Microbiome Testing for Pets:
A Special Interview With Dr. Holly Ganz

By Dr. Karen Becker

KB: Dr. Karen Becker
HG: Dr. Holly Ganz

KB: Hi, I'm Dr. Karen Becker. I have an awesome guest with me this morning, Dr. Holly Ganz. Holly, you have a really interesting job. You have started a really fascinating company. Tell us more about who you are and what you do.

HG: Hi, I'm Holly Ganz. I'm actually a microbial ecologist, which means that I study interactions between microorganisms and animals. I did my Ph.D. at University of California (UC) Davis. I founded AnimalBiome about two years ago, after spending nearly 20 years in academia studying these interactions between microbes and animals.

I had been doing research where I found that many cats and dogs who suffer from chronic health conditions have poor gut health that can be detected from looking at the composition of gut bacteria. I started the company to use the latest science on gut microbiome, to discover new ways to improve the health of cats and dogs.

We're doing this in two ways microbiome assessment kits, so you can look at the diversity of gut bacteria in your cat and dog and see how they compare to healthy cats and dogs in our database. And then we actually have restorative supplements to try and reintroduce beneficial missing microbes that may have been lost.

KB: So wonderful. Part of the reason I was so excited to interview you is that I'm so passionate about trying to help veterinarians recognize how important the microbiome is for pets for all life. But because veterinarians, at least – When I went to vet school, we were not educated about the risk of destroying microbiome and how easily that could happen, especially with antibiotic abuse.

I really am so thankful that this has become, through your work and – Obviously, you're passionate about gut health too. But my burning question is, "How did you get down the dog and cat path?" I know you're a dog and cat lover, of course. But did you just study them because you wanted to learn more? Or did you have a personal experience with a pet? How did it come about?

HG: This is a great question, because I used to work on insects, soil, zebras and all kinds of different systems before. I guess as I got older I really – I've always loved pet dogs and cats. I always had them. I decided I wanted to apply my research to improve the health of our companion animals as well.

I actually took a research position at the UC Davis Vet School. I actually started looking at dog oral health and the role of microbes there. From there, I got interested on what is a normal, healthy gut for dogs and cats? In order to figure that out, we actually did a Kickstarter called "Kittybiome."

We just asked people will they send us cat poop and pay us to sequence it. We would just tell them what was there, and see if we could try to understand what's normal.

What amazed me was that nearly 20 percent of the people who supported that research project had a cat with a chronic digestive condition. They were really unhappy with what was being offered to them by the veterinarians today, which typically were steroids and antibiotics and these prescription diets. That's really what got us started. They really asked us to try and come up with new solutions to help them.

KB: Well, it's certainly hugely imperative. The work that you're doing is phenomenal. Of course, from my perspective, the sequencing is interesting, but it's that restorative component that's so important.

I have two big questions about that. Number one, how did you – I know your history is in differentiating like good bacteria from bad bacteria, but how did you, when you started collecting these samples, were they in like kibble-fed pets or raw-fed pets? How much does food play into what you're seeing? And then how did you determine kind of a sick, gutted animal from a healthy gutted animal when you're just looking at different species or colonies. Is it just, with your database growing, you were able to differentiate healthy from unhealthy?

HG: Well, sometimes it turned out to be very obvious. That we found in many of these cats, and now dogs with chronic digestive problems, [they] had really depleted compositions of gut bacteria. We're using sequencing to look at that.

Also, with working with this community, I started to interact with people who were very passionate about raw feeding and the fact that cats are obligate carnivores, and then a lot of the diet that's been made available commercially isn't appropriate. We could actually see the benefit of these other diets from looking at the composition of gut bacteria. But that's two-fold. Both you could see that there was a problem for the sick ones, but also that these better diets are making a difference.

KB: That's awesome. I didn't realize that you were able to see that. I talked to two other people, both in Italy, researchers who were able to confirm what you have found, that animals eating fresh food had a more diverse microbiome, what they would call healthier species.

What's so exciting is that all of these independent researchers are coming up with the same conclusions worldwide, which really, for me, as a passionate fresh feeder, it provides a little bit more confidence for people thinking, "I don't know if this is a good choice for my pet." You're able to see the microbial advantage of nourishing an animal the way that nature intended. I think that that's really awesome.

Along that same vein, if you can determine then what a healthy microbiome is for dogs and cats, two questions, if you have a sick dog or cat, then do you reseed with certain strains that help them overcome? And then, do you have certain strains that are just good for maintenance? Do you have a maintenance product and a recovery product? How do you decide what strains to go with?

HG: Yeah. That's a great question. Ultimately, that's our aim. It's to create both maintenance and recovery products. But because most of these beneficial microorganisms haven't been cultivated yet, and we're still working on getting the research funds to be able to do that ourselves, we started with basically offering an oral-fecal transplant capsule.

Basically, it stays in room temperature. It can be given at home. This allows us to accomplish several things. One is it's more convenient and less invasive in having to have it be done in an office via enema. Also, our material is screened. Because it's stable for a long time, we can actually make sure every batch is tested before it goes out the door, because the last thing a sick animal needs is to get exposed to pathogens. This is obviously a very labor-intensive approach, but it's literally the only way to get these organisms today.

KB: Yeah. Well, it is. What's great is that you've done it at such a convenient fashion. Let's talk a little bit about what those capsules are. Because I think, even for veterinarians, when I suggest fecal transplant or microbiome restorative therapy, many veterinarians – that's a new concept to them. It can be a little overwhelming.

In fact, sometimes, veterinarians say to me, "Oh, it's because you're holistic," or "Oh, you're one of those holistic people." I'm like, "No. Actually, I'm one of those common sense people." But have you run into veterinarians who have been slightly confused about this approach? Or you feel that veterinarians are evolving to understand the brilliance of what your program offers?

HG: We have been doing a bunch of surveys, both with holistic and conventional veterinarians. I think something like 5 percent of conventional veterinarians think it's a disgusting idea. But surprisingly, maybe 95 percent of them were very open to it. A lot of them weren't familiar with it. Whereas holistic veterinarians are much more familiar with the idea, but they're not actually using them in practice yet. Of course, there are some holistic veterinarians who perform thousands of these procedures.

Actually, in veterinary medicine, fecal transplants have been performed for livestock for hundreds of years, particularly for sheep and other ruminants, because they can't actually digest cellulose without these microorganisms. There's a long history. But in human medicine, it's been practiced for a thousand years in Chinese medicine, and over the last maybe 70 years in Western medicine. It's become very standard practice for treating Clostridium difficile or C. diff infections. These doctors are finding more than a 90-percent efficacy for treating this really life-threatening condition that's actually growing in incidence in the U.S. today.

KB: Yeah. You bet. I know why your work is so critically important, but, Holly, when you're talking to maybe other either pet parents or professionals who aren't familiar with how vitally important our microbiome is and our pets' microbiome is to the overall health and immune function, actually cognitive function, behavior – our microbiome plays into so many different aspects of health – how do you go about teaching people why this is so important?

HG: I usually have to start with even just saying what the microbiome is, because a lot of us don't tend to think of ourselves as being a multi-species organism, which we actually are. Our pets are carrying around thousands of organisms that play these critical roles for digestion, and then the

nutrition that we are able to extract from food, as well as our immune system. There's a lot of immune function happening in the gut. And then there's growing research about the nervous system, and how it interacts with the central nervous system through this gut-brain axis.

There are many studies showing that anxiety can be related to imbalances in the gut microbiome. They've been able to make mice anxious by transferring microbiomes in the laboratory, even obesity. Microbiomes that have overrepresentation of certain bacterial groups are more thrifty and able to extract more nutrients or more calories from food. That means that you might be more likely to gain weight. It just seems that more and more are both realizing that lots of the things that we're doing in medicine today can be harming – or also just in food – can be harming the microbiome in unintended ways. But also, we're realizing more and more how foundational it is for health.

KB: Yeah. I'm, of course, a proactive veterinarian. My suggestion would be, to my clients, if you really want to get a glimpse how your dog or cat's doing immunologically, test to find out. Even for myself, I sequence myself every six months to just see where I'm at. It's very interesting, because if I fall off the wagon, if I don't exercise, or I'm not eating healthfully, it shows up very quickly in your microbiome test. Likewise, when you are nourishing your body well and you are doing things to intentionally create a healthy gut, then, of course, that could be tested.

Is your suggestion for pet parents to do baseline testing? How do you do testing or screening versus the therapy? Are you suggesting vets do before-and-after testing or it just depends on what clients want?

HG: We think that this is really going to be a great tool for managing wellness and avoiding the development of chronic conditions. Today, most people who come to us really are trying to deal with a chronic condition that already exists. But we're really hoping that as people learn more and more about this, they'll realize that if we can avoid these conditions to start off with, it's the best thing for health.

It's true for people, as well as pets, you can really look and see these effects of diet and lifestyle coming up in the microbiome. I know there's a lot of research showing that drinking alcohol harms the microbiome. For some of us, that's like hard for us to adjust to. The amount of vegetables we eat, the number of different kinds of [inaudible 12:03] can affect it.

KB: Yeah.

HG: Definitely, we're finding that fresh food-, raw-fed animals see a benefit. Exercise is really important. There's a lot of research going on around that. You need to get out and exercise. That actually, you can see an effect there. We're starting to get insights from this data that we're able to share with people, that I think can help them to improve the composition of microbes in the gut. Of course, this includes diet and lifestyle.

KB: If a pet has a gastrointestinal (GI) issue, vomiting, diarrhea, gas, bloating, intermittent soft stool, irritable bowel syndrome (IBS), inflammatory bowel disease (IBD), gastritis, enteritis or colitis, or if they just want to do a fecal transplant, my suggestion would be that you test, treat and

then retest, so you have a parameter of where you've been and where you're going. Because I think, sometimes, we assume, "Okay. I'll do one round of microbiome restorative therapy, and I should be fine." But some of my patients aren't fine after one round. What is your suggestion in terms of treatment without necessarily sequencing? And then duration of treatment. How long do people use microbiome restorative therapy for?

HG: We really do prefer doing a before-and-after testing so you can see how they're responding to it. I think, likewise, we can spend a lot of money on certain diets and supplements and not know if it's having the intended effect. This is a way to sort of monitor that.

Also, we find that sometimes we might shift to a different donor, depending on the results that we're seeing. We can look at which bacteria are missing from your pet, and then choose a donor based on that. We're still early from that kind of donor matching, but we're collecting the data. That's really where we're hoping to go. It's to design and tailor therapies in the future.

KB: That's so exciting. That really is. Because what you're doing is you're customizing therapy for each patient, which is where medicine needs to go. There's no such thing as cookie-cutter therapy across the board. In fact, that you're headed down kind of specialized microbiome reseeding is really brilliant. I'm excited. I'm really excited for your future work.

So, Holly, if there's one thing or two things that you'd like the world to know, what are your thoughts? I know you're passionate about maintaining health from the inside out, but are there any last thoughts or concluding remarks you'd like to share?

HG: The main message is that it takes guts to be healthy. We need to take care of our guts and our pets' guts, because it's foundational to our health.

KB: Yeah. It is. Well, what you're doing is brilliant and incredibly exciting for me as an integrative practitioner, because not only are you beginning to provide that specialized treatment, but it's certainly non-toxic. It resonates with the body, and it has such a profound effect over so many different issues – I mean, like you said, [not only] behavioral and GI, but also organ function and immunologic function.

Just across the board, I think that we're just beginning to realize how critical the work that you're doing is. I applaud you and support you. I appreciate you sharing your knowledge with our listeners and readers. Thanks for joining me.

HG: Thank you so much for talking with me today, Dr. Becker. It's a thrill to meet you.

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