

## Breeding Management

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Dogs have been breeding for centuries with minimal human help; and even today, if you put a female in estrus (heat) and male together, they figure-it-out, they breed, and puppies are born after 2 months. But, we, human have put extra demands on these dogs, we prefer certain genetic and physical traits, and would like to breed to maximize those traits, whether they may be for the competition in the show ring, agility, hunting, etc.

**Pre-breeding examination of a female:** Let us examine your female, discuss and help you to decide if she is the best candidate for breeding. In addition to good hips, eyes, etc. she may have other limitations for her to be bred and get pregnant. It could be as simple as diagnosing vaginal stricture to as complicated as being genetically ‘abnormal female’.

**Basic understanding for breeding:** Some dog lovers go to the great extent bringing genetic material, primarily semen from faraway places, sometimes from other countries with the hope to produce desirable traits they are looking for. Breeding animals which are physically far away from each other require close management of unique reproductive cycle of the bitch, which brings challenges not only to the dog owner but also to the veterinarian involved in assisting the breeding. How challenging is the canine breeding management? Well, every female’s cycle is different. Since last 30+ years, I have taught my veterinary students that average duration of proestrus (bleeding phase of the cycle) and estrus (sexual receptivity) is 9 days each. Soon after telling them this academic fact, I tell them, I have not seen a single bitch which can read the book and follow this schedule! These durations can be as short as a few days to as long as few weeks! Dogs with their sense of smell (pheromones) can figure-it-out when the female needs to be bred. However, not having the physical contact, various tests, including vaginal cytology, and hormonal tests are done to identify correct breeding time.

### **Why some bitches have abnormal cyclicity or ‘heats’?**

**Too short inter-estrus interval:** Most of the bitches cycle or come in season or ‘heat’ twice a year. Some large breeds may come in season every 9 months or once a year, which is OK. What is not OK is the bitch coming in season less than 4 month interval. Bitches coming in season at less than 4 months, and bred, usually do not get pregnant. There is a good reason for the required 4 month interval. It takes about 3 months from last cycle for the bitch’s uterus to ‘recover’ or involute from all the physiological changes take place during the heat. So, uterus is not ready to accept a new embryo until it is involuted.

**Too frequent heats:** Why some bitches attract male dogs/or show vaginal bleeding every few weeks? This is noticed in many young bitches or older bitches with potential cysts on their ovaries. Most of these condition can be diagnosed and treated by the Western medical/or with Integrative approaches, combining Western and Chinese medical remedies. At Loving Touch

Animal Medical center, all our veterinarians are certified in veterinary acupuncture, and having knowledge and access to Chinese herbs.

**Artificial Insemination (AI)** is a commonly used breeding technique when male and female reside at different places. AI involves collecting semen from a male and inseminating in the female. Semen deposition or insemination at the proper time is the **key** for successful outcome (pregnancy). In fact, AI at the wrong time is considered as one of the common cause of 'infertility' in canine.

**AI with fresh semen** is needed when male and female for various reasons are unable to complete breeding process. It may be inexperience of the male or dominance of the female that requires assistance by collecting semen from the male and inseminating in the female.

**AI with chilled transported semen** is commonly used when female and male live far away from each other. This requires close communication between the female and the male owner and the veterinarians involved at both sides. The cycle of the female is monitored by vaginal cytology and hormonal tests to find the proper time for AI. The semen is collected, properly processed in a way that the sperm in the semen are able to survive, and reach the female's destination in time to be inseminated.

**AI with frozen-thawed semen** was first reported as a successful technique during late 1960s. I always suggest owners of young dogs with outstanding pedigree to have semen collected, frozen and stored for future use before male becomes older, and show decrease in semen quality. One may ask, for how long semen can be stored? Let me answer this question in a different way. Frozen-thawed bull (cattle) semen has been utilized on commercial basis for more than 60 years. The calves are born from bull semen frozen more than 50 years ago! Obviously, the bulls are long gone and their off springs are born many years after their death. With advances in semen freezing technology, we can keep semen for a long time. Precise breeding timing is absolutely necessary for AI in the female with frozen-thawed semen. The main reason for the timing precision is that the frozen-thawed sperm going thru stressful processes of semen freezing and thawing doesn't live as long as the fresh or fresh-chilled sperm. Because of this reason, semen needs to be deposited directly in the uterus, not in the vagina as done for AI with fresh or chilled semen.

At Loving Touch Animal Center, we offer canine reproductive services including all aspects of breeding management and AI, whether it is at the receiving end of the chilled semen AI or sending chilled semen to other locations.

**Reasons for breeding failure:** AI at improper time is cited as one of the common reasons of 'infertility'. My argument has been that we shouldn't blame only the female not getting pregnant. Female has only 50% of the responsibility for pregnancy; we shouldn't forget the other half, the male! Just like many men, there are also many male dogs shooting blanks! I have evaluated many male dogs having fewer sperm than normal desirable sperm number in the ejaculate, others having mostly abnormal shape/or sperm with poor progressive movement (motility). I would highly recommend that all young males should be checked for breeding potential (breeding soundness examination) before start showing them/or marketing them as

breeding males. In my experience, many male owners wait too long before start using males for breeding. Just as in females, breeding capacity in males starts decreasing after 5 years of age. Off course, there are always exceptions, as I have examined a few 10-12 year old males with excellent semen quality. Considering the non-invasive nature of the male breeding soundness examination (BSE), I would recommend BSE for your male. Let me briefly explain what entails in BSE.

**Male Breeding Soundness Examination (BSE):** Reproductive evaluation of a male dog is much easier than the female, as most of the reproductive organs of the male are located outside compared to the female having reproductive tract inside the body. Male BSE involve comprehensive examination of the reproductive organs, semen collection and examination, and prostate examination. As Board Certified Veterinary Reproduction Specialist (Theriogenologist), I would be happy to provide a written report of the BSE results soon after the tests are done.

**Pregnancy diagnosis:** Ultrasound (US) examination after about 25 days of last breeding provides reliable results for confirming pregnancy, fetal viability and an estimate of fetal count. The transabdominal US examination is similar as done in human, non-invasive, and safe for the growing fetuses in the mother's uterus. There is also **hormonal blood test** available for pregnancy detection. Relaxin hormone produced from canine placenta after about 22 days of pregnancy can be detected. However, the fetal viability can't be assessed by hormone test. **X-ray (radiography)** for pregnancy can be done after about 42 days of the pregnancy. It is the best test for puppy count, as fetal skeletons are visible during late pregnancy. Some female owners prefer to have pregnancy confirmed early by US and have the puppy count by radiography during late pregnancy, as fetal count by US is not reliable.