

# Hyenas cooperate better than chimps, study finds

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Courtesy Duke University  
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**Spotted hyenas may not be smarter than chimpanzees, but a study indicates the much-maligned, dog-like creatures beat out our ape relatives in cooperative problem-solving tests.**

**Captive pairs of spotted hyenas that needed to tug two ropes in unison to obtain some food cooperated successfully and learned the maneuvers quickly with no training, researchers said. Experienced hyenas even helped inexperienced partners do the trick.**



A pair of captive hyenas cooperate to get some food. (Image courtesy Christine Drea)

**Faced with similar tasks, chimpanzees and other primates often require extensive training, and cooperation may not be easy, said Christine Drea, an evolutionary anthropologist at Duke University in Durham, N.C.**

**Drea's research, published online in the October issue of the journal *Animal Behavior*, suggests social carnivores like spotted hyenas that hunt in packs may be good models for investigating cooperative problem solving and the evolution of social intelligence.**

**She performed the experiments in the mid-1990s but struggled to find a journal that was interested in non-primate social cognition. "No one wanted anything but primate cognition studies back then," Drea said.**

**"But what this study shows is that spotted hyenas are more adept at these sorts of cooperation and problem-solving studies in the lab than chimps are. There is a natural parallel of working together for food in the laboratory and group hunting in the wild."**

**Drea and co-author Allisa N. Carter of the University of California at Berkeley arranged to have**

pairs of spotted hyenas put in a large pen where they faced a choice between two identical platforms 10 feet high. Two ropes dangled from each platform. When both ropes on a platform were pulled down hard in unison—a similar action to bringing down large prey—a trap door opened and spilled bone chips and a sticky meatball.

The double-rope design prevented a hyena from solving the task alone, and the choice between two platforms ensured that a pair would not solve either task by chance.

The first experiment sought to determine if three pairs of captive hyenas could solve the task without training. “The first pair walked in to the pen and figured it out in less than two minutes,” Drea said. “My jaw literally dropped.”

Drea and Carter studied the actions of 13 combinations of hyena pairs and found that they synchronized their timing on the ropes, revealing that the animals understood the ropes must be tugged in unison. They also showed that they understood both ropes had to be on the same platform. After an animal was experienced, the number of times it pulled on a rope without its partner present dropped sharply, indicating the animal understood its partner’s role.

“One thing that was different about the captive hyenas’ behavior was that these problems were solved largely in silence,” Drea said. Their non-verbal communication included matching gazes and following one another. “In the wild, they use a vocalization called a whoop when they are hunting together.”

Hyenas have an unpleasant reputation as somewhat dirty and cowardly scavengers, though in fact they often hunt live prey as well. Although they resemble dogs, hyenas are more closely related to mongooses and civets.

In second and third experiments, Drea found that social factors affected the hyenas’ performance in both positive and negative ways. When an audience of extra hyenas was present, experienced animals solved the task faster. But when dominant animals were paired, they performed poorly, even if they had been successful in previous trials with a subordinate partner.

“When the dominant females were paired, they didn’t play nicely together,” Drea said. “Their aggression toward each other led to a failure to cooperate.”

When an animal unfamiliar with the feeding platforms was paired with a dominant, experienced animal, the dominant animals switched social roles and submissively followed the lower-ranking, naïve animal, Drea said. Once the naïve animal became experienced, they switched back.

It wasn’t a big surprise that the animals were strongly inclined to help each other obtain food, said Kay Holekamp, a zoologist at Michigan State University who studies spotted hyenas.

Researchers have focused on primates for decades with an assumption that higher cognitive functioning in large-brained animals should enable organized teamwork. But Drea’s study suggests social carnivores, including dogs, may be very good at cooperative problem solving, even though their brains are comparatively smaller.

“I’m not saying that spotted hyenas are smarter than chimps,” Drea said. “I’m saying that these experiments show that they are more hard-wired for social cooperation.”