

Diagnostic Tests

By Dr. Karen Becker

Hi, this is Dr. Karen Becker. Although your veterinarian can learn a great deal by performing a hands-on physical examination of your pet, there are some very important aspects of his or her health that can only be evaluated with diagnostic tests. Some people think that if their pet looks healthy and that there's no change in their behavior, or their appetite's good, then the blood tests are kind of unnecessary. But actually this isn't true for pets any more than it's for people.

Almost all metabolic and organ issues plaguing our pet populations start with biochemical changes that can be picked up on bloodwork weeks to years before your pet becomes sick enough to exhibit symptoms. If you're waiting until your pet gives you symptoms of disease, you've probably waited past the point of being able to actually truly reverse the disease entirely, or cure them.

Many problems brewing beneath the surface don't produce symptoms until the disease is full-blown and, heaven forbid, can sometimes even be fatal. I call this reactive medicine. What we're seeing in the holistic veterinary community is many clients who call themselves "holistic" actually are more accurately described as "reactive," because they wait until their dog is coughing to complete a heartworm test, they wait until their kitty is peeing all over the house and drinking to check kidney function, or until they see a tapeworm segment stuck to their dog's fur before they would think about looking at internal parasite load.

Allowing pets to get sick before identifying significant health issues isn't a holistic approach at all. In fact, in my opinion, it's the exact paradigm shift we're trying to accomplish by preaching proactive medicine. Proactive veterinarians are really focused on identifying lifestyle obstacles before disease occurs.

The fact is veterinarians do not have x-ray vision, none of us. We can't see the degeneration shifts that are occurring, the very small mild degeneration shifts that are occurring inside your pet's body, unless we are specifically checking for them. Unless you're working with the proactive veterinarian, your vet may not even be recommending that you check.

The big question is, if we're capable of identifying disease early and stopping disease from occurring, why wouldn't we? Identifying disease early affords us the opportunity to address minor biochemical changes early on and prevent them from becoming major health issues. We can actually prevent organ failure if we know that the body is leaning in that direction. We can actually prevent the body from irreversible degeneration that robs our pets of quality of health and also a shortened lifespan. But you have to know it's occurring in order to address it, and you won't know if you don't check.

I can't even count the number of times that I've heard from, not just my clients but clients around the world, that "my dog was fine until he got congestive heart failure," or "my cat was

fine until I took her to the vet last Monday and she was diagnosed with kidney failure." The truth is those conditions are not an acute episode where the animal was fine on a Monday and then was very, very sick on a Tuesday. Most of these conditions occur slowly and over time. Those animals actually degenerated because either the owner or the veterinarian was not regularly monitoring all those organ systems, as I'm encouraging people to do in this video.

Even if you're stuck in rural Idaho with no proactive vet in your town, you can ask your very conventional veterinarian to measure your pet's vital organ function, and you can ask for a copy of the bloodwork to look at those results, and you're able to track from year to year those changes that are occurring that maybe your veterinarian isn't identifying. I wish I could say that your vet will always be your pet's best advocate, but sometimes the vets around you are reactive, and you end up being your pet's only advocate. But you fulfilling this role can actually be life-saving.

If your pet is the picture of health right now and looks wonderful, you may want to still periodically check how well her organs are functioning on the inside and look for abnormalities in her bloodwork. A lot of veterinarians call this a baseline blood test, which means we know what your pet looks like on the inside when they're healthy. Those test results can actually provide a great baseline to look for whether next year, things are moving up or down. An important thing to consider.

Remember in most circumstances that all abnormal test results were at one time normal. It's how quickly we catch those changes that's the difference between fixing the problem early or losing the pet to something we wished that we could have identified earlier. "I wish I would have known," becomes a statement that many proactive vets – it's our goal to never hear that. Or really, when it comes down to it "I wish I would have known" translates into "I wish I would have checked." Because we can check, I'm encouraging you all to check.

This is especially true for senior pets and pets that have had chronic health challenges in their medical past.

Tests for Disease Diagnosis and Disease Prevention

What should you be checking at your veterinary clinic? Several things. I like to check poop regularly because dogs are exposed to a lot of different stuff. I don't advocate 'annual deworming' but I do advocate letting your dog live his life — let him roam around, do everything that they do, eat dirt, poo, sticks, and rocks — dogs will be dogs. But I do advocate once a year or twice a year, if your dog is really into eating stuff, I recommend that you just have your veterinarian check a fecal sample to make sure that they have not picked up parasites. Indoor house cats who have no exposure to outdoor poo that could be infectious are off the hook for this specific recommendation, obviously. But if your dog is a chronic poo-eater, you need to check fecals more frequently to make sure that he's not picked up a parasite.

A yearly urinalysis is used to assess the overall health of your pet's urinary tract, including the kidneys and bladder, and to check for other health indicators, such as glucose regulation and liver function. Checking urine more frequently if your pet is older or is prone to infections, crystals or is passing protein in her urine is a great way of really charting her internal progress before an emergency situation could arise.

A complete urinalysis measures the function of the nephrons in the kidneys and gives information about your pet's metabolic and fluid status. The test is also used to evaluate substances in the urine that might indicate an underlying disease process, so at least once a year doing this invaluable test to make sure your pet looks as good on the inside as they do on the outside is a great idea.

Blood tests help your veterinarian proactively monitor your pet's internal organ health, and also help to determine if there's a cause of illness that's brewing that we need to identify as early as possible. Blood tests also allow your veterinarian to monitor the progress of medical treatments. However, these tests only indicate where your pet's body is having a problem. They don't tell us how or why the problem is occurring. It's important to remember that. It's also important to know that currently there's no blood test that identifies detectable cancer in every organ system. We don't have that.

For humans, some of you have heard of the prostate-specific antigen (PSA). We've got certain markers that could point towards cancer, but there's no blood test that veterinarians can do that says "Liver Cancer: Positive, Bladder Cancer: Positive," unfortunately. There are some markers we can use that point us in that direction, though.

The CBC is the most common blood test performed on pets and people. A CBC stands for the complete blood count, and it gives information on hydration status, anemia, infection, the blood's clotting ability and the pet's ability to make a healthy immune system response. The CBC is essential for pets with fevers, vomiting, diarrhea, weakness, pale gums, or loss of appetite. Also, in the event that your pet needs surgery, a CBC can detect bleeding disorders and other unseen abnormalities. The results of a complete blood count include the HCT, which is called hematocrit, which measures the percentage of red blood cells to detect anemia and hydration status.

Hemoglobin and mean corpuscular hemoglobin concentration, or MCHC, measures the oxygen-carrying pigments of the red blood cells. The white blood cell count or WBC measures the body's immune system cells, including lymphocytes, monocytes, neutrophils, eosinophils and basophils. Increases or decreases indicate disease or infection.

As a side note, reptiles and birds have special cells called azurophils and heterophils that mammals don't have. A platelet count measures cells that form blood clots. And a reticulocyte count measures the number of immature red blood cells. High levels indicate regenerative anemia and low levels indicate non-regenerative anemia.

Blood chemistries are common blood serum tests that evaluate your pet's organ function, electrolyte status, and hormone levels. They're very important in evaluating the older pet, pets undergoing anesthesia, pets with vomiting and diarrhea, pets that have had toxin exposure, or pets that are on long-term medications. It's also important to do chemistry profiles on pets that have endocrine disease or internal organ disease.

Blood serum chemistries include several different measurements. Albumin is a serum protein that helps evaluate hydration, hemorrhage, and intestinal, liver, and kidney disease. Alkaline phosphatase or ALP elevations may indicate liver damage, Cushing's disease, which is adrenal disease, active bone growth in young pets, or arthritis or bone degeneration in older pets.

Alanine aminotransferase, also called ALT, is a sensitive indicator of active liver damage but that doesn't indicate why the liver damage is occurring. A liver function test is called a bile acids test, and it's a paired serum sample taken before and after food, which measures how functional the liver is at recycling bile acids.

Amylase is a digestive enzyme for carbohydrates. Lipase is the digestive enzyme responsible for breaking down fats. Elevations in these two enzymes may indicate pancreatitis or other pancreatic dysfunction. The definitive test for pancreatitis is called the PLI, or pancreatic lipase immunoreactivity test.

Aspartate aminotransferase, or AST, increases actually demonstrate that there could be a liver, heart, or skeletal muscle problem or damage going on. BUN, or blood urea nitrogen, indicates kidney function. An increased blood level is called azotemia and can certainly be caused from kidney disease, liver disease, heart disease, or urethral obstruction, as well as shock and dehydration.

Calcium deviations can indicate a variety of diseases, tumors, hyperparathyroidism, kidney disease and low albumin, are just a few of the conditions that can occur when there's altered serum calcium levels. Cholesterol levels are used to supplement a diagnosis of hypothyroidism, liver disease, Cushing's disease, and diabetes mellitus. But pets aren't plagued with arteriosclerosis like humans are, so even a significant elevation of cholesterol doesn't result in blocked arteries, stroke, or heart attack increased incidents, thankfully. So we don't have those things to worry about with pets.

Chloride is an electrolyte that is often lost with vomiting and Addison's disease. If your dog has sodium and chloride imbalances, that combination together, you should absolutely ask your veterinarian to check for adrenal disease.

Creatinine is a sensitive marker of kidney function and kidney perfusion. This test helps distinguish between kidney and non-kidney causes of elevated BUN. BUN and creatinine go hand in hand.

There's also a third test, Symmetric dimethylarginine (SDMA), which can also identify early kidney disease.

Globulin is a blood protein that often increases with chronic inflammation and decreases with chronic infections and a weakened immune system.

Glucose is blood sugar. Elevations in blood sugar obviously mean potential diabetes or persistent hyperglycemia from a carb-based diet. Levels below 40 aren't good, levels above 100 aren't good. Levels that are low, hypoglycemia, can result in collapse, seizures, or coma.

Potassium is an electrolyte lost with vomiting, diarrhea, and excessive urination. Increased levels in potassium can indicate kidney disease, kidney failure, Addison's disease, dehydration, urethral obstruction, or inappropriate doses of certain drugs. High levels can actually also cause heart problems, so you don't want potassium high or low in the body.

Sodium is an electrolyte that's often lost with vomiting, diarrhea, kidney disease, and Addison's disease. This test helps indicate hydration status as well.

Phosphorus elevations are often associated with chronic kidney disease, hyperthyroidism, and bleeding disorders.

Total bilirubin elevations may indicate liver or hemolytic disease. This test helps identify bile duct problems, gall bladder stasis, and other certain types of anemia problems.

Total protein indicates hydration status and provides additional information about the liver and kidneys, as well as infectious disease status.

Thyroxine, or T4, is a thyroid hormone. Decreased levels oftentimes signal hypothyroidism may be in the works for dogs, while higher levels indicate hyperthyroidism, which is commonly diagnosed in cats.

The tests that I've just summarized are usually a part of the complete biochemistry profile I suggest that you complete at least annually to make sure that all of your pet's organ systems are functioning optimally.

Tests for Tick-Borne Diseases

Now, there are some additional tests that you longevity junkies know about, as well as you proactive pet parents that are either my current clients or are people that have been watching or subscribing here for quite some time. You folks know how important it is for sometimes adding on additional tests for your pet's specific issues.

If you live in an area where ticks are abundant, I recommend that you do an annual or even twice-a-year SNAP-4Dx test or an Accuplex test. Those are the same tests done by different labs

to check for tick-borne diseases. Regardless of what you do to manage infectious disease, whether you use topical chemicals, whether you do nothing, whether you do natural essential oils, regardless of what you're doing to manage fleas and ticks, bottom line research shows mosquitoes can transmit tick-borne diseases. None of us can prevent our dogs or cats from being bit by mosquitoes.

My theory is let your dogs live their lives. Take them for walks in the woods, do tick checks in the night, and pick the ticks off that you find. But really, there is no way that you can prevent every mosquito from biting your family. Don't panic. But if you're in an endemic area for tick-borne diseases, I do recommend that you check for them every six months.

In Chicago, in the Midwest, or on the East Coast, if you've got – or if you're picking ticks off every now and then, don't panic. You don't have to do monthly checks for tick-borne diseases. But at the beginning of the year and at the end of the season, checking for tick-borne diseases is a great idea because these diseases are fairly easy to treat and cure when identified before they become chronic. These tests, the 4Dx and the Accuplex, will check for heartworm, Lyme disease, ehrlichiosis, and anaplasmosis.

Titer Testing and Vaccinations

Additionally, I recommend titer testing in lieu of automatic re-vaccination for all diseases other than rabies, which of course is required by law. Titer tests are simple blood tests you can ask your veterinarian to do that provide great information about your pet's existing immunity to the diseases he's been vaccinated against previously. Immunologist Dr. Ron Shultz states that any titer result – so any number above zero – means your pet's immune system is capable of mounting an effective immune system response and no further vaccines are needed, which is a good test to do.

I was so sure that my patients at my practice were effectively immunized after their one puppy shot that I told my clients that I would boost their dogs for free. I want them to do a titer test. Some of my clients would come in and say, "Hey, I think it's just cheaper to vaccinate. My dog's only had one vaccine. What's the harm in doing it?" My response was, "Please, titer. Because chances are if your dog has had any vaccine, they're protected. And so let's titer, and if your dog is low, I will boost your dog for free. I will give a singular parvo or distemper if your dog is low on one of those two viruses." I'm 19 years in and I have never given away a free vaccine because none of our dogs have titered low after their puppy shots. Something to think about.

Additional Recommendations

Three other tests you might want to consider looking at if you're a serious longevity junkie like myself and you want your pets to live forever or if you've had a previous health challenge with one of your pets, making you question their overall nutritional, metabolic, or immunologic health, I would recommend you consider a couple of other tests:

1. Fasting Insulin
2. Vitamin D test
3. A test for dysbiosis

For humans we know one of the best predictors of longevity is a person's fasting insulin level. Although very few veterinarians besides myself measure this, I think it's a vastly underutilized test that can evaluate a patient's metabolic health and level of fat-burning adaptedness. It's one of the best things, in my opinion, you could do to look at what your dog or cat has in his future in terms of ability to manage metabolic diseases including cancer.

Many people and pets are vitamin D deficient, and we're just now discovering that the whole category of pet vitamin D deficiency probably rivals that of humans. If you have pets and you're living in the northern hemisphere, dogs and cats can't make vitamin D from sunlight so they have to eat it in their diet. What we're finding is absorption, the form of vitamin D processing, if it's synthetic in pet food, their ability to absorb and process [vitamin] D can be impinged. We know that managing and addressing this nutritional deficiency before the diagnosis of cancer is obviously important. Something to consider. Vitamin D testing is a specialty task but you can ask your veterinarian about it, and your vet can perform that test.

We know that 70 percent of your pet's immune system is located in their gut, and many pets suffer from gut related issues which create malabsorption, maldigestion and ultimately, a weakened and dysfunctional immune system systemically. Identifying and addressing leaky gut or an unbalanced, dysbiotic gut is critically important in re-establishing health especially in debilitated, unhealthy, or chronically ill pets or pets that are aging.

Texas A&M Gastrointestinal Laboratory has just released a test to measure the level of dysbiosis going on in your dog's gut. That's a really nice additional test if you're looking at long-term immunologic health.

I hope you're now able to see why functional medicine doctors get so excited about evaluating the biochemical changes occurring inside your pets. Monitoring your pets' internal environment is actually quite empowering, because we're able to address minor changes before disease occurs and actually we prevent degeneration from occurring, which should be all of our goals as proactive pet parents.

[END]