RICKETS  
by Al Ellis, Highline Trail Llamas  
  
Do you think your llamas getting enough vitamins, particularly D and E? What if you are wrong? Don’t make the same mistake we did by assuming things. We live on the high desert of Wyoming at 7,000 feet, latitude 42.79. Cold at times? Yes!  Windy at times? Yes! However even on those days, let alone the vast majority of the time, the sky is brilliant blue and the sun is intense. We were well aware of Vit D deficiency and resultant rickets, but did not consider it even a remote possibility in our area. Tragically we were wrong. We were trying to preserve some of the great old packing lines while building our outfitting business that required a large number of packers, so we were starting to produce 10 to 20 crias a year. Things seemed to be going along relatively fine with about 100 crias under our belt, when all of the sudden a lovely girl, Sarah, age two, rapidly developed carpal valgus. It became so severe so fast we felt we needed to euthanize her before a leg could just give out on her. Unfortunately, we didn’t have her diagnosed as the radiographs suggested injuries to the growth plates, we never even thought about rickets. No excuse, but even if we had, our impression was rickets was only a problem in crias. A couple months later we had another girl, Renee, who was approaching two, rapidly develop the same problem. This time it’s down to the wonderful vets at CSU for a full work up. Diagnosis, Rickets!! It turns out we also had a male that year with much less noticeable symptoms. We started Vit D supplement immediately but Sarah was gone and Renee will live with a crippled leg the rest of her life. Renee is able to breed and has had some beautiful kids, but it still weighs heavy on our hearts to think this was all preventable. Now we hope we have it right, start supplementing in October and continue through March. this is the 6th year with no problems. Many use the injectable, but we have opted for the oral ADE-B12 gel thinking it is good training for the crias with a once a week dose of about 2cc, depending on age and size. The yearlings and older animals get 5cc mixed into a supplement every other week. The supplement is 50% shredded beet pulp and 50% rice bran based mini pellet. Once the animals are hooked on this supplement it is a great vehicle to add all kinds of meds and Vit E. The same great vets at CSU are discovering most llamas they see are Vit E deficient and believe all llamas that are not on green grass will benefit from a supplement. We are now using Emcelle Tocopherol 500 IU/cc mixed 50/50 with water or wheat germ oil and dribbled on their supplement. We are giving 500 IU twice a week throughout the winter.  Once again, we just drench a bit to the crias until they are old enough to start nibbling the supplement. To drench the Vit D gel we found the easiest way to load and dispense a dose is with a modified syringe. Take a regular 6cc syringe for crias that get a 2cc dose, or a 12cc syringe for adults that need a 5cc dose and bore out the end to ½” so the end of the gel tube fits tight against the syringe. Tip: The syringe needs to be working very smoothly, we use a bit of food grade silicon. Then squeeze the desired dose into the syringe (see photos). To dispense, place the syringe between the llama’s molars and tongue. After squeezing out the dose, hold for a few seconds until the gel melts. Most of the llamas don’t seem to mind the taste and take it quite easily, and in fact most will eat the supplement with the gel added and not need to be dosed. It may take a few tries with a reduced dose of gel to get them used to it.  
Most of us add a nutritional supplement to our llamas during the winter months and the additional Vitamin D and E is easy to provide with great potential benefits and virtually no downside. The more recent blood work we have had done shows results in the upper zone of what is thought to be required.  
The North Sound Alpaca Association provides a link to a study covering Rickets and Vit D by Robert J Van Saun. It is a great resource.  
<http://www.northsoundalpacas.org/uploads/9/9/4/7/9947269/vitamindrickets.pdf>  
There also is a great piece about Angular limb deformity on the RMLA site  
[rmla.com/html/-angularlimb.htm](http://rmla.com/html/-AngularLimb.htm)