

# Normal Whelping in the Bitch

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## What is the normal duration of pregnancy?

Despite the potential for problems necessitating veterinary intervention, most breeders and their veterinarians prefer bitches to whelp in their home environment. Valid concerns exist about exposure to infectious agents and increased maternal stress in the veterinary clinic.

The normal length of gestation in the bitch is preprogrammed to be one of the following:

- 56-58 days from the first day of diestrus (determined by vaginal cytology or smears), or
- 64-66 days from the day of the "LH surge" (the pituitary hormone triggering ovulation), or
- 64-66 days from the initial rise in progesterone to between 2 to 3 ng/ml (produced by the ovary after ovulation), during estrus

The length of gestation from the first breeding date varies from 58 to 72 days, because of potential discrepancy between breeding dates and the actual fertilization date. Predicting whelping dates from breeding dates is imprecise. Whelping occurs after the progesterone level falls to below 2 ng/ml. A drop in rectal temperature to less than 99° F to 100° F may be detected 10 to 14 hours later. The onset of recognizable labor follows in 10 to 24 hours.

## What are the normal signs of whelping?

Canine labor can be divided into three stages.

1. During the **first stage of labor**, internal, uterine contractions begin to occur in an organized pattern, at regular and progressively more frequent intervals. Uterine contractions can be detected throughout the later stages of pregnancy but are isolated and infrequent. Strong intrauterine pressures result from normal first stage contractions. The behavior of the bitch usually changes, she may become restless and reclusive, and lose her appetite, although some bitches eat normally and are more gregarious during early labor. Vomiting may occur, and nesting behavior is common. The first stage of labor usually lasts from 10 to 24 hours and results in cervical dilation. Because of the anatomy of most bitches, dilation of the cervix is not detectable by a vaginal exam; it requires a special scope. During first stage labor, vaginal discharge should be clear and mucous-like.
2. The onset of **second stage labor** is marked by visible effort to expel puppies by abdominal muscular contractions, in a squatting or lying position. Normal deliveries occur after 10 to 60 minutes of such efforts. Puppies are delivered encased in amniotic membranes. The chorioallantoic membrane usually ruptures during delivery (breaking water). Breech delivery is considered normal in the dog, occurring 40% of the time. The normal bitch immediately licks the neonate to remove the remaining fetal membranes and associated fluids, and initiate respiration. If the bitch fails to do so, the caretaker should clean the membranes away from the puppy's face and remove fluids from the airways with light suction using an infant bulb syringe. Puppies should not be swung to clear their airways, as brain damage can occur. Next, the caretaker should stimulate respiration with towel drying. The umbilical cord should be tied off with clean suture or dental floss, severed 1 inch from the puppy abdomen, and painted with tincture of iodine. Every attempt should be made to allow maternal participation and bonding. Also, caretakers must remember that some bitches become quite protective of their newborns. They may growl or snap even at people they know well. Therefore approach a bitch and her new puppies slowly and carefully.

3. **Third stage labor** is defined as the delivery of the placenta, which may be attached to the puppy, or may follow later in labor. Bitches normally alternate between stages 2 and 3 until delivery of all fetuses and placentae is complete. Most bitches will attempt to sever the umbilical cords and ingest placentae. There is no proven benefit to eating placentas. Suckling by neonates during labor causes increased oxytocin release, promoting further effective uterine contractions and milk letdown, but neonates should be placed in a smaller, warm box (a Styrofoam ice chest works very well) during actual delivery of subsequent puppies, to avoid trauma. A warm water bottle or microwaved sock filled with uncooked rice provides warmth to the pups while away from the bitch. Owners should record placental deliveries.

### **What monitoring equipment can be used?**

A novel approach to canine obstetrical monitoring involves the use of external monitoring devices to detect and record uterine activity and fetal heart rates.\* These devices can be used in the home setting or the veterinary clinic. They transmit recorded information by modem to obstetrical personnel capable of interpretation and subsequent consultation with the attending veterinarian and owner. Recordings are made as needed when home monitoring is performed, or on site in the veterinary clinic for short periods of time if problems are suspected. Sensors detect changes in intra-uterine and intra-amniotic pressures, as well as Doppler monitoring of fetal heart rates. The presence of normal pre-labor uterine activity can be detected, often before behavioral clues exist. The onset of an organized pattern of uterine activity, with increased frequency and strength of contractions, heralds the onset of stage 1 labor. Because the bitch's drop in body temperature can be missed and correlates with the onset of first stage labor loosely, detection of early labor with a monitor can be valuable, indicating the need to monitor the bitch closely, as whelping is imminent.

The identification of premature labor, perhaps resulting in stillborn or premature puppies, can be made with uterine monitoring, as well. The presence of fetal distress is reflected by slowing of the heart rates. Normal fetal heart rates at term are from 170 to 230 beats per minute (bpm). Transient accelerations occur with fetal movement. Fetal heart rates of less than 150 to 160 bpm indicate stress. Fetuses with heart rates less than 130 bpm have poor survival if not delivered within 2 to 3 hours, and fetuses with heart rates less than 100 bpm are an indication for immediate intervention.

The use of uterine and fetal monitors allows the veterinarian to manage labor medically with insight, and the breeder to detect problems before puppies are lost. The administration of oxytocin and calcium can be directed and tailored based on the results of monitoring. Absolute indications for caesarian section are detected with monitoring before fetal death or maternal compromise occurs. Overall, the anxiety level of breeders is diminished, and the level of participation of the veterinarian improved. Client cost of monitoring is usually less than the price of one puppy.