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Dogs and Humans: A Helping Bond
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I knew something was wrong as soon as my husband, sick with the flu, walked through the door. He stumbled into the bedroom, into his pajamas, and collapsed into bed. His breathing was rapid, his skin on fire with fever, his heart pounding so hard his chest jumped. Suddenly, our two dogs jumped on the bed and, in tandem, lay down on top of my husband. They watched his face intently, ears pricked forward, their eyes large and mirroring worry. The next few minutes seemed to stretch into eternity, my hand hovering over my phone, ready to call 911. Then my husband's fever broke. The dogs jumped off the bed, their anxiety gone.

I am certain to this day that our dogs knew instinctively they needed to help my husband. But how did they know he was sick? What is it about the bond between human and canine that led them to act? Was it bond or instinct that kicked in in that moment? Curious, needing to find an answer, I set out on a search.

The Incredible Senses of Dogs

Studies have found that dogs can read a variety of human emotions from scent. It's the reason dog handlers chew gum to cover their pre-show jitters. But what else can dogs sense, and how?

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As animals, both humans and dogs give off scent when secretions from the apocrine gland combine with body chemistry, bacteria, and other microorganisms. Within primates, the scent is used to name and gender individuals. Scientists even propose that our scents tell us whether or not a member of the opposite sex will be a good mate. Although less is known about the range of information provided by the canine apocrine gland, it is still thought that the scent provides at least gender and identification.

But bacteria and the apocrine gland aren't the only bodily element that gives off scent. A study conducted by the Pine Street Foundation, a non-profit cancer research center in California, and reported in *Scientific American*, found that dogs could smell the metabolic waste produced by cancer cells. "Cancer cells emit different metabolic waste products than normal cells," Nicholas Broffman, director of the Pine Street Foundation, says. He states that even during the early stages of the disease, dogs can detect the difference. A similar study in Japan found that dogs correctly identified the stool samples of patients with bowel cancer 98% of the time.

Studies have also found that dogs can smell changes in blood sugar that may lead to a diabetic seizure, high blood pressure that may lead to a heart attack, and changes in body odor that predict the onset of a seizure. Thus, in many cases dogs have the ability to detect when a human is ill. But for dogs, how does the ability to detect disease combine with the desire to help?

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The Dog and Human Connection

Dogs have evolved to listen to us, with or without speech. They can sense when we're frightened, when we're excited, when we're angry, and when we're sad. Experiments have shown that both dogs and wolves can read human body language. They are able to learn the location of a treat just by following our eyes. That trick, by the way, is one that chimpanzees, our closest animal relatives, can't pull off.

Scientists believe that humans and dogs have lived side-by-side for over 100,000 years, a partnership that grew quickly into a mutually-beneficial relationship. According to *Scientific American*, dogs and humans not only developed as companions over thousands of years, but we share a very similar "pack mentality." Dogs hunt together, live together, greet each other after an absence, and rely on one-another to survive, as do humans.

Colin Groves of the Australian National University in Canberra writes that early dogs provided security, acted as hunting partners, and provided play and protection for children. At the same time, dogs learned that, with humans, they formed a defacto pack to which they could contribute, one that provided protection, affection, and hierarchy. As in the wild, early dogs found it mutually beneficial to care for and aid their human companions.

Dogs Helping Humans

So dogs can sense illness and form close, pack-like relationships with humans. But are dogs empathetic enough to want to help the humans

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around them? According to Associate Professor of the Department of Evolutionary Anthropology and the Center for Cognitive Neuroscience at Duke University Brian Hare, and as reported in *Psychology Today*, that's a tricky question to answer.

Scientists aren't able to test empathy in dogs like they do humans because such tests require subjects to describe their feelings. However, studies have found that many dogs prefer to spend time with their owners over members of their own species. They also experience a release of oxytocin, the "feel good" hormone, when they see their humans, just as humans do when they see a loved one. Many dogs even yawn when their human yawns. This is the same contagious yawning shared between humans that is known as an "emotional contagion," one of the measures used to evaluate empathy.

Still, do dogs help others of their own volition, as my dogs seemed to? A study published in *Applied Animal Behaviour Science* sought to answer just that question. The hypothesis: dogs will help humans altruistically. However, they have to understand the task at hand.

The experiment centered on a small Plexiglas® room. The dogs, ordinary house pets that had been trained to push a red button to open a door, stood in the room with a set of keys. The idea was to have a human outside the "door" who, for all intents and purposes, was locked out. Would the dog help and open the door?

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During the first set of tests, the humans acted visibly distressed about “loosing” their keys and being locked out but did not address the dog. The dogs who opened the door did so because food was involved. Without food, they only helped about one third of the time. A second set of tests included pointing at the door release button without addressing the dog directly, which resulted in a 50% help rate. The third and final experiment had the human ask for help in any way they could, which could include providing visual instruction directly to the dog. 90% of the time the dogs pushed the button to help the individual. The researchers offered this conclusion: “dogs were highly motivated to help a human when the human’s goal was apparent by means of a communicative signal. Dogs’ difficulty in such situations seems to be in perceiving the human’s goal and knowing how to intervene, rather than their willingness to help. The most effective way for a human to obtain help is to communicate with the dog in a natural way.” Thus, dogs truly seem to want to be helpful to humans, whether food is involved or not.

How exactly our two mutts knew to help my husband, especially without any prompting from me, I’m not sure I’ll ever know. But it seems as though dogs can sense illness in the humans and have the impetus and, perhaps, empathy to want to help in any way they can. Who is to say how far their instincts go? As dog owners, however, I think we know the answer, even if science can’t tell us exactly why.

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