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Dog Tips

Is Your Dog Neutered or Spayed? Help Avoid Long-Term Effects

Research confirms that gonad removal in male and female dogs can lead to life-altering issues, including obesity, urinary incontinence, malignancy, musculoskeletal and immune problems, and even cognitive and behavioral issues. This can help prevent and reverse them.

Analysis by Dr. Karen Shaw Becker

STORY AT-A-GLANCE

- Spays and neuters — surgical procedures that remove the gonads and associated sex hormones — can have a significant, long-term negative impact on the health and welfare of dogs
- A 2021 case study involving a neutered dog who at a young age developed life-altering health and psychological issues related to gonad removal strongly suggests that hormone restoration therapy may be a significant benefit to symptomatic spayed and neutered dogs
- The dog featured in the study received weekly subcutaneous testosterone injections and an implanted hormone agonist, and over time, both his health and psychological issues resolved, and his quality of life was restored
- Further research of hormone restoration therapy in dogs could potentially relieve the suffering of millions of spayed and neutered dogs with desexing-related ailments

Research now conclusively shows that gonad removal in dogs, especially large breeds, can result in a number of health problems. Spaying or neutering (aka desexing, castrating) involves removing the ovaries or testicles, organs that produce essential hormones (estrogen, progesterone, and testosterone) in dogs.

Sex Hormones Directly Affect the Health and Wellness of Dogs

Spay and neuter programs have certainly helped reduce pet overpopulation and diseases associated specifically with the sex organs, such as ovarian and testicular cancers, pyometra, and some prostate disorders. However, the downside to removing the gonads and therefore the sex hormones they produce, is that it can have a significant negative impact on other measures of canine health and welfare. According to the Parsemus Foundation, via Phys.org:

> *"Obesity, urinary incontinence, various cancers, immune-mediated diseases, musculoskeletal disorders, and cognitive and behavior problems are more common in spayed and neutered dogs. This is likely because natural hormone feedback mechanisms become unregulated in neutered dogs.*
>
> *For example, without sex hormones signaling the pituitary gland and hypothalamus in the brain, levels of luteinizing hormone (LH) continue to increase. Emerging research indicates that the high levels of unopposed luteinizing hormone likely influence the development of diverse health disorders.*

The relationships between sex hormones, health and wellness are not simple and may be influenced by many factors, including the dog's sex, breed, age, and environment."[1]

Spay/Neuter Is Essentially Sterilization Overkill

It's important to recognize the difference between sterilization and desexing. Whereas the former procedure eliminates a dog's ability to procreate, desexing sterilizes but also eliminates the dog's ability to produce sex hormones for the remainder of his or her life.

Sterilization without gonad removal (ovary-sparing spays aka hysterectomies for females, vasectomies for males) is an alternative, but difficult to obtain for many pet parents because veterinary schools only train students to perform full spays and neuters. If you have an intact dog and prefer sterilization to castration, you can find a list of veterinary providers who've received training in alternative procedures at the **Parsemus Foundation**.

It's also important to note that while post-desexing health issues tend to be diagnosed most often in large breed dogs, it doesn't mean that depriving smaller dogs of a lifetime of important hormones isn't also potentially problematic.

Desexed Puppy Develops Multiple Health, Psychological Issues

In 2021, a landmark case study was published in Topics in Companion Animal Medicine detailing the first report of hormone restoration therapy in a castrated dog.[2]

Toby, a male mixed breed, was neutered at seven months of age as a condition of adoption from a county animal shelter. The pup arrived in his new home as an active, healthy, sociable little guy, but his health went rapidly downhill over the next few months.

When he turned a year old, Toby's owners took him to a veterinarian because he had developed multiple health and psychological issues that impacted his quality of life, including reduced mobility, limping, rapid weight gain, and fear of unfamiliar people.

From age one to age four, Toby was treated with several pharmaceuticals, including pain medications, joint supplements, thyroid hormones, and antidepressants, along with significant dietary restrictions. His limping was reduced on this protocol, but his mobility remained poor. His weight stabilized on a strict diet, but his fear and anxiety responses to strangers only worsened.

By the time he was four, Toby's anxiety was so pronounced that his owners could no longer take him outside the house, and his inability to run and jump like a normal dog was exacerbating his weight problem. When his owners added a second, younger dog to the family, Toby's health challenges became even more obvious when he couldn't run and play with his new housemate.

Hormone Restoration Restores Toby's Quality of Life

Fortunately for Toby, his owners (one of whom, Linda Brent, is the lead author of the case study) were aware that lack of normal hormone levels after neutering can impact a dog's health and were concerned that his problems were a result of his desexing, so they contacted Dr. Michelle Kutzler, a veterinary theriogenologist at Oregon State University

(and a study coauthor).

Castrated male dogs have very low testosterone levels and can have abnormally high levels of luteinizing hormone (LH). Toby's LH level was three times higher than normal for a neutered dog. Kutzler and Toby's owners decided to try hormone restoration therapy to return the dog's hormones to a normal level, and he was started on weekly subcutaneous (under the skin) administration of testosterone, which he readily accepted with positive reinforcement training.

Within three months, Toby had increased muscle mass, reduced limping, improved mobility, and a moderate decrease in fear and anxiety. Since his LH level was still too high, he received an implant of a gonadotropin-releasing hormone agonist. That additional step did the trick, and both his testosterone and LH levels were brought into normal range. His health improvements continued, including reduced appetite and manageable fear and anxiety behaviors.

Today, Toby goes for walks in public parks and easily runs, jumps, and keeps up with his four-legged housemate. There are no known side effects of the hormone restoration therapy he received, and he remains on the treatment with regular monitoring of bloodwork, testosterone and LH levels, and prostate exams.

> *"The improvement in Toby's health and behavior has been amazing," says Brent. "After years of trying traditional medical treatments with little effect, returning his hormones to normal levels has given him a chance for a happy and healthy life."*

Clinical Trials Are Needed

While Toby's case study shows that hormone restoration may improve the health of symptomatic neutered dogs, there is much more work to be done to uncover optimal therapeutic methods and potential risks.

> *"This case report provides evidence to support lowering LH concentrations with GnRH downregulation and gonadal hormone supplementation in spayed and neutered dogs displaying clinical signs of the long-term adverse health effects of gonad removal," says Kutzler. "Controlled randomized clinical trials are needed."*

While data from an individual animal cannot be generalized to other dogs, the authors hope that it encourages dialog and further research on the topic of hormone therapy for the millions of spayed and neutered dogs who are now suffering from ailments that don't respond to traditional medical treatment.

Dogosterone™ Therapy

Not long ago, I interviewed veterinarian Dr. David Bieber, owner of the Sheridan West Animal Clinic in Cooper City, FL, who has developed a one-of-a-kind hormone replacement program called Dogosterone™ Therapy.

The treatment is designed for desexed dogs and replaces the testosterone their testicles or ovaries would have provided naturally had they been left intact. Dr. Bieber has seen improvement in a variety of conditions once testosterone replacement therapy is initiated, including hip dysplasia and arthritis.

Dr. Bieber is now offering online hormone replacement therapy certification through his **Dogosterone** website for veterinarians who would like to offer testosterone replacement therapy to their patients in a safe and effective manner. You can find a list of Certified Dogosterone Veterinarians **here**.

Sources and References

[1] Phys.org, August 20, 2021

[2] Brent, L. et al. Topics in Companion Animal Medicine, Volume 45, November 2021