

What Can Your Dog Sense That You Can't?

Discover the mind-blowing ways your dog perceives the world. From detecting invisible dangers to sensing hidden emotions, their abilities will leave you amazed and curious to know more.

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STORY AT-A-GLANCE

- Dogs have an uncanny ability to sense their world around them, including things that humans can't
- Dogs can tell if you're stressed out just by sniffing your sweat or breath
- Dogs may detect cancer in humans and other dogs as well as standard diagnostic procedures
- Dogs are experts at sniffing out COVID-19, with accuracy nearly as good as PCR tests
- Some dogs may sense when their owner is about to have a seizure and, sometimes, may alert them ahead of time by becoming more attentive or engaging in attention-seeking behaviors

Dogs have an uncanny ability to sense their world around them, including things that humans can't. Not only does your dog sense your emotions and the emotions of dogs around them,¹ but they can tell the difference between the verbal and emotional components of speech.² Your dog can also sense your stress levels, to the extent that his levels are synchronized with your own.³

But what is perhaps most remarkable is that dogs can tell if you're stressed out just by sniffing your sweat or breath.⁴ "This study provides further evidence of the extraordinary capabilities of 'man's best friend,'" study author Clara Wilson told NBC News.⁵ What's also extraordinary is that this is but one example of dogs' many sixth senses.

Dogs Can Sniff Out Cancer

Cancer has a unique "odor signature" that can be detected in urine, sweat, breath and blood. The odor is due to volatile organic compounds (VOCs), which dogs can pick up due to their nose's extreme sensitivity to scents. It's estimated that dogs can detect scents with a concentration as low as 1 to 2 parts per trillion.⁶

As a result, dogs may detect cancer in humans as well as standard diagnostic procedures. In the case of colorectal cancer, a 2011 study found that a specific cancer scent exists in both breath and fecal samples, and dogs were able to detect the scent with an accuracy level comparable to colonoscopy. The dogs were able to accurately detect cancer even in cases of early-stage disease.⁷

Another study found dogs detected ovarian cancer via blood samples not only at the time of first diagnosis but also three and six months later at the time of recurrences.⁸ Further, dogs specially trained to sniff out cancer from breath samples can then detect cancer with more than 60% accuracy.⁹

Dogs can detect cancer in other canines, too, accurately identifying samples from dogs with cancer versus healthy dogs with a mean sensitivity of 90% and mean specificity of 98%.¹⁰

Dogs Detect COVID-19

Dogs are experts at sniffing out COVID-19, with accuracy nearly as good as PCR tests.¹¹ In one study, sweat samples were collected from the armpits of 335 people, who were then tested via PCR test for COVID-19 — 109 people tested positive. Nine dogs that had been trained to sniff out SARS-CoV-2 then sniffed the samples.

The dogs were able to identify positive samples with an impressive 97% sensitivity, along with being 91% specific — a measure of the dogs' ability to identify negative samples.¹²

In a separate study published in July 2020, eight detection dogs were trained for one week to detect SARS-CoV-2 in the saliva or tracheobronchial secretions of people with COVID-19.¹³ The study revealed the dogs determined the difference between positive and negative samples with 82.63% sensitivity and 96.35% specificity.

Overall, the average detection rate of the dogs was 94%.¹⁴ As for how it works, Pet MD explained, "Typically, the biggest indicator of illness is through odor. Dogs can detect metabolic changes in our breath and through our skin."¹⁵

Dogs May Sense an Imminent Seizure

Anecdotal reports abound of pet dogs who have predicted their owner's seizure, by becoming more attentive or engaging in attention-seeking behaviors. It's believed that seizures are associated with unique VOCs that are exhaled in breath or contained in sweat.

In a study that involved exposing dogs to seizure-associated odors, the dogs did demonstrate behavioral changes as a result, supporting the notion that even untrained dogs may predict their owner's seizure.¹⁶

There are also trained seizure-alert dogs that may alert a person of an oncoming seizure several seconds to 45 minutes before it occurs.¹⁷ This is different from seizure-response and seizure-assist dogs, which may help a person by fetching medications or alerting a caretaker during a seizure, but may not alert the person that a seizure is imminent.

It's interesting to note that VOCs are also indicative of a number of other diseases. Since dogs are so effective at detecting them, it's possible they may also sense other diseases, including:¹⁸

- Cholera
- Cystic fibrosis
- Diabetes
- Gut diseases
- Heart allograft rejection
- Heart disease
- Liver diseases
- Pre-eclampsia
- Kidney disease

- Tuberculosis
- Congestive heart failure
- Chronic obstructive pulmonary disease (COPD)

Your Dog May Know When a Storm — Or Earthquake — Is Coming

While conclusive evidence is scarce, it's possible that dogs may have a sixth sense when it comes to detecting changes in the weather or predicting natural disasters like earthquakes. Research by Dr. Stanley Coren, conducted at the University of British Columbia in Vancouver, Canada, suggested some dogs exhibited increased activity and anxiety a day before an earthquake, revealing they may have known it was coming.

Coren noted that dogs may be able to hear rocks scraping together beneath the Earth's surface prior to the quake.¹⁹ It's also possible that dogs may sense changes in static electricity²⁰ or barometric pressure, altering them to an approaching storm.

Dogs may also be able to hear thunder from far away before you do. So if you notice your dog acting in an unusual way — particularly if it seems like he's trying to get your attention — it's wise to give it to him. He may be trying to clue you in to something he senses, but you don't. In one remarkable example, Sierra, a husky, detected her owner's, Stephanie Herfel's, cancer after she was diagnosed with a benign cyst. Yahoo reported:²¹

"She [Sierra] began intently sniffing Herfel's belly and kept doing it. When Herfel found the dog hiding in a closet afterward looking upset, she became worried and decided to get a second opinion. It turns out that Sierra's nose knew something was wrong; Herfel was diagnosed with stage 3 ovarian cancer."

Sources and References

¹ [Biol Lett. 2016 Jan;12\(1\):20150883](#)

² [Current Biology December 15, 2014](#)

³ [Scientific Reports volume 9, Article number: 7391 \(2019\).](#)

⁴ [PLOS One September 28, 2022](#)

⁵ [NBC News September 28, 2022](#)

^{6,10} [JAVMA March 23, 2023](#)

⁷ [Gut. 2011 Jun;60\(6\):814-9](#)

⁸ [BMC Cancer. 2013 Aug 26;13:396](#)

⁹ [KVUE November 13, 2017](#)

^{11,12} [Bloomberg May 19, 2021](#)

^{13,14} [BMC Infect Dis. 2020 Jul 23;20\(1\):536. doi: 10.1186/s12879-020-05281-3](#)

¹⁵ [PetMD September 29, 2023](#)

^{16,18} [Animals \(Basel\). 2021 Aug; 11\(8\): 2267](#)

¹⁷ [Epilepsy Foundation, Seizure-Alert Dogs: Just the Facts, Hold the Media Hype](#)

¹⁹ [PetRelocation, Do Pets Have the Ability to Predict Earthquakes?](#)

²⁰ [Psychology Today June 24, 2016](#)

²¹ [Yahoo Life November 22, 2021](#)
