

## Kittens: Coming Now to a Shelter Near You

### Strategies for coping with kitten season

BY BRENDA GRIFFIN, D.V.M.



**Each year in the depths of winter,** Mother Nature's biological clock silently starts ticking, gradually bringing the birds, the bees, the flowers, the trees ... and the kittens. Talk about too much of a good thing!

Seasonal breeders, cats are sexually inactive and do not mate when the days are short. In the Northern hemisphere, breeding season begins a few weeks after the winter solstice—Dec. 21, the shortest day of the year. As the days get longer, female cats (also known as queens) typically “come into heat” at regular intervals. This is the time when they attract mates and are receptive to breeding. Most queens cycle into “heat” for a few days approximately every two weeks until they become pregnant, are spayed, or the season ends in the fall.

That leaves some long months for what shelters and rescues have come to know as “kitten season.” During the spring and sum-

mer months, large numbers of pregnant cats, nursing mothers, and kittens often overwhelm facilities across the United States. From a health perspective, the care of so many felines requires special considerations. Shelters must take extra care to protect young kittens, especially those younger than 4-5 months, from exposure to germs; and must provide them with a series of timely vaccinations, as well as high-quality nutrition and proper deworming in order to keep them healthy.

Delivering and raising kittens in a shelter setting is stressful for the new family, and the risk of infectious disease exposure and serious illness is high. For these reasons, pregnant queens should be spayed whenever possible. Even for those who are very far along with their pregnancy, spaying can be safely and humanely performed. Fortunately, cats do not commonly experience signs of maternal loss following late-term spaying and quickly

adjust to the less-stressful, healthy lifestyle of a spayed cat.

In some cases, though, kitten births may be unavoidable. In these cases, skilled foster care—emphasis on *skilled*, as neonates present challenges and require a great deal of time and care—is best for both pregnant moms and new kittens. Newborn kittens are born blind, nearly deaf, and completely dependent. Although they grow rapidly, specialized care is required for the first several weeks of life until they are old enough to be successfully weaned.

### Signs of Heat and Pregnancy

The behavioral signs of a cat in heat are usually obvious: a queen will rub and roll excessively and may crouch and posture with her back swayed and rump in the air while treading in place with her hind limbs. These behavioral signs are the only obvious signs—and

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The shelter is a stressful and high-risk environment for preweaning-age kittens. Whenever possible, underage litters should be placed in foster homes with knowledgeable caregivers in order to maximize their odds of maintaining good health.

this may confuse people used to the physical changes seen in dogs, where a swollen vulva and the presence of bloody discharge often make heat detection easy. But in cats, the vulva undergoes only subtle physical changes, and discharge is minimal and—because of the fastidious grooming habits of queens—rarely observed.

Female cats are seasonal breeders who typically become sexually active by 5-9 months of age. They only mate during spring, so if left unspayed, many young queens will become pregnant during their first springtime, often as early as 6 months of age. The gestation period averages nine weeks, with three to five kittens being the typical litter size. Most kittens are born in midspring to late summer. A female may mate with numerous tomcats during a single heat, thus litters can have multiple fathers. This often explains why there is such diversity in the coat colors and patterns of kittens within the same litter.

Owing to the effects of hormones, queens become increasingly docile during the initial six weeks of pregnancy. Their nipples become pinker and more erect—and by the last three weeks of pregnancy, physical changes become obvious and include enlargement of the abdomen and mammary glands. By the time a cat appears obviously pregnant,

she is usually less than two weeks away from giving birth. Don't mistake overweight spayed cats for pregnant cats; the former can usually be distinguished by their overall distribution of fat and small mammary glands, as well as the presence of a spay scar.

### **Pregnant Cat Care and Delivery of Kittens**

Foster caregivers must have some knowledge of the birth process. Expectant mothers need a low-stress environment and should get free access to a high-quality kitten food during the last three weeks of pregnancy.

Delivery of kittens usually takes place at night, and most mothers prefer privacy and seclusion. Human interference—such as handling or too much observation—can complicate delivery by stressing the mother, resulting in delayed delivery or neglect of the newborns. (Rarely, a cat will seek human companionship during the birthing process. If this occurs, she should be allowed to proceed with the delivery in the company of her chosen human companions in order to avoid stress from forced separation.)

Caregivers should provide moms-to-be with a quiet, dark, dry area suitable for nesting. In the week prior to giving birth, many queens increase their grooming, and some



This female cat is lactating, as evidenced by her enlarged mammary glands and the absence of hair around the nipples. She could make an excellent foster mother for a litter of orphan kittens.

will become irritable. Two to three days prior to delivery, the mammary glands may become engorged with milk. A decrease in body temperature usually precedes delivery.

Cats go through three stages of labor. The first is characterized by nesting behavior and may last one to 24 hours. The queen appears restless, may pace, posture as to defecate, vocalize, groom excessively, refuse food, or dig with her front paws. Uterine contractions and cervical dilation occur during this time.

The second stage is delivery of the kittens. Abdominal press and uterine contractions occur and last from a few seconds to one and a half hours. During this time, queens may appear uncomfortable and frequently squat, scratch, circle, or rearrange their bedding. Kittens emerge into the vulva and are quickly delivered. Anterior and posterior (breech) presentations are normal. Queens often lick excessively during this stage, ingesting expelled uterine fluids, stimulating the kittens to breathe, and directing them toward the nipples to nurse.

The final stage of labor is the expulsion of the placenta; which the queen usually eats, probably for nutritional and hygienic reasons.

Most litters are delivered within two hours, with 15-30 minute intervals between

kittens, but intervals may range from seconds to hours. Occasionally, a delay of 12-48 hours may occur between kittens. This is usually due to some disturbance, which may cause the queen to delay delivery and/or attempt to move her kittens. Alternatively, the queen may elect to rest between deliveries. This should not be confused with dystocia (difficulty giving birth), which is rare in cats outside of certain breeds such as the Manx. In contrast, signs of dystocia include non-productive active labor, straining, or signs of illness including fever, depression, or foul-smelling vaginal discharge. When these signs are present, the cat needs immediate veterinary attention.

### Care of the New Family

The new mother and her family require warmth, peace, and solitude, especially during the first few days. Caregivers should maintain a calm, clean, and secure atmosphere, taking particular care to prevent exposure to infectious disease. The kittens should be allowed to nurse at all times; and the mother should have free access to a

high-quality kitten food and plenty of fresh water, since both her energy and fluid needs will increase while she is nursing. The kittens should be gently examined each day to ensure that they remain free of any outward signs of problems.

In order to maintain good health, shelters should avoid holding litters of kittens—both those born in the shelter and groups of pre-weaned kittens surrendered by citizens—whenever possible. Healthy weaned kittens should be made available for adoption immediately following intake examination, but housing kittens who are younger than 6-8 weeks should be avoided; even in shelters with aggressive vaccination procedures and environmental management, the kittens invariably become seriously ill from infectious disease.

Kittens born in the shelter should be placed in foster care within 48 hours. With notice from individuals who plan to relinquish mothers and litters, arrangements for foster care can be made in advance so that kittens aren't surrendered prior to completion of weaning.

In cases where a citizen surrenders a litter of kittens, but claims not to be the owner, many shelters think they must hold the animals for the usual required stray holding period. This is not necessarily the case. When kittens are born on a citizen's property, they often legally belong to that citizen as the property owner; thus holding laws frequently don't apply to litters of young animals. The purpose of holding laws is to allow owners a chance to claim their pets—and in my experience, the chances of an owner showing up to claim a litter of small kittens are slim to none. It is important to carefully check your local ordinances—many shelters will find that holding young kittens is not a legal requirement. If your local ordinances don't exclude young litters from holding period requirements, you should at least consider conducting the hold through your foster care program. All too often I see cases where shelters—attempting to do the correct, legal thing—hold young litters and later have to euthanize all of the animals when they become ill. When recently weaned litters enter the shelter, triage them

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immediately through intake into biosecure adoption areas. Holding time dramatically increases the risk of disease—especially respiratory infections—that could compromise the kittens' health.

### Orphaned Kittens

When orphaned kittens enter the shelter and are too young to eat solid food or gruel on their own, immediate intervention is necessary. In addition to a human foster care provider, a feline foster care provider is highly recommended! A foster mother cat can provide for many of the kittens' needs, including proper nutrition, warmth, regular elimination, hygiene, security, and socialization. Fortunately, most mother cats will readily foster another queen's kittens.

Selecting a lactating queen whose own kittens are of similar size or are recently weaned prevents competition between younger kittens and older, bigger ones. It is also prudent to select a queen recently arrived at the shelter, or one who is already in foster care, as she may be less likely to be

harboring a respiratory infection from shelter exposure.

Whenever possible, both foster mothers and orphan kittens should be screened for feline leukemia virus and feline immunodeficiency virus prior to their introduction. The introduction between the mother and kittens should take place in a nonstressful setting: a quiet, warm nest away from humans and other animals. Some queens thrive as foster mothers and can safely raise consecutive litters in a single season, provided they maintain good body condition and attitude.

### Raising the Newborns

The best way to monitor the health of newborn kittens is to weigh them daily to chart their weight gain. (A gram scale, such as those made for use in the kitchen, is ideal.) The normal birth weight of kittens is approximately 100 grams; they should gain 10-15 grams per day as neonates. A daily gain of less than seven grams is inadequate and should alert caregivers that supplemental feeding is necessary and/or health problems may be present. Kittens should be monitored closely to ensure that they nurse vigorously and remain warm. This is crucial during the delicate first few weeks of life.

If a foster mother is unavailable, kittens may be hand-raised. Hand-raising is time-consuming and sometimes difficult. Kittens should be kept together in a warm nesting box (80-90 degrees Fahrenheit) with soft, absorbent bedding. Bedding should be changed at least daily to maintain proper sanitation; caregivers should always wash their hands before handling orphans. Because neonates are reliant upon their mother for warmth, orphans can become chilled and develop hypothermia, which will threaten their health. To ensure adequate warmth, you can use warmed rice bags or water bottles—however, these should always be covered with towels or blankets, and carefully monitored to prevent thermal injury. Kittens should also be able to crawl away from the heat source if they become too warm. The use of electric heating pads has been associated with serious burns, and should be avoided.

Because commercial milk replacement formulas for human infants and puppies do

not supply the high levels of fat and protein kittens require, use kitten-specific formulas. Warmed milk replacer (98-99 degrees) should be fed via bottle or, if kittens fail to suckle, a stomach tube. The manufacturers' instructions for preparation, feeding, and storage should be carefully followed. (Powdered formulas are especially useful and convenient because they can be mixed in small amounts and are stable under refrigeration for longer periods than liquid products.)

A variety of nursers are available at pet-supply stores and are appropriate for strong kittens with good suckling reflexes. The opening in the nipple should be a small hole or slit that will allow milk to drip very slowly, without squeezing the bottle when it is inverted. The bottle should be held to allow the kitten to suckle while in an upright sternal position with the head held at a natural angle. Don't squeeze the bottle—this can result in aspiration, or milk may bubble out of the nose. For kittens with a poor suckling reflex, tube-feeding is the method of choice. It also offers the advantage of being faster than bottle-feeding, and for this reason, it may be preferred even when kittens are willing to suckle. Tube-feeding is a relatively simple procedure, and with hands-on training by a veterinarian or skilled kitten foster parent, most caregivers can learn to carry it out.

After feeding, palpate the stomach to be sure that it feels full, but not excessively distended or taut. Overfilling the stomach poses a risk for aspiration, and overfeeding can result in diarrhea. For this reason, it is generally better to underfeed kittens in the first day or two and to modify the amount fed by monitoring daily weight gains. In the first two weeks of life, kittens need to be fed every two to four hours around the clock, after which the frequency can usually be decreased to every four to six hours. All supplies used for feeding (bottles, tubes, syringes, and containers) must be carefully sanitized between feedings. After each feeding, the anogenital area of each kitten should be gently stroked with a soft cotton ball or tissue moistened with warm water to stimulate urination and defecation. Urine should be light yellow, and feces should be firm and yellow-brown.



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For information on vaccination protocols, go to [animalsheltering.org/resource\\_library/magazine\\_articles/jul\\_aug\\_2006/hurley\\_vaccination\\_station.pdf](http://animalsheltering.org/resource_library/magazine_articles/jul_aug_2006/hurley_vaccination_station.pdf).

### The Mother-Kitten Relationship

The mother-kitten relationship is crucial for normal social and emotional development; orphans may fail to develop normal social skills and/or may have abnormal responses to stress when hand-reared. Suckling may occur among orphan littermates, and they may attempt to “nurse” the tails, ears, or genitalia of their littermates, occasionally causing significant trauma. Nonlactating queens or even a neutered tomcat may sometimes accept a litter of kittens, and although hand-feeding is necessary, the kittens will benefit behaviorally and socially. This is especially important for singleton orphans who would otherwise be deprived of both maternal and sibling relationships.

The process of weaning requires that kittens 3-4 weeks old be offered semisolid food in a flat, shallow pan or dish. Gruel can be made from a quality kitten food, and the addition of a small amount of formula will usually make it more enticing. For the first few feedings, kittens typically walk in the gruel more than actually eating it. But within a few days their appetites will usually improve, and

the amount of formula they receive can be reduced accordingly. For kittens without access to nursing mother cats, weaning from bottle-feeding should be complete by 5-6 weeks of age; long-term feeding of formula is not recommended.

For litters with a nursing mother, it can be behaviorally beneficial for kittens to remain with her for a longer period of time. Queens frequently will not fully wean their kittens until 12-14 weeks if left to their own devices. If older kittens are housed with their mother, it is important to provide her a perch so she can periodically rest away from her young if she desires.

In addition to social time with mom and littermates, young kittens need a healthy daily dose of positive attention from human caregivers and reasonable amounts of exposure to the sights and sounds of household activities. At 2-7 weeks, kittens are at the most sensitive stage of their development, and proper socialization must occur during this time. Without such contact and exposure, kittens are likely to become chronically fearful instead of blossoming into well-adjusted,

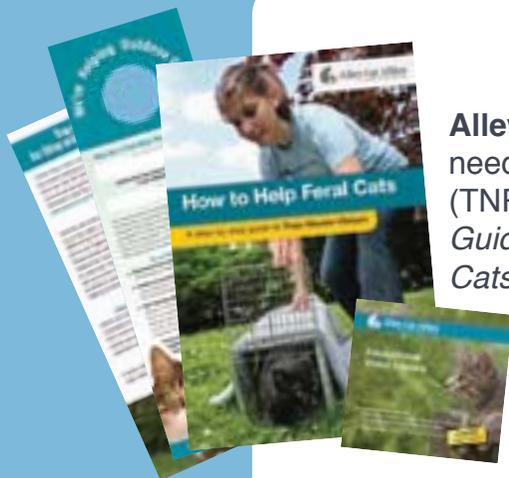


In the final weeks of pregnancy, the female’s abdomen will be obviously enlarged, and her mammary glands will appear well developed.

friendly fur balls who fly out of the shelter and into new homes.

Through skilled foster care programs, shelters can protect and nurture precious lives during the busiest season of the year—kitten season. For overwhelmed shelters, a knowledgeable foster care program can be simply lifesaving! **AS**

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