

FEATURE



# Breeder Excellence

*Canine Breeder Excellence Seminar Tracks: A Comprehensive Overview—January 2024*

*By Sharon M. Albright, DVM, CCRT*

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To provide breeders with current information specifically on reproduction topics that will help them achieve success in their breeding programs, the AKC, AKC Canine Health Foundation (CHF), and Theriogenology Foundation (TF) sponsor

Canine Breeder Excellence Seminars. Speakers are often graduates of the AKC/AKCCHF/TF Small Animal Theriogenology Residency Program—a collaboration designed to increase the number of trained practitioners in companion animal theriogenology and clinical

genetics. Visit [akcchf.org/therio](https://akcchf.org/therio) to support and learn more about this program.

The latest seminar tracks focused on artificial insemination, managing prostate disease in dogs, and maximizing the survival of neonates. This valuable information is summarized here for breeders.



CARDIGAN WELSH CORGI  
PUPPIES: PIOTR WOJCIK/  
ALAMY STOCK PHOTO

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## **SURGICAL VERSUS TRANS-CERVICAL ARTIFICIAL INSEMINATION: DOES THE METHOD REALLY MATTER?**

Presented by Lily Lewis, DVM

*Dr. Lewis began her AKC/AKCCHF/TF Small Animal Theriogenology Residency at Auburn University College of Veterinary Medicine in 2022.*

Artificial insemination (AI) stands out as a cornerstone practice in dog breeding, especially when a mating pair cannot achieve a natural tie, when using fresh-chilled or frozen semen, or to allow breeding of geographically distant animals. This presentation compared two methods of intra-uterine insemination: trans-cervical insemination and surgical insemination.

Trans-cervical insemination (TCI) marks a significant advancement in canine breeding manage-

ment. TCI places semen directly into the uterus using endoscopy or a specialized catheter. One benefit of this method is that the clinician can visualize the cervix to ensure correct semen placement. In addition, the procedure is quick, does not require general anesthesia, and can be repeated during a single heat cycle. However, the needed equipment is expensive and requires significant training to operate efficiently, potentially limiting its accessibility.

Surgical AI can be completed through a full abdominal incision or with the help of laparoscopic cameras inserted through three smaller incisions. This method allows bitches with anatomic abnormalities to be bred since it bypasses the vestibule, vagina, and cervix. It also minimizes bacterial contamination of the reproductive tract. However, it does involve the standard risks of general anesthesia and a surgical

procedure, has a longer recovery time than TCI, and can only be performed once per heat cycle.

Dr. Lewis' comprehensive review of the scientific literature comparing pregnancy rate, whelping rate, and litter size illuminates several critical insights into the efficacy of these insemination methods. In summary:

- Frozen semen performed better when deposited directly into the uterus.
- TCI performed better than surgical insemination.
- There was no improved efficacy when one or two inseminations were performed using frozen semen.
- The insemination method did not affect whelping rate.

Some common dog-breeding myths were also debunked by reviewing the scientific literature:

- Placing semen closer to the ovaries will not improve pregnancy rates. The semen will distribute itself

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## Comparison chart of different insemination methods

Insemination method	Sedation/ anesthesia required?	Appropriate semen type to use	Repeatable in one heat cycle?	Recovery time
Vaginal	No	Fresh or cool-shipped	Yes	None
Trans-cervical	Rarely	Any	Yes	Little to none
Surgical	Yes—anesthesia	Any	Yes	10 to 14 days for incision healing

throughout the uterus.

- More inseminations are not always better. Repeated insemination is only helpful when the timing of the breeding is not optimal or if using poor-quality semen.

- Elevating the bitch's hind limbs following insemination does not affect pregnancy rate or litter size.

As the field of canine breeding continues to evolve, staying informed about the latest research and advancements in AI techniques is crucial.

By leveraging these insights, breeders can

make informed decisions, optimize their breeding programs, and contribute to the health and vitality of future generations.

### PROSTATE PEARLS OF WISDOM

Presented by Aime Johnson, DVM, DACT

*Dr. Johnson is a board-certified theriogenologist and Associate Professor at Auburn University specializing in equine and small animal reproductive medicine.*

It is important for owners and veterinarians to under-

stand the prostate gland, as up to 95 percent of intact male dogs will experience prostate disease by the age of 9. This presentation shed light on common prostate diseases, their clinical signs, and the importance of early detection and management strategies.

As the only male accessory sex gland, the prostate constantly secretes a small amount of fluid and adds fluid to the ejaculate to provide transportation and nutritional support for the sperm. The prostate gland responds to the hormone dihydrotestos-

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terone (DHT), which is created when the 5 alpha reductase enzyme interacts with testosterone (which is important for treatment options discussed below).

Common clinical signs of prostate disease include bloody urine, urethral discharge, and straining to defecate. Dogs can also strain to urinate, have bladder infections, decreased appetite, incontinence, infertility, fever, vomiting/diarrhea, hind limb lameness, or back pain. Breeding dogs are typically evaluated when blood is seen in the

ejaculate. A full medical evaluation is needed which may include testing for brucellosis, semen collection and evaluation, palpation of the prostate, radiographs, and/or ultrasound.

Common diseases of the canine prostate include:

*Benign prostatic hyperplasia (BPH)*

This condition causes an enlarged but nonpainful prostate gland. Reducing testosterone levels through castration is the only definitive treatment. However, the medication finasteride

inhibits the enzyme that converts testosterone into DHT and can shrink the prostate within 4 to 5 months. Additional medications including oral or injectable progesterone and tamoxifen (which blocks estrogen receptors) can be used if castration must be delayed.

*Prostatitis*

Inflammation of the prostate gland can be acute (rapid onset) or chronic. Dogs with acute disease usually show signs such as fever, lethargy, and abdom-



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inal pain. Their prostate is painful when palpated. Conversely, dogs with chronic disease may show more subtle signs including recurrent bladder infections or foul-smelling penile discharge. Their prostate gland may be normal size and non-painful or may be difficult to palpate because of scar tissue. Both conditions are diagnosed using ultrasound and prostate fluid analysis, with treatment requiring the use of high doses of antibiotics that penetrate the prostate gland for at least one to two months.

### *Prostatic Cysts*

Cysts are common with BPH. While benign, these fluid-filled sacs can press on the colon and interfere

with defecation. Treatment requires surgery to remove the cystic tissue or draining the cyst with a needle. Treating affected dogs for BPH will alleviate pressure on the colon by shrinking the prostate tissue but will not directly affect cyst size.

In summary, older intact dogs will experience prostate disease. There are treatment options, but castration is the only long-term solution.

For breeding dogs, semen should be collected and frozen monthly while prostate disease is managed. Once sufficient semen has been collected, the stud should be castrated.

It is recommended that semen be collected and frozen while dogs are still young.

## **TROUBLESHOOTING THE FIRST 48 HOURS WITH NEONATES TO ENSURE SUCCESS**

Presented by Robyn Wilborn, DVM, MS, DACT

*Dr. Wilborn is a board-certified theriogenologist, Associate Professor of Theriogenology, and residency mentor for the AKC/AKCCHF/TF Small Animal Theriogenology Resident at Auburn University.*

The journey of bringing new puppies into the world doesn't end with their birth. The final presentation of this series focused on the all-important goal of keeping neonatal puppies alive and healthy! Dr. Wilborn shared a graphic from the Neocare Center

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at the Toulouse Veterinary School (<https://neocare.pro/>) which showed a global mortality rate of 18–22 percent in puppies from 0–2 months of age. Almost half of these losses occur during the first week of life, and most occur during the first 48 hours. Understanding the many factors that contribute to neonatal loss will help inform strategies to mitigate them.

While we often worry about infectious agents, it is important to remember that adverse events in the uterus, dystocia, birth defects, low birth weights, environmental conditions, and the health and vaccine status of the dam also impact neonate survival. For a successful whelping, breeders and veterinary clinics should prepare a whelping kit with all the necessary supplies. Recommended contents include a pediatric stethoscope, suction devices, small syringes, emergency drugs, suture, scissors, and puppy identification materials.

Caretakers should be

prepared to schedule an elective (non-emergency) Cesarean section (surgical delivery) for brachycephalic breeds, or if the litter is very small or very large, or if there are large pups in a small dam. Remember that fetal heart rates less than 170 beats per minute indicate distress and should prompt evaluation for an emergency C-section.

### *Neonatal Resuscitation*

Once pups are out of the dam, remember the ABCs of resuscitation:

**Airway:** clear mucous from the nose and mouth using a bulb syringe, mucous trap, or the accordion method.

**Breathing:** stimulate neonates to breath with vigorous rubbing, stimulating the nasal acupuncture point with a 25-gauge needle, or umbilical stimulation.

**Circulation:** check the newborn's heart rate.

Dr. Wilborn recommends the following timeline for

neonatal resuscitation:

- Vigorous rubbing for 2 minutes.
- If the puppy is still not vocalizing or breathing, use the acupuncture point for 2 minutes.
- If still not vocalizing/breathing, give oxygen through a facemask for 2 minutes.
- If still not responsive, give naloxone to reverse any opioids given to the dam during surgery or perform cardiopulmonary resuscitation for 2 minutes.
- If still not responsive, consider using emergency drugs like doxopram or epinephrine.

Adaptation of the APGAR Scoring tool from human to canine medicine provides a simple, clear grading system for neonate health.

APGAR Scoring evaluates **A**ppearance, **P**ulse, **G**rimace, **A**ctivity, **R**espiration.

Charts are available to document the APGAR score for each puppy at

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birth, 5 minutes of age, 30 minutes of age, and 2 hours of age. Each pup is scored from 0 to 2 on mucous membrane color, heart rate, respiratory rate, reflex/irritability (do they squirm when the scruff is pinched?), and mobility/muscle tone. Scores are combined to assess puppy distress with lower scores indicating more severe distress.

In one study, puppies with an APGAR score less than or equal to 6 had a mortality rate 22 times higher than those with a score greater than 7.

Neonates should be weighed twice daily using a standard kitchen scale. A rule of thumb is that puppies

should gain 10 percent of their body weight every day. In fact, daily weight gain is the single best indicator of neonate wellbeing.

In summary, the most common threats to neonatal puppies are low body temperature, low blood sugar, low oxygen, and dehydration. Caregivers should focus on warmth first, then nutrition. They should also remember to stimulate urination and defecation in the puppies if the dam is not doing so.

Through diligent preparation, vigilant care, and continuous education, the challenges of neonatal puppy care can be met with the tools needed to make a difference.

## THE TAKEAWAY

These presentations shed light on the complexities of canine breeding and neonatal care while equipping breeders and veterinary professionals with the knowledge and tools to successfully navigate these challenges. Through continued education and collaboration, there is a shared commitment to the health and well-being of our canine companions, from conception through the critical first weeks of life.

Visit [akcchf.org](https://akcchf.org) to learn more about the AKC Canine Health Foundation and its educational programs. Thank-you to the Theriogenology Foundation for their collaboration in providing these valuable presentations.—**S.M.A.**

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*Sharon M. Albright, DVM, CCRT, is the AKC Canine Health Foundation manager of Communications & Veterinary Outreach.*

## Support CHF

Your donation helps to support canine health research and provide educational resources to dog lovers.

Learn more about the [Top 5 Reasons](#) why your support matters.

