



## Dart Frog Emergency Kit #3: Calcium or Vitamin A Deficiency

### Includes:

- 5mL 2.3% Calcium Gluconate Solution
- 1mL Syringe
- 2 Pairs of Non-Sterile Vinyl Gloves
- 1mL Vitamin A Concentrate Powder
- 1 Packet of HF Calcium Clay Bath
- 1 Petri Dish
- 1 10mL Syringe

This kit is provided Free of Charge by Houston Frogs and is the same we use for treating amphibian hypocalcemia and hypovitaminosis A. We use this product on our own amphibians with excellent success in treating amphibian hypocalcemia and hypovitaminosis A, which is typically caused by the use of expired supplements, improper supplementation, or the use of low-quality supplements. The included calcium gluconate was originally prepared by Duvet at a concentration of 23%. This original solution was then diluted to 2.3% using sterilized distilled water and sealed in sterile vials under sterile conditions in our laboratory to eliminate the possibility of contamination. If you see any black growth/spots or particulates in the included vial, discard immediately as the seal may have been broken in transit. After being opened, the calcium gluconate should be used and refrigerated immediately. After a few days from being opening in unsterile conditions, it will likely grow mold and should be discarded. For this reason, **DO NOT OPEN** the vial until you are **100%** ready to use it!

*The included products are repackaged in our laboratory at Houston Frogs LLC. If you choose to use any of the products in this kit, you agree to hold harmless Houston Frogs LLC, the owner, and all subsidiaries and affiliates for any negative reactions, damages, or other harm caused by this kit. Remember that it is best to consult a veterinarian before using any products on your animals. By using this product, you also agree that you have consulted a licensed veterinarian about the use of Calcium Gluconate on your animal(s). By providing this product for free, we are not engaging in the practice of veterinary medicine nor recommending it be used on your animals. Use at your own risk.*

### **What can cause hypocalcemia and hypovitaminosis A:**

Hypocalcemia in amphibians can be caused by a lack of vitamin A, or D3, or calcium often caused by expired supplements (over 6 months old), improper supplementation (not ensuring that the flies are coated before feeding to the frog), or the use of low-quality supplements (we do recommend Nekton Calcium +D3 and Nekton Multi-Rep or Repashy Calcium Plus and Repashy Supervite), or even overfeeding to the point at which many flies are not eaten until after they have cleaned supplements off of themselves. Hypovitaminosis A can have similar causes but is often caused by expired supplements or the use of improper supplements.

### **How to identify hypocalcemia and hypovitaminosis A:**

Hypocalcemia is often seen as seizures in amphibians or abnormal bone growth (Metabolic Bone Disease or MBD, which is caused from prolonged calcium or D3 deficiencies).

Hypovitaminosis A is often seen as Sticky Tongue Syndrome where frogs cannot seem to “stick their tongue to the flies” but can also result in seizures as well. Vitamin A and D3 are both needed for the uptake of calcium into the soft tissues of the frogs, which is why Vitamin A, D3, and Calcium are interlinked and have similar deficiency symptoms. Note that too much vitamin A can also be harmful as it is fat soluble. Too much vitamin A can result in Hypervitaminosis A, which often leads to the calcification of soft tissues, enlargement of the liver, and eventually death from vitamin A toxicity. This is why it is best to use concentrated vitamin A supplements only for emergencies, or for breeding adults (maximum of 2x per month), or for Oophaga (1x per month; 2-3x per month for breeding adults).

### **How we treat hypocalcemia and hypovitaminosis A:**

If the issue is known to be hypovitaminosis A (obvious Sticky Tongue Syndrome), we simply use the vitamin A contained in the .5mL vials to dust approximately 20-30 fruit flies and to spot feed the affected frog. Tank mates may have to be removed temporarily so the affected frog can eat undisturbed with no competition. 1mL of concentrated vitamin A should last several feedings if used sparingly. It's best to also replace any expired supplements immediately with a high-quality supplement such as those suggested above. Generally, we do two feeding two consecutive days like this, then continue using a high-quality Calcium with D3 supplement. Vitamin A is supplemented once monthly thereafter for the next three months.

If the issue is known to be hypocalcemia (Seizures are typically caused by this), we will use the 1mL syringe to draw up approximately .2mL of 2.3% calcium gluconate solution and will drop approximately 4 drops onto the back of the affected frog. This can be done directly in its tank, or in a pre-prepared treatment tub. We have had the best results doing this twice per day for 2-3 days. After treating the frog, it is best to spot feed it with approximately 20-30 fruit flies dusted with a newly opened high-quality calcium with D3 supplement.

If it is not known whether the frog has hypocalcemia or hypovitaminosis A (or both), we typically drip .2mL of 2.3% calcium gluconate onto the back of the frog, then feed

approximately 10-15 fruit flies dusted with concentrated vitamin A and then approximately 10-15 fruit flies dusted with a newly opened calcium plus D3 supplement and repeat this process over 2-3 days.

Additionally, it is beneficial to prepare a calcium clay bath using our calcium clay bath kit (Instructions Included), which will help to hydrate your frog and to provide a variety of bioavailable minerals that can be absorbed directly through your frog's skin.

**For more information, visit us at [www.HoustonFrogs.com](http://www.HoustonFrogs.com)**