

## Popular Article

## Pregnancy detection in cats

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### Introduction

Cat keeping is very much popular now these days because of its faithfulness and excellent hunting qualities. Cats used to be considered the choice of pets for old ladies who live alone. These days, however, more people are discovering how sweet felines can be, and they are becoming a more popular choice for pets. Cats are lovable companions that bring happiness and joy to the lives of many pet parents. Keeping in views of the importance of cat husbandry, fertility and diagnosis of pregnancy at the right time is of paramount importance. The average gestation length in the bitch is 63-64 days but the interval from first mating to whelping can vary from 56 to 71 days whereas queens have the average gestation length of 63-65 days but is reported to be varying between 59 and 70 days. The domestic queen is classified as seasonal polyestrous and a long day breeder. They are induced ovulators. Queens' estrous cycle repeats 2-3 times during breeding season, which leads to either pregnancy or pseudopregnancy. The seasonality is also depended on light duration, because the cat is positive photoperiodic. In the temperate zone non-pregnant females usually exhibit estrous cycles from January or February until the following September and the female is usually in anestrus from late September until late January. There are mainly the three methods by which pregnancy is diagnosed in cat and dog viz. Abdominal Palpation, Radiography and Ultrasonography.

### General characteristics of estrous cycle

Queens normally have their first estrous cycle between 4 and 12 months, with the average age around 6 months. They have 2 to 4 estrous periods every year, lasting 13 to 15 days in length. If the cat is bred, estrus seldom lasts more than 4 days. In presence of male cat, estrus lasts 3 to 6 days or an average of 4 days. If successful mating does not occur, a heat cycle may last for 7 to 10 days and reoccur at 2 to 3 days intervals. This cycle is repeated 2 to 3 times. An unmated female can cycle every 3-4 weeks indefinitely. Cats also exhibit lactational anestrus for 4-6 weeks while nursing and come back into estrum about 2 weeks after weaning their litter.

The time for first estrous in cats is influenced by following factors:

- **Breed:** Many shorthair breeds reach puberty earlier than longhair breeds.
- **Season:** Depends on the length of daylight. It has been observed that under 12 hours of natural light without seasonal variations, queens seem to cycle continually.
- **Body condition:** The average body weight at puberty is 2.3 to 3.2 kg (or 80% of adult body weight) average body weight 2.5 kg.

### Phases of estrous cycle:

- **Proestrus:** It lasts for 2-3 days. There is no bleeding from vulva observed but vulvar swelling is present. Feed intake of queen become irregular.
- **Estrous:** Following proestrus comes estrous. It lasts for 4-6 days in presence of male and 8-10 days in absence of males. If mating is successful then gestation period starts but if male is not present, the queen again shows signs of estrous for 8-10 days at the interval of 2-3 days. The estrous is repeated 2-3 times until successful mating. Even if now the male is not present, the queen enters into diestrum.

### Signs of estrous:

1. Tail deflection,
  2. Spinal flexion,
  3. Rubbing or rolling,
  4. Vaginal discharge,
  5. Vocalization (cry),
  6. Treading of the hind legs,
  7. Body or tail tremor and rigidity,
  8. Blows or scratches and discomfort on manipulation
- **Diestrum:** Increase of successful mating, queen become pregnant and carries on gestation period which lasts for 54 to 60 days. But in case of unsuccessful or sterile mating the queen become pseudo pregnant. The pseudopregnancy lasts for 30 to 40 days. Hence, diestrum is shorter in length as compared to pregnancy. In diestrum corpus luteum dies due to ageing gradually till 4<sup>th</sup> week of unsuccessful or sterile mating. After the end of diestrum, queen directly enters into proestrus. There is no anestrus within the breeding season. Pseudopregnancy is uncommon in non-ovulated queens.
  - **Anestrus:** Anestrus is the period of sexual rest that occurs between October and January in most free-roaming queens. Anestrus queens are sexually no inviting and nonreceptive. They may hiss or strike out at toms making sexual advances.

## **Breeding behavior**

Courtship usually occurs at night. Receptive queens sit at a distance from competing males and crouch, roll, and tread in place. Fighting may occur between males as they mark out territories surrounding females. Vocalization is not limited to fighting and is more often associated with courtship and mating. Queens utter low monotone howls known as heat cries, while males caterwaul in response, signaling their readiness to mate. A male may approach a receptive female and rub chins and faces with her before mating. Courtship lasts from 10 seconds to 5 minutes, and the duration decreases with repeated breedings. Mating is accomplished as the tom grasps the female by the neck with his teeth, grips her forequarters with his front legs, and straddles her with his hindlimbs. Intromission and ejaculation occur within a few seconds. After the tom releases his grip, he rapidly retreats as the female displays a postcoital after-reaction, which lasts up to several minutes. The after-reaction is characterized by loud scream (the copulatory scream), followed immediately by vigorous rubbing and rolling on the ground or floor and licking of the vulva. During this time, the queen is unreceptive to the male and if he approaches, she will strike out at him. Additional matings, with the same or different tomcats, usually resume within 20 to 30 minutes.<sup>1</sup> Several matings (10 to 30) commonly occur during the next 24 hours and continue over several days with the interval between matings becoming increasingly longer.<sup>1</sup> Coital contact does not shorten the queen's period of receptivity. An after-reaction may occur in some estrual queens following mechanical stimulation, such as petting down the back or scratching the dorsal rump. Owners can be quite alarmed by this behavior, often confusing it with a seizure. Similarly, owners may not recognize normal estrous behaviors and may mistake excessive lordosis and treading for seizure activity in their cats.

## **Pregnancy diagnosis**

Behavioral and physical changes may aid in pregnancy diagnosis, but such changes are typically subtle during the first two trimesters. Many queens become increasingly docile during this period and exhibit pinking of the nipples (the nipples become pinker and more erect). Ironically, in the author's experience, cats in the early stages of pregnancy, when physical signs of their condition are lacking, are frequently offered for adoption by humane shelters because of their docile, friendly temperaments. By the third trimester, behavioral and physical changes are obvious and include abdominal distention, enlargement of the mammary glands, excessive grooming of the mammary and perineal areas, and nesting behavior. Relaxin is the only pregnancy-specific hormone in cats. Pregnancy gonadotropins are not known to exist, and serum progesterone concentrations are not helpful in diagnosing pregnancy because they do not significantly differ in pregnant and pseudopregnant queens. Plasma relaxin assays may be used to diagnose pregnancy in dogs after day 22 to 24 of pregnancy. and may become available for use in cats.

Plasma relaxin concentrations increase from days 20 to 30 after mating and remain elevated throughout pregnancy and for the first few days after birth. The luteotropic effects of relaxin help to maintain pregnancy and result in relaxation or softening of the connective tissues of the pelvis.

Abdominal palpation is the most common method for diagnosing pregnancy in queens. Fetuses may first be palpated at day 17 (2.5 weeks of gestation) as discrete, firm, spherical nodules that are 2 to 2.5 cm in diameter. By day 25 (3.5 weeks of gestation), fetuses are no longer discretely palpable. Instead, generalized uteromegaly is evident and remains palpable through parturition. By week 7 of gestation, fetal heads can be palpated. With experience, palpation is very reliable for detecting pregnancy and is the most economical and practical method. Imaging methods used for pregnancy diagnosis include radiography and ultrasonography. Calcification of the fetal skeletons may occur as early as day 38 of gestation but is not a reliable finding until day 43. Therefore, to ensure diagnostic results, radiography should be performed after day 43 of gestation. Uteromegaly may be seen before this time but cannot be distinguished from pyometra or other inflammatory uterine diseases. Abdominal radiographs are most useful for evaluating litter size before parturition. Ultrasonography is rapid, safe, and reliable for pregnancy detection in cats. Ultrasonographic evidence of pregnancy may be seen as early as 11 to 14 days, and fetal heartbeats can be recognized at 3.5 to 4 weeks of gestation.

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