

BREEDING SOUNDNESS EXAM –WET LAB

Dana Bleifer, DVM

**Warner Center Pet Clinic & C.L.O.N.E West
20930 Victory Blvd. Woodland Hills, CA 91367
(818) 710-8528 (818) 710-9312**

Breeding soundness exams for the dog are no longer as simple as trying to determine if they can breed a bitch. I plan to discuss the variables I take into consideration when a stud dog comes in for a pre-breeding exam. We must now specify what type of breeding the dog may or may not be suitable for.

With the advent of chilled and frozen semen and newer techniques assessing breeding soundness becomes more complicated. Understanding the clients' desires and goals with potential stud dogs is the first thing that must be determined. Furthermore obtaining a thorough history of the stud dogs previous or current medical conditions, and medications can be as important as past breeding history. Despite many guidelines, the only true test of fertility in a dog is conception when bred.

There are 3 main components to a breeding soundness exam. First is the history, second is the physical exam and third is the semen evaluation.

If a dog is to be used for natural breedings, then orthopedic soundness becomes important in addition to reproductive organ soundness. It is ideal to observe the mating behavior but this is rarely practical in the hospital setting. The other factor to keep in mind while examining the dog is how it will impact the dogs desire to ejaculate when the semen evaluation is done. It is often best to keep the physical examination minimal prior to the collection. While collecting the stud, the prepuce, penis, scrotum and testicles can be examined. The exam can be finished after the collection is done. Breeding soundness exam forms such as the one distributed by the SFT are very helpful in maintaining consistency and thoroughness.

Physical Exam For the Stud:

1. **Scrotum-** visual inspection and palpation. Skin abnormalities may influence semen quality in the testicles.
2. **Testicles-** inspection and palpation, sometimes ultrasound and fine needle aspirate if a tumor is suspected. Size, shape and consistency are very important.
3. **Epididymis-** palpation is performed to evaluate size and shape
4. **Prepuce-** inspection and palpation looking at size and shape and checking for discharge. When indicated, cytology and culture can be performed.
5. **Penis-** inspection and palpation looking at size and shape. We check carefully for signs of infection, tumors, congenital anomalies and trauma. Normal function can be observed during manual ejaculation. Ideally, observing the dog breeding a bitch would be best but rarely practical in the clinical setting.
6. **Prostate-** palpation ultrasound and collection of the third fraction of ejaculate. If indicated, prostatic wash, biopsy, or semen culture. Evaluation of size and shape and presence of infection, cysts or tumors.

7. **Semen** – collection of ejaculate and evaluation to determine fertility. Suitability to freezing and chilling may be indicated based on owners' plans. Cultures may be performed as indicated.
8. **Laboratory testing-**
 - a. Brucella Screen
 - b. Culture of abnormal fluids- semen along with urethral culture well labeled, as these seem to confuse the labs.
 - c. Thyroid testing
 - d. Hormone testing
 - e. Chromosome analysis

Semen Evaluation

The presence of an estrus bitch is especially important with inexperienced dogs. Frozen swabs can be substituted if one is not available. The room must be of adequate size with privacy and minimal distractions is helpful.

Supplies needed for evaluation and collection:

- Collection cone or Whirlpack bags
- Test tubes
- Slides
- Coverslips
- Slide warmer
- Microscope
- Morphology stain
- Hemocytometer or sperm counter with appropriate supplies

While effort should be made to collect all three fractions individually, it is often difficult to separate the first and second fractions but the third is typically easy to separate.

Guidelines for normal semen parameters vary depending on publication. Parameter such as volume and total sperm count can vary dramatically depending on the size of the dog i.e. toy breed vs. giant breed. Newer AI techniques such as transcervical insemination may allow conception with "sub-optimal" semen.

Color: Normal semen is white or opalescent- off colors i.e. yellow, red, should be examined for abnormal cells or urine. Clear usually indicated azospermia, although some azospermic samples may appear opaque due to white cells or epithelial cells.

Volume: Very important to document but generally not an important variable.

Progressive Motility: Normal progressive motility is greater than 70%. Speed of forward progression can be assessed as slow, medium, fast. Some clinics rate speed with a 0-5 numeric scale. A "5" rating would be so fast that the tail cannot be seen clearly. A "4" rating would mean forwardly motile with tail easily seen. A "3" rating would mean motile, moderately progressive. A "2" rating would mean moving, motile, poorly progressive. A "1" rating would mean motile but not progressive. A "0" rating would mean no movement. Care must be taken not to introgenically alter the motility.

Sperm Count: The general guideline is 100 million per 10 pounds of body weight with slightly more for toy breeds and slightly less for giant breeds. Greater than 200 million morphologically normal motile sperm is considered normal. 100 million morphologically normal motile sperm is acceptable for intrauterine deposits. I use a Spectrophotometer system for count but a Hemocytometer can also be used.

Morphology: Sources vary on what is normal or acceptable, but I consider greater than 70% normal morphology as the guideline for “normal” in our practice. I use an eosin-nigrosin stain or a phase contrast microscope for evaluating the sperm.

Primary vs. secondary abnormalities are important to differentiate. The type of abnormality may give a clue to the source of a problem when the semen quality is poor.

Type of Breeding

Natural Breeding requires optimal normal physical exam and good semen evaluation parameters.

Artificial Insemination is frequently used if the dog cannot physically breed the bitch or owner preference

Intrauterine Transcervical Inseminations are the type that I use most frequently. They can really help if semen parameters are sub-optimal.

Freezing Semen can be done if semen quality is very good before freezing. Remember that freezing affects the quality of the semen adversely so I do not recommend freezing poor quality semen. Test thaw is very important to determine quality after thaw.

Chilled Semen can be used with very good semen parameters. A test chill is recommended, if the time is available, sometimes I will try different types of extender to test the longevity with different brands.

Fresh Semen (inseminated immediately) can be used with excellent to sub-optimal semen parameters Extending fresh semen can be helpful when a dog has normal semen parameters but the sperm die quickly (toxic prostate fluid?).

Nutritional plan to improve reproductive health of stud and semen:

- Glycoflex (Green lipped mussel) Vetri-Science Laboratories of Vermont
- Cell Advance (Vitamin Supplement) Vetri-Science Laboratories of Vermont

Both available from www.VetriScience.com

References available upon request.