

**Myths,
facts**



REVERDY

**and
untruths**

Myths, facts and untruths

**Stop the disinformation !
We explain everything to you.**

My horse is anaemic, I must supplement him with iron!

MYTH 1

Anaemia is defined by a decrease in the haemoglobin concentration below a certain physiological level (<11g/dl). The possible different causes are: haemorrhages, the destruction of red blood cells, faults in the production of haemoglobin, chronic inflammation due to an infection. Often, horses are then supplemented with iron in order to treat the anaemia.

But scientific studies show, in the horse, that **supplying large doses of iron doesn't have an effect on haemoglobin content, haematocrit or iron levels in the blood.**

On the contrary, an excess is toxic, it can lead the horse to developing a drop in immunity, and accelerate the metabolic consumption of vitamin E, predisposing the horse to muscular lesions, because iron has a pro-oxidant effect!

Finally, supplying excess iron contributes to a drop in the absorption of other trace-elements, such as copper, zinc or manganese. Forage generally has an abundance of iron (on average 525 mg /kg of dehydrated grass).

In the horse who is eating a sufficient amount of hay, that is to say 1-2 kg of hay /100 kg of bodyweight (about 10 kg of hay for a 500 kg horse), **requirements of iron will be amply covered** (40-50 mg / kg of dry matter is needed: a 500 kg horse ingests about 10 kg of dry matter a day with a diet containing plenty of forage), **therefore deficiency is ruled out!**

On the other hand, what has been shown, is supplying the following nutriment necessary for the production of red blood cells:

- **Trace-elements** (notably copper): favour a "chelated" form.

- **Vitamins** (B2, B6, B9, B12 in particular, vitamin C)

- **Proteins** (contribute to the synthesis of haemoglobin): choose a **quality protein source** (such as soya bean meal)!

- **Antioxidants** (vitamin E, selenium): they contribute to protecting the cell membranes.

TO SUM UP **Supplying excess iron is useless, even harmful to an anaemic horse! Providing quality nutriment is essential!**

My horse's liver is "overloaded"!

MYTH 2

Everyone knows this scenario! Often the ration is incriminated. But is it really possible? Explanations.

A first explanation as to the origin of this myth is: when a blood test is done and sent to a laboratory for analysis, and that the AST (or SGOT) (non-specific enzymes) values show a (moderate) rise, it's easy enough to say that the liver is the source, and by deduction, the feed the horse is receiving.

Now, AST are enzymes present in numerous cells; we cannot incriminate them in isolation. It is necessary, with the vet, to take into consideration the other muscular and/or hepatic enzymes before drawing conclusions

about an "overloaded" liver! An isolated rise in the AST or in association with the CK (muscular enzymes) can instead also point to (minor) muscular sufferance!

In addition, it's important to know that Reference Laboratories process blood samples at 30°C, whilst some other analysts "on the ground" carry out blood analysis at 37°C, which can lead to an increase in some values of nearly 50 %.

There doesn't exist any effective, scientifically proven, treatment to fight against this "overload" of the liver, which probably isn't one! What about surplus protein supply and the "overloaded" liver? There is a large tolerance to ex-

cess protein in the diet. Indeed, excess nitrogen is converted into good quality microbial protein by the gut flora, and these latter are principally absorbed in the form of ammoniac.

This ammoniac (which is toxic for the organism) must be converted into urea by the liver. This is the only moment the liver is “overloaded”: but this does not mean that the liver is functioning poorly! On the contrary, if the liver produces urea, it is working well! A failing in urea production associated with a rise in the hepatic values would be a lot more worrying!

However, supplying excess protein must

be avoided in the horse athlete. We will return to this below in MYTH N°4! Next, non-protein nitrogen sources such as spring grass must also be limited, in as much as it generates the same phenomenon of ammoniac production and conversion to urea by the liver.

In every scenario, on the **nutrition and supplementation side**, and notably in the horse athlete, a review should be made of: watering, the quality and quantity of forage, the quality and quantity of concentrate feed, and electrolytes. And, in known muscular disorders; supplement the horse with natural vitamin E.

TO SUM UP The “overloaded” liver is not a pathology in it’s own right. During a confirmed illness involving the liver, it is important to look for the cause and to provide a suitable treatment rather than a syrup or powder with endless virtues (unless the effectiveness has been scientifically proven).

The concentrate feed contains too much starch!

MYTH 3 There is currently a strong trend towards feeding horses diets ‘without sugar’, or ‘without cereals’, which isn’t always justified!

Admittedly, a horse at rest can fulfil his energy requirements with forage alone (which incidentally can be very high in sugar). However, when the energy spent on work, growth or lactation considerably increases, forage is no longer sufficient. It’s why it’s often necessary to resort to raw ingredients that are more concentrated in energy. Among them, cereals figure prominently (along with fats).

Indeed, they contain a complex carbohydrate, starch, which is spilt into molecules of glucose in the small intestine. Once absorbed into the blood, these molecules are transported to the liver and muscles, where they are stored as glycogen, a reserve complex carbohydrate employed by animals to store energy (in the same way as starch in plants).

Thus, the glycogen in reserve can be quickly mobilised later, in order to provide energy during sustained exercise for example. It contributes towards preventing the appearance of a hypoglycaemia during the effort, which can be the cause of a sudden tiredness in the horse.

Consequently, even if forage or other sources of fibre equally contribute to building-up glycogen reserves (via the production of

propionic acid stemming from the fermentation of fibre by the gut flora, which is then converted into glucose by the liver), starch remains a choice energy source in horses with increased energy requirements.

Nevertheless, the ingestion of starch being able to disturb the horses health, it is important to reason out the amount distributed during a feed. For a horse in good health, we recommend not exceeding 100g of starch /100 kg of bodyweight and per meal (that is to say 500g of starch per feed for a 500 kg horse). These amounts can be reduced, when there are health problems.

It is therefore pointless to use as a basis the amount of starch per kg of feed: it’s in every case the maximum quantity of starch per kilo of liveweight and per feed that counts!

Moreover, the quality of starch differs between cereals and the form in which they are fed (rolled, flaked, etc.). Now this will have an impact on the way in which the starch will be digested in the small intestine as well as fermented in the horse’s stomach. For example, the flaking of cereals increases the digestibility of the starch and equally it’s fermentable characteristic in the stomach.

We talk about this in MYTH N°5 and we’ve devoted a number of chapters to it in our technical brochure if you’d like to learn more!

TO SUM UP The energy requirements of the horse (athlete) are up to twice those of a horse at rest, resorting to a concentrate feed composed from quality cereals is sometimes unavoidable.

For effort: more protein!

MYTH 4 Although the horse's protein needs grow slightly with increases in workload (or whilst being broken or following a convalescence), they are generally associated with muscle renewal (building, deterioration and rebuilding) and due to a loss of nitrogen through transpiration.

Proteins are not a desirable “fuel” for effort, because for them to be able to be metabolised into a “fuel” (adenosine triphosphate - ATP), usable by muscles, the nitrogen component of protein has to be eliminated (and excreted in the urine, which requires water, thus causing a risk of dehydration). A not terribly energy efficient process. **Glucose and fats are significantly more easily metabolised for use as fuel.**

We evoked the excess supply of protein above (MYTH N°2), and rather than favouring the quantitative supply, it is better to opt for a source of quality proteins. That is to say: proteins with a high nutritional value to the horse with notably, high levels of digestible protein and lysine in comparison with crude protein. This is the case of the soya bean meal (non GMO) that we use in our feeds and in our nutritional supplements (sunflower meal should be avoided). In consequence, if the diet is made up from a quality forage with adequate protein (8 to 10% of dry matter), a big increase in the protein content in the concentrate ration is not advisable in the sufficiently muscled, fully grown horse athlete in good health.

TO SUM UP Proteins are not an energy source for the horse! Choose a concentrate feed made with quality protein: such as soya bean meal. Hay remains the basis of the horse's diet, so make sure you provide him with at least 1-2 kg per 100 kg of bodyweight (that is to say about 10 kg of hay for a 500 kg horse). Furthermore, the hay can be analysed to know its composition, notably the protein it supplies.

A ration of flakes, a horse in good health!

MYTH 5 In human nutrition, the health “benefits” of modified cereals (muesli's, cereal flakes) have for a long time been supported by powerful misleading marketing messages. Very recent studies reconfirm the harmful effects to health of consuming large amounts of modified cereals (including cereal flakes!). It's the same for horses!

Certainly the flakes ‘embellish’ the horse feeds, and reassure owners who think they are seeing everything that the feed contains. Nevertheless, the majority of flaked feeds contain pellets... hidden among the flakes!

Flaking is a thermomechanical treatment process in a humid atmosphere which significantly increases the digestibility and thus the glycaemic index of cereals.

Just like the flakes, molasses, a by-product of sugar frequently employed to bind the pellets and improve the palatability of the

ration, will moreover itself increase the glycaemic index of the ration.

In this manner, a ration presenting a high glycaemic index is likely to lead to metabolic and digestive disturbances with more or less serious consequences over both the short and the long term.

An excess of flakes favours fatness, the development of gastric ulcers, behavioural problems, muscular disorders, metabolic disorders, etc.

An excess of flakes also favours the development of osteo-articular disorders in youngsters. **Consequently**, even if “only the dose makes the poison”, **their use in breeding is to be avoided in pregnant brood mares as well as in growing youngsters.** We will devote our next newsletter to this, as the subject concerns an important part of the equine sector. ●

TO SUM UP Excesses of flakes are dangerous for horses. They must be given sparingly and for a specific use (type racing).