

# Could a Dog Save (Your Life?)

No one knows for sure how they do it, but a growing number of canine companions are helping people with diabetes avoid dangerous hypoglycemia.

By Amanda Spake

DEVIN GRAYSON'S WORLD WAS SHRINKING.

The 36-year-old California comic-book author and video game writer had been diagnosed with type 1 diabetes when she was 15, and like many people with insulin-dependent diabetes, she suffered wild swings in her blood glucose. Over time, she'd also developed hypoglycemia unawareness, the inability to recognize symptoms of severe glucose lows. "One night I woke up and my blood sugar was 17," she recalls. "It's amazing I woke up at all and didn't die in my sleep."

By the summer of 2005, Grayson was restricting her activities because of her fear of hypoglycemic episodes. She gave up many of her favorite pursuits, like hiking in the redwoods north of San Francisco, and became reluctant to go out alone. She even moved into a house with friends because she worried that her diabetes made it dangerous to live alone any longer. And still she felt trapped. "There's a real psychic burden attached to diabetes," she says. "You never get a break. Every meal, every day, you have to monitor. It's lonely. There are days when you would do anything just to have a weekend off."

Then Grayson met Cody, and everything changed. It was an Internet hook-up, of sorts: Online, Grayson had discovered Dogs for Diabetics, a Concord, Calif.-based organization that trains dogs to respond to serious blood glucose drops in humans. She registered for classes in the summer of 2005,

PHOTOGRAPH BY ROBERT HOUSER

Devin  
Grayson AND  
Cody  
GOLDEN RETRIEVER





and in six months she was teamed up with Cody, a male Golden Retriever. Not only has Cody saved Grayson's life, he's given her a life to enjoy, she says: "For the first time since I was diagnosed, I feel this enormous burden has been lifted. I'm not alone with it anymore."

**ASSISTANCE DOGS**, such as guide dogs for blind people, dogs that "hear" for the hearing impaired, or dogs that retrieve items for the wheelchair-bound, have been helping humans for decades. But Cody is part of a new trend in which dogs are trained to identify the onset of hypoglycemia in people with insulin-dependent diabetes. For the dogs, it's a game. Once they alert, they receive their treat, plus lots of positive reinforcement from their owners. But for the humans they live with, the results are nothing short of miraculous.

And yet science tells us nothing about whether dogs can really do this. Or how: "We believe the dogs are picking up on scents that are created by chemical changes going on in the person's body before we humans see the actual symptoms of the illness," says Darlene Sullivan, executive director of Canine Partners for Life. But the scent has not been identified. In fact, the first academic study to evaluate how well dogs detect hypoglycemia is being done by Deborah Wells, MD, at Queens University in Belfast, Northern Ireland. If she verifies that dogs can alert to blood glucose drops, her next project

will be to identify the sensory cue the dogs are reacting to.

Part of what is so uncanny about these dogs is their reliability: Trainers say they are right 90 percent of the time. They also seem to have a skill that no test kit or piece of machinery offers: the ability to sense a dangerous drop in blood glucose before the drop occurs. Some dogs become so good at sensing low and high blood glucose that they "diagnose" people around them. At Grayson's office, for example, a coworker mentioned that Cody had been anxiously pawing the woman's knee. "Wait a minute," Grayson said, and went to get her glucose monitor. When she checked the woman, her blood glucose was 180. She was later diagnosed with type 2 diabetes.

**A STUDY PUBLISHED** in *Diabetic Medicine* in 1992 showed that as many as one-third of the pets living with people with diabetes—usually dogs, but also cats, rabbits, and even birds—exhibit dramatic changes in behavior when they sense a drop in their owners' blood glucose. A *British Medical Journal* article in 2000 further piqued the interest of both dog trainers and diabetes experts. It reported the experiences of three women with


insulin-dependent diabetes, one with type 1 diabetes and two with type 2, whose pet dogs predicted the onset of a hypoglycemic episode. The dogs dramatically changed their behavior when they sensed their owners' drop in blood glucose—jumping up, running around the house, hiding under a chair, rousting them out of bed, pacing, or putting their heads or paws in their owners' lap until their owners ingested carbohydrates to normalize their glucose levels.

"The three patients who I wrote about in the *British Medical Journal* paper all had impaired awareness of hypoglycemia," says Gareth Williams, MD, a professor of medicine at the University of Bristol in England. "Their lives were made miserable by their fear of going hypo." That is, until their dogs began to help them out.

Still, many people who experience hypoglycemic episodes may do well to try further diabetes education on how to safely adjust insulin and diet to activity, and to talk to their doctor about new regimens including insulin-pump therapy or continuous glucose monitoring, counsels *Diabetes Forecast* Editor-in-Chief Paris Roach, MD, of the Indiana University School of Medicine. "While these dogs apparently







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—Donna Cope

Hunter  
Cope

AND  
Diva

GERMAN SHEPHERD

PHOTOGRAPH BY BRIAN SMITH





Mark  
Ruefenacht **AND**  
**Armstrong**  
LABRADOR RETRIEVER

PHOTOGRAPH BY ROBERT HOUSER

# ANIMALS WHO NEED HELP, TOO

have an amazing ability, much remains to be learned about how sensitive they are in detecting hypoglycemia,” he adds.

**A FORENSIC SCIENTIST** who has type 1, Mark Ruefenacht had trained dogs for law enforcement, and worked as a volunteer “puppy raiser” and supervisor for Guide Dogs for the Blind in Northern California. While on a business trip to New York, Ruefenacht ate a chocolate doughnut one night before bedtime, and took extra insulin to compensate. But he didn’t check his blood glucose. He happened to have brought along Benton, a dog he was training to be a guide dog, and that night Benton recognized that Ruefenacht’s blood glucose had plunged, and frantically tried to wake him. “He had difficulty getting me up, and getting me going. But he stayed with me until I got up and ate something to raise my blood sugar,” Ruefenacht says. “This was not a dog that knew me, or my diabetes. I started thinking, ‘Can I train a dog to do this?’”

Ruefenacht was given Armstrong, a yellow Labrador Retriever, from Guide Dogs for the Blind. The organization felt Armstrong had a great nose for scents, but his penchant for walking around puddles made him inappropriate as a guide dog. Ruefenacht trained Armstrong to alert consistently to drops in his own blood glucose, but could he sense others’? He asked Kaiser Permanente diabetes educator Jeanne Hickey, who also has diabetes, to come over wearing clothing from a time

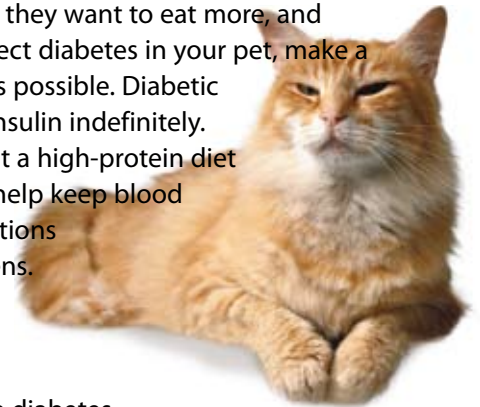
Does the famously rotund cartoon cat Garfield need a shot of insulin? We may never know, but the fact of the matter is that many household pets have diabetes, and fat cats are at higher risk for diabetes than leaner ones. “Type 2 diabetes is associated with obesity in people, and it’s the same story in cats,” says Margarethe Hoenig, DVM, PhD, professor in the College of Veterinary Medicine at the University of Georgia in Athens. She says that 45 percent of cats are overweight or obese, and as they have gotten bigger, feline diabetes has increased three- to fivefold over the past 30 years.

Canine diabetes, on the other hand, appears to be closely related to human type 1 diabetes. Pancreatic antibodies, the hallmark of human type 1 diabetes, are found in diabetic dogs, indicating that an autoimmune war is being waged on the pancreatic cells that secrete insulin. Diabetic cats, meanwhile, maintain these cells, but produce less insulin and have reduced insulin sensitivity.

Overall, 0.5–1 percent of cats and 0.2 percent of dogs are diabetic. Certain breeds—including Burmese cats and Golden Retrievers—are more prone to diabetes than others. This indicates that there may be genetic factors that predispose certain animals to the disease.

The signs that a pet may have diabetes are the same as in people: They drink more, they urinate more, they want to eat more, and they may become weak. If you suspect diabetes in your pet, make a veterinarian appointment as soon as possible. Diabetic dogs will need to be administered insulin indefinitely. For cats, insulin may be required, but a high-protein diet and exercise are also good ways to help keep blood glucose levels in check. Oral medications may also be included in care regimens.

There’s another way their human companions can help cats, by the way. It’s believed that one problem contributing to the increase in feline diabetes may be the cuteness factor: As Hoenig says, “Cat owners like their cats obese.” Of course, fans of a certain lasagna-loving feline already know that.



she had experienced low blood glucose. When she walked in, Armstrong alerted. “That was our bingo day,” Ruefenacht says.

Ruefenacht founded Dogs for Diabetics, or D4D, as it is known, in 2004. At first, he tried to train the dogs to alert to a specific blood glucose number, one at which many people have hypoglycemic

—Erika Gebel, PhD symptoms. “But what we found is that dogs were not alerting to a static number. They may alert at 150, but within 20 or 30 minutes, the person is down to 70 or lower. They are recognizing a scent emitted when a diabetic begins to experience a rapid drop in blood sugar.” Ruefenacht realized that this was far more useful. It allows time to



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—Tammy Mountain



Brianna  
Mountain  
AND  
Kay-Dee  
GOLDEN RETRIEVER

PHOTOGRAPH BY ROBBIE McCLARAN

## TO LEARN MORE...

Training groups mentioned in this article



treat the condition before it turns into a crisis. Now, after three years of placing trained dogs, he says, “Clients are coming back saying ‘I have never had better control of my blood sugar in my life as I have since I got this dog.’”

**THE NUMBER OF** people using alert dogs is limited by the expense and time it takes to train both dog and client. Training may require two years and costs at least \$20,000.

“It’s very time-consuming and intense to get the dog to be at least 85 percent accurate,” says Beverly Schwartz of All Purpose Canines. Most assistance dog organizations are supported by grants and donations, so funding limits the number of dogs they can provide, and most ask the clients to cover a portion of the costs.

“The first time that dog gets you up in the middle of the night because your child is dropping into a serious low, rapidly,” says Donna Cope, of Miami, “you realize it’s worth every penny you spent and every minute you had to wait.” Her daughter, Hunter Cope, 11, was diagnosed with diabetes when she was 7 years old. Diva, Hunter’s German Shepherd, was trained by All Purpose Canines and placed with the Copes last year. “This dog is incredible,” Donna Cope says. “She’ll come running to us in the middle of the night with the test kit in her mouth.”

Brianna Mountain, a 10-year-old with diabetes in Walla Walla, Wash., suffers from a condition called hemiplegic migraine, which coincides with her hypoglycemic

### **Dogs for Diabetics** Concord, Calif.

Dogs for Diabetics (D4D) is a certified member of Assistance Dogs International, an organization that sets standards for service dog training. D4D is the only ADI member that trains dogs primarily for hypoglycemia alert. The group accepts clients only in Northern California at present.

**E-mail:** [info@dogs4diabetics.com](mailto:info@dogs4diabetics.com)

### **Canine Partners for Life** Cochranville, Pa.

Canine Partners for Life trains alert and assistance dogs for people suffering seizures or loss of hearing, sight, or mobility, often resulting from diabetes. The group has placed two dogs trained specifically for hypoglycemia alert.

**Phone:** (610) 869-4902. **E-mail:** [info@k94life.org](mailto:info@k94life.org)

### **All Purpose Canines, Inc.** Aberdeen, S.D.

All Purpose Canines trains hypoglycemia alert dogs for children, although the company’s primary focus has become training dogs for children with autism.

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episodes. “It’s like she’s had a stroke,” her mother, Tammy, says. “She can’t speak or move the right side of her body.” Two months ago, the Mountain family got Kay-Dee, a Golden Retriever trained by All Purpose Canines. Already Kay-Dee has saved Brianna at least once from this ordeal. “If I don’t wake up right away, Kay-Dee will stand on me,” Tammy Mountain says. “Then I say, ‘Show me,’ and she runs to Brianna’s bed, nudges her, and looks for her treat.” The dog also alerts when Brianna’s glucose is too high. “At about 200, Kay-Dee gets restless, and paces. If Brianna gets over 250, Kay-Dee pants so hard she heaves.”

As important as the dogs can be for the parents of insulin-dependent children, they offer something equally significant to adults like Devin Grayson: a new chance at health. Before Cody, Grayson says, “I let myself run high, around 170.

That felt safe to me, because the alternative of going low was so frightening.” But chronic hyperglycemia has caused Grayson to develop proliferative retinopathy, a severe form of eye disease. Laser surgery may stop progression of the condition, but will not restore lost vision. “I’ve had to do laser treatments six times, already,” Grayson says. “But with Cody, I don’t feel the need to hedge my bets by keeping my blood sugar too high. I can try to maintain a healthy blood sugar now.”

And as Grayson is speaking, Cody begins licking her hand, and pacing. Grayson gets her glucose monitor and tests. “It’s 211,” she says. She pops a piece of dried liver in Cody’s mouth, and gets out her insulin. “In the past, I wouldn’t have checked for hours.” ▲

*Amanda Spake is a freelance writer from Churchton, Md.*