

Saber-toothed kittens may have been born with thicker bones than other contemporary cats

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Growth series of juvenile limb bones of *Smilodon fatalis*, showing the dramatic transformation in size and shape during ontogeny. Credit: Long K (2017)

Saber-toothed kittens may have been born with thicker bones compared to other contemporary cats, but they have a similar pattern of bone development, according to a study published September 27, 2017 in the open-access journal *PLOS ONE* by Katherine Long from California State Polytechnic University, USA and colleagues.

Saber-toothed cats (*Smilodon fatalis*) from the Pleistocene (37,000 to

9,000 years ago) have been previously recognized as having more robust skeletons compared to other wild cats. However, how and when [saber-toothed cats](#) developed these strong bones is a mystery.

To better understand the growth of *Smilodon* bones in comparison to a similar [species](#), Long and colleagues measured and analyzed hundreds of bones at various stages of development from both *Smilodon* and the contemporary tiger-sized cat *Panthera atrox* in the La Brea Tar Pits museum.

The researchers found that while *Smilodon* bones were more robust than the *Panthera* bones, they did not increase in robustness with age as expected, but were born with more robust bones to begin with. They found that the growth of *Smilodon* bones followed a similar pattern to other primitive cat species, where the bones actually grow longer and more slender than they grow thick. This finding suggests that the growth and development of feline species is more tightly constrained than previously thought, even with species with very different [bone](#) structures.

"Saber-tooth cats had extraordinarily strong front limbs for tackling and subduing prey before they slashed their throats or bellies with their saber-like canine teeth," says co-author Don Prothero. "Using the extraordinary collection of [limb bones](#) of saber-tooth kittens at La Brea tar pits, we found that their limbs don't become more robust as they grew up, but instead retain the stereotypical growth pattern where the limbs grow longer more quickly than they grow thick. To compensate, saber-tooth kittens were born with unusually robust limbs and retained that pattern as they grew."

More information: Long K, Prothero D, Madan M, Syverson VJP (2017) Did saber-tooth kittens grow up musclebound? A study of postnatal limb bone allometry in felids from the Pleistocene of Rancho

La Brea. *PLoS ONE* 12(9): e0183175.
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