

# Hand rearing puppies

For various reasons, puppies sometimes need to be hand reared. This is usually because of illness or death of the bitch, though sometimes it can be required if the bitch rejects the pups. Supplemental feeding may be required with litters larger than 5 or 6, or when the bitch's milk production is inadequate.

There are several basic functions to be addressed when hand rearing puppies. These include the provision of a clean, warm environment, a suitable feeding regimen, attention to urination and defaecation (emptying of the bowels) and attention to general health. The major problems encountered when trying to hand rear puppies are chilling, dehydration and starvation (resulting in hypoglycaemia due to low blood sugar levels). These three conditions are interrelated and close observation is necessary. Puppies are fragile and can become very ill very quickly.

## COLOSTRUM

Puppies acquire some immunity to disease from their mother before and shortly after birth. This is particularly true if the mum's vaccinations are up to date. Some of the mother's antibodies cross the placenta and enter the puppy's circulation, but most antibodies are provided in the first milk or colostrum. These "maternal antibodies" protect the puppies against the diseases to which the mother is immune. Although very protective, maternal antibodies last only for a few weeks. After this time, the puppy becomes susceptible to disease.

## WHAT KIND OF ENVIRONMENT DO NEWBORN PUPPIES REQUIRE?

Puppies should be placed in a crate or box lined with towels or another cleanable warm material. Bedding should be cleaned regularly (2-3 times a day) or when soiled. Since puppies less than 2 weeks of age are unable to maintain their own body temperature they must be kept in an environment at 29 to 32°C, with 55 to 65% humidity. Their rectal temperature at birth is 35.6 to 36.1°C, increasing gradually to 37.8° by 1 week of age. Sometimes an individual room can be sufficiently warmed, but more commonly a heat source is put in the box to maintain the optimum environmental temperature. The box should be large enough for the puppies to move away from the heat source if they are too hot. Heat lamps are the preferred source of warmth. Focal heat sources such as circulating hot water blankets, warmed oat bags and hot water bottles well insulated with towels may also be used. The latter two do not produce consistent heat and increase the risk of burns and overheating. Electric heating pads are not recommended for the same reason. If they are the only available heat source, they are best attached firmly overhead in the cage.

Cold puppies will huddle together, piling on top of each other, and cry more, whereas if they are widely separated they are probably hot. The environmental temperature can be reduced to 27°C after 1 week, then to 22°C after 4 weeks.



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## HOW DO I FEED NEWBORN PUPPIES?

There are many commercial milk formulas available for puppies (eg Di-Vetelact, Wombaroo Puppy Milk Replacer), and these will have feeding guides as to how much to feed depending on the age of the puppies. These formulas, as well as feeding bottles and teats, can be purchased from vets, most pet shops and feed supply stores. Bottles and teats designed for feeding different sized puppies are available, and these need to be sterilised between uses in boiling water, as for human babies. If the animal has a strong suckling reflex, a small animal nursing bottle should be used. Pierce the nipple with a hot needle so that a drop forms over 1-2 seconds when the full bottle is tipped upside-down. A syringe or eyedropper is not recommended. They can be used in an urgent situation where a bottle is not available, but it is essential to deliver the liquid into the mouth slowly to prevent choking.

Recommendations for feeding puppies vary from feeding every 2–6 hours. The first 3 days of life are the most critical. The intensive feeding schedules are best for the pups, but are obviously more difficult for owners to do. A practical compromise is; during the 1st week feed every 2-3 hours during the day up until midnight, and then at 4am and 8am. If all is going well, reduce feeding to every 4 hrs during the 2nd week, and to every 6hrs during the 3rd and 4th weeks. The exact schedule will vary with the amount the animal takes in at each feeding and its state of health.

If the puppies are sleeping, do not wake them to feed, wait until they wake up then feed them. Formula (milk replacer) product recommendations should be followed with respect to quantity of supplement to feed. You can tell that the stomach is full from feeding when the belly is distended or the animal turns its head away from the nursing bottle and squirms. Semi-solids can be added to formula in week 3, and the animals can be introduced to lapping in weeks 3-4. Puppies can be weaned entirely off bottled milk as early as 4 weeks of age if they are taking in sufficient amounts of solids to sustain growth. Most puppies are weaned off milk by weeks 5- 7. Careful attention to the puppy's diet and growth rate during these first six weeks will get it off to a good start on the road to becoming a healthy, well-nourished dog

Puppies should be observed for their rate of growth. They should double their birth weight in about one week. At two weeks of age, puppies should be alert and trying to stand. At three weeks, they generally try to climb out of their box. At four weeks, all of the puppies should be able to walk, run, and play. Puppies are born with their eyes closed, but they will open in 7 to 14 days. If the eyes have not opened by 14-16 days of age, or if there is any pus or discharge, consult your veterinary surgeon at once.

## SUPPLEMENTAL FEEDING

If the puppies are still nursing from their mother, 1/3 to 1/2 of the listed amount of formula should be the daily goal, this can be spread over 1-3 feedings, based on the age of the pups. Supplemental feeding may be continued until the puppies are old enough to eat puppy food.

## STIMULATING PUPPIES TO GO TO THE TOILET

The mother would normally lick the area under the tail to stimulate the puppy to urinate and defaecate. In her absence, you will need to clean this area with damp cotton wool or tissues after feeding to ensure regular toileting. Toileting should be performed after every feed. Voluntary urination and defaecation should begin within 1-2 weeks.



## HOW DO I KNOW IF A PUPPY IS UNWELL?

The most common signs of illness are persistent crying, decreased activity, reluctance to feed, failure to gain weight, and weakness. Crying for more than 20 minutes is abnormal - it may indicate that the puppy is cold, hungry, or ill. Eventually the puppy will stop crying and become weak and cold. Since newborn puppies can become seriously ill and die very quickly, contact your veterinarian for advice if you are concerned about a puppy's behavior. Low body temperature (hypothermia) is a common cause of newborn puppy death.

Hypoglycemia refers to low blood sugar levels and is due to insufficient food intake. Signs of hypoglycemia include weakness, depression, and muscle twitching. Signs such as these should be checked by your vet immediately. First aid can be provided by giving a few drops of glucose solution such as Glucodin, or honey into the mouth.

Diarrhoea is a common problem in hand-reared puppies, and can lead to rapid dehydration, infection, and death. Any diarrhoea accompanied by loss of appetite or lethargy should be checked by your regular veterinarian, as hospitalisation may be required.

## TROUBLE-SHOOTING

Sometimes hand-rearing will be complicated by problems such as vomiting, diarrhoea, bloating or aspiration of food. If any of these occur, examine the following aspects of your feeding methods:

1. Feeding position. The puppy should not overextend its head during feeding. This increases the risk of aspiration.
2. Temperature of the food. Make sure that food is at body temperature when feeding. Cold food can cause vomiting, but food that is too hot can burn the puppy's mouth.
3. Speed. Watch out for feeding too quickly. Feed the milk over one to two minutes.
3. Mixing the milk replacer. If the milk replacer is not mixed according to directions, it may be too concentrated (which can lead to vomiting, bloating and diarrhoea), or too diluted (which means you will have to feed more to supply more calories).

4. Total amount. Overfeeding can cause problems, such as vomiting, diarrhoea or aspiration. On the other hand, to avoid underfeeding you must make sure the puppy is gaining weight adequately.
5. Hygiene. In order to prevent infections that can cause vomiting or diarrhoea, it is especially important for puppies to have a clean environment. Be sure to carefully wash all feeding equipment, mixing only enough replacer to last for 24 hours and refrigerating any unused quantities.
6. Underlying problems. If you have double-checked all of the above, your puppy should be checked by your veterinarian.

## WHAT VETERINARY TREATMENTS DO PUPPIES REQUIRE?

Puppies should be wormed from 2 weeks of age at fortnightly intervals until 12 weeks of age. They need to be dosed accurately according to weight. It is well worth consulting your veterinary surgeon or veterinary nurse regarding a worming programme for a litter of puppies rather than purchasing branded products over the counter.

The first vaccination is at 6 to 8 weeks of age in most cases. Contact your veterinarian for advice on the appropriate vaccination and preventative health program for your puppies.

