Obesity Diseases in Horse & Management

By The Nude Horse (Equine Epidemiologist)

Obesity can lead to **Equine Metabolic Syndrome**, **PPID** (**Cushings)**, **Insulin Resistance** and **Hyperinsulinemia** usually resulting in **Laminitis**.

There is also a condition in horses called Equine Polysaccharide Storage Myopathy (**EPSM** or **PSSM**). This is another form of carboy hydrate intolerance that triggers tying up due to a genetic defect causing abnormal glycogen metabolism. These can be treated by **limiting sugar and starch** uptake and **replacing** extra need calories **with fats.**

Physitis in foals: Foals most commonly develop problems when they are fed excess nutrients which allows for rapid growth. In most instances, foals grow at a very appropriate rate with just their mother's milk and hay. The foals can be very lame or just appear stiffer in the affected leg. Sometimes the signs are more subtle, such as the foal is not running as much as other foals in your herd. Typically, swelling will be seen directly over the area of the growth plate and the swelling may be warm and painful to touch. Decreasing the plane of nutrition and restricting exercise will typically be helpful.

Osteochondritis dissecans (**OCD**) is a relatively common developmental disease that affects the cartilage and bone in the joints of horses. OCD is usually caused by a combination of several factors acting together, including:

- Rapid growth and large body size
- Diets very high in energy or have an imbalance in trace minerals (low copper diets)
- Genetic – risk may be partially inherited
- Hormone imbalances: Insulin & thyroid hormones
- Trauma and exercise: Including routine exercise is often involved in the formation and loosening of the OCDE flap.

Usually the best treatment is surgical removal of the abnormal bone and cartilage.

Source: http://www.equiforce.com/equine-obesity.aspx

'Horses with any type of metabolic disorder must be managed closely to ensure the intake of sugars and starches are minimised (if not completely eliminated from the diet). By supplying the horse with energy or calories in the form of **fat or soluble fibre**, ensure blood glucose remains low following a meal.

Obese horses should be kept on **grasses low in soluble sugars** called fructans. Spring and Autumn grasses are high in fructans, obese horses should **have limited access to grass** during these periods.

Chromium and magnesium play a role in reducing resistance to insulin. Horses affected by obesity induced diseases are usually chromium and magnesium deficient, although no specific requirement has been defined for horses to date.

Chromium is an element that combines with niacin to form a glucose-tolerance. It appears glucose-tolerance factor helps increase insulin sensitivity by increasing the number of receptor sites for insulin to bind to the cell, enabling more glucose to gain entry into the cell for storage.

Intracellular magnesium is a cofactor for numerous enzymes involved in carbohydrate metabolism, and horses that are insulin resistant are deficient in magnesium.

The addition of nutrients (including magnesium & chromium) should be achieved using a **balanced mineral and vitamin supplement** with the advice of your professionally qualified Veterinarian, because excesses of any of these nutrients can cause serious nutritional imbalances and further complications.'

Source:
https://www.addl.purdue.edu/newsletters/2000/winter/pesm.shtml

Treatment to manage the diet for obese horses should include a defined **exercise routine** and **minimise carbohydrates** intake. The goal now should be to **maximise fat intake** by providing 20-25% of the daily caloric intake requirement from fat sources.
All grain, sweet feeds including molasses should be eliminated from the diet and replaced with **high quality** forages such as Lucerne hay or grass-Lucerne hay mix diets. Fat supplements of vegetable oil or coconut oil can be used. The recommended 500grams of fat to the 500kg or horse can be accomplished with 2 cups of oil mixed with **Lucerne** cubes or chaff for palatability. These recommendations must be modified depending on the individual caloric needs of the patient.

Source: http://www.thelaminitissite.org/articles/equine-metabolic-syndrome-and-insulin-dysregulation

"A common suggestion is to **feed a horse 1.5% of its ideal or current bodyweight** (based on soaked hay with added minerals). Do not reduce to less than 1.2% of the horse's bodyweight. Severe calorie restriction can worsen insulin resistance."

Source: http://www.safergrass.org/pdf/sugar_in_hay.pdf

"**Soak hay for at least 60 minutes in cold water,** or 30 minutes in hot water, drain and feed before mould has a chance to grow. Use fresh water every time, as sugar will build in the water."

Turn out onto an area which is small enough to be kept grazed short. Suitable grass looks ½ mud and ½ grass.

Make sure the diet is **balanced for vitamins and minerals,** especially whilst feeding lots of low calorie fibre, make available "Himalayan **rock salt**, feed a quality **pre & pro-biotic** (to re-establish gut flora) and feed a **toxin binder**". (http://www.hoofnz.org.nz/html/laminitis.html)