

## Fading Puppy and Kitten Syndrome

### What is Fading Puppy or Kitten Syndrome:

The failure to thrive in newborn puppies and kittens, or neonates, is often labeled as fading puppy and kitten syndrome. The syndrome can occur from birth to 9 weeks of age, but is usually reserved for nursing babies. Affected neonates can decline quickly and die, so immediate detection and treatment are KEY to survival. Be sure you know what to look for and what to do if you see any of these warning signs:

- Weakness
- Failure to suckle
- Crying and crawling from being uncomfortable.
- Diarrhea
- Cyanosis or “Blue Baby”
- Occasional sloughing of tail and toes tells us we are missing the signs of illness!



### Causes of Fading Puppy & Kitten Syndrome:

The causes of fading puppy and kitten syndrome are divided into three groups: environmental, genetic, and infectious.

#### • Environmental

- o Hypothermia - Puppies and kittens' body temperatures vary with the environment for the first week of life, thus making them easily susceptible to becoming too cold or too hot. They are able to shiver, which helps keep them warm, when they are about 6 days old, and they develop the ability to pant in response to overheating within the first week. Neonates that are too cold are unable to digest food or nurse. Their heart rates drop, GI shuts down causing bacteria absorption, and moms decrease care (Bitch culling). Hypothermia is less of an issue in warmer climates but still is a major complication the first 3 weeks. Too hot is equally an issue; a good sign that it is too hot is a restless puppy that is spread out and does not touch litter mates!
- o Maternal factors - Overweight or older moms are more likely to experience neonatal loss. Slow birthing puts puppies at risk the first week and you should increase monitoring of these litters.
- o Maternal neglect - Is rare in dogs and more common with queens. Mom's reluctance to lie with and warm the neonates, refusal to permit nursing, or lack of sufficient milk production must be identified. Large-breed or over weight dogs may also step on or clumsily crush puppies lying down.
- o Environmental toxins - Avoid pine oils and phenols as well as bleach or quaternary ammonium (e.g. Roccal—Pfizer Animal Health; Parvosol—Neogen) residue. Neonatal skin is thin and translucent allowing chemicals to be readily absorbed through the skin. Breathing chemical fumes is also a concern. If you are losing babies post birth, bedding material and products used to clean the [whelping or queening box](#) can be the issue! Better to use gentle cleaners with little odor, and remove all residue before contact with the neonates.

## • Genetic or congenital factors

- o Physical defects - Abnormalities of the mouth, anus, skull, and heart are causes though uncommon. Pectus excavatum (Pigeon Chest), cleft pallet, or any issue they are born with should be identified.
- o Birth weight - Kittens have a normal birth weight of  $100 \pm 10$  g ( $3.5 \pm 0.35$  oz). Kittens with a birth weight of less than 90 g (3.2 oz) have poor survival rates. The normal puppy birth weight varies with breed. For example, Pomeranian birth weights are about 120 g (4.2 oz), and Great Danes weigh about 625 g (22 oz). While pups and kittens may lose a small amount of weight (< 10%) during the first 24 hours of life, after that weight gain should be steady. Pups should gain 10% of birth weight daily for 3 weeks, while kittens should gain 7 to 10 g (0.25 to 0.35 oz) a day. Babies that are 25% smaller than siblings have a 50% chance of issues in the first 3 weeks!
- o Neonatal autoimmune hemolytic anemia - Cats have two main blood types, A and B. Some kittens' blood types do not match the queen's blood type. Kittens with type A blood that ingest colostrum while nursing from a queen with type B blood absorb antibodies that destroy their red blood cells, which leads to severe illness or death.

## • Infectious agents

Because of their immature immune systems, puppies and kittens are at risk for infection if mom is ill, through umbilicus, gastrointestinal, or contaminated environments. A clinical sign of bacterial infection in nursing pups is "fading puppy".

- o Common Bacterial infections: E-Coli, Klebsiella, Staphylococcus intermedius, and  $\beta$ -hemolytic strep and common causes. Cephalosporins can be safely sed in the neonate kitten or puppy and covers these organisms effectively.(7)
- o Viral infections: Many viruses affect neonates. Two common are:

### **Canine:**

- Canine Herpes
- Canine Parvovirus - Type 1 & 2

### **Kittens:**

- Feline Herpes - Type 1
  - Calici Virus (3)
  - Corona Virus - Are on the rise causing diarrhea and feline infectious peritonitis.
- o Intestinal parasites: Roundworms cross placenta to puppies and round and hookworm eggs are put in the milk of queens and bitches. In addition, some protozoan parasites cause diarrhea in the young. While rarely fatal, they can contribute to illness and put a neonate at higher risk of additional infection. If efforts were not made to clear the queen or bitch of parasites before birth they will contribute to fading puppy/kitten syndrome.

## What to do:

If a Neonates should lie away from the group, cry constantly, act restless, or fail to nurse they should be removed and examined at once.

- Week one and two - Normal puppy and kitten neonates sleep and nurse. They spend most of their time in a group and cry only briefly when hungry.

- Three to 8 weeks - The amount of activity increases dramatically after the second week. The eyelids separate between 5 and 14 days. Ear canals open at 6 to 14 days. Other benchmarks are crawling at 7 to 14 days, forelimb support at 10 days, and locomotion at 3 weeks of age. Teeth appear at about 6 weeks of age, commonly delayed in toy breeds. By the age of 5 or 6 weeks, sleeping alone is normal. These benchmarks can vary dramatically among breeds and family lines.

Because the exact causes of fading puppy and kitten syndrome is seldom known, your veterinarian will initially focus on supportive care and diagnostics. Initial therapy will include providing supplemental warmth, nutrition and especially glucose, broad spectrum antibiotic, and fluids will all be needed to stop the fading until the cause is identified. Blue babies may get a blood transfusion and oxygen when needed and antibiotics will be started.

If you see anything of concern and don't know the cause, get your veterinarian involved sooner than later! Bring in the Mom and the entire litter for examination. Be sure to bring records of weight gain since birth and any other data you have collected. History of mom's exposure to other dogs or cats during the last third of pregnancy as well as the travel history and exposure to cats/dogs who are showing is important. Location of the litter, temperature, and exposure of the [whelping and queening box](#) to other animals and birthing issues are all helpful. Moms ease of delivery, appetite, diet, vaccinations, mothering skills history, and medications used is also needed. Timely veterinary care provides the best chances for saving these neonates' lives. Congenital defects should be identified and corrected when possible. In purebred cats, blood types of the tom and queen can be helpful. Intensive treatment of ill neonates is time-consuming yet extremely rewarding.

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