Testosterone restoration can address health issues linked to dog neutering

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Pax, the neutered service dog of Dr. Peter Dobias, benefited from testosterone therapy, regaining his mobility, coat quality, and joyful personality. Credit: Dr. Peter Dobias

Researchers from the Parsemus Foundation, a nonprofit dedicated to

advancing pet health, have investigated the safety and dosing of testosterone therapy for neutered male dogs. Published in *BMC Veterinary Research*, their study provides crucial data for veterinarians to treat "spay-neuter syndrome"—a collection of health and behavioral problems associated with hormone loss following sterilization.

Results show that injectable testosterone can safely restore physiological hormone levels in neutered dogs, offering a promising avenue to counteract the adverse health effects of neutering.

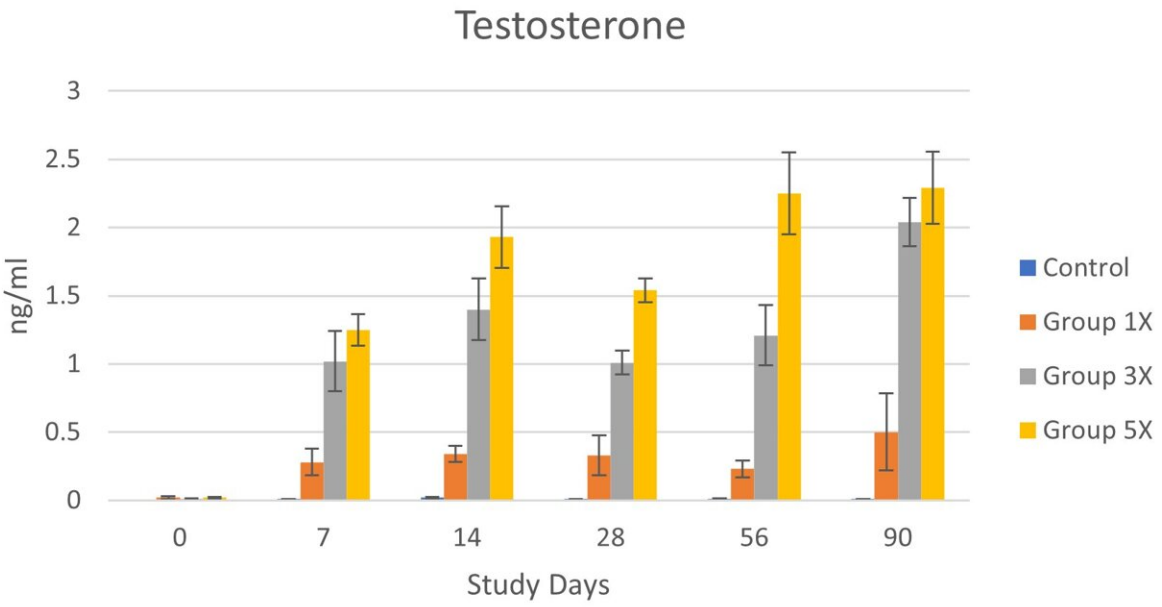
"Spaying and neutering remove critical hormones, not just fertility," said Dr. Karen Becker, a leading integrative veterinarian and advocate for pet health. "The resulting deficiencies contribute to numerous degenerative diseases over time. Research-based HRT protocols are essential for veterinarians to restore hormonal balance and safeguard long-term canine health."

Neutering is commonly practiced globally, yet the removal of reproductive organs also eliminates essential hormones like testosterone and estrogen, which play important roles beyond preventing reproduction. This can result in what is increasingly recognized as "spay-neuter syndrome" (a term coined by Dr. Ruth Roberts, integrative veterinarian, and holistic pet health coach educator).

Many spayed and neutered dogs develop conditions such as cancer, urinary incontinence, obesity, hypothyroidism, orthopedic problems, and behavioral changes like increased aggression, fearfulness, anxiety, or reactivity. Though hormone-sparing sterilization is gaining attention, research on hormone restoration for already-neutered dogs has been critically lacking.

This is the first study to provide essential safety and dosing data for injectable testosterone in castrated male dogs. The goal is to give

veterinarians clear guidance on safe dosages and monitoring parameters so they can better address hormonal imbalances that contribute to chronic health problems and diminished quality of life.



Testosterone levels in neutered dogs in the study at Day 0 (baseline) and during three months of testosterone therapy at three dose levels (1X, 3X, and 5X the standard dose). Measurements were taken one week following dosing, reflecting the low point in the week. Credit: Parsemus Foundation

The first study to evaluate the safety of testosterone therapy for neutered dogs

The 90-day target animal safety study enrolled twelve neutered male dogs divided into four groups, each receiving a different weekly dose of injectable testosterone cypionate: 0x, 1x, 3x, or 5x the standard 0.5

mg/kg dose. Researchers monitored bloodwork, hormone levels, prostate health, behavior, and body condition.

Key findings include:

- Safety: Testosterone therapy over a three-month period was safe at all tested doses, including up to five times the standard. Most health parameters remained stable, and adverse events were rare and generally unrelated to treatment.
- Hormone Restoration: Testosterone levels measured one week after injection rose in proportion to the dosage, with significantly higher levels in the 3x and 5x groups.
- LH Reduction: Luteinizing hormone (LH), which rises in neutered dogs due to a lack of negative feedback from gonadal hormones, decreased after 90 days of treatment, especially in the 5x group. This is notable because high LH levels have been associated with health risks including cancer.
- Minimal Impacts: Behavioral measures, prostate health scores, body condition scores, clinical evaluations, and routine bloodwork showed only minor variations across groups or over time, indicating overall stability during treatment.

"This study marks a significant step forward in understanding how to restore hormone balance in neutered dogs safely," said Linda Brent, Ph.D., executive director of the Parsemus Foundation and lead author. "Our findings provide a critical foundation for veterinarians and pet owners considering testosterone therapy to alleviate the long-term health and behavioral challenges associated with spay-neuter syndrome."

The paper also discusses risks, offers LH-reduction strategies, and recommends further research to understand testosterone metabolism and long-term outcomes. While the initial results are encouraging, follow-up studies will be essential to confirm ongoing safety and efficacy.

"The latest research by Dr. Linda Brent and colleagues published in *BMC Veterinary Research* shows that data-driven testosterone dosing can safely restore testosterone in neutered dogs and dramatically improve their physical health and emotional well-being," Dr. Peter Dobias, a conventional and integrative veterinarian, remarked.

"As we continue to learn more, I believe that ongoing data collection and open communication with veterinarians are the keys to further refining these protocols and empowering dog lovers to make the best decisions for their pets."

"The Parsemus Foundation is proud to support innovative solutions for under-researched pet health issues," added Elaine A. Lissner, founder and trustee of the foundation.

"We are drawn to simple, inexpensive solutions overlooked by the pharmaceutical industry. This study on testosterone restoration in neutered dogs offers more options for pet owners making informed decisions about their animals' health."

The foundation's website provides information on hormone-sparing sterilization methods such as vasectomy and hysterectomy, hormone restoration, and nonsurgical options for pet care, along with a veterinary directory for finding clinics that offer these services.

More information: Safety and dosing of testosterone for hormone restoration in neutered dogs, *BMC Veterinary Research* (2025). DOI: 10.1186/s12917-025-04869-8, bmcvetres.biomedcentral.com/ar … 6/s12917-025-04869-8

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