/3000 of the parents' size—only 7 lb when hatched, but ready to rumble!

- Paleontologists study fossils and look for clues about how various extinct species lived.
- Some dinosaurs are known to have raised their young in nests; for instance, the nests of theropods have been found preserved with fossilized young dinosaurs inside them and parents nearby or even brooding their eggs like living birds. Scientists have also found that some duckbilled dinosaur (hadrosaur) parents nurtured and fed their babies until they were able to fend for themselves. This is not true for all dinosaur families.
- Recently, fossils of a 65-million-year-old baby long-necked sauropod (*Rapetosaurus krausei*) from Madagascar were found mixed in with fossil crocodiles.
- Sauropods are dinosaurs with very large bodies and long necks like *Brontosaurus*.
- An adult *Rapetosaurus* was about 50 ft long and weighed between 13 and 17 tons, bigger than a large African elephant (12–13 tons).
- Researchers in Minnesota found the fossilized baby, which was only around 14 inches at the hip and weighed no more than 88 lb, about the size of a Labrador Retriever.
- The researchers studied microscopic sections and CT scans of the fossilized bones. Like tree rings, the baby's leg bones recorded rapid isometric growth rates and hatching lines, indicating that it only weighed about 7 to 8 lb when it hatched from an egg that would have been smaller than a soccer ball.
- Several weeks later, the baby *Rapetosaurus* had grown to more than 10 times its birth weight.
- Analyses of the joints suggest that the baby was more agile than adults and able to move independently immediately after birth.
- When the baby hatched, it looked just like a miniature adult at one thousandth of its future size!
- Scientists determined that the baby *Rapetosaurus* probably died of starvation about 70 million years ago in the drought-stressed ecosystem of the Maevarano Formation. Its cartilage growth plates demonstrate the same kind of modification that is typical in modern vertebrates during starvation.
- The baby fossil is remarkable and very rare, showing what life was like for these giant dinosaurs immediately after hatching.

Precious Water References

[Precocity in a tiny titanosaur from the Cretaceous of Madagascar | Science](#)
[Newly discovered baby Titanosaur sheds light on dinosaurs' early lives | Science Daily](#)
[Rapetosaurus krausei: Tiny titanosaur was just a few weeks old, scientists say | LA Times](#)
[Rapetosaurus | Wikipedia](#)

Contributors: Dr. Kristi Curry Rogers, Juli Hennings, Harry Lynch



EarthDate.org
Fact Sheet:
Episode **ED 009**