



Feeding the Young, Growing Horse for Optimal Skeletal Development

Growth related, skeletal abnormalities in young horses' today are multi-factorial in origin and can include Nutrition, Genetics and/or Management. This Management Guide will assist you to make sure that management and nutrition are not the limiting factors in this equation. Progressive Nutrition's feeding recommendations are based-on: 1) "How to Prevent", and 2) How to Correctly use "Nutritional Intervention", if and when necessary.

How to PREVENT, Nutrition Related, DOD

I. Management and Feeding of MARES:

All forms of nutrition related Developmental Orthopedic Disease (DOD) is much easier to prevent than to treat. Research began in the early 1980's, and the resulting reduction of DOD on farms when proper nutrition is been applied, has been very gratifying. We feel very strongly that 80% of the problems we see on farms today are prenatally induced. This is based on the percentage of cases in individual farms before changing their nutrition program and after two years on our program. We need to provide the level of "Prenatal" protein, minerals and vitamins, the entire pregnancy, rather than wait to increase their plane of nutrition until their last trimester.

Therefore, we need to make sure the mares are consuming two pounds, per 1,000 lbs of body weight, of the "correct" **ProAdvantage Grass or ProAdvantage Alfalfa** formula, the entire pregnancy, and have available the "correct" free choice mineral mixture: **Progressive Grass or Alfalfa Mineral**, depending on which type of forage the mares are eating. One important key to balancing their diet is to adjust "both" the Diet Balancer and Free Choice Mineral, accordingly, to complement the type of forage they are consuming, if it changes.

While their foals are nursing the first three months: the mares will need 4 lbs/1,000 lbs of body weight and the second three months: 3 lbs/1,000 lbs of body weight of the correct ProAdvantage diet balancer/day. This will complement the forage's protein, mineral and vitamin levels and provide all the nutrients, except calories, that your mares are putting into milk for the foal. One source of extra calories is Crimped Oats for the nursing mares. IF they need more than 8 lbs of Oats/day to maintain desired body weight, add **Envision Classic** for calories rather than more Oats. **Envision Classic** is 26% Oil and one pound contains similar calories found in three pounds of Oats.

Example: for a 1200 lb. Nursing Mare, feeding five pounds of a **Diet Balancer** and eight pounds of Oats is the maximum amount of a grain mixture to feed per day to maintain normal gut function, absorption of nutrients and optimal health. We recommend starting to add **Envision Classic** for calories, if you need more than 12 lbs/day of total grain mixture per day to maintain desired body condition.

After weaning, return to the prenatal diet, explained above, until next years foaling time arrives.

II. IN FOALS:

If you have a "suspect" mare, one that has had a foal with phytitis, acquired contracted tendons, OCD, etc., in the past, we recommend administering **Rejuvenaide**, beginning at five days of age. Continue at the recommended amounts/day until the suckling is eating **Foals First Starter and Creep (pellet or sweet)**, at a rate of one-pound/100 lbs of body weight per day. Provide the **Foals First** in a creep feeder where the mares cannot get at it, but where they will loiter outside. If a creep is needed inside the box stall, then block off a corner of the stall with a 2 X 6 board at a height the foal can walk under but the mare cannot crawl under or reach the creep feeder. All foals should have access to the **Foals First**

Starter and Creep feed until they are four months old. This feed is milk based and formulated to complement the nutrients in mares' milk - not forage.

After four months of age, switch to the appropriate **ProAdvantage Grass or Alfalfa**, and top dress with Crimped Oats as needed to maintain your desired body condition. Use **Progressive Nutrition's Growth Monitoring Chart** to determine the exact pounds of **ProAdvantage Grass or Alfalfa** to feed/day while growing. Once a month, mark the axis point on each foals chart, where the age and body weight lines cross. This will inform you how many pounds of the **Diet Balancer** to feed/day to meet the nutrients needed to support their individual growth rates. As you know, the bigger they are, or the faster they grow, the higher their daily mineral and vitamin needs are to support that development. The numbers inside each rectangle on the **Growth Monitoring Chart**, indicate our Recommended Allowance (RA) and the Safe Upper Limit (SUL), in pounds, to feed per day. This is the "Optimal Range" we recommend today to balance diets for young, growing horses. As long as you feed in-between these two numbers, you can be assured their nutrient needs will be met.

HOW TO CORRECTLY USE "NUTRITIONAL INTERVENTION"

I. IN GROWING HORSES:

Depending on the foal's age when you first see the manifestation of growth related problems occur; the following steps should be taken:

A. If you first see any signs of DOD before the foals are two months of age, you need to review the mares prenatal program. Foals should be born with enough nutrient reserves to last them at least 8 weeks. Any one of the following occurrences in the mare, can cause problems to occur in their resulting foal: 1) inadequate prenatal nutrition, 2) inability to absorb these nutrients or have them cross the placental membrane, 3) mineral interference preventing normal absorption, or 4) a genetic inability to utilize these nutrients to form normal, healthy cartilage in-utero.

B. If the DOD problems manifest themselves between two months and four months of age, we need to analyze the mares' milk to determine the mineral density in her milk. This is one of the Genetic causes of DOD today. We cannot increase the nutrients found in mares' milk, beyond what she is genetically capable of producing. Because we are not breeding for milk production, rather for conformation and performance, we have lost some of our good quality milking mare lines. Once their milk is analyzed, we will know exactly how much **Rejuvenaide** to add per day to make up these deficiencies. **Rejuvenaide** is available in paste, powder and liquid form and is formulated to complement mares' milk, when trace minerals and vitamins are in short supply.

C. If the DOD problems occur after four months of age, then the diet does not contain enough balanced nutrients (amino acids, minerals & vitamins) to support their particular growth rate. Inadequate protein or unbalanced amino acids can also affect the mineral absorbed and utilized by the weanling and yearling. If the crude protein is fed below Horse NRC's recommendation, the minerals will not be optimally absorbed or utilized. (Dr. Ed Ott completed this research at the Univ. of Fla. a few years ago). Individuals who think excess crude protein will cause these growth problems are wrong! Providing adequate protein with inadequate minerals will cause these problems, but unfortunately, the protein has gotten the blame. Actually, feeding less than adequate protein will give you the same result as feeding adequate protein with inadequate minerals, because the minerals cannot be utilized. Unfortunately, these individuals fulfill their own prophecy by cutting back on the protein on the larger foals, then saying, "See I told you they were growing too fast", when a problem arises later.

It is important to remember that horses cannot grow faster or larger than they are genetically capable of growing, unless steroids are used when they are young, which will affect growth rate. This unnatural or exaggerated growth from "added" hormones, can and will cause long-term damage and potentially cripple these horses before they are two years old.

It is also important to remember that IF the growth related problems are genetic or nutritionally induced, all four legs will be affected. Which means: all four ankles of weanlings or all knees and hocks of yearlings will be affected the same and the acquired contracted tendons will be noticeable on all four legs, not one or two.

A Good Rule of Thumb:

If all four legs are affected, review nutrition program and pedigree.

If only two legs are affected and/or the inside or the outside of the growth plates are inflamed, then look for unequal weight distribution causing increased trauma on these areas. (base wide, base narrow, toe-in, toe-out conformation).

If only one leg is affected, it probably came from an injury. They were either kicked or they kicked something, causing trauma to one particular area of one leg.

II. Sucklings: Give **Rejuvenaide** at twice the recommended dose for two weeks or until a reduction in inflammation can be seen. Then provide the recommended amounts per day according to their size and the mineral density found in the mares' milk. This can be given once a day. The form, whether paste, liquid or in water solution, is irrelevant. Just getting these increased levels of trace minerals and vitamins into them is the important part. If it is nutrition induced, you will see a reduction in swelling of the physis, or improvement in tendon contractures, with-in 30 days, in foals under one month of age. The younger they are, the faster the tissue turnover, the faster they respond. The older they get, the slower the tissue turnover, the slower they respond.

III. Weanlings and Yearlings: Plot their age vs. body weight on the **Growth Monitoring Chart** and feed 1/2-pound more/day than the normal Recommended Allowance (RA) of **ProAdvantage Grass formula with grass hay/pasture**. Reduce the calories fed/day by cutting the oats at least in half and increase the amount of hay fed/day. If you reduce the Oats by 4 lbs, add at least 4 additional pounds of hay/day to their diet. Take pictures from the front, back and side of their legs every 30 days and compare. In yearlings, the results are slower and it is sometimes difficult to remember what they really looked like two or three months ago. Also, take a cloth measuring tape and measure the circumference of the inflamed physis, then record once a week. If it stays the same diameter, as the foal grows, or it reduces in size, we feel we are getting this issue under control.

Remember - The physis (growth plates) will always close in time, but the longer they are inflamed, the more likely something else can go wrong during this growth phase. It may cause abnormal cartilage development or interfere with the transformation of cartilage to bone, causing lameness to occur when stressed in future years. This is why we are more aggressive today, than we were a few years ago, in using "Nutritional Intervention" to help manage these problem cases.

This is a brief overview of a multi-factorial problem. If you want to learn more, read the chapter titled "Applied Nutrition", written by Don Kapper, PAS, in the veterinary textbook, *EQUINE INTERNAL MEDICINE*, 2nd edition, co-authored by Stephen Reed, DVM, published by Saunders & Co. December 2004. Enjoy the read.

When feeding Crimped Oats for calories and you see the stools loosen, you could be feeding too many Oats. Reduce the amount of Oats fed and increase the hay, until the stools are normal in consistency. Adding Progressive Nutrition's "**Recover**", a pre-biotic, at this time for two weeks, will help the microbes in the colon become healthy again. When ready to add additional calories, add **Envision Classic** instead of returning to the same amount of Oats that caused the problem in the first place. This is a low Non-Structural Carbohydrate (NSC), high fat feed. Using this Feed Management information will prevent Acid Gut Syndrome (AGS) from occurring. AGS, may cause increased rate of passage through the gut and decreased absorption of nutrients, that can lead to any one or all of the different forms of DOD in your young growing horse.