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AnimalBiome.

Microbes.

Dr. Holly Ganz is the founder of an exciting new company, "AnimalBiome", which helps restore good gut health to dogs using **a gut *bacteria assessment kit and restorative supplements.***

Dr. Ganz's research, and other independent research, suggests dogs eating fresh organic diets have healthier guts.
A growing body of research confirms that a healthy microbiome is foundational to the overall health of both humans and animals.

According to *"AnimalBiome"* survey results, most conventional veterinarians are open to the idea *of microbiome restorative therapy, but know little about it.*

In the future, *Dr. Ganz* plans to develop customized treatments for each pet, as well as both therapeutic and maintenance protocols.

Dr. Karen Becker
Today I'm talking with *Dr. Holly Ganz*.
Dr. Ganz is a microbial ecologist, which means she studies interactions between microorganisms and animals.
She received her Ph.D. at the University of California, Davis, and founded her company, "AnimalBiome", two years ago after spending nearly two decades in academia studying interactions between microbes and animals.
*"Through my research**, I learned that many dogs who suffer from chronic health conditions have poor gut health that can be detected by looking at the composition of gut bacteria,"*** explains Dr. Ganz.
"I started the company to use the latest science on gut microbiome to discover new ways to improve the health of our companion animals."

AnimalBiome offers a gut bacteria assessment kit, which provides information on the diversity of a dog's microbiome and how it compares to the microbiome of healthy dogs in the company's database.
They also offer restorative supplements to help reintroduce beneficial microbes that have been lost.

Pets with digestive conditions deserve better care than they often receive.
The reason I'm so excited to interview Dr. Ganz is because I'm committed to trying to help veterinarians and dog owners recognize how important the microbiome is to the health of companion animals throughout their lives.
When I went to veterinary school, we weren't taught about the risks associated with damaging the microbiome and how easily it can happen, especially through the overuse of antibiotics.

I asked Dr. Ganz how she decided to focus specifically on the microbiomes of companion animals.
"This is a great question," she replied, *"because I used to work on insects, soil, zebras and all kinds of different systems.*
I guess as I got older I really — I've always loved dogs and cats. I've always had them.
I decided I wanted to apply my research to improve the health of our companion animals.
I took a research position at the UC Davis veterinary school, where I started looking at dog oral health and the role of microbes.
Then I became curious about what a normal, healthy gut in our companion animals looks like.
To figure that out, we ran a Kickstarter campaign called Kittybiome in which we asked people to send us their companion animal's poop and pay us to sequence it and provide them with the results.

Our goal was to try to establish ***what 'normal' is when it comes to gut bacteria****.*
What amazed me was that nearly 20 % of the people who supported that research project had a companion animal with a chronic digestive condition.
They were really unhappy with what was being offered to them by their veterinarians — typically steroids and antibiotics and prescription diets. They asked us to try to come up with better solutions to help them. So that's what got us started."

Fact ... Independent research is proving that companion animals eating fresh diets have healthier guts.

I asked Dr. Ganz how she was able to determine an animal with an unhealthy gut from one with a healthy gut.
"Sometimes it turned out to be very obvious," she answered.

"We've found in many of these animals with chronic digestive problems that they have really depleted compositions of gut bacteria.
We're using sequencing to look at that.
Through my work with the Kittybiome project, we began interacting with people who were very passionate about raw feeding — the fact that cats are obligate carnivores and many commercially available diets aren't biologically appropriate for them.

We could actually see the benefit of raw diets as we analyzed the composition of gut bacteria.
We could see the difference in microbiomes between the sick animals and those eating raw diets."

I've actually talked to two other researchers, both in Italy, who were able to confirm what Dr. Ganz has found, which is **that animals eating fresh food have a more diverse microbiome**.
It's really exciting that multiple independent researchers are arriving at the same conclusions worldwide.
Since I'm so passionate about feeding fresh, the research results we're starting to see will help me convince reluctant companion animal parents to give fresh diets a try.
I can tell them we're finally able to see the microbial advantage of nourishing an animal the way nature intended.
I think it's really awesome!

AnimalBiome's oral-fecal transplant capsule is for home use.
Next I asked Dr. Ganz to explain how AnimalBiome's restorative supplements work to reseed the guts of sick pets.
Do they have both a recovery product and a maintenance product?
"Ultimately, that's our aim," she explains. *"We want to create both maintenance and recovery products.*
But because most of the beneficial microorganisms haven't been cultivated yet.

We're working to secure research funds to do it ourselves — we started with a basic offering of an oral-fecal transplant capsule.
The capsule is kept at room temperature and can be given at home.
This allows us to accomplish a couple of things.
It's more convenient and less invasive than having a fecal transplant done in an office via enema.
Also, the material in our capsule is screened.
Because it remains stable for a long period, we can [ensure] *every batch is tested before it goes out the door.*
The last thing a sick animal needs is to be exposed to pathogens.
It's a very labor-intensive approach, but it's literally the only way to get these organisms today."

Microbiome restorative therapy.

Majority of conventional veterinarians surveyed are open to the idea of fecal transplants.

I asked Dr. Ganz to talk about getting over the hurdle of offering poop capsules.

Not many people, including veterinarians, are familiar with or necessarily accepting of the idea of fecal transplants, also known as microbiome restorative therapy.

"We've been doing a lot of surveys, both with holistic and conventional veterinarians," she explains.

"I think something like 5 % of conventional veterinarians think it's a disgusting idea.
But surprisingly, 95 % of them are very open to it.
A lot of conventional vets aren't familiar with the therapy, whereas most holistic veterinarians know about it, but they're not actually using it in practice yet.
Of course, there are also some holistic veterinarians who've performed thousands of these procedures.

The fact is, in veterinary medicine fecal transplants have been performed on livestock for hundreds of years, particularly for sheep and other ruminants, because they can't digest cellulose without these microorganisms.
So there's a long history.

In humans, fecal transplants have been practiced for thousands of years in Chinese medicine, and over the last 70 or so years in Western medicine.

It's become a standard practice to treat Clostridium difficile or C. diff infections.
Doctors are finding a greater than 90 % success rate resolving this life-threatening infection that is a growing problem in the U.S. today."

Why the Microbiome is foundational to health.
Dr. Ganz and I certainly understand how vitally important a healthy microbiome is to pets' overall well-being, immune function, cognitive function, behavior — so many different aspects of health.
I asked her how she approaches teaching others about this topic.
"I usually start by explaining what the microbiome is," said Dr. Ganz, *"because a lot of us don't tend to think of ourselves as a multi-species organism, which we are.*
Our pets carry around thousands of organisms that play a critical role in digestion, the nutrition their GI tracts are able to extract from food, and their immune systems.
There's a lot of immune function happening in the gut.
And there's growing research about the nervous system and how it interacts with the central nervous system through the gut-brain axis. There are many studies showing that anxiety can be related to imbalances in the gut microbiome.
Scientists have proved they can make mice anxious and even obese by transferring microbiomes in the laboratory.

Microbiomes containing an overrepresentation of certain bacterial groups are more thrifty and able to extract more nutrients and more calories from food.
Increasingly, we're realizing that many facets of modern medicine and also the food we eat and provide for our pets can be harmful to the microbiome in unintended ways.
At the same time, we're also realizing how foundational the microbiome is to our health and the health of our pets."

I actually get my microbiome "sequenced" or assessed every six months to monitor my own health.
It's interesting, because if I haven't been exercising regularly or I'm not eating well, it shows up very quickly in my microbiome test.

And the same is true when I do all the right things — it shows up in my microbiome.

I asked Dr. Ganz if she recommends that pet parents do baseline testing on their animals, and also if she recommends before-and-after treatment assessments.
"We think we have a great tool for managing wellness and helping to prevent the development of chronic conditions," she answered.

"*As it stands today, most people who come to us are looking for help with an existing chronic condition their pet is dealing with.*
We're hoping that as people learn more about what these assessments and supplements can do, they'll realize they have a tool to help their pet avoid poor gut health in the first place, which is the best approach.
And this is true for people as well as pets.
You can actually see the effects of diet and lifestyle on the microbiome. There's a lot of research that shows drinking alcohol harms the microbiome, and for some of us, that can be hard to adjust to.

The amount of vegetables we eat, and the number of different kinds of vegetables also affects the microbiome.
We're definitely finding that raw fed animals see a benefit.
Exercise is also really important, and there's a lot of research going on regarding that.
We need to get out and exercise with our pets.
We can see an effect there on the microbiome.
We're starting to get insights from this data that we're able to share with people, that I think can help them improve the composition of microbes in the gut — theirs and their pet's."

On the horizon: Donor matching and treatments customized to each pet.

In my opinion, a pet being treated with fecal transplants for a GI issue — for example, vomiting, diarrhea or intermittent soft stools, inflammatory bowel disease (IBD), gastritis, colitis and so forth — should be tested before and after treatment.
We need to see how the treatment is working.
Some of my animal patients need repeated rounds of microbiome restorative therapy to heal.
I asked Dr. Ganz what she recommends in terms of testing and duration of treatment.
"We really do prefer doing before-and-after testing so we can see how the pet is responding to treatment," she explained.
"Also, pet owners can spend a lot of money on diets and supplements, but without testing, we don't know if its money well spent.
Also, we might shift to a different donor depending on the results we're seeing.

We can look at which bacteria are missing from your pet analysis, and choose a donor based on that.

We're still in the early stages of that kind of donor matching, but we're collecting the data.
It's where we're hoping to go — to design and tailor therapies in the future."

The idea of customizing therapy for each patient is very exciting, because it's really the direction in which medicine needs to go. There's no such thing as a one-size-fits-all therapy that helps every patient.

"The main message I'd like to share here is that it takes guts to be healthy," says Dr. Ganz.
"We need to take care of our guts and our pets' guts, because it's foundational to our health."

I absolutely love the work Dr. Ganz is doing.
Microbiome restorative therapy is nontoxic, it resonates with the body and it can have a profoundly positive effect on health — not just GI health, but also organ function, immune system function and even behavior.

If you'd like to learn more about Dr. Ganz's work and how microbiome restorative therapy works, you can visit her at AnimalBiome.
Microbiome testing for pets:
A special interview with Dr. Holly Ganz.
By Dr. Karen Becker
KB: Dr. Karen Becker
HG: Dr. Holly Ganz

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 passion ate 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 in to 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 its 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 e 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
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.
[END]