

Sex Ed for Your Dogs

Breeding in dogs, believe it or not, is similar to breeding in people; nature usually takes control. And things proceed unventfully. Breeders know all too well to place dogs together after about the first week of noticeable heat cycle and let things progress; smart breeders also know it is better to bring the bitch to the stud so as not to upset his delicate libido and territory! As the hormones change in the female proceeding ovulation, she will stand for the stud and breeding will commence; do this every other day and shoot for 3 breedings. Occasionally things do not go as planned and we need to take a look at the causes of infertility.

Obviously if fertility problems arise, the problem lies with either the male or the female so we'll direct our discussions here. First let us review the normal canine menstrual cycle and the events leading towards pregnancy.

As most of you know, the canine female (bitch) does not cycle regularly. In a nutshell this is because her ancestors were pack animals. Usually only the dominant bitch in a pack conceived a litter each season; the other bitches cycled in a sort-of standby mode. This served 2 purposes: the first was to have a female available to be bred should something happen to the pregnant bitch so as to assure the pack would not go a season without pups. The second was to have females ready to nurse the pups should something happen to the mother. Because of this evolutionary protection mechanism the cycles are highly irregular from dog to dog.

The normal bitch will average one cycle every 7 months but the interval can range from 4 to 13 months. Intervals shorter than 4 months are usually not fertile. Proestrus is the first stage in the heat cycle and is defined as the onset of vulvar swelling, vaginal discharge of blood/mucus, or both. Estrogen is rising and is the predominant hormone. It causes the swelling, the discharges and causes the cells of the vagina to become cornified. The percentage of cornified cells is what your veterinarian is looking for under the microscope when he takes a vaginal swab. Estrus is the next phase and is accompanied by changes in behavior towards the male; this means acceptance, guys! As the hormones switch and progesterone takes the place of estrogen this acceptance will occur. In estrus, leutinizing hormone (LH) also surges and is responsible for ovulation. Diagnostic tests done at your veterinarian's office can detect the rise in progesterone; these hormone tests, repeated every other day together with visual and microscopic examinations of the vagina, can tell us when we think ovulation will occur and when to get the male and female together. Most practitioners test progesterone rather than LH because the LH surge can be as short as 24 hours and can be easily missed. According to ICG, International Canine Genetics, one of the leaders in breeding management: "No single test or assay...is fully reliable or completely correlative with the exact stage of a bitch's estrus...breeding management is more successful when multiple parameters are repeatedly evaluated." At the first noticeable signs of heat you should bring your female to the doctor for an examination. This is because some bitches have a very slight discharge during proestrus or you may not have noticed it right away. Timing is the most crucial aspect in breeding dogs, period.

If all goes well, ovulation will have occurred and viable sperm will be awaiting the eggs as they arrive in the uterus. Conception will follow and in about 60 days puppies will be born. Pregnancy can be confirmed as early as day 14 by palpating the uterus, as early as day 21 by ultrasound, or on day 28 through blood testing. Radiographs can be taken at day 45 when the fetal skeletons start to mineralize. We recommend either radiographs or ultrasound late in pregnancy to determine the number of puppies to expect; it helps to know how many pups are in there when she starts to deliver. This is only common sense, right?

So what do you do if your bitch does not conceive? As always, you need to be able to answer some questions for your doctor. Was the heat a normal heat? There are 2 normal variations to the canine heat cycle. The first is a split (or wolf) heat; dogs go into heat and stand for the male but fail to ovulate. They will usually come back into a fertile heat in 2-6 weeks. Split heats can be detected using progesterone assays; in the first heat levels never come up to par indicating no ovulation. The second variation is known as the dormitory effect in which bitches housed together will often cycle together.

These cycles, although often shorter than normal cycles, are usually fertile. Has your bitch conceived before? Inexperienced bitches may refuse to stand for the male regardless of what their hormones tell them to do. These gals are good candidates for artificial insemination (see prior Pet Tribune articles or phone our office for a copy). How long are the intervals between cycles? Less than 4 months could indicate too much estrogen activity caused by cystic ovaries or ovarian tumors. Cystic ovaries can be diagnosed by ultrasound, progesterone assays, or exploratory surgery; they are treated using hormone injections of either HCG or GnRH. Intervals longer than about 12 months could mean there is a problem with the thyroid gland and your doctor may order thyroid tests. Hypothyroid bitches are also more likely to develop false pregnancy, also called pseudociesis or pseudopregnancy. This is an easily treated condition. Is the vaginal discharge normal? Vaginitis, or infection in the vagina, is a common cause of infertility. Some of the more common bugs isolated are E. coli, pseudomonas, proteus, mycoplasmas, and ureaplasmas. Treatment is easy: once the offending organism is identified through a vaginal culture, the appropriate oral antibiotics and antibiotic containing douches are started. Brucellosis merits mentioning at this time. It is caused by the organism *Brucella canis* and is considered a semi-venereal disease in dogs as it can be passed from male to female and visa versa through intercourse. Usually it causes abortion at or near term, but I mention it because it can lead to infertility if allowed to progress. I recommend having both studs and bitches used in any breeding program tested before mating.

As stated earlier most of the problems are with timing. The next time you are trying to breed, take your female to the veterinarian's office at the first visible signs of heat and have him or her take samples for vaginal cytology and blood samples for progesterone assays. We can then advise you when to get the mating pair together, and, if nothing takes place naturally, there will still be time left for artificial insemination without having to wait for the next heat cycle.

Now on to the male. Did mating and a copulatory tie or lock occur? Refusal to mate could indicate inexperience or a structural problem with the penis. Failure to ejaculate could be caused by pain from a prostate infection. Emission failure (no, not like in your car) has been reported where sperm is ejected backwards into the bladder (ouch)! This is easily corrected with pseudoephedrine (sudafed). Blockage in the epididymis (the tube carrying the sperm) has also been reported and can be seen with ultrasound. Has the stud sired before? Inexperienced males also may not know what to do regardless of what their hormones are telling them to do! Again, these guys are good candidates for AI. A stud that mates normally but does not produce pups may have a low sperm count. This could be caused by thyroid disease just like in the females. Low thyroid hormones also lower the libido in male dogs. In addition to the hormone tests sperm assays are recommended. Things such as sperm counts, size, shape and motility will be judged. Is there an abnormal discharge from the penis? This could signal a prostate infection or a bad case of urethritis. Like in females, any abnormal discharge should be cultured.

The last thought I'd like to leave you with on breeding comes from the American Animal Hospital Association's 1996 national conference. In a lecture by Beverly J. Purswell, DVM, Ph.D., Diplomate ACT, she writes: "One must remain flexible in dealing with canine breeding management. The old adage still pertains...breed every other day from the first day of standing behavior until she no longer stands." In other words, nature usually takes care of things! But if it doesn't, you know where to turn for help.