

A Short Guide to Calcium

If you feel your dog is experiencing severe low calcium levels it is imperative you seek immediate vet care as low calcium can be life threatening.

Calcium is an essential mineral for all life, especially canines. Whether you are a breeder or a dog owner knowing about calcium is important. Daily recommended dosage for adults - 50mg per kilogram (roughly 2.2lbs) (b) *Dogs in whelp and nursing dogs will require significantly more calcium.* You can expect to give a dog calcium in the thousands of milligrams during whelp and lactation.

Eclampsia (“milk fever” or hypocalcemia) is a condition where the blood calcium levels are lower than normal. If left untreated Eclampsia can progress into puerperal tetany, a condition characterized by stiffness and seizures, where the blood levels are dangerously, life threateningly low. Any dog is at risk but certain breeds are at a higher risk of developing Eclampsia; Doberman, Chihuahuas, miniature pinschers, shih-tzus, miniature poodles, Mexican hairless dogs and pomeranians. Dogs with large litters, first time mom and toy breeds are most susceptible to low calcium. (a)

Symptoms:

“Tremors Weakness

Puerperal Tetany – a form of paralysis associated with eclampsia in which the dog has stiff limbs and struggles to stand or walk

Panting (excessive or rapid and labored panting)

Restlessness

Muscle spasms (tremors, twitches, jerks, and such)

Changes in the way they move

Changes in behavior (neglecting the litter, nervousness, anxiety, mood swings, aggression, ect.)

Salivation

Sensitivity

Confusion

Hyperthermia – increased body temperature

Seizures, which can lead to cerebral edema (swelling of the brain caused by excess fluid)

Tachycardia – an abnormally rapid heart rate

Polyuria – excessive urination

Polydipsia – excessive thirst

Vomiting

Coma

Death” (d)

“Calcium and phosphorus deficiencies are uncommon in well-balanced growth diets. Exceptions may include high-meat diets high in phosphorus and low in calcium and diets high in phytates, which inhibit absorption of trace minerals. In dogs and cats, the requirements for dietary calcium and phosphorus are increased over maintenance during growth, pregnancy, and lactation. In

dogs, the optimal calcium:phosphorus ratio should be ~1.2–1.4:1; however, minimum and maximum ratios by AAFCO are 1:1 to 2.1:1. Less phosphorus is absorbed at the higher ratios, so an appropriate balance of these two minerals is necessary. Also, insufficient supplies of calcium or excess phosphorus decrease calcium absorption and result in irritability, hyperesthesia, and loss of muscle tone, with temporary or permanent paralysis associated with nutritional secondary hyperparathyroidism. Skeletal demineralization, particularly of the pelvis and vertebral bodies, develops with calcium deficiency. By the time there is a pathologic fracture and the condition can be confirmed radiographically, bone demineralization is severe. Often, there is a history of feeding a diet composed almost entirely of meat, liver, fish, or poultry.”(c) In short, typical adult dog food has sufficient calcium but factors like pregnancy, growth and lactation demand more calcium intake. Dogs fed a diet mostly of meats are at a higher risk of low calcium.

DO NOT SUPPLEMENT DURING PREGNANCY. Supplementing calcium during pregnancy is usually not recommended as too much calcium prior to whelping can cause weak contractions or stall labor completely. If you feel your dog needs calcium have her blood levels checked first.

Calcium during whelping is advised to be given in between each pup. It is safe to give some calcium once contractions start. Calcium supplementation should continue while the dam is still nursing and stop once pups are fully weaned. When in labor dogs draw calcium from their bones to promote and regulate contractions and lactation. As pups nurse and milk lets down even more calcium is used. Oral calcium is helpful but minimal calcium is absorbed through the intestinal tract. In the event of low calcium a vet should give IV calcium or subcutaneous calcium. Calcium paste or syrups works best at acting fast and absorbing well as it is passed directly into the bloodstream through the vessels in the mouth and cheek.

DO NOT GIVE DAIRY TO YOUR DOG. I repeat; NO DAIRY PRODUCTS FOR DOGS. This includes cheese, yogurt, milk, and ice cream. “Once puppies have been weaned they’ll produce less lactase and this is when most dogs can, in fact, become lactose intolerant. A dog that is lactose intolerant can experience the same kinds of symptoms as people with the condition. “Dogs have varying degrees of lactose intolerance, so some dogs who drink milk may just experience mild GI distress, or none at all, while others will have severe clinical signs,” shares Brausa. Further, milk and dairy products are common triggers for food allergies in dogs. “A food allergy to milk or dairy can appear as irritation of the skin, redness, itching and GI upset such as vomiting and diarrhea,” says Liff.” (e) “The lactose concentrations in a female dog’s milk run about 3%, where cow’s milk contains 5%, so even unweaned puppies may not produce enough lactase to digest cow’s milk properly, and may show signs of lactose intolerance, though they would be reduced in intensity.

Symptoms:

Toileting accidents in the house

Abdominal pain

Bloating

Dehydration

Diarrhea

Symptoms cont.:

Excessive thirst

Vomiting

Weakness

Weight loss" (f)

Some dogs may seem like they don't have symptoms but they may in fact have a response. It is best not to give your dog dairy. It is not necessary for their diet anyway.

While not every dog needs calcium supplements during whelp and lactation it is good to have it on hand. A long labor, slow progressing labor, stuck puppy, C-section, large litter, first time mom, older mom or just an off-chance can turn a normal whelping or nursing into a nightmare. TUMS is a popular calcium choice for many breeders. It is good in a pinch but is designed to reduce stomach acid and doesn't significantly raise the blood calcium levels. Syrups and pastes do much better at being readily absorbed and raising the blood calcium levels.

"Treatment for hypocalcemia typically includes the following:

An immediate veterinary visit to check blood calcium levels

Treatment of the underlying disease or cause

Possible intravenous (IV) fluids

Treating with IV calcium (e.g., calcium gluconate), which needs to be given very slowly

Thermoregulation and potential cooling measures if the temperature is > 104.5F

Monitoring the electrolytes and the blood sugar frequently

Oral calcium supplementation for days to weeks (once stable)

Possible vitamin D supplementation, which helps the intestines absorb calcium more effectively

Anti-seizure medication, if the seizures don't respond to supplementation

Thankfully, the prognosis for hypocalcemia is typically excellent to good once supplemented.

When in doubt, seek immediate veterinary attention if your dog shows any signs, as the sooner it is identified, the sooner it can be treated." (g)

Notes:

Limit excess vitamin A and D as both can be dangerous. Only a vet should prescribe vit D supplements.

If giving calcium make sure the dog gets enough phosphorus and magnesium in order to properly process the calcium.

Careful if you feed a raw diet as studies do show a higher increased risk of nutritional deficiencies, infections and bacteria. (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3003575/>)

References

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- (b) <http://boneo.bio-rep.com/blog/dog-nutrition/344/sources-of-calcium-for-dogs-requirements-and-balance> 04/05/2018 (Note: not condoning or promoting the supplement or company; for educational purposes only)
- (c) <https://www.merckvetmanual.com/management-and-nutrition/nutrition-small-animals/nutritional-requirements-and-related-diseases-of-small-animals> 04/05/2018
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