



Cornell University College of Veterinary Medicine

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\$1 million study shows more fat, less protein, keeps detection dogs' sniffs up to snuff

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From finding bombs and weapons to uncovering criminal evidence, detection dogs' noses help save lives and keep the peace.

Now a research team from Auburn and Cornell universities has sniffed out a new way to boost dogs' detection talents using the power of food. The study, to be presented at the Companion Animal Nutrition Summit in Atlanta, GA in March, found that detection dogs are more reliable detectors than previous studies suggest and that their skills can be further improved through diet. Its findings could change how detection

dogs are fed and boost their detection abilities.

Funded through a \$1 million grant from the U.S. Department of Justice, the study was the first conducted in the world's only detection dog research facility designed in conjunction with a military dog trainer. It was the latest in a partnership between Dr. Joseph Wakshlag, faculty and chief of nutrition at Cornell's College of Veterinary Medicine's, and Auburn University, which supplies expert detection dogs to police and military forces. The innovative facility in Alabama flushes out fumes between tests, ensuring a fresh field each time.

"Previous studies from other facilities, which lack this feature, had suggested detection dogs signaling for suspect substances are about 70 percent accurate," said Wakshlag. "The lower numbers may have been due to study design flaws which our new study overcame. Dogs tested in the new facility signaled with 90 percent and above accuracy. We also found we can push detection performance even further with the right kind of food."

Bucking conventional thinking, the group found that cutting protein and adding fats helped trained dogs perform better in exercise and detection tests. During an 18-month period, they rotated 17 trained dogs through three diets Wakshlag selected: a high-end performance diet, regular adult dog food, and regular adult dog food diluted with corn oil. Measuring how different diets affected each dog, they found that dogs eating the



normal diet enhanced with corn oil returned to normal body temperatures most quickly after exercise and were better able to detect smokeless powder, ammonia nitrate, and TNT.



“Corn oil has lots of polyunsaturated fats, similar to what you’d find in a lot of nuts and common grocery store seed oils,” said Wakshlag. “Past data from elsewhere suggest that these polyunsaturated fats might enhance the sense of smell, and it looks like that may be true for detection dogs. It could be that fat somehow improves nose signaling structures or reduces body temperature or both. But lowering protein also played a part in improving olfaction.”

Wakshlag designed the high-performance and corn-oil diets to have the same amount of energy from fat (57 percent). But the corn oil diet had less protein: 18 percent compared to 27 percent in the regular and high-performance diets.

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“If you’re a dog, digesting protein raises body temperature, so the longer your body temperature is up, the longer you keep panting, and the harder it is to smell well,” said Wakshlag. “Our study shifts the paradigm of what ‘high performance’ diet can mean for dogs. It depends on what you want your dog to do. A sled dog or greyhound may need more protein to keep going. But detection dogs tend to exercise in shorter bursts and need to recover quickly and smell well. For that, less protein and more fat could help.”