

These 'doctor dogs' can sniff out disease

Dogs around the world are successfully detecting cancer, malaria, Parkinson's disease and other health issues to help scientists better protect humans.

While humans have around 6 million olfactory receptors, dogs can have up to 300 million, giving them a nose up in scent detection. [Doctor Dogs](#)

By Jen Reeder

Twice a week, a rescue dog named Shugga has a very important job. Dressed in her signature tutu, the little Pomeranian barks with excitement for her turn to play her favorite game: detecting Parkinson's disease. Inside a training room, four canisters conceal T-shirts worn overnight by four different people — three healthy, and one with Parkinson's disease.

“She kind of just barrels through the room and goes right to the canister most times, and smacks it,” her owner, Amber Chenoweth, told TODAY. “It's winning the game that gives her so much confidence and makes her so happy.”

Shugga is one of 21 dogs of various sizes and breeds training to detect Parkinson's disease, a nervous system disorder that affects movement, with [Pads for Parkinson's](#), a nonprofit based on San Juan Island in Washington State. The goal is for researchers to be able to identify which molecules allow the canines to detect the disease, and then develop early-detection methods and possibly a cure.

Chenoweth, a 47-year-old photographer, recently lost a friend to Parkinson's disease, so she's incredibly grateful for the chance to volunteer the services of her spunky dog. Over the past year of training, she's also been impressed by Shugga's aptitude for the work, as well as the skills of the other detection dogs, which include diverse breeds like the Jack Russell terrier, vizsla, Australian shepherd, miniature schnauzer, Labrador retriever, standard poodle, golden retriever, dachshund and Nova Scotia duck tolling retriever.

“I've learned every dog sees the world through scent and odor in a way that we can't understand because we, as humans, don't have the ability,” she said. “And I know that any [rescue dog sitting in a shelter](#) could have this potential of doing this work if they were given a chance.”

Author Maria Goodavage greets Stewie, an Australian shepherd trained to detect ovarian cancer in laboratory samples.

Around the world, dogs like Shugga are training to detect diseases ranging from Parkinson's disease and cancer to malaria, according to Maria Goodavage, author of [“Doctor Dogs: How Our Best Friends Are Becoming Our Best Medicine.”](#)

While researching the book, Goodavage met medical detection dogs across the United States and Canada as well as Japan, the Netherlands, Italy, Hungary, Croatia, China and the United Kingdom.

The dogs Goodavage observed were all trained with positive reinforcement techniques rather than punishment. The reward for a successful find is typically food or a toy, depending on each dog's preference.

“I wish that most people could love their job as much as these working dogs — these medical dogs — love theirs,” she told TODAY.

Goodavage noted that while humans have around 6 million olfactory receptors, dogs can have up to 300 million, giving them a nose up in scent detection.

A Labrador retriever in a prostate cancer study walks around a scent carousel at Medical Detection Dogs in England. Maria Goodavage / Doctor Dogs

“They're detecting these diseases that until recently we didn't even realize had a scent,” she said. “They can pick up many things around the world, like different kinds of cancers. So far, they've detected breast, ovarian, lung, bladder, stomach, liver, prostate and skin — a bunch.”

In some cases, the dogs don't detect cancer from tissue samples but from blood, saliva or even breath. The dog trainers collaborate with scientists who hope to develop “inexpensive, rapid early-detection devices available to people around the world,” according to Goodavage.

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Medical detection dogs are also working to detect dangerous pathogens like *Clostridium difficile*, aka C. diff, a highly contagious bacterium that can lead to life-threatening conditions. In Vancouver, British Columbia, Goodavage met a dog named Angus who checks Vancouver General Hospital for C. diff, alerting teams to stations that need cleaning. Unsurprisingly, incidences of C. diff there have declined.

Angus, an English springer spaniel, enjoys his work sniffing out *Clostridium difficile*, a highly contagious bacterium that can lead to life-threatening conditions, in a hospital in Vancouver, British Columbia. Maria Goodavage / Doctor Dogs

In England, detection dogs are able to sniff the socks of children — submitted by health care workers in Gambia — and largely determine which former wearers have malaria. The preliminary findings could lead not only to helping more quickly detect malaria in local communities and ideally eradicate it, but also stop its spread around the world.

“This could mean they could stop the spread of malaria at checkpoints like airports,” she said. “If a dog alerts, someone would need a further test before being admitted to a country that has pretty much eliminated malaria so it doesn’t spread there again.”

Some medical detection dogs are trained as service dogs for their handlers. For instance, autism-assistance dogs can apply calming pressure to a child who is becoming overstimulated, and service dogs trained in post-traumatic stress disorder can lead a veteran out of a crowd at the onset of a panic attack. Diabetic-alert dogs alert handlers to blood sugar changes.

Diabetic alert dogs, like these Labrador retrievers trained by California-based nonprofit Canine Hope for Diabetics, can alert their handlers to blood sugar fluctuations. Maria Goodavage / Doctor Dogs

In England, Goodavage met with a young woman with unexplained fainting spells; her service dog alerts her when she’s about to pass out so she can sit or lie down. The dog started pawing at her during a group meeting with Queen Elizabeth II, so the woman went to the back of the room to lie down.

“She didn’t have to faint in front of the queen,” Goodavage said. “Then the queen met with her afterward and the woman’s dog sort of 'snortled' into the queen’s purse and it was a grand affair.”

Daisy, a psychiatric service dog for post-traumatic stress disorder, cuddles future PTSD service dog Oprah. Judy McDonald / Doctor Dogs

A Labrador retriever named Hank provides a special service to a teen with severe schizophrenia and bipolar disorder. He seems to know when she’s about to have a hallucination and provides calming pressure; the girl has also realized that if her dog doesn’t acknowledge scary people screaming at her that she should kill herself, then they aren’t real.

<https://www.today.com/money/doctor-dogs-can-smell-diseases-cancer-parkinson-s-t163456>