

## Methods of Breeding (Canine)

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Client Education Handout

### Breeding

This is a well-known occurrence to be a simple magical scenario in which semen from a male of the same species enters the reproductive tract of an ovulating female, and attempts to create conception by finding and binding to an ovulated mature egg in the fallopian tube.

### Live Breeding- Normal coital tie

This is when the male and female mate naturally, resulting in a butt-to-butt tie that lasts anywhere from 5-30 minutes on average. One of the previous beliefs/misconceptions about the benefits of this breeding, is that we used to believe that if the female would “stand” and allow a tie, she had ovulated and was ready for breeding. Unfortunately, we know this not to be true, as estrus behavior from the female does not always correlate with ovulation or breeding readiness. Some females will stand before a heat cycle, some will stand starting days after it is too late to breed, and some will stand for a female year-round. Also, with this method, the amount of semen and the quality of the semen cannot be evaluated, and leaves questions to the likelihood of conception occurring due to the lack of information. This method is inhibited if the female or the male are aggressive to each other, if there is hyperplasia or strictures or injuries to either reproductive tract, if the dogs are different sizes that inhibit them tying together, and more. This is also not possible if the dog and the bitch are in different parts of the world and are unable to mate, or if the male is deceased and frozen preserved semen must be used. There are other reasons this method of breeding cannot occur, but these are some of the most common reasons.

### Artificial Insemination

Because of the reasons listed above that sometimes inhibit us from having live breeding, there are several methods of artificial insemination that we commonly use in canines.

1. *Transvaginal AI-* This is a method in which we obtain semen, evaluate the semen and often prepare it for breeding, then using a syringe and pipette we carefully place the semen into the cranial vagina for the breeding. Because we are lacking the natural tie with the swollen gland in the vagina to guide and force the semen into the uterus, holding the semen from backing out of the vaginal canal, we often tilt the bitch or hoist the females rear end to assist the flow of the semen to enter the uterus for a short period of time depending on the semen quality, volume, and females' behavior.

**Pros:** This is cost effective, fairly safe, quick, and doesn't require anesthesia

**Cons:** This method doesn't bypass the vagina which can contain blood pooling, bacteria, the bitches' immune cells, and other micro-organisms which can affect the semen quality. This method also doesn't allow us to visualize the vagina and cervix to determine if there are any

issues in the lower reproductive tract which can affect our semen from entering the uterus. We usually perform 2-3 transvaginal ai's over the course of 4-6 days, which can be time consuming and expensive.

- a. Fresh side by side
  - i. We collect the semen at the clinic with the bitch present, or close by. We evaluate the semen and perform the breeding promptly before the semen cools off.
- b. Chilled side by side (not often recommended)
  - i. The semen is collected somewhere off site, brought or sent to us, the semen is warmed, evaluated and the breeding is performed.
- c. Frozen semen (not recommended)

## 2. *Surgical insemination*

This method of insemination is much more invasive, and requires general anesthesia. This method is usually reserved for females with infertility issues in which live breeding and transvaginal breeding has been unsuccessful. This is not a go to breeding method, and is usually only used for clients understanding the risks or the procedure, the healing, and the aftercare. We obtain the semen, usually this is shipped chilled or frozen semen. We warm the semen and thoroughly examine it to be viable for breeding. Sometimes we condense it down by using careful slow-speed centrifugation to obtain a small semen pellet/or small amount of concentrated semen. We place the female under anesthesia, and we perform a laparotomy in which we exteriorize the uterus near the ovaries, using a sterile needle and syringe under a fully sterile process, we inject the semen near the fallopian tube/cranial uterus.

**Pros:** This method bypasses the vagina, avoiding any contaminants to drag into the uterus. Only one breeding is required/recommended.

**Cons:** You are not able to evaluate the cervix or the vagina for abnormalities that may have been found with a live/transvaginal ai, or tci (which we will explain shortly) that may inhibit natural birthing or that may affect the pregnancy. Anesthesia, although safe, is not without risks. The healing process must occur to the uterus, and all levels of the abdominal tissues, muscles, and skin. Uterine adhesions can occur as can also occur with cesarean sections. It is slightly more expensive than transvaginal breeding. It is to performed only by experienced, licensed, and skilled veterinarians with precise ovulation timing.

- a. Fresh Can be used
- b. Chilled Can be used
- c. Frozen Can be used

## 3. *Transcervical*

This method of breeding utilizes a semen sample being placed through a specialty (camera) endoscope in which we place the bitch onto a specialty table that restrains her from abrupt movements to protect the scope from bending or breaking, and through a meticulous process we pass the camera/scope transvaginal to the point of her cervix where we are able to pass a specialized semen straw through the cervix into the uterus where we are able to deposit the semen. This method is usually reserved for females with infertility issues in

which live breeding and transvaginal breeding has been unsuccessful. This is not a go to breeding method, and because of the cost, it is used less often than transvaginal insemination.

**Pros:** This method of insemination is much less invasive than a surgical insemination, and does not require general anesthesia. Because it is still a fairly new method within the last couple decades, clients are more reserved and hesitant to use this method despite its success rate being comparable to a surgical ai. There is no risk for healing, and no aftercare.

**Cons:** Expensive. Requires a highly skilled reproductive veterinarian with the equipment needed and a good success rate. Sometimes, due to the anatomy of the vagina or cervix, including hyperplasia and scarring, will must bypass the vagina and cervix and go with a surgical insemination.

All samples including the following can be used with transcervical insemination.

- a. Fresh
- b. Chilled
- c. Frozen