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Monitoring the Health of 9/11 Search & Rescue Dogs

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*Monitoring the Health of 9/11
Search & Rescue Dogs*

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about the cover:

Dr. Cynthia M. Otto, associate professor and director of Penn Vet's Working Dog Center, pictured with Roger Picard and Party Girl, Picard's 4-year-old Labrador retriever search dog. Picard responded to the 9/11 disaster with his then-K9 partner, Jessie, who was a 5-year-old yellow Lab, as part of the K9 Search Specialist team with Federal Emergency Management Agency (FEMA) Florida Task Force 2. Together, the duo worked the day shift in the general area of the South Tower for seven days. Picard now works with Party Girl as part of the same FEMA task force. Dr. Otto was a veterinary respondent to 9/11.

WORKING ON BEHALF OF WORKING DOGS

VETERINARIANS' ROLES IN PROTECTING THOSE DOGS WHO PROTECT AND HELP HUMANS

BY KELLY STRATTON

Late last spring, people went crazy for Cairo. The Navy SEAL dog played an integral role in the special operations team to find Osama Bin Laden, and was an instant celebrity in mainstream media after the May 1 mission. Talk about how well Cairo was trained, speculation on its breed, the gear it wore while parachuting into the compound and the quest for more details about his role that day, ran rampant.

While a dog playing the incredible hero that Cairo played during that important mission was a revelation to many, Cynthia M. Otto, DVM, PhD, associate professor at Penn Vet and director of the Penn Vet Working Dog Center, was not surprised.

“Dogs have had multiple jobs historically in wartime settings,” she said. “Sentry dogs were used in the Second World War, and now detection dogs are one of the most vital jobs in the military. Dogs’ sense of smell is so much better than ours and they can readily detect improvised explosive devices (IED) and trip wires.”

HISTORY OF WORKING DOGS

Researchers say that dogs were domesticated approximately 15,000 years ago and played several roles to their human companions. From comradeship to hunting, herding and protecting, dogs have been a pivotal addition to human lives.

“It’s difficult to know what the earliest relationships between dogs and people were like, but it seems that wolves may have been domesticated first as social companions before they came to be exploited for other more practical purposes,” said James Serpell, BSc, PhD, director of the Center for the Interaction of Animals and Society at Penn Vet. “Soon after that, however, their working capabilities were recognized and put to use.”

And so a variety of jobs were found for our canine companions and the field grew and developed into more sophisticated roles. Today, for example, detection dogs help find lost or trapped people, human remains, explosive devices and illicit drugs. Dogs are also used to assist human efforts during major disasters, wartime and border protection.

Started in 1962, the Philadelphia Police Department was one of the first K9 units in the country.

“The biggest thing we use our K9 unit for is building searches,” said Larry Love, a handler/trainer with the Philadelphia Police Department’s K9 Unit, of which he’s been a team member since 1986. “For example, if we are looking for a burglar in a school, you need two or three officers to cover a floor, but you would only need one dog that could indicate the location of the burglar. It’s more time-consuming with manpower. Dogs save manpower and time.”

In Philadelphia, K9 dogs undergo 14 weeks of basic training, then 10 weeks of scent training for a total of 960 hours. K9 teams conduct 16 hours per month maintenance training after graduating and dogs live with their handlers.

“It takes six months to get a dog on the street,” said Love, who is working with his fifth dog, Duke, a German shepherd. “We purchase dogs with very basic training.”

Love says, too, that often, requests for K9 assistance increase when there is a disaster. He said that after the shooting at Columbine, Philadelphia ramped up its K9 presence in schools and after September 11 there was an overall increase in the need for these dogs.

And it was after the September 11 terrorist attacks that Dr. Otto became even more involved with these dogs.





Golden retriever Bretagne worked with handler Denise Corliss as a responder to the September 11 disaster.

ENSURING THE HEALTH OF CANINE HELPERS

Monitoring Responders' Health

As an on-the-ground responder to work with the search and rescue dogs who served at Ground Zero, Dr. Otto launched a longitudinal study, still ongoing and funded by the American Kennel Club's Companion Animal Recovery (AKC CAR), whereby she would follow the responding dogs and monitor any of their health problems. Out of the 300 dogs that responded, about 25 percent are still living.

"In the 9/11 study so far, we didn't see major impact on the respiratory system, but dogs don't get asthma so they aren't a good model for that," said Dr. Otto. "They have a better filtering system in their noses than people so maybe that's why their respiratory system wasn't affected."

There was, however, a trend in the heart.

"There is X-ray and some post-mortem evidence that there is a change in the heart in these dogs who serve," said Dr. Otto. "The pollution may have contributed in those changes rather than in respiratory changes. Understanding these changes may also be important for people."

Finding a DNA Fingerprint

Another of Dr. Otto's projects involves building a DNA Bank and Health Registry database, which may shed some

light on a dog's capacity to work. So far, the Bank houses more than 300 samples. It's work that the AKC CAR has supported.

The idea is that if a genetic fingerprint is found in these working dogs, information can be applied to help search and rescue organizations, law enforcement, breeders and handlers to identify factors contributing to the success of these vital dogs.

"If we know the DNA fingerprint we may be able to look at shelter dogs to pull to work, too," said Dr. Otto.

Because approximately only 30 percent of dogs entering detection-training programs are successful, this is important information that can be used to assist in breeding selection and the creation of more successful working canines.

Data collected includes blood samples for DNA and serum banking for dogs trained to detect live humans, cadavers, explosives or drugs; pedigrees/blood lines; training information; behavioral assessments; health assessments; training certifications and updates. Dr. Otto will use this data to perform genotyping of markers throughout the canine genome to detect linkages between health and working traits and specific regions of the genome.

In addition to her studies, Dr. Otto also started a semi-annual conference for working dog handlers. This year's conference "Defining, Developing and Documenting Success in Working Dogs," took place in Pearl River, New York and featured experts from around the world who discussed puppy selection and development; performance testing and certification; and physical conditioning of working dogs.

"Our mission is to share the knowledge available to improve the health, breeding and performance of working dogs," said Dr. Otto. "The US gets most of its dogs from Eastern Europe and often, they aren't the best of the best," said Dr. Otto. "They're good – really good – but we don't know how they are being bred and trained. This work will help us know which dogs to invest in and allow us to be self-sufficient in supplying domestically produced dogs as they're needed."

Taking Early Retirement

In some instances, working dogs are retiring themselves early.

These dogs, guide and service dogs, have jobs that assist the blind or physically handicapped and most are either German shepherd dogs, Labrador retrievers, golden retrievers or LR x GR crosses. According to Dr. Serpell, studies have shown that up to 20 percent of these kinds of guide dogs give up their work after only a short period of time.

"One to three years into the job, they seem to give up," said Dr. Serpell. "It's not clear to these organizations why that is. We want to predict why it is happening because training these dogs is expensive and time-consuming."

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Dr. Serpell thinks early retirement might be because offering guidance was not something dogs were bred for and is not an innate ability.

“There were two primary potential uses for which dogs seemed to have an innate ability,” said Dr. Serpell. “To defend a territory and to be a predator. In most working dogs, we exploit one or both of these traits. But, in the modern use of guide and service dogs, we are trying to develop dogs with behavior that is suitable for a specialty that isn’t in their original makeup.”

For decades, organizations like The Seeing Eye have been breeding dogs for a specific purpose of helping blind people in their day-to-day routines.

To help organizations like these and to provide dog owners with standardized evaluations of canine temperament and behavior to help predict a dog’s success in filling certain roles, Dr. Serpell and his team at the Center for Interaction of Animals and Society worked to create the Canine Behavioral Assessment and Research Questionnaire – or C-BARQ – currently the only behavioral assessment instrument of its kind to be extensively tested for reliability and validity on large samples of dogs of many breeds.

While many of these guide dog organizations use the C-BARQ regularly, Dr. Serpell wanted to take this work further to help to identify why so many of these dogs retire early.

So now, he and his team are working with organizations on an ongoing, three-year study with the aim to identify early-retirement causes. About a year-and-a-half into the work, the study asks end users of dogs to provide feedback through behavior measurement tools – like questionnaires and surveys -- at predetermined time points.

“We are trying to find out about the dog’s life at home, the attention they receive, their lifestyle, how much off-leash time they have,” said Dr. Serpell.

Questions address a handler’s working relationship with their dog, satisfaction with a dog’s behavior while working and while off-duty, and a handler’s non-working relationship with their dog, among others. In addition, the environment exposures of the dog and the handler are taken into consideration.

“Some of these dogs are attacked by other dogs,” said Dr. Serpell. “Some of them don’t have a lot of down time. We hope to offer constructive suggestions [to guide dog organizations] that will help them manipulate a dog’s environment and improve their rate of success and keep up with the need for these dogs.”

In addition to periodic questionnaires and surveys, Dr. Serpell’s team is collecting fur samples, which will be measured for cortisol levels. The higher the cortisol, the higher the likelihood of physical and emotional stress a dog may be feeling.

WHY VETS NEED TO BE INVOLVED

In all of this work, veterinary expertise is paramount.

The results from Dr. Otto’s first five years of the longitudinal 9/11 study will help to better equip veterinarians who care for dogs that work under similarly unique conditions and are exposed to toxic risks. In addition, it’s the watchful eye of a veterinarian that can speak for the canine workers in times of disaster response. Results from the continuing study may identify factors that contribute to mortality in dogs and humans. One intriguing result is that the search dogs, in general, are living to be 12 on average with many living to be as old as 16. This suggests that the mental and physical fitness and purpose of these dogs actually enhances their well being.



Clockwise, from left, Dr. Otto and the 9/11 responders head toward Ground Zero; Tsunami Wilson, 9/11 responder, owned by Marilyn Wilson; Dr. Serpell from the Center for the Interaction of Animals and Society.

“September 11 was the classic example of when veterinarians need to be on-site,” said Dr. Otto. “At some points, the welfare of the dog was not foremost and they were overloaded. Vets need to know when to intervene. Are the dogs dehydrated? Are the dogs eating enough? What are the potential hazards they’re facing? They’re always grooming – what might they be ingesting that might be toxic?”

Dr. Serpell agrees that it is up to the profession to advocate for these working canines.

“In military and working dogs, they are doing things they love anyway,” said Dr. Serpell. “Searching for stuff provides its own rewards. For guide dogs, it’s unclear how much they are being rewarded, but it seems as if a lot are perfectly happy. Dogs seem to be hard-wired to do things to please us. It’s innate. We’ve selected for this [in their breeding] and they just want to do anything they can to please us.”

“Dogs were bred to do work,” said Dr. Otto. “They need that mental stimulation. We just need to make sure they can work safely in these kinds of environments.”