

# IMPORTANT – YOU WANT TO READ!

**Hypoglycemia**, or low blood sugar, is a possible problem with all toy breed puppies. Veterinarians unfamiliar with toys often misdiagnose the condition as viral hepatitis or encephalitis. As a toy breeder or pet owner, it is important to recognize the symptoms of hypoglycemia and know how to treat it.

Hypoglycemia is easily treatable in the early stages, but fatal if allowed to progress. Many puppies are lost needlessly to hypoglycemia because of ignorance on the part of their owner or veterinarian.

When a dog's blood sugar, or glucose, level drops, it can affect neurological function. Disorientation, tremors and coma may occur. Normally, hormones stimulate the breakdown of stored glycogen to supply the brain and other tissues with fuel. In toy breeds, this process may not happen fast enough, and hypoglycemia results.

Juvenile hypoglycemia occurs in puppies less than 3 months of age. Because puppies have not fully developed the ability to regulate blood glucose concentration and have a high requirement for glucose, they are vulnerable. Stress, cold, malnutrition and intestinal parasites also may trigger juvenile hypoglycemia.

It is important to understand that just because a puppy has an episode of hypoglycemia, it does not mean that the puppy is truly "hypoglycemic." True hypoglycemia is a chronic condition caused by overproduction of insulin by the pancreas. Even though the pancreas may normally function properly, toy puppies can still have an isolated hypoglycemic incident in reaction to stress.

Hypoglycemic incidents are almost always preceded by a stress of some kind.

Some examples of common stresses include: weaning, teething, vaccinations, a change in environment, shipping, over-handling, cold temperatures, intestinal parasites, infections, anorexia, etc. Many puppies simply play too hard and stress their system or forget to eat.

Toy Breed Puppies often do not have the fat reserves to supply adequate glucose in times of stress or when they do not eat regularly. Hypoglycemia most often occurs when the puppy has not eaten for several hours. This is not always the case, however. A puppy can have eaten recently and still show signs of hypoglycemia if his system is stressed and the food has not been digested and assimilated.

It is important to "free feed" toy puppies a high quality food. Toy puppies simply have too high of an energy level to be restricted to scheduled feedings. Most do fine if switched to scheduled feedings when they reach adulthood, but they must have access to food and water at all times when they are puppies.

## Signs and Symptoms of Hypoglycemia

The first sign of hypoglycemia is the puppy slowing down and then acting listless. The puppy will then begin to tremble or shiver. This is a reaction caused as the brain is starved for glucose. The trembling is followed by a blank stare and the puppy lying on his side. He may also experience convulsions. After a time, the puppy will become comatose. His body will be limp, lifeless, and the tongue and gums will be a grayish/blue color. The body temperature will be subnormal. The puppy may even appear to be dead.

If caught in the early stages, treatment is simple. Rub Nutri-Cal/ Fortical, glucose gel, or Karo syrup on the puppy's gums, under the tongue, and on the roof of the mouth. (Caution: do not use honey.) Get a heating pad or heating blanket and slowly warm the puppy to proper body temperature. If the puppy responds, all is well.

Feed a quality canned food right away (you may want to mix it with egg yolk) OR Gerbers baby food (chicken or beef) and then monitor the puppy to be sure that the condition does not recur. Be sure to eliminate the stress that caused the episode if at all possible.

If caught in the more advanced stages, treatment is more complicated. Always assume that the puppy is alive. Rub Nutri-Cal/ Fortical, glucose gel, or Karo syrup in the mouth, and carefully insert a small amount in the rectum. Slowly warm the puppy to normal body temperature (101-102 degrees F) and keep him warm continuously with light heat. If the puppy still does not respond, carefully administer Nutri-Cal/ Fortical, glucose gel, or Karo syrup by oral syringe into the mouth, a little at a time. Call your veterinarian and inform

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him that you have a hypoglycemic puppy.

He will prepare a warmed dextrose solution to inject subcutaneously and may put your puppy on an IV drip. Request a fecal exam. Your puppy may have intestinal parasites such as worms, coccidia, or giardia that need to be eliminated immediately. A bacterial or viral infection may also be present and antibiotic treatment necessary. If your puppy has been given glucose injections, it is probably a good idea to treat him with antibiotics so that infection does not occur. Your vet will likely recommend a prescription canned food such as a/d to give as your puppy recovers. You can finger feed the a/d from the can and add electrolyte solution or Pedialyte to the drinking water.

You must also keep the puppy warm at all times. Of course use prudence, and do not overheat or dehydration will occur.

In severe cases you may need to force feed a/d for a time and give electrolyte solution or Pedialyte with an oral syringe. Give B vitamins to stimulate appetite. As your puppy improves he will begin to eat in his own and then you can gradually phase back in his regular food.

## Hypoglycemia Requires Quick Intervention

Chihuahuas and other Toy-breed dogs are not only at risk for hypoglycemia, they can die from the low blood sugar disorder if they do not receive prompt treatment.

Simple cases of hypoglycemia can occur when a dog is overly active with too much time between meals or fasts before vigorous exercise. Hypoglycemia also may occur secondary to another condition. Other causes include Addison's disease, insulin-producing tumors of the pancreas, severe liver disease, and glycogen storage diseases. If an underlying illness causes hypoglycemia, veterinarians first treat this condition.

## Signs of Hypoglycemia

- Loss of appetite
- Extreme lethargy
- Lack of coordination
- Trembling
- Muscular twitching
- Weakness
- Seizures
- Unusual behavior
- Dilated pupils
- Stupor or coma

## In Summary

- 1) **Always keep Nutri-Cal/ Fortical or Glucose Gel on hand.** This is the quickest way to revive a hypoglycemic puppy.
- 2) If you ever see your puppy becoming listless, or laying on his side and acting unresponsive IMMEDIATELY Rub Nutri-Cal/ Fortical, glucose gel, or Karo syrup on the puppy's gums, under his tongue, and on the roof of the mouth. Slowly warm him to normal body temperature with a heating pad. Feed him as soon as he responds. Call your veterinarian if the puppy does not quickly respond.
- 3) Keep your puppy from chilling, free of parasites, and minimize stress.
- 4) See that your puppy eats often and maintains a proper body weight.
- 5) Do not over-handle your puppy. Be sure to allow him rest time and alone time. Like all babies, puppies need to have a regular schedule of rest, meals, play and potty.