Feeding for feet

Every horse has individual requirements, depending on the environment in which it is kept, genes it has inherited and the work it does. Two horses kept in the same yard, fed the same diet and working at the same level may have very different feet which could be genetic, or it could be that the diet is incorrect. Nutritional problems can be especially difficult to resolve, due to the many nutrients required to ensure healthy horn growth, but can include an unbalanced diet, the horse not absorbing nutrients efficiently or imbalances affecting nutrient utilisation whereby an excess of one nutrient can inhibit the availability of another.

Not Just Biotin

Whilst much of the emphasis on foot nutrition centres around the vitamin biotin, this alone is not enough to correct poor horn quality in the majority of cases and is one of many essential nutrients required by the horse for hoof integrity. There is however more data on the effect of biotin on hoof wall structure, compared to all the other nutrients combined, which is why so many people look towards feeding a biotin supplement rather than considering the total nutrient requirement of the horse in question.

Although no definitive requirement for biotin has been determined, it is thought that the average horse requires 2 - 3mg per day, which should be met by the diet alone,

without additional supplementation. Horses with poor feet do not necessarily have a biotin deficiency, any more than their stable mate with good feet, and therefore the question arises as to whether additional biotin supplementation is beneficial (Jackson, 1996 Bluegrass Laminitis Symposium). However, studies where 15 - 20mg of biotin per day was given, have shown positive effects on hoof wall growth and horses under stress, in intense work, travelling, stabled for long periods or with insufficient dietary biotin, may benefit from such supplementation.

What is Biotin?

Biotin is a sulphur-containing B vitamin which plays a part in carbohydrate, protein and fat metabolism. It also helps maintain healthy skin, hooves and functions as a co-enzyme. Horses manufacture B vitamins in the large intestine, during the breakdown of fibre, and the absorption of these vitamins, plus those obtained from a well-balanced diet, usually provides adequate levels for the horse. Biotin is a water-soluble vitamin, so is not stored in the body for any period and is either used by the body cells or excreted in the urine meaning it is difficult for it to become toxic when fed in larger quantities.

Energy Levels

Protein and energy are the first limiting nutrients in hoof nutrition and, if they are not present in sufficient amounts, hoof quality will be poor, regardless of what other nutrients are present. When assessing the diet of a horse with poor feet, the first thing you need to consider is his total energy intake ie. the number of calories the horse consumes in a day. Energy is important because without it the horse simply cannot function, and its entire metabolism will be negatively affected. The horse, like humans, requires energy for all basic body functions, including the digestion and utilisation of nutrients in its feed, and to help sustain the growth and development of tissues, including the hoof wall. If the horse does not have sufficient energy to fully utilise the supplement or feed, it will not be able to reap the benefits.

Before the vitamin and mineral component of the diet is even considered we should therefore make sure that the horse in question is receiving enough dietary energy (calories) so that horn growth and integrity can be achieved. Horses who generally maintain weight well can gain a majority of their energy requirements through the forage (grass, hay or haylage) portion of the diet, however, for those in harder work, or horses who need additional calories to support and maintain weight and condition, additional help from the correct concentrate feed is important.

Protein

Protein always receives a lot of unnecessary bad press when in fact, it is an essential nutrient and is vital for correct and healthy hoof formation. The hoof wall is comprised predominantly of the protein, keratin, so not providing enough dietary protein can negatively affect hoof health and condition. Protein is made up of amino acids which can be divided into two groups; those that the horse can produce

sufficient amounts of itself and those which have to be supplied in the diet and are referred to as “essential”. Methionine is one of the essential amino acids important in the make-up of keratin so a shortfall in the diet may lead to poor hoof growth.

Feeding the correct concentrate feed for bodyweight and workload will ensure that these essential amino acids are supplied in the right amount to meet requirements. If not feeding the correct amount of a pellet or muesli feed due to concern of your horse becoming too fat, the diet can be topped up by adding a balancer, like Fibregenix Lami Low-Cal or Platinum Pro Performance which will supply concentrated levels of protein, as well as vitamins and minerals, whilst keeping calories to a minimum.

Vitamins and Minerals

Most people are aware that their horses require vitamins and minerals in some format but often make the mistake of over supplementing, which can be as harmful as not feeding them at all. Equally, supplementing with one key mineral, rather than a balance, will lead to an imbalance and can cause deficiencies of other minerals which may be “tied up” by the one in excess. Important minerals in hoof nutrition include:

Calcium - key mineral in bone development and structure
Zinc - plays a role in carbohydrate and protein metabolism as well as being a component of an enzyme responsible for collagen synthesis
Manganese - important in the skeletal make-up as well as being a major component of cartilage
Copper - significant in bone and connective tissue formation

When choosing a feed or supplement, opting for “bio-available” or “chelated” zinc, copper and manganese which will mean these minerals are more easily taken up by the horse’s body thus helping the horse utilise them more efficiently and respond better to dietary supplementation. Fibregenix contains specific glycinate chelated minerals, as well as Alkosel organic selenium, for these very important benefits which means that more of every mouthful is utilised.

We have already discussed the role of the B vitamin, biotin, however vitamins A and E are also important. When considering vitamins and minerals in your horse’s diet, you should consider a diet that is going to supply adequate levels of all minerals not just those that are considered important for hoof growth. The health of the hoof is an extension of the health of the horse and, when overall health is compromised, the health of the hoof is also likely to be negatively affected.

Getting the Right Balance

The aim therefore is a fully balanced diet that delivers enough quantities of energy, protein, vitamins and minerals to support healthy hoof growth, alongside fibre from forage, which is essential for gut health. Forage supplies calories plus some other nutrients, but modern pasture and forages have been shown to be lacking in a range of certain minerals, so some form of supplementary feeding is necessary. Good-doers, who derive sufficient calories for their requirements from forage alone, should receive a balancer such as Fibregenix Lami Low-Cal or Platinum Pro Performance Balancer, to provide the nutrients which may be lacking.

Some may thrive on a Fibregenix balancer plus forage all year round and for consistent hoof quality, owners should not succumb to the temptation not to feed during months when grass is plentiful. Since it takes 9 to 12 months for the hoof to grow down from the coronary band to the ground, what you are riding on, or nailing a shoe to today, is the product of what you fed 9 to 12 months ago!

Horses who require more calories than forage alone can provide, to fuel work and maintain condition they should be fed the recommended amount of a hard feed to suit their workload, in order to ensure they are receiving the appropriate levels of vitamins and minerals, as well as energy and other nutrients. If, for any reason, less than the recommended amount is fed, the horse will be losing out and the diet should be reviewed. This is when adding a Fibregenix balancer will bring essential nutrient levels up to where they should be without supplying unwanted calories, whilst ensuring the feed suits the horse's condition and workload.

All Year Round

Simply maintaining a fully balanced diet all year round should ensure healthy hoof growth without the need for supplementation. Fibregenix balancers are particularly useful in helping to achieve this and provide the full spectrum of essential hoof nutrients much more cost effectively than a supplement. Not only can they be added to reduced amounts of hard feed but, if a leisure feed is the preferred choice for a harder working horse, they can be added to bring nutrient levels up to meet workload requirements but without adding calories.

Adjusting the diet in this way means the horse, and his hooves, are never kept short of nutrients so strong, healthy, consistent growth should result. If, despite feeding a good quality balanced diet for at least 9 months, does not achieve strong enough feet, it could be indicative of an issue with the absorption and utilisation of the nutrients which may be remedied with additional supplementation. Any supplement should contain the full range of hoof nutrients, though, and not just biotin, and never forget the influence of the environment on hoof integrity as constant wet conditions and/or wet then dry conditions, can take their toll on even the best nourished hooves.