

Make Your Own Electrolyte Paste

By Sheila Scroggins

Did you know there may be times when you can help your adult alpacas by providing them with supplementation of electrolytes? It may be that dam who decides to give birth in the spring during an unexpected heat wave. It could be in a condition described to your veterinarian over the phone where the recommendation is to supplement your alpaca with an electrolyte. There is an easy recipe you can prepare and have on hand which can provide a quality, easily stored, and easily administered form of electrolytes. And best of all it will only cost pennies per dose.

I have used this formula for twenty-five years with my horses and also in my alpacas. During the 1990s I was an endurance rider and found this electrolyte preparation a lifesaver when riding long distances in very hot weather. During a fifty or one hundred mile endurance ride, I would administer this supplement anywhere from every four to eight hours, depending on the ambient temperature, speed of the horse, and availability of water. I have found with horses who are dehydrated, small frequent doses of this electrolyte replacement formula will actually get the horse to start drinking sufficient water to replace their water losses associated with heat and exercise stress.

Determining the signs of dehydration in the alpaca is a challenge compared to their equine friend. A very useful determinant of dehydration in the horse is skin turgor. Pinch a section of skin and

if the skin does not return to the underlying tissue readily, but instead stays tented, is a reliable sign of dehydration. This could certainly be used on a recently sheared alpaca. But with even one inch of fiber on the animal, it makes this assessment difficult to determine, leaving us with other known assessment procedures to determine if dehydration is present. Two known assessments for hydration are capillary refill and heart rate. Of course you need a stethoscope for accurate determination of an alpaca heart rate. I believe every alpaca owner should have a stethoscope in their medical toolbox.

The heart rate of an average alpaca should range from sixty to ninety beats per minute. The reason the heart rate increases in states of dehydration is a lack of blood volume in the vascular compartment. This decrease in blood volume causes the heart to compensate by increasing the heart rate to maintain perfusion to the animal's organs.

To auscultate the alpaca heart rate listen to the heart with your stethoscope behind the alpaca elbow, in a place that is free of thick fiber. You should listen and count for one full minute, but listening for fifteen seconds and then multiplying by four can give you a good estimate of the heart rate. This can take a bit of practice so don't wait until you have a sick alpaca; listen to all of your alpacas as part of your herd health. Dehydrated animals will have heart rates sustained at twenty or more percent above normal depending on the level of dehydration. The compensatory heart

rate change is a heart rate that is a sustained elevation above what would be expected at rest. That would be a heart rate of anywhere from 110 beats per minute (BPM) to 160 (BPM) or more. Usually the higher the heart rate, the more severe the blood volume depletions.

Capillary refill is another assessment of hydration. Capillary refill should be less than three seconds, meaning that when a pink area of mucous membrane is depressed, the area turns white and quickly returns to pink within that time frame. Any capillary refill over three seconds is an indication of delayed tissue perfusion, another indication of dehydration. By far, the most reliable indicator of dehydration is weight loss. One liter of water loss is equal to approximately one kilogram or two pounds of body weight loss. So, if you suspect dehydration, get a baseline weight on your alpaca and assess the ongoing state of dehydration by serial weights. For example, over a twenty-four hour period your sick alpaca has a weight loss of four pounds. You can approximate a fluid loss of two liters.

Weight loss due to dehydration is evaluated in percent of body weight. A loss of body weight in the alpaca of 1% to 2% would be considered mild dehydration. In a 150 pound alpaca a loss of 2% would equal a loss of three pounds and 1.3 liters of fluid. A weight loss in the dehydrated alpaca of greater than 2% body weight indicates a much more serious state of dehydration. That weight range would be a four to seven pound weight loss, with each percent of weight loss constituting a more severe state of dehydration. A fluid loss of 5% or greater would be considered to be very serious and potentially life threatening. This severe state of dehydration would equal 7.5 to 10.5 pounds of fluid weight loss in our 150



Calcium Carbonate powder



Applesauce



Potassium Chloride



Sodium Chloride

pound animal. Home electrolyte replacement therapy described in this article is meant for the alpaca with mild dehydration. Any alpaca with a weight loss of greater than 2% of body weight should receive veterinary care. This is especially true for the alpaca that is recently postpartum, where heat stress may be contributing to a difficult birth or problems in the early post partum period.

A temperature can also rise during dehydration and can also help you assess heat stress. Each of these situations compounds each other to raise body temperature. Any temperature above 102 degrees should be suspect of either heat stress or dehydration or both when ambient temperatures are high. Finally, urination will diminish significantly or cease in the alpaca that is dehydrated. Keep your sick alpaca in an area where you can determine urination.

Completing all of these assessments at regular intervals can give the owner a reliable idea of their compromised alpaca's state of hydration. We can generally make an assumption that if an alpaca has become dehydrated due to heat stress or other causes, they will also have become depleted or at risk of depleting their electrolytes. Supplementation of electrolytes may be very helpful in the alpaca that has mild to mild moderate dehydration.

One prerequisite to administering this electrolyte formula is that for the formula to work in any animal and be safe, the alpaca must have a capability, availability and an initiative to ingest water along with the electrolytes. The second prerequisite before giving electrolytes is that the animals must have normal kidney function to maintain fluid and electrolyte balance given supplementation. So with these prerequisites met, the alpaca owner can use this formulation of electrolytes when there is an indication or upon the recommendation of the veterinarian.

The three ingredients of your electrolyte recipe are Sodium and Chloride (table salt), Potassium Chloride (lite salt), and Calcium. Please remember this supplement should be given only when there is the probability of a deficit or a known deficit of electrolytes exists and is not to be

confused with a daily supplement. The proportions of the mixture are Sodium Chloride 2 parts, Potassium Chloride 1 part and Calcium Carbonate (Agricultural Lime or Dolomite) or Dicalcium Phosphate 1 part (purchased as livestock supplement of calcium).

An easier ratio to remember would be two tablespoons table salt, one tablespoon Morton's lite salt and one tablespoon dicalcium phosphate or calcium carbonate. The dose of the salt and mineral mixture should be one teaspoon of salt mixture for the average alpaca mixed in about one tablespoon of applesauce. This ration will give you approximately eight to twelve doses which should be enough for an extended period of time. I make up at least one syringe ready to go and store in the refrigerator for quick access. The salt in the solution preserves the mixture for extended periods of time.

The first rule of making your own electrolytes is that you need some base solution to mix the electrolytes that will make a paste and be palatable to the alpaca. I use apple sauce, but I have also used Karo syrup, and maple syrup. You can even make multiple doses with a large syringe. If a single dose or multiple doses are prepared, a 25 or 50 milliliter irrigation syringe works best for administration. I use discarded worming syringes for my alpacas, but honestly, any syringe is appropriate as long as the paste can be plunged into the alpaca's mouth. Storage is simple, label a jar with alpaca electrolyte and fill the jar with the appropriate proportions of the above listed ingredients. Always shake the salts to disperse the ingredients equally prior to mixing with your applesauce and before filling a syringe.

Administration should be in an alpaca mouth that is free of feed. Simply insert the syringe into the side of the alpaca mouth while holding the head securely. I hold the head after plunging the mixture between the back teeth and gums for a short period to keep the animal from spitting the mixture out of the mouth. I typically provide some pellets after to aid the mixture's transit into the gut.

Keep an eye on the alpaca after supplementation for ingestion of water. The supplementation should stimulate thirst and water ingestion should follow

with mild to moderate dehydration. Typically, drinking should occur within an hour of the dosing. Animals with moderately severe or severe hypovolemia (dehydration) from fluid loss can be harmed with electrolyte supplementation without concurrent fluid replacement therapy. So, please remember, nothing should replace veterinarian assistance with heat stress and or dehydration in the alpaca.

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Sheila Scroggins is the owner of Colusa Riverside Alpacas of Northern California. Sheila is a Nurse Practitioner who has been practicing nursing for over thirty years. She is a Professor of Nursing for Yuba College, and presently is the Director of Nursing. She invites you to visit her web library at www.colusariversidealpacas.com and read her other publications.