Thyroid Diseases in Pets II:
A Special Interview with Dr. Jean Dodds

By Dr. Karen Becker

KB: Dr. Karen Becker
JD: Dr. Jean Dodds

KB: Hi, this is Dr. Karen Becker. Today I have returning a very special guest, Dr. Jean Dodds. She doesn't need much introduction because she really is the world's foremost expert on thyroid diseases in pets. Jean, thank you so much for joining me. I really appreciate you being here.

JD: Thank you, Karen.

KB: How should one screen for heritable canine autoimmune thyroiditis? How is one going to check to see if there is a genetic component to canine autoimmune thyroiditis?

JD: Absolutely. Canine autoimmune thyroiditis is like human Hashimoto's disease, which is lymphocytic thyroiditis. And like any immune-mediated or autoimmune condition, it's carried by the major histocompatibility complex genes, which are just a handful though; this is not polygenic. Three to five genes are involved. And curiously in people, which parallels our experience in dog, the diseases that are most associated with autoimmune thyroid disease are immune complex glomerulonephritis (like in lupus, for example, or just kidneys), immune-mediated hemolytic anemia, and immune thrombocytopenia.

When you have these multi-organs damaged at the same time, we call it polyglandular autoimmunity (PGA). For example, Addison's disease and thyroiditis, both inherited immune-mediated conditions. The combination of which in people is called Schmidt's syndrome, and we do have the same thing in those breeds that have both. For example, the Portuguese water dog, the Old English sheepdog, the standard poodle, the Nova Scotia duck-tolling retriever, the Leonberger, and I can go on and on.

Okay. So, what we have to do with thyroiditis is focus on the genetic predisposition. Now, about 10 years ago, Dr. Lorna Kennedy, a genome researcher in Manchester, England, and I developed a study to look at mapping the genome for thyroiditis in the dog. We looked at 14 breeds. This work was published. It was also partly funded by the AKC Canine Health Foundation.

We were able to identify a unique genetic locus, the DOA1 locus in the dog that increase the frequency of thyroiditis in those breeds by four- to five-fold. When we did this work, we also found a second genetic locus that was associated with thyroiditis in a handful of other breeds. I think the boxer was one of them, for example, and the Irish water spaniel.

Now, this work was published as a scientific study in several publications. However, it's never developed until a practical screening test that can be used clinically. Wouldn't it be amazing if people that were breeding puppies from these breeds or even from families within the breed that have the problem could screen their puppies before they sold them to determine which ones should be used in the breeding program because they don't have the marker, and which ones have it so they can watch for it and treat it promptly with all the animals are being used for breeding?

Now, what happened? Why didn't this happen? Well, as usual, in a specialty situation like this, there was no funding.

KB: Yup.

JD: The funding just disappeared so we didn't have any money to continue it. Dr. George Happ was involved on those studies as well. But there is hope because this May, I'll be speaking at the Kennel Club Headquarters in Stoneleigh, and it's very close to Manchester where Dr. Kennedy works. I am hoping that she will be there and I hope to get her to agree that, if I can raise some money from some of the breed clubs that are most concerned and effective (and we can collectively get the money), she would agree to help us once more.

KB: Wonderful.

JD: It would be such a huge benefit for dogs in general.

KB: Yes.

JD: Even the hybrid breeds, Karen.

KB: Yes, and that's very, not only an exciting research, but that also plays into and highlights the issues of funding. It's really important that we're able to fund some of these important studies. This is how we're going to ultimately improve overall breed health. It's exciting work that potentially could happen if the money is there.

JD: And if Dr. Kennedy, for some personal or career reason, can't devote herself to this project now, because she works in other genomic research, I do have some other possibilities. But I wanted to make sure that she has the first opportunity to continue the pioneer work that we did a decade ago.

KB: Yeah, absolutely. That's exciting. I'm anxious to stay tuned and see how that unfolds, Jean.

JD: Yeah, me too.

KB: Let's talk about dogs that have been diagnosed with autoimmune thyroiditis. Let's talk about breeding those dogs.

JD: We should not breed these dogs because they have the marker without any question. They're going to pass it on, and it's proven. It's not a question of it whether it does or doesn't happen. But what about the animal that is profoundly hypothyroid that does not have the thyroiditis marker? Should those animals be bred?

KB: Right.

JD: They're going to pass it on too. It's familial; it's going to run in the family. It's a little different, however, if that animal has an outstanding temperament, confirmation, or whatever (I know we all say that, but it's important to the benefit and survival of the breed in the long term), then we might consider breeding such an animal, but only to a mate that is clearly normal and not very young; in other words, middle-aged and clearly normal. Because remember that these values change within family.

I had an email from a Vizsla breeder who was distraught. She tests all her dogs. This young female was normal before, and now at age three, she's not normal. She said, "How can that happen?" I said, "You have to keep testing."

KB: Yup.

JD: Here, we go back to whether we should breed them or not. There is another way to tell if the thyroiditis serum-negative hypothyroid dog does have thyroiditis. You could biopsy the thyroid gland, but I don't think that's practical.

KB: No.

JD: You can't keep biopsing this tiny butterfly gland over a period of years because it's going to fibrose, and then you're stuck.

KB: Yes, exactly.

JD: We can't really do it except take our ethical commitment to the future of the breed and decide what to do with it.

KB: So Jean, your recommendations on treating canine autoimmune thyroiditis, what are your suggestions for treatment if the diagnosis has been made?

JD: Okay. If the diagnosis has been established by a reputable laboratory and if people are skeptical, they should always repeat it. That's not a problem. Remembering that the female, if she's intact, should not be coming into estrus or in estrus cycle and is certainly not pregnant. You detect the intact female in between their estrus cycles when the sex hormone will not influence, and cannot play a role or should not play a role.

The next thing is you don't test them within 45 days of having received a rabies vaccine. Because of the work from Purdue University that shows that you can have a slight increase in thyroglobulin autoantibody (TgAA) level into the low positive range or equivocal range within 45 days of receiving a rabies vaccines. Those are two caveats.

Now, what do we do? "My animal is the best in show dog, Jean. I've got a TgAA of 245 (it should be less than 10, by the way), what do I do?" You treat the animal. "But why would I treat the animal? It looks perfectly normal."

And we see this all the time. Their local veterinarian is confused, this animal is winning dog shows – or even if it doesn't, even it's just a beautiful dog. "Okay, why would we treat the dog?" We've even had veterinarians call their alma mater and talk to the endocrine people in their veterinary school and say, "What do we do about this? Do we treat the dog?" And they say, "Oh no, don't treat them. Just wait until they get sick."

KB: Yup, 100-percent reactive. Terrible, terrible advice.

JD: You're going to wait for a year until they get sick? Are you going to wait three or four months for the ticking time bomb and have them attack somebody, God forbid, a child? You can't do that. Medically, we treat them to protect what's going on from developing further within the body.

KB: Exactly.

JD: We save whatever thyroid tissue is still there.

KB: You bet.

JD: It's put in park in hibernation by treatment. The second reason we treat is a scientific one. And there's published work in humans with Hashimoto's thyroiditis that when you treat these individuals, even if they are not sick apparently, you feedback-inhibit the production of TSH, the TSH stimulates

thyroid gland receptors, and they make more antibodies. You put the whole thyroid stimulatory access in park. You don't destroy anything, just put it into hibernation.

And then it says here, "Wait a minute, Jean. This dog's thyroid levels are normal. Why are you adding thyroxine? Surely, that's going to make them hyperthyroid." But it doesn't. We don't give a full dose; we give like a two-thirds dose and we watch, you know, the optimum weight. Now, we treat the optimum weight (body frame not the fat weight if the animal is overweight). They don't become hyperthyroid and their TgAA level starts going down.

KB: Yup.

JD: For 20 years, I've been following these animals. It takes typically five to seven months. And even with this example of 245 percent, the next time it could be a 130 three months later; three months after that, it could be 70; and then one more test, and whoops, it's 14, which is equivocal. Then, it stays there.

KB: Right.

JD: Now, do you stop treating at that point? No.

KB: No, right.

JD: You have to keep treating them forever.

KB: Right.

JD: And you have to keep testing the complete thyroid antibody profile each time. Because the TgAA level could suddenly go up again if there was some stressor, environmental stressor, that we don't know, which the animal went through, and suddenly the body is stress again saying, "I'm going to keep doing my thing and destroying the thyroid gland again."

KB: Yup. That's a really important point. That once you get an animal balanced, it doesn't mean that you're done and over, and that they're maintained for life. Consistent, repeated testing is really important to make sure that they stay in that state of homeostasis. It's a really important point.

JD: That's correct. I'm sure you've seen the same situation that I've described.

KB: Sure, of course. Let's talk about that. When, Jean, are blood samples drawn for testing dogs on thyroxine therapy? Actually, there's are a lot of confusion surrounding what time to test. A lot of veterinarians have very differing opinions. Give us your opinion.

JD: Okay. My opinion, and it's based on many, many years of experience, as you know, is we test the animals after six to eight weeks on the appropriate dose of twice daily of thyroxine. We prefer brand names, by the way, over generic. After that period, we make sure that the thyroxine is always given away from any food or supplement containing calcium or soy. Veterinarians are not taught that.

Calcium and soy binds to thyroxine, and so people know, "I'm not supposed to take my thyroid medicine with meals." But veterinarians have said, and it even says that on the bottle sometimes, "You can give it with meals," but you can't if you want to have steady-state absorption. So after six to eight weeks. If it's a thyroiditis case, you might wait eight to 12 weeks. It depends on the situation.

You take four to six hours post-pill your new sample, and you do the complete thyroid antibody profile. Now, let's say, you did the complete thyroid antibody profile and the dog was hypothyroid but had a normal TgAA, you give the treatment. You take the new sample at six or eight weeks, four to six hours

post-pill. You don't have to repeat the TgAA on that dog. You can just do the four analytes: T4, free T4, T3, and free T3.

Always include the T3 and free T3. Even though today, our internal medicine specialty lectures tell you, "You only have to use a total T4 to monitor post-pill." Wrong. "You can use a T4, a free T4, or a free T4, and a TSH." Wrong. Remember, we basically decided we don't want to pay for TSH. Now, if the lab provides that result and you don't pay any more for it, you're going to get it. So how do you explain to a client when this is on the printout they get that you're ignoring that test? It's a little bit of a dilemma for us, right?

KB: Yes.

JD: We have to say, "Well, we didn't pay extra for that, Mrs. Jones. You got it anyway, and we ignored it." That's a little bit difficult for us to try and explain because the public is sort of perplexed by the whole thing.

KB: It is. The other interesting thing that can happen along that same vein is animals, let's say, that are just mildly hypothyroid and the veterinarian says, "You know, your dog is just in the beginning stages. Let's give some supplemental thyroid support once daily." Jean, let's talk about why once daily is not ideal.

JD: Once a day is not what we would recommend. Sure, you can do a trial, especially if the client says, "Please, can I try it? Please let me try it." Sometimes we get incredible results that we didn't expect. Once a day will not work because the half-life is 12 to 16 hours. You don't want a peak and valley effect, where the animal has a very high level part of the day and nothing at the rest of the day.

KB: Yup.

JD: I saw a case last week where the dog was 110 pounds, an overweight German shepherd. The veterinarian had put the dog on .08 milligrams in the morning and .04 milligrams at night. The animal was wired half of the day and sleeping the rest.

KB: Under dosed, yeah.

JD: My client said, "Well, at night, my dog is nipping." But no, the first thing we did was to divide it so that the dog was taking .06 twice a day to make it even so that we can decide what we're going to do down the road when we get that stabilized.

KB: Right. Are there ever situations when you can discontinue thyroxine therapy?

JD: Yes, there are. There are situations when we aren't sure that the original diagnosis was correct. If obviously the animal wasn't aggressive in fighting and endangering anybody, and then it is put on treatment. It's a pussy cat. Where not going to deal with taking that animal off. That wouldn't make any sense regardless.

But we have our famous T4-only diagnosis, right? Animals can be put on it because they have a little hotspot or seem to be an easy keeper gaining a little weight, and we're not sure. In those cases, you can stop the therapy, of course, with the owner's permission or consent, and then wait six to eight weeks, a minimum of six weeks, and then you do your complete thyroid profile again because it may not have been done completely initially.

Now, the rest of the clients will say, "I don't want to give this medicine. My dog has been on it for three years, and I don't think she ever needed it. She's fine or he's fine. Can we stop it?" And some owners stop it on their own.

KB: Yes, they do.

JD: They come marching into your clinic when the dog has collapsed or the dog may be looking okay, goes back then, and they go, "Mea culpa, I stopped it. Let's test it properly and see what happens." We can't always be sure that the clients are complying with what we need because they look at the animal, and they don't see what we see with our medicine-trained eye.

KB: On the flipside to that, you have some clients that say, "You know, I wasn't seeing the weight loss I was anticipating so I tripled the dose." My question to you is when some dogs… There are some conditions where dogs are oversupplemented with thyroxine, yet when your repeat-testing, the dog still looks low on paper. What's going on there?

JD: That's a really crazy situation. What happens is when you overdose the dog… It happens in sighthounds a lot, Karen, when people don't remember that that they take half the dose of other breeds. We get greyhounds where they keep shoveling the thyroid in until the T4 goes up. T4 doesn't go up, and they collapse. I mean, God forbid, you know. Anyway, what happens is the body excretes it faster. The excretion time is halved. Basically, the excess thyroid is just being excreted. It's not having any effect on the tissues properly. When you do the test, it looks little so the veterinarian is inclined to keep increasing the dose.

What we have to do, and it's hard sometimes to get people to understand that… We have Labrador retriever breeder and veterinarian on the East Coast that's quite a character. He was treating his own Labradors incorrectly with too much thyroid based on the T4 level. I had to convince him, "Please trust me. Try it. Bring the level back gradually, not cold turkey, to where it should be. And Eureka! You'll see the levels where it should be," which is exactly what happens.

We have to worry overdosing, for sure. And we have to worry about dietary-induced hyperthyroidism in pets now from eating raw red meat, because the raw red meat in animals contains the throat or gullet part of the carcass often, and that's where the thyroid gland is.

And you know something, Karen, that I didn't realize not being a meat-eater is that in the late 1980s, in humans, they don't allow the gullet or throat part of the beef carcass to be used in human consumption, for hamburgers, for example, because they found that children are becoming hyperthyroid when they found thyroid hormone in the meat. In humans, it's regulated. That part of that carcass is not used for human consumption. But nobody's regulating that in veterinary medicine.

KB: That's right.

JD: There's been a huge influx of papers about that even from the juices dripping from the meat. Now, in the middle of January, in the *Journal of the American Veterinary Medical Association*¸ there was an article from people in Southern California, Michael Broome and also from Mark Peterson, showing that they found thyroid hormone in commercial kibbles that were even chicken-based.

KB: Yes.

JD: We've got to have a huge concern now about whether we're creating hyperthyroidism in dogs or cats now.

KB: The cat, you're right.

JD: By dietary means.

KB: Exactly, absolutely.

JD: That's scary.

KB: Very scary. Let's talk a little bit about the different types of thyroid support products that are on the market, Jean. For instance, as you mentioned, there are generic options available. There are brand names available. I think you and I both agree that there can be some problems with the generic options. When clients are using generic thyroxine and then switch to a brand name, have you been able to discernably know that there were problems using a generic brand? Have you seen that before?

JD: Yes, we have seen that curiously enough. I thought originally it would be in small dogs because a little bit of difference in the standardization of the pill could affect a small dog because the dose is so much smaller for them.

But in fact, I see it often – or not often, periodically – when the animals come to us on referral and they were on what looks like the right doses of thyroid. I look at the prescription, because they bring the bottle, and it's a generic, and the animal is not doing right. I say, "Okay, let's just first change to a brand name. And you know that the premiere brand name has recently not been available although it's coming back on the market again, apparently.

When we switched to the brand name – and this is not the human brand name now; the human brand name definitely doesn't appear to work as well clinically – these animals respond as you wouldn't expect. There clearly is something different. I don't know what it is. I don't know if it's the filler. I don't know if it's the color. I don't know.

The other thing is many holistically oriented people don't want to use the synthetic medication. They think for some reason that it's dangerous, harmful, or whatever. They're just against it. They want to use a natural extract like Armour Thyroid, Nature-Throid, or Westhroid. Those products work well, except we have to realize that they have both T3 and T4 in them. You've got to be careful that you're not overdosing the T3, which goes directly into the cell in order to have the T4 where you want it.

And they are much more expensive. I had a client with 125-pound Dogue de Bordeaux that wanted to use Armour Thyroid. I said, "Forget it already. You'll go bankrupt doing that. It doesn't make any sense."

KB: Right.

JD: What we tell people is, "Trust us, just use the brand name synthetic product to correct the thyroid tissue metabolic imbalance and do everything else naturally – with your whole food, your minimizing of the exposures to chemicals and toxins, not over vaccinating, etc."

KB: Sure.

JD: Then the only other thing that I have, which I think is important because some people prefer to use thyroid support products that support the thyroid gland to have the tissue that's still there work more efficiently. I think that's fine. Some people will use thyroxine brand name along with the thyroid support products or a thyrotropin product. I don't have a problem with that. But those natural extract products will not work for thyroiditis cases because they aren't the actual molecule to mimic what we need to shut off the pituitary thyroid axis from stimulating the thyroid glands. It will self-destruct even more.

KB: That really… That was my question that was most burning.

JD: Oh, I'm sorry.

KB: No, that's wonderful. That's a really important explanation. I'm a veterinarian that loves using Armour Thyroid in cases obviously where there's no autoimmune disease going on, and that is such an important point to make. I always will start with, as long as we do not have autoimmune thyroiditis going on, natural support and see what the body's response is. If we don't get the response that we're looking for, then we'll move along to a synthetic T4. However, when we never, ever, ever do that is in cases of autoimmune thyroiditis.

Jean, tell us why it's just not effective? In fact, if anything, you're allowing the disease to progress by trying to go natural, when really in those cases, those animals have to have the synthetic product?

JD: That's exactly correct. Now, we do have people with large-breed dogs that want to do some of each. They feel a little bit more comfortable with that. That's fine.

KB: Sure.

JD: They can have, say, Armour Thyroid along with thyroxine. That reduces the amount of Armour Thyroid and makes it more affordable. I have a German shepherd client that does that in San Diego, she's been doing it for years, and she's happy that way.

KB: In your research, what's the ratio of dogs that have autoimmune thyroiditis to just naturally going through life and their thyroid pewter's out and they end up with low thyroid not because of autoimmune disease, just because they are… They've just become hypothyroid. Is it a 30 percent autoimmune thyroiditis rate? What are the stats pertaining to the autoimmune component of this?

JD: Well, the data are pretty hard to actually pin down very clearly. I would say roughly anywhere between 20 and 45 percent of certain breeds will have the autoimmune form of thyroid disease. Of those animals that are positive for autoimmune thyroiditis, eight percent of them will have a normal TgAA, but 92 percent of them won't. We still have to rely upon the TgAA level, thyroglobulin autoantibody level, as the definitive marker. If we're not sure, we would biopsy the thyroid gland.

Also, if you remember recently, the University of California, Davis suggested that in the early inflammatory stage of canine thyroiditis, the thyroid gland becomes inflamed and enlarged, slightly enlarged. They did ultrasound measurements of the thyroid gland in these cases and found that they were enlarged.

From my perspective, that's not a practical clinical tool because it's pretty subjective about how large is it, could it be enlarged or something else, could the parathyroid glands or the salivary glands be close enough there? It makes no confusion about the overall mass of that portion of the neck.

KB: That really just undergirds our mutual agreement. In fact, one of the reasons we're making this video is that we really want clients and pet parents to demand that their veterinarians check for autoantibodies. We can't under stress that enough that a basic thyroid panel that doesn't include autoantibody testing is not complete. And really, the fact that we could have upwards 30 to 40 percent of dogs having an autoimmune reaction that has to be tested for to get viable results, and of course, appropriate treatment.

JD: Absolutely. Not just for breeding issues, but of course, for the health of the individual animal 100 percent.

KB: Yeah, wonderful. Well, Jean, as always, it's remarkably enlightening. It's always nice to have you here. But most importantly, we're providing consistent information for people that need this information because they have dogs that are sick and looking for optimal treatment options. You're on the forefront of not only collecting and researching that information, but providing it to us.

We love you and thanks again.

JD: Thank you very much.

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