Ovary-Sparing and Hormone-Sparing Techniques for Dogs
(An Interview with Dr. Michelle Kutzler)
By Dr. Karen Becker

DB: Dr. Karen Becker
MK: Michelle Kutzler

Introduction:

DB: Hi, this is Dr. Karen Becker. Traditionally, vets have only been taught one technique to sterilize pets in vet schools: the complete removal of the ovaries, uterus, and testes.

For females, early spays were thought to eliminate the risk of pyometra and reduce the incidence of breast cancer or mammary tumors. Results of a study published last year in the Journal of Small Animal Practice were unable to validate the theory that early spaying protects female dogs from mammary neoplasia. This leaves the elimination of pyometra as the sole health benefit from early spay procedures.

Given the mounting evidence that intact animals may have fewer long-term health problems, the last remaining issue surrounding this topic appears to be ethical: the responsible sterilization to reduce the millions of unwanted litters feeding the overpopulation crisis in this country.

Now, there’s a big difference between desexing (which is removing all gonadal tissue) and sterilization, which, depending on the technique, may spare sex hormone-secreting tissues. Many people are beginning to rethink what type of surgical sterilization technique they want for their pets. But most veterinarians are unable to offer a variety of procedures because we only learn one standard technique in school.

So, I’ve invited an expert to discuss the topic in better detail. I’ve asked Dr. Michelle Kutzler to join me today. She graduated from vet school in 1993. She spent four years in mixed-animal private practice in Minnesota. She became a diplomat of the American College of Theriogenologists in 1999 and received a Ph.D. in physiology from Cornell University in 2002. Dr. Kutzler is currently an associate professor at Oregon State University. She has published scientific papers about a variety of reproductive issues.

Now, I found Dr. Kutzler’s demo video on how to perform an ovary-sparing spay online. I wanted to get her perspective on the topic because she’s done this and she’s also an expert. First of all, thank you, Dr. Kutzler, for joining me.

MK: You’re welcome.

DB: I appreciate you taking time out of your very busy schedule.

MK: Thank you for being patient.
DB: Well, I tell you, your video’s so enlightening and refreshing to see. You’re an expert on reproductive physiology. First of all, tell our listeners and our readers how that came to be. That’s an interesting specialty.

MK: My interest in reproduction first came during my undergraduate training at Washington State University. We had a required reproduction course in the curriculum. My instructor, Dr. Ray Wright, who’s emeritus faculty still at Washington State University, was very inspirational. At that point, I’ve realized that not only did I want to be a veterinarian, but I wanted to specialize in veterinary reproduction.

DB: You did that, you graduated, and you went into mixed-animal practice. You decided to go back and become board-certified, which is wonderful. Then you got a Ph.D. in physiology. You’ve got the whole package. You’re really an expert in physiology, but then reproductive physiology is your forte. When along your professional path did you start connecting the dots among endocrine imbalance, full-body meltdown, and disease potential? It had to be early on, I would assume.

MK: Yes, absolutely. I don’t remember ever learning any of those side effects of removing ovaries during veterinary school. But once I was in private practice, we began treating cases of urinary incontinence after an ovariohysterectomy. I would ask the practice owners and my other colleagues in our practice how commonly they saw this and why wasn’t this better documented as a problem of ovariohysterectomy. But at that point, there was still some debate whether this was a result of trauma to the pelvic innervation because of the removal of the uterus or whether it was the removal of ovarian hormones.

Of course, at the time, the treatment that we had available was just the supplementation of ovarian hormones, namely estrogens. The drug that we used most commonly in practice in those days was diethylstilbestrol. Phenylpropanolamine wasn’t available. Phenylephrine was the other alternative, but there were more side effects – hypertension, anxiety, and behavioral changes – associated with that in dogs than there were with PPA. So, we used diethylstilbestrol.

As you and your listeners, I’m sure, are aware, dogs’ bone marrow is exquisitely sensitive to the effects of estrogens. It had to be used very carefully to prevent the signs of bone marrow aplasia.

DB: Sure.

MK: It was early in practice when I started to question the necessity of removing the ovaries as part of sterilization. But when I really started to connect the dots was in 2009. Dr. David Waters published one of several papers looking at the effects of gonadal hormones and longevity, specifically in the Rottweiler breed.

One of the reasons why this was of most interest to me is that my family, my husband’s parents, who still live in Minnesota, have raised pet Rottweilers (they don’t breed dogs; they just have pets that are Rottweilers) as long as my husband and I have been married. Over the past 17 years, they have had five pet Rottweiler dogs die from bone cancer. I was so concerned about what I thought was higher-than-normal incidence of cancer in their dogs that I had their water tested. I was concerned about the food that they were on, so we changed diets.

Again, with Dr. Water’s paper that came out in 2009 (and then I had an opportunity to speak with him at the theriogenology conference as well), that really instilled upon me that there are certain breeds definitely that benefit from maintaining their ovaries until later in life.

Subsequently to that, my in-laws currently own a female Rottweiler. She’s four years old and intact still. She has not had a hysterectomy performed mainly because I live in Oregon and she lives in Minnesota. There are very few veterinarians who feel surgically comfortable as well as ethically responsible
performing this procedure just because of insufficient scientific information for them to make those decisions right now. But I believe that information is coming.

**DB:** Good.

**MK:** We see more papers produced every year. In 2009, there were just a few; in 2010, even more. Just this year, 2013, I believe there are six papers evaluating the effects of gonadal hormones on longevity or health and disease risks...

**DB:** Research is coming.

**MK:** As more evidence becomes available.

**DB:** Yes, exactly. We’re learning more. You’re already applying what you’ve learned, which is wonderful.

**MK:** Right.

**DB:** But traditional veterinarians in private practice without a Ph.D. in physiology or who are unable to say, “We’re reproductive experts,” it’s difficult to take the training we’ve had from vet school and then try it out on a few patients without formal training. It’s scary. It’s risky. There are some ethical issues there.

You, you’re doing some neat procedures that are making sense for those of us who want to be morally responsible and make sure that we have sterilized pets. But you’re also preserving sex hormone health. How did this come about? You decided that you were going to not just teach yourself, educate yourself, or go where you need to be trained to acquire these skills, but you’re helping other veterinarians learn. How did that come about?

**MK:** Well, much of it came about through my interactions with Elaine Lissner and the Parsemus Foundation. Elaine Lissner, similar to myself, was concerned about removing the ovaries as part of surgical sterilization and was really the impetus for developing the video to train other veterinarians how to perform this procedure. Again, I felt comfortable talking to veterinarians over the phone, trying to walk them through the steps, but she believed that they really needed to have a video that they could watch. She has allowed her website to be the launching [venue] for this video for anyone to view.

[----- 10:00 -----]

**DB:** It’s wonderful. That’s a gift that the Parsemus Foundation gave to all veterinarians who are interested in learning more about the technique because the information isn’t out there. It is in journals and there are some surgical textbooks, but seeing it is a whole different thing. We appreciate that kind of communal endeavor between both of you very, very much.

When did you first start modifying your technique, your spay technique? How long ago?

**MK:** I believe it was in 2011 when we produced that video. It was that year that we started performing these procedures. The majority of the surgical sterilizations we perform on females still are routine ovariohysterectomies or ovariecotomies. Our university’s veterinary college teaches both procedures at this point. Again, hysterectomies are still viewed to be fairly controversial and are still viewed negatively by many surgeons and other veterinarians. Because it is a new technique, there is a very narrow foundation of scientific research that is available right now.

Again, I look toward other countries that don’t routinely ovariectomize females and that have done a decade-long or longer evaluation of pet health as a basis for the importance of maintaining the ovaries.
Although that’s different from saying that we’re going to remove the uterus and maintain the ovaries, I’d still use that as evidence to support the need for maintaining the ovaries.

**DB:** Are they doing hysterectomies on pets in other countries?

**MK:** I’m not aware of that. Probably the more common surgical sterilization that’s performed in females would be ovariectomies. But in Scandinavian countries – Sweden, Norway, Denmark, and Finland – the routine surgical sterilization of pets is prohibited by veterinarians. It’s actually illegal to be performed without medical necessity. For the purposes of contraceptive or sterilizing pets, the onus falls back onto owner responsibility of their dog’s reproductive health...

**DB:** Sure.

**MK:** As well as non-surgical alternatives. There are more non-surgical alternatives available in Europe than there are in the United States. Obviously, there’s more of a demand for it in Europe if surgical sterilization isn’t allowed. But being a responsible pet owner is an important part of the equation.

**DB:** Yes.

**MK:** It is too easy for pet owners to say, “I’m not going to worry about my pet’s reproductive health. I’m just going to remove the reproductive tract, and then I don’t have to worry about it.” But most dogs (again, this conversation today, for the most part, is limited to dogs) only cycle once or twice a year. Some dogs cycle even less frequently than that: once or twice every two years. The period where owners would need to be responsible for their pet’s reproductive health, so that they could prevent an unwanted pregnancy to occur, is a short period of time over the entire lifespan of the dog.

Again, if the entire lifespan of the dog is decreased to three or four years because of the early onset of bone cancer or hemangiosarcoma, it really comes down to what the best decision for the pet was.

**DB:** Right. Did you develop the technique that you demonstrated on the video? Where did you go to learn that?

**MK:** I guess you could say I developed it. I followed anatomy and veterinary surgery textbook guidelines on where the vasculature was and needed to be ligated and how to remove the uterus without removing the ovaries.

Technically, the procedure is fairly similar to an ovariohysterectomy. The main differences are: the incision needs to be made further caudal because it’s important to remove the entire cervix. Typically, that is not done when a routine hysterectomy is performed. Instead of ligating the ovarian pedicle between the ovary and the dorsal body wall.... Instead of ligating the ovarian vessels, you’re performing your ligation between the ovary and the uterine horn or across the uterine tubes. Technically, the procedure is fairly similar.

But again, the first time or the first few times you do a new procedure, it’s going to take you longer. You’re going to want to consult with other members of your practice to make sure that you’re doing things correctly. I can appreciate those insecurities because that’s how I felt when I did my first anal sack removal.

**DB:** Right.

**MK:** I never learned how to do that in veterinary school. But I had to do that in practice. I put pictures of the anatomy. I put pictures of the surgical procedure on the wall of the surgery room. This is how I
approached a new surgical procedure that isn’t done commonly in veterinary practice but there is a need for in companion animal practice.

**DB:** There is. And there’s a growing need. Do you foresee new techniques or different options being taught in vet schools in the near future or no? It seems to me that it’s based on demand and the fact that veterinary schools are not supplying veterinarians who have this knowledge. I know that there’s a growing sector of conscientious pet owners who are looking for ethical ways to sterilize their pet without removing sex hormones. They’re having problems finding veterinarians who perform the technique. Do you think that other vet schools would be teaching some alternatives to traditional spay and neuters in the near future or not so much?

**MK:** It’s a difficult question because every veterinary school’s curriculum and area of specialty is different. The amount of opportunities where students get to do even routine spays is very different between every veterinary school. I think that the veterinary college at Oregon State University has an advantage over others because of our relationship with the Oregon Humane Society. All of our students spend three weeks in a dormitory at the Oregon Humane Society and perform somewhere in the range of 15 to 30 spays before graduating from veterinary college.

However, again, they’re working at Oregon Humane Society. The principles that guide the decision-making of what kinds of surgeries that they can perform at the Oregon Humane Society are governed by…

**DB:** Them.

**MK:** Other forces – not just what’s best for training or veterinary students.

**DB:** Sure. Right.

**MK:** As far as opportunities for veterinarians to learn this procedure, it may be several years to decades to possibly never that this is taught at a veterinary school, just because of whether it would or would not fit into the curriculum. But I do see the potential for teaching this as a wet lab at the American Veterinary Medical Association (AVMA) conference or at any of the other large national conferences. Just like as a veterinarian, you would go to learn additional surgical techniques: how to use a laser, how to perform cryo-therapy, or whatnot.

**DB:** Sure. Those potentials for veterinarians to learn are coming probably not in vet school. It’s unfortunate, in my opinion, that we don’t have some options being taught. But it is wonderful that you, as a resource at your teaching facility, are capable of providing this as an option. When clients come to the school and they’re interested in an ovary-sparing technique, are you the doctor doing the procedure there? Or have you taught your colleagues how to do it? When clients come requesting that, is it something that they call on you to do?

**MK:** I actually am no longer affiliated with the veterinary college at Oregon State University. I am now in the Department of Animal Science. Being in this role allows me to do more research and consulting…

**DB:** Sure.

**MK:** Than I actually had the opportunity of doing while I was teaching within the veterinary school. However, to answer your question, I do have hospital privileges at Reed Animal Hospital, which is in a nearby city. It is with the veterinarians in this practice that we are able to offer the hysterectomy procedure.
DB: Wonderful. It’s wonderful. There’s a network of veterinarians who I think are trying to assemble some type of list. When people are interested in having this resource, I think that it’s hard to find a veterinarian that’s offering anything besides traditional desexing. I’ve had people call my practice regularly and say, “Listen, I’m on the East or West Coast, where would I go to find a veterinarian that’s open to at least discussing a different procedure?”

The Reed Animal Hospital is a great resource for you to be able to offer this procedure. You could have people coming from that entire section of the United States for this particular technique until it’s available on a more consistent basis nationwide.

So, since you’ve been doing this, do you think you’re able to correlate any notable health differences? You just started doing this, you know. The puppies or the younger dogs that you performed this technique on, they’re not even old yet.

MK: Right.

DB: Do you believe you’re seeing any health advantages right now early on in the health of these dogs? Are there any differences? Maybe they’re not leaking urine. It’s hard to say, I know. But it’s new enough that you might not be able to correlate any overall improvement in well-being at this point.

MK: That’s right. I think that if I were to hazard any type of assessment, it would just be wishful thinking.

DB: Sure.

MK: I do want to make the comment that because the ovaries are being spared, the dog continues to go through estrous cycles. And because the uterus has been removed completely, there’s no serosanguinous discharge. No bloody discharge associated with these cycles, but her vulva still becomes enlarged. For owners who have never had dogs go through a cycle, sometimes the first time they noticed that their dog’s vulva is enlarged, that is something that they’re concerned about. Because they are still cycling, they secrete pheromones that would still be…

DB: Attractive.

MK: Attractive to males.

DB: Yes.

MK: That’s right. Because they are still cycling, they would become receptive to males during a certain period of their cycle. My recommendation to all the clients that we’ve performed the hysterectomies on is to prohibit breeding from occurring during estrous cycle while the female is receptive. My reason for this recommendation is that we do remove a small portion of the cranial aspect of the vagina in order to remove the entire cervix. There should be no problem anatomically for the female dog’s vagina to accommodate the male dog’s penis. But I don’t know. There might not be a problem there. I don’t want to…

DB: Trauma.

MK: Have a problem occur.

DB: Sure.

MK: So, I’ve made that comment to clients and so far have not had anyone come back to me, saying that that’s been a problem to make sure that that doesn’t occur.
DB: Yeah.

MK: That just goes on to show that the clients who are making these decisions are very responsible pet owners to begin with and are cognizant of when their dogs are going through proestus and estrous, and just make sure that there is not a mating that occurs during that period of time.

DB: Sure. So, we’ve talked about females. Talk to me a little bit about if you own a male dog that’s intact and you want to be ethically responsible, so that he would never impregnate a female dog. Your thoughts on hormone-sparing techniques for male dogs. Do you have any?

MK: Yeah, absolutely. We now have another. I mean, actually, this was originally FDA-approved in 2003. But the current manufacturer’s name is Zeuterin. It is a zinc-based solution that is designed for intratesticular injection in males. It can be administered in young dogs: puppies older than three months up until... Well, ideally, it’s done during the first year of life, but there have been studies now that have looked at treating dogs that are more mature and with larger testes.

But the technique can be done without general anesthesia. In some cases, it’s done without any chemical restraint at all. I know that that makes many people cringe (the idea of the intratesticular injection), even women. I don’t think that that’s necessarily only a male-based anthropomorphism. But the majority of the discomfort from this procedure comes actually from the increase in pressure inside the testes after the solution is injected. But even that discomfort is minimized if the injection is done very slowly.

Having said all this, the zinc solution causes degeneration of the seminiferous epithelium. This is the part of the testes where the germ cells, the cells that will become sperm cells, are developing. The testes become no longer capable of producing sperm. The interstitial tissues, specifically the interstitial cells or the Leydig cells, are still present and they still produce testosterone.

Depending on the study, some say that the amount of testosterone is reduced may be as much as 50 percent. Others say there really is no significant difference between intact males and dogs that have been treated with this method. But either way, there is an amount of testosterone that is still in circulation, so the gonadal hormone-sparing effects are still present even though the male dogs themselves are incapable of reproducing.

DB: If you had a client who was nervous about using the injection, what are your thoughts about vasectomy?

MK: I’m not opposed to doing vasectomies. I have done vasectomies on dogs and cats both for research purposes. That’s not a difficult technique to do. Again, it would be an additional surgical technique that a veterinarian would need to be trained to do. The approach is different from what we’ve been taught for other methods.

With the hysterectomy, the approach is the same as it would be for an ovariohysterectomy. Whereas for vasectomy, the approach is different from what it would be for a pre-scrotal castration. That would be more difficult for veterinary surgeons in private practice to learn and master on their own.

Whereas the intratesticular injection, again, it’s very quick. It definitely would be, you know, an outpatient-type procedure. It’s gaining quite a bit of acceptance predominantly in Latin countries, where the idea of castration is really not considered by families for dogs. But intratesticular injection is an acceptable alternative to not doing anything, which then helps prevent unwanted matings.

DB: Sure. Are there any long-term health consequences from intratesticular injections? [Is there] anything?
**MK:** I have not heard of any outside of just the injection-site reaction. There is a small percentage, again, depending on the study. Some of those studies are conducted in very rural areas. The injections might not be performed in a clean, veterinary surgery room.

[----- 30:00 -----]

They might be performed out in the field because of where these field studies using this product have been performed. But those injection-site reactions can be as minimal as just some heat and discomfort around the testes for one or two days, which resolve without any medication at all to a chronically draining tract that requires a complete scrotal ablation. That happens in a very low percentage of cases. Depending on the reports, anywhere from .5 to maybe 1.8 percent of injections result in that type of complication.

But about long-term health complications, I really have not heard of any. The reason why that’s important is that the original product that was approved in 2003 – it was named Neutrasol. Dogs who received Neutrasol injections, we would have heard about complications associated with that because that’s been 10 years from now. Many shelter dogs were treated with Neutrasol as the method for sterilization.

**DB:** Do you think that this injection is going to be a potential for sterilization for shelter animals on a broad-scale basis in this country? Is it being accepted as such? Where do you see shelter acceptance when it comes to the injection?

**MK:** Yes. Again, I think that as veterinarians or as shelter managers, it’s important for us to have lots of options available. If you are the Oregon Humane Society and you have a fresh group of fourth-year veterinary students coming into your hospital every three weeks, then traditional surgical sterilization is the best option for you.

**DB:** Sure.

**MK:** But if you are in a small county that’s not well-funded and that has to do its best to either maintain a no-kill status for their shelters or maintain their pet populations as long as possible, you’re looking for any way possible to reduce that cost. Those pets need to be sterilized before they leave for fear of unwanted pregnancies from developing.

**DB:** Sure.

**MK:** Intratesticular injection is much lower in cost than surgical techniques.

**DB:** Sure, of course.

**MK:** And can be done quickly and in higher volume.

**DB:** And right there in the facility. One last question – personal question.

**MK:** Sure.

**DB:** If you’ve rescued a puppy today from a humane society and if they allowed you to leave it intact, would you just allow it to be intact forever? What would you do? What are you doing for your personal pets’ hormone balance?

**MK:** For my personal pets, the dogs that I currently own today, three of them are intact. One of them has been routinely ovariohysterectomized. If I got a puppy today, my decision would be really based upon the breed and the intended use of that puppy.
DB: Yup.

MK: If it is a medium- to giant-breed dog and I intend to do any type of performance with that dog – whether it is agility, a lure-coursing ability testing, barn hunting, or all the fun activities that we can do with our dogs – I would allow the dog to remain intact or remove just her uterus because of the health benefits associated with the gonadal hormones.

Again, with smaller-breed dogs, the health benefits aren’t as clear. Smaller-breed dogs tend to cycle or go through more heats per year than large-breed dogs do. For a smaller-breed dog, my recommendation is still a traditional ovariohysterectomy until I have more evidence myself to persuade me otherwise.

DB: I appreciate you taking time to explain your philosophy to share with the world your kind of modernized and updated spay technique, which allows animals to not reproduce but maintain their sex hormones. I appreciate the work you’re doing in terms of research and the fact that you took time out of your busy day to share all of your thoughts with us today. Thank you so much for joining us.

MK: Thank you, Karen. I really appreciate the invitation.

DB: Thank you.

[END]