

Limits on Limbs

That extra pair of arms you've always wanted to help with the chores might cost you a leg. Or two. According to a recent study, body parts appear to vie for resources while a creature is developing from a few cells into a full-fledged animal. While some body parts win out and increase in size, others shrink.

Biologists Fred Nijhout from Duke University and Douglas Emlen now at the University of Montana in Missoula removed from caterpillars a group of cells that would have eventually grown into the hind wings of a butterfly. When the adult butterfly broke out of its cocoon, as expected it had no hind wings. But it did have unusually large front wings. The researchers conducted a similar experiment with dung beetles. When they used hormones to decrease beetle horn size, the beetle's eyes became bigger. Even though both horns and eyes are important for a male beetle to scope out and woo his mate, it seems only one of these characteristics can dominate.

Nijhout and Emlen believe it's likely this trade-off exists, and has existed, in other animals too. This could, in part, explain the tiny arms of big-mouthed *T. rex* or the absence of six-legged giant sauropods. (To find out how everything from fins to limbs got started, read "When Life Got Legs" starting on page 26.)