



## O A K B A Y A N I M A L H O S P I T A L

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### **BREEDING DOGS**

Breeding dogs and raising puppies can be an extremely rewarding experience or it may produce frustration and failure. The following information is provided in order to increase your chances of success.

#### *How often does a female dog come into heat?*

The female dog comes into heat (estrus) about every six months, although very large breeds of dogs may cycle every 8-10 months. The heat period lasts about three weeks.

#### *What are the signs of heat?*

The most notable sign of heat is vaginal bleeding. This begins about the end of the first week of estrus and lasts for about 10-14 days. Another consistent sign is swelling of the vulva. During estrus male dogs will be attracted to her.

#### *What should I do to be sure that a breeding is accomplished successfully?*

Male dogs are more successful breeders when the environment is familiar. Therefore, it is preferable to take the female to the male's home for breeding. The timing for breeding is critical. The most fertile time is considered the 10th through the 14th days of estrus; however, some dogs will be fertile as early as the 3rd day and as late as the 18th day.

#### *Are there tests to determine when to breed?*

There are two tests that are used for this purpose. The first is a microscopic examination of vaginal cells to detect changes in cell appearance and numbers. This has been used for many years and is reasonably reliable.

A newer test determines changes in the progesterone level in the blood. This test is more accurate, and more expensive, than monitoring vaginal cells. It is used for dogs that have a history of unsuccessful breeding or for dogs that are very valuable breeders.

#### *What should I expect during my dog's pregnancy?*

Pregnancy, also called the gestation period, ranges from 60 to 67 days, averaging 63 days. Most dogs deliver (whelp) between days 63 and 65. The only way to accurately determine the stage of pregnancy is to count days from the time of breeding. If at all possible, the breeding date(s) should be recorded. The mother should be examined three weeks after breeding to confirm her pregnancy.

A pregnant dog should be fed a puppy formulation of a premium brand of dog food for the duration of the pregnancy and through the nursing period. These diets are generally available through veterinary hospitals or pet stores. Puppy diets provide all the extra nutrition needed for the mother and her litter. If the mother is eating one of these diets, no calcium, vitamin, or mineral supplements are needed. The puppy formulation is necessary to provide the extra nutrients for pregnancy and nursing.

During pregnancy, the mother's food consumption will often reach 1½ times her level before pregnancy. By the end of the nursing period, it may exceed two times the pre-pregnancy amount. Do not withhold food; increasing the number of feedings per day is helpful in allowing her to eat enough for her needs and those of the puppies.

### ***What should I do to prepare for whelping?***

From the time of breeding, many dogs show behavioral changes. Most develop an unusually sweet and loving disposition and demand more affection and attention. However, some may become uncharacteristically irritable. Some experience a few days of vomiting ("morning sickness"), followed by the development of a ravenous appetite which persists throughout the pregnancy.

During the latter stages of pregnancy, the expectant mother begins to look for a secure place for delivery. Many become uncomfortable being alone and will cling closely to the owner. At the onset of labor, many nervously seek a place to make the "nest" or birthing place. If the dog is attached to her owner, she will not want to be left alone at the time of delivery. If left alone, she may delay delivery until the owner returns.

Prior to the time of delivery, a whelping box should be selected and placed in a secluded place, such as a closet or a secluded corner. The box should be large enough for the dog to move around freely, but have low enough sides so that she can see out and so you can reach inside to give assistance, if needed. The bottom of the box should be lined with several layers of newspapers. These provide a private hiding place for the expectant and delivering mother and will absorb the birthing fluids. The upper, soiled layers may be removed with minimal interruption to the mother and her newborn puppies.

### ***What happens during labor and delivery?***

Most dogs experience delivery without complications; however, first-time mothers should be attended by their owners until at least one or two puppies are born. If these are born quickly and without assistance, further attendance may not be necessary, although it is desirable. If the owner elects to leave, care should be taken so that the dog does not try to follow and leave the whelping box.

The signs of impending labor generally include nervousness and panting. The dog will often quit eating during the last 24 hours before labor. She will also usually have a drop in rectal temperature below 100°F (37.8°C). The temperature drop may occur intermittently for several days prior to delivery, but it will usually be constant for the last 24 hours.

Delivery times will vary. Dogs having slim heads, such as Shelties, Collies, and Dobermans, may complete delivery in one to two hours. Dogs having large, round heads generally require longer delivery times. English Bulldogs, Boston Terriers, and Pekinese puppies tend to have sizable heads that make delivery more difficult. It is not unusual for these breeds to rest an hour or more between each puppy. Rarely, a dog may deliver one or two puppies, then have labor stop for as long as twenty-four hours before the remainder of the litter is born. However, if labor does not resume within a few hours after the delivery of the first puppies, examination by a veterinarian is advised. If labor is interrupted for twenty-four hours or more, veterinary assistance should definitely be obtained.

Puppies are usually born head first; however, breech presentations, in which the puppy is delivered tail-end first, occur about 40% of the time and are also considered normal. Each puppy is enclosed in a sac that is part of the placenta ("afterbirth"). The placentas usually pass after the puppies are born. However, any that do not pass will disintegrate and pass within 24-48 hours after delivery. It is normal for the mother to eat the placentas.

If the delivery proceeds normally, a few contractions will discharge the puppy; it should exit the birth canal within ten minutes of being visible. Following delivery, the mother should lick the newborn's face. She will then proceed to wash it and toss it about. Her tongue is used to tear the sac and expose the mouth and nose. This vigorous washing stimulates circulation, causing the puppy to cry and begin breathing; it also dries the newborn's haircoat. The mother will sever the umbilical cord by chewing it about ¾ to 1 inch (1½ to 2 cm) from the body. Next, she will eat the placenta.

If the puppy or a fluid-filled bubble is partially visible from the vagina, the owner should assist delivery. A dampened gauze or thin wash cloth can be used to break the bubble and grasp the head or feet. When a contraction occurs, firm traction should be applied in a downward (i.e., toward her rear feet) direction. If reasonable traction is applied without being able to remove the puppy, or if the mother cries intensely during this process, the puppy is probably lodged. A veterinarian's assistance should be sought without delay.

It is normal for the mother to remove the placental sac and clean the puppies; however, first-time mothers may be bewildered by the experience and hesitate to do so. If the sac is not removed within a few minutes after delivery, the puppy will suffocate, so you should be prepared to intervene. The puppy's face should be wiped with a damp wash cloth or gauze to remove the sac and allow breathing. Vigorous rubbing with a soft, warm towel will stimulate circulation and dry the hair. The umbilical cord should be tied with cord (i.e., sewing thread, dental floss) and cut with clean scissors. The cord should be tied snugly and cut about ½ inch (1 cm) from the body so it is unlikely to be pulled off as the puppy moves around the whelping box.

Newborn puppies may aspirate fluid into the lungs, as evidenced by a raspy noise during respiration. This fluid can be removed by the following procedure. First, the puppy should be held in the palm of your hand. The puppy's face should be cradled between the first two fingers. The head should be held firmly with this hand, and the body should be held firmly with the other. Next, a downward swing motion with the hands should make the puppy gasp. Gravity will help the fluid and mucus to flow out of the lungs. This process may be tried several times until the lungs sound clear. The tongue is a reliable indicator of successful respiration. If the puppy is getting adequate oxygen, it will appear pink to red. A bluish colored tongue indicates insufficient oxygen to the lungs, signaling that the swinging procedure should be repeated.

It may be helpful to have a smaller, clean, dry box lined with a warm towel for the newborn puppies. (A towel can be warmed in a microwave oven.) After the puppy is stable and the cord has been tied, it should be placed in the incubator box while the mother is completing delivery. Warmth is essential so a heating pad or hot water bottle may be placed in the box, or a heat lamp may be placed nearby. If a heating pad is used, it should be placed on the low setting and covered with a towel to prevent overheating. A hot water bottle should be covered with a towel. Remember, the newborn puppies may be unable to move away from the heat source. Likewise, caution should also be exercised when using a heat lamp.

Once delivery is completed, the soiled newspapers should be removed from the whelping box. The box should be lined with soft bedding prior to the puppies' return. The mother should accept the puppies readily and recline for nursing.

The mother and her litter should be examined by a veterinarian within 24 hours after the delivery is completed. This visit is to check the mother for complete delivery and to check the newborn puppies. The mother may receive an injection to contract the uterus and stimulate milk production.

The mother will have a bloody vaginal discharge for 3-7 days following delivery. If it continues for longer than one week, she should be examined by a veterinarian for possible problems.

### ***What happens if my dog has trouble delivering her puppies?***

Although most dogs deliver without need for assistance, problems do arise which require the attention of a veterinarian. Professional assistance should be sought if any of the following occur:

- 1) Twenty minutes of intense labor occurs without a puppy being delivered.
- 2) Ten minutes of intense labor occurs when a puppy or a fluid-filled bubble is visible in the birth canal.
- 3) The mother experiences sudden depression or marked lethargy.
- 4) The mother's body temperature exceeds 103°F (39.4°C) (via a rectal thermometer).
- 5) Fresh blood discharges from the vagina for more than 10 minutes. Difficulty delivering (dystocia) may be managed with or without surgery. The condition of the mother, size of the litter, and size of the puppies are factors used in making that decision.

### ***Is premature delivery a likely problem?***

Occasionally, a mother will deliver a litter several days premature. The puppies may be small, thin, and have little or no hair. It is possible for them to survive, but they require an enormous amount of care, since they are subject to chilling and are frequently very weak and unable to swallow. Some may be able to nurse but are so weak that they must be held next to the mother. Puppies that do not nurse can be fed with a small syringe, bottle, or stomach tube. The equipment and instructions for these procedures are available from a veterinarian. Premature puppies must be kept warm. The

mother can provide sufficient radiant heat from her body if she will stay close to them. If she refuses, heat can be provided with a heat lamp, heating pad, or hot water bottle. Excessive heat can be just as harmful as chilling, so any form of artificial heat must be controlled. The temperature in the box should be maintained at 85° to 90° F (29.4° to 32.2° C), but the box should be large enough so the puppies can move away from the heat if it becomes uncomfortable.

***Is it likely that one or more puppies will be stillborn?***

It is not uncommon for one or two puppies in a litter to be stillborn. Sometimes, a stillborn puppy will disrupt labor, resulting in dystocia. At other times, the dead puppy will be born normally. Although there is always a cause for this occurrence, it is often not easily determined without an autopsy that includes cultures and the submission of tissues to a pathologist. This is only recommended in special circumstances.