

City coyotes' poor diets could make them more aggressive, study suggests

August 8 2019, by Bev Betkowski



Urban coyotes are surviving on protein-poor diets that might make them more aggressive and leave them vulnerable to a parasite that is harmful to humans, new research suggests. Credit: Wikimedia Commons

City coyotes' garbage-based diets are affecting their gut bacteria and that could affect how they interact with humans, new University of Alberta research shows.

"It could possibly promote aggressive behavior," said Scott Sugden, who

conducted the research to earn his master's degree in science.

In analyzing the [gut microbiome](#) of 76 urban and suburban coyotes, Sugden found urban coyotes were surviving on a protein-poor [diet](#) that lacked game native to their natural diets, like rodents and deer.

Stomach contents revealed scrounged meals that included leather gloves, a still-wrapped burrito, fast [food](#) wrappers, even a chunk of pineapple.

"There's not much nutrition there for a carnivore," said Sugden.

Alongside this change in diet, the microbiome of the coyotes contained less of one specific bacterial group, *Fusobacterium*. Lower abundances of these bacteria have been loosely associated with aggression in dogs, so the same possibility exists for their wild canine relatives, he said.

The coyotes' scavenged diets also makes them vulnerable to a parasite that is harmful to humans.

Sugden found double the prevalence of a tapeworm called *Echinococcus multilocularis* in urban coyotes compared with suburban coyotes. If passed from coyote feces to pet dogs to their humans, the parasite can be potentially fatal and is difficult to treat. Twelve cases of human infection have already been reported in Alberta, Sugden noted.

"The fact that this parasite is twice as common in urban coyotes is a public health concern," he said.

Though the study findings need to be explored more extensively with further research, Sugden believes they give valuable insight into the role gut microbes may play as animals like urban coyotes adapt to changes in their environments.

Knowing more about how the microbiome is impacted by the coyote's diet may help their management become "less compartmentalized," he added.

"All too often it's easy to draw a ribbon around the basic idea that urban coyotes eat garbage and are unhealthy. But there's this whole suite of deeper implications—things like behavior, immune stress and parasite susceptibility—that are all becoming a function of diet. Dealing with poor health or parasites or aggression are all three independent projects that could be a lot of work and money, whereas if you manage for the microbiome, there could be better ways to deploy resources, all in one shot."

Ultimately, the key is to keep coyotes from eating garbage, which means the public also plays a part in coyote management by limiting [food sources](#), Sugden added.

"If there's even the possibility that this diet of human food promotes aggression, that indicates management isn't about controlling aggressive coyotes, but limiting access to protein-poor food."

Don't feed coyote behavior

"Eliminating access to human food is probably the single most important thing people can do to support co-existence by avoiding conflict with coyotes," said U of A biologist Colleen Cassady St. Clair, an expert in urban coyote behavior. Here's how to do that:

- Keep all food scraps secured in garbage bins with tight-fitting lids that can't be nosed off.
- Put compost in a plastic or fenced bin.
- Pick up and dispose of fallen fruit in the yard, like crabapples.
- Add seed catcher trays under bird feeders to avoid spilling the

seed, which also attracts rodents—another source of [coyote](#) food.

Provided by University of Alberta

Citation: City coyotes' poor diets could make them more aggressive, study suggests (2019, August 8) retrieved 25 April 2024 from <https://phys.org/news/2019-08-city-coyotes-poor-diets-aggressive.html>

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