

Overweight dogs respond well to high-protein, high-fiber diet

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Overfed dogs experience some of the same maladies associated with overweight and obesity in humans. A new study finds that overweight dogs also benefit from a high-protein, high-fiber weight loss regimen. Credit: www.pixel.la, CC0 1.0 Universal Public Domain Dedication

A study of overweight dogs fed a reduced calorie, high-protein, high-

fiber diet for 24 weeks found that the dogs' body composition and inflammatory markers changed over time in ways that parallel the positive changes seen in humans on similar diets. The dogs achieved a healthier weight without losing too much muscle mass, and their serum triglycerides, insulin and inflammatory markers all decreased with weight loss.

All such changes are beneficial, said University of Illinois Urbana-Champaign animal sciences professor Kelly Swanson, who led the new research.

Previous studies have shown that overweight and obesity lead to a shorter lifespan and a lower quality of life—in dogs and humans, Swanson said.

"Some of the problems we see in humans with obesity also occur in pet dogs," he said. "There's added stress on the joints, there's an intolerance to exercise and heat; there's also glucose intolerance, insulin resistance. And if you look at pet insurance claims, obesity is a big factor there."

Reported in the *Journal of Animal Science*, the study is unusual in that it also measured changes in the dogs' fecal microbiota over the course of losing [weight](#), Swanson said.

Even though there are similarities in dog and [human](#) metabolism and digestive processes, dogs and humans differ in the species of microbes that inhabit the gut, he said. These microbes perform similar functions, however. They metabolize proteins, carbohydrates and other molecules that are derived from food but escape digestion by the host; and they break down fiber to produce short-chain fatty acids that are important in regulating glucose and appetite, reducing inflammation, bolstering the immune system and providing energy to cells in the colon.

Some of the microbial changes observed in the dogs were difficult to interpret, Swanson said, but a reduction in fecal ammonia—probably the result of eating less protein on the calorie-restricted diet—was likely beneficial.

"High concentrations of ammonia are toxic," he said.

Dogs that lost weight also had increases in the proportion of bacteria of the genus *Allobaculum*. Higher *Allobaculum* populations correlated with an increase in fecal butyrate, a short-chain fatty acid that is a byproduct of the fermentation of dietary fiber. Previous studies have shown that butyrate has anti-inflammatory and anti-carcinogenic effects in the gut.

Total short-chain fatty acid concentrations did not change over time, however. This may reflect the fact that most of these [organic acids](#) are absorbed and not excreted, the researchers report.

Most studies of gut microbiota focus on humans, so the new research offers insight into the similarities and differences between [dogs](#) and humans, and how they respond to dietary changes and [weight loss](#). More research will be needed to clarify the findings, Swanson said.

More information: Thunyaporn Phungviwatnikul et al, Weight Loss and High-Protein, High-Fiber Diet Consumption Impact Blood Metabolite Profiles, Body Composition, Voluntary Physical Activity, Fecal Microbiota, and Fecal Metabolites of Adult Dogs, *Journal of Animal Science* (2021). [DOI: 10.1093/jas/skab379](https://doi.org/10.1093/jas/skab379)

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