

## **PODCAST EPISODE 2 - Bloodwork; the window to your pet's health**

Hello, and welcome to the second edition of the Pet Wellness Podcast. I'm Dr. Mike, and I'm so pleased that you can join me here today. Today we're going to talk about the importance of blood work for your pet and how you, as a pet wellness advocate, can get involved in understanding your pet's blood results so that you can make a difference in your pet's overall health. The podcast is going to be divided into four different sections. First, we're going to talk about what situations would your pet have blood taken. Then we're going to move on to what you need to know about your pet's blood results and how you can get involved. Then we're going to talk about some of the new tests that are available today, stuff that wasn't available back when I graduated. And finally, we're going to finish off with how you can be involved in making blood testing as fear-free as possible for your pet. Ok. Let's talk about situations where your pet would have blood taken. First, of course, is when your pet is sick. This is an ideal time to take blood from your pet because, let's face it, blood runs through every important part of your pet's body. It starts off with every organ, like the skin, liver, kidneys, heart, brain, and goes also to the bones and the muscles. So, if there's anything wrong in your pet's body, blood work is likely to uncover it. The second situation would be before any anesthetic. And we tend to call that pre-anesthetic blood work. And veterinarians administer anesthetics for two situations, elective surgeries and nonelective surgeries. Elective surgeries tend to be done on pets that don't have any health problems. So, the classic example is your puppy or kitten coming in for a spay or neuter. So, I've had many clients ask me this in the past, why would we want to take blood work from a perfectly healthy six-month-old puppy or kitten? And the answer is there's two reasons. The first is that we want to get a baseline on the puppy or kitten. And what I mean by that is when you take blood from any animal, there's this reference range. So, for example, there's a liver enzyme where the reference range is 10 to 100. And what that means is they took potentially 5000 animals that were normal, drew blood, and they found that the lowest one was 10, that the highest was 100, and everybody else was in between. Well, the reason why we need a baseline from a puppy is that we can see where that puppy falls within that baseline when they're normal. So, if we had to take blood when the puppy was now an adult dog at seven years of age and not well, we could compare those results to when they were younger than normal and compare apples to apples. The second reason is a little more shocking to people because I've seen animals that look completely normal on the outside and are very abnormal on the inside. I want to share an example with

you of a situation that happened a long time ago but really solidified how important pre-anesthetic blood work is and how now I recommend it to every single pet that is going under an anesthetic. It was a beautiful six-month-old male cat who came in to be neutered. And I'll start by saying that neutering a male cat is one of the easiest surgeries that veterinarians perform. Those of us who are experienced at it can get it done in very little time. And so, it really is not a huge anesthetic risk and the fact that animals are not under the anesthetic for very long. Nevertheless, all anesthetics carry a risk to them, and so does the surgery, for that matter, as you will see in this example. So, the first thing we did is we took blood from the cat and then we put him in the back and let him relax while we ran the blood results, which took about an hour because we had an in-house blood machine. For those of you who listened to my last podcast where I talked about me being an early adopter, I was quick at getting an in-house blood machine for my practice because I knew that I could get blood results back faster than anything I could send out to the lab. So, we got the blood results back, and I sat there in shock when I saw them. This cat's platelet count was one, and the normal reference range is 100 - 500. I will just say that I've never seen a platelet count that low. And for those of you who are not familiar with what platelets do, they're involved in clotting our blood. So, without platelets, even a minor cut can turn into a major bleeding episode. Now, I didn't panic yet because I have seen low platelet counts in situations where you take blood and it accidentally clots within the tube, which has happened before, but they usually don't get that low. And to explain a bit what I mean, when we take blood to run platelets, we take it in a tube where the blood is not allowed to clot because when you clot blood, you use up platelets, which would give you a low platelet count. So, we purposely put it in a tube that doesn't clot so that we can measure the total number of platelets. When I saw "1" on this guy, I was a little bit nervous. So, the first thing I did is I took a drop of the blood and put it on a microscope slide and looked under the microscope to see if I could see any platelets. Because if I could, then I would probably attribute the low platelet count to a machine error. But when I looked at the slide under the microscope, I couldn't find a single platelet. So, I'm not going to lie. At this point, I was a little nervous. My next move was to cancel the surgery and to take another blood sample and send it off to the lab, where we would get a result in 12 to 24 hours. When they brought the cat back to the table to take some more blood, I noticed something very shocking. There was a huge blood blister right where we had taken the blood previously. After we take blood from any pet, we usually put pressure on that area for a significant period so that they don't develop blood blisters. It's no different

than when we go to the lab and have our blood taken and the nurse asks us to apply pressure to that area. So, in a normal pet, finding a blood blister after taking blood is very uncommon. But this little cutie was far from normal. The next day, we got the blood results back, and the platelet count was “2”, which, although is double from the “1” that we got, is far from the normal, which is 100 - 500. To make a long story short, this cat was born with a congenital disease where he couldn't make platelets. And the reason why that was so important is because we were about to neuter him. And if we had, he could have potentially bled uncontrollably and potentially even died. I don't know how that story makes you guys feel, but I will tell you, it makes me shudder every time I tell it. Because I stopped to think I could have been that vet that had to call this owner and tell them that their six-month-old, perfectly normal kitten had bled uncontrollably in surgery and potentially could have passed away. The condition, by the way, is called congenital megakaryocyte thrombocytopenia. How's that for a mouthful? Unfortunately, this cute little kitty didn't live past two years of age because he had other complications later in life from his bleeding disorder. Now, this condition is extremely rare, and I've diagnosed it only once in my entire career. However, if you're a cat owner out there, imagine if that was your kitten. And this is just one extreme example. I can cite many examples of times where I've delayed or even cancelled surgery because of abnormal results on a pre-anesthetic blood profile. It's interesting, but when I first started offering pre-anesthetic blood work to my clients, it was an option so they could choose whether to do it or not to do it. But after I ran into a few cases where I realized how important they were, I started to make pre-anesthetic testing mandatory. Many veterinarians today still offer pre-anesthetic blood testing as an option. I encourage anyone listening to really think hard about the next time you go in to have an elective or non-elective procedure done on your pet. I hope that you will consider how important pre-anesthetic blood testing is to preserve the health of your pet. So, the third and final situation where you would have blood taken is for what we call a wellness blood profile. And this form of blood testing has become a lot more popular in the last decade as both veterinarians and people are starting to realize how important blood work is in terms of diagnosing disease before clinical signs appear. So, most veterinarians start recommending wellness testing when a pet is middle-aged, somewhere in the five-to-eight-year range, and then we typically test them every year after that. For dogs, it's much easier than for cats because we typically test dogs every year for things like heartworm disease. But regardless of whether we're testing a dog or a cat's blood, I often get the question, “Why do I have to test my pet's blood every year?” Well, first, you don't.

It's optional. But the real reason why we recommend it every year is twofold. Number one, dogs and cats don't live the same as humans. So, when you're testing them every year, you're really testing them every five to seven human years, which I think is reasonable. Number two, the key to wellness testing is trending results. We'll talk about the importance of trending in a moment, but the more often we test, the easier it is to pick up trends. So now let's talk about why you as a pet owner, need to know about your pet's blood results and how you can get involved. It's funny because I know exactly what you guys are thinking. 'Why do I need to know about my pet blood results? Isn't that something my veterinarian should know about?' Well, the answer is yes, but you should also know about them. And I'm going to explain the exact reasons why. Reason number one; trending. Let's talk for a second about that liver enzyme that I spoke about earlier in the podcast where the normal values are 10 to 100. So, let's imagine that you take your little kitty in for some blood work at seven years of age, and the value is 20, and then a year later you run blood again, and now it's 90. Well, your veterinarian is going to tell you it's normal, which it is because the reference range is 10 to 100. However, that reference range is for every other cat. Your cat was once 20 and is now 90. And that's something that I think that we shouldn't ignore. Now, if you noticed this trend, you could make your veterinarian aware of that. Because to be frank, when you're a veterinarian in practice and you have potentially a few hundred other clients and you see a normal blood result, you're not always going to look back a year earlier to see what the blood result was. When it's abnormal, for sure, you'll look back, but not if it's normal per se. Which is why I encourage all my clients to take their blood results home with them and this way they can keep track of their pet's blood trends. In my mind, it's no different than monitoring your bank account. We can't expect banks to give us a call and say, 'Hey, you took out too much money this month.' It's up to us to track our finances, and I think it's just important for us to track our pet's blood results. Reason number two, why you need to know about your pet's blood results, new research. There is a ton of new research on new blood tests that are available, and there's also new interpretations of current blood tests. The problem is, not every veterinarian gets that research at the same time. I am currently in a position where I primarily do research and I can be on top of the newest information, which I want to share with you on future podcasts or on the Pet Wellness Advocate website. And I want you to be able to learn from this new information so that you can speak with your veterinarian about it. I want to share an example of what I'm talking about. So, a current new trend is that pets with kidney disease are much more sensitive to the effects of phosphorus than normal

pets. If you were to look at the reference range for phosphorus on a normal blood sample, it's going to run between 0.9 and 2. Well, the new research has shown that cats and dogs with early-stage kidney disease should never have a value above 1.5. Well, 1.5 is normal according to the regular charts, but it isn't normal for a cat or a dog with chronic kidney disease. So, if you have a cat or a dog who has chronic kidney disease, you can hop onto the website <http://www.iris-kidney.com/> and find this information out for yourself. By the way, IRIS stands for the International Renal Interest Society. It's a fantastic website for anybody who has a pet that has chronic kidney disease. Okay, let's chat about some of the new tests that are available today that weren't available back when I graduated in my first 15 years or so in practice. The way we diagnosed kidney disease in dogs and cats is by noticing an elevation in one of the blood enzymes called creatinine. And when creatinine was elevated, that meant that the pet had only 25% of their kidney function left. In other words, 75% was gone. So back in those days, we are obviously diagnosing kidney disease very late in the disease process. A new test in the past decade called SDMA, has essentially become a lifesaver. We are now able to diagnose kidney disease in the exact opposite fashion. Now we're catching it when only 25% of the kidney has been damaged and 75% is still functioning. This test has certainly been a game-changer in veterinary medicine. We now have tests to diagnose pancreatitis, a condition in dogs and cats that we either couldn't diagnose before or had more difficulty diagnosing. We also have different cardiac enzymes (heart enzymes) that we can use to diagnose heart disease much earlier in the disease process. It's exciting times in veterinary medicine. We've come a long way with our blood testing, and now they're coming up with tests that are specifically designed for wellness, for preventing disease, things like CRP, which stands for C-Reactive Protein, an enzyme that we can use to detect inflammation within the body, something that will help us diagnose osteoarthritis and other diseases that cause inflammation within the body, like cancer, for instance.

And finally, how you can be involved in making blood testing as fear-free for your pet as possible. I don't need to tell anybody how fun it is to have blood taken. We all know that it can be traumatic for all of us, including our pets. So here are a couple of things that I've done in practice to try and create a more pleasant experience for dogs and cats when they're having blood taken. And these are things that can be done at every single veterinary office. We'll start with the most important one, distraction. The key to distracting dog's treats, more of them the merrier. I always suggest passing your dog for a few hours before coming in for

blood work so that when you do get here, they are raring to go. With the treats for cats, treats, I find don't work very well for these guys. It's calm, quiet, and maybe a nice little scratch around the neck or ears where they like to be touched, and that tends to help them a lot. Another technique that works exceptionally well to help calm dogs and cats down, especially cats, is pheromones. I even encourage cat owners to spray pheromones in the carrier 10-15 minutes before they put the cat in there, and that will already calm the cat down before they arrive at the clinic. And then we have pheromones in the room so that the cats are feeling comforted in a strange environment. And don't worry if you don't know what pheromones are, we'll be touching on them in more detail on a future episode of the Pet Wellness podcast. Another technique is reserved mainly for dogs and particularly large dogs, and that is trying to take blood from a back leg. And taking blood from a back leg just makes it less intimidating for a dog. You're not sort of in their face when you're taking blood from the front part of their body. And finally, some dogs and cats just don't like having blood taken because you must touch their legs, or their feet and most dogs and cats really don't like that. So, what I encourage owners to do is to start really touching those parts of the body when the pet is at home and comfortable and rewarded that behaviour in this way. When they come into the clinic and we touch them there, they're not thinking, 'What are you doing?' They're thinking, "Oh, any time someone touches me there, I get a treat or a pet on the head." We call this process systematic desensitization. You're essentially desensitizing them to something they don't like so that when you do that something that they don't like, they have much less fear, anxiety and stress. And on that note, we've come to the end of this podcast. Thank you so much for being here, and remember our pets deserve our best.