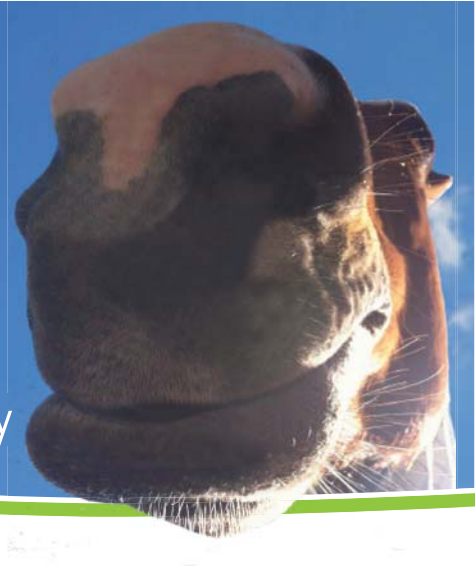
HYGAIN
Feed News
Quarterly
SPRING 2014



Developing your horse's **topline**!

Dr Tania Cubitt, PhD

We all want our horses to have that perfect topline! Before we discuss supplementary feeding and exercise, we must first understand what a topline is! The topline of the horse includes the withers, back loin (or coupling) and croup. Strength of the topline and loin muscles also influences soundness and athletic ability. The topline will vary in length and in curvature, with some relationship between the two. The shape of a horse's back can vary greatly from horse to horse.

Did you know?
Strength of topline and loin muscles also influences soundness and athletic ability.

Horses with toplines that are sunken in over their withers, concave along the back and loin or dished in around their hip bones and hindquarters will have diminished strength in those areas. There are several factors that can contribute to a poor topline including: age, workload, pregnancy or lactation, lack of or incorrect exercise, poor saddle fit and diet.

A horse's topline is mostly made out of muscle. As the muscles along the withers, back, loin and croup make up the horse's topline, losses in this area are atrophy of these muscles.

What can we feed that will help build the perfect topline?

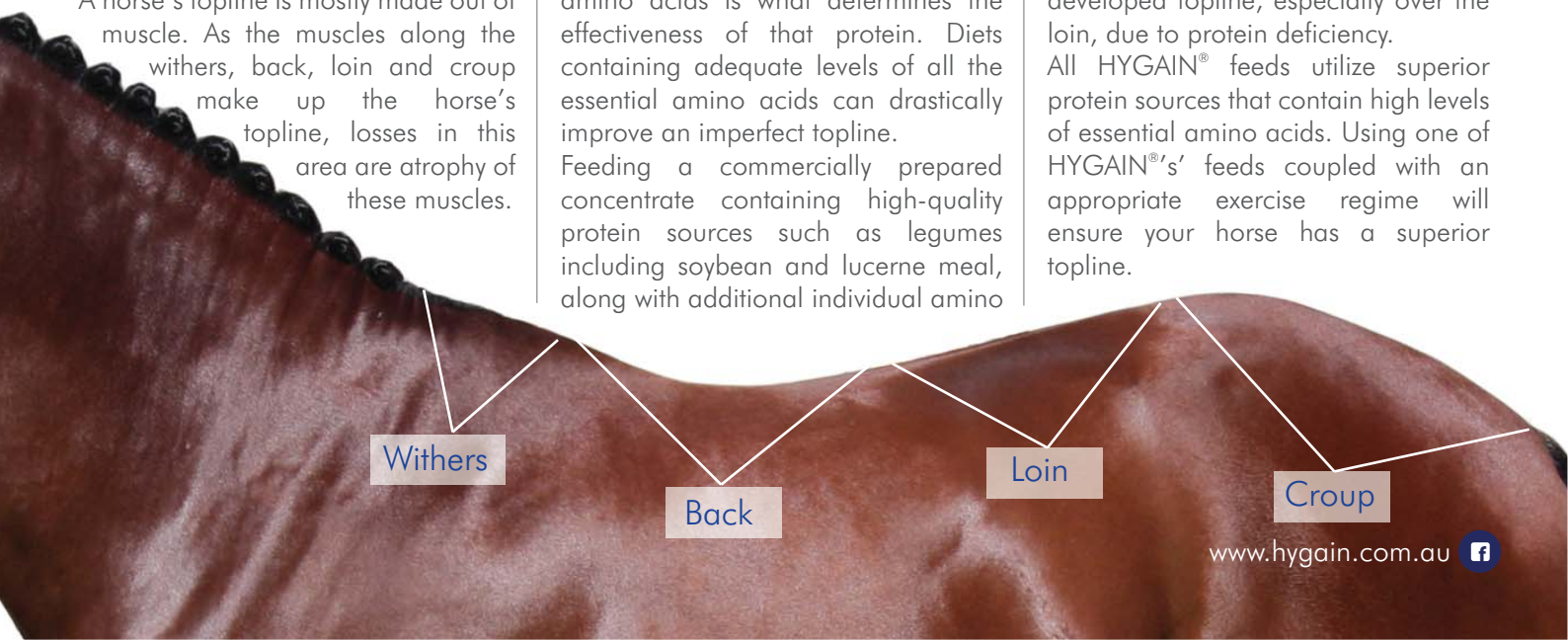
Now that we have established that the horse's topline is primarily muscle, we need to adjust our feeding program to feed for muscle development. As muscle is made up of over 70% protein, building and maintaining muscle in the body requires the correct amount of dietary protein. Unfortunately, protein is mistakenly seen in a negative light nutritionally and often avoided. When a horse has a poor topline it is due to diminished muscle mass and potentially due to insufficient good quality protein in the diet. Proteins are made up of building blocks called amino acids and are an essential part of a horse's diet. Some of these amino acids include: lysine, methionine, tryptophan and threonine. These and other essential amino acids are linked together in the body to form muscle. Not all protein however is created equally, just feeding a higher crude protein feed or hay, may have limited results. The quality of that crude protein or the amount of essential amino acids is what determines the effectiveness of that protein. Diets containing adequate levels of all the essential amino acids can drastically improve an imperfect topline.

Feeding a commercially prepared concentrate containing high-quality protein sources such as legumes including soybean and lucerne meal, along with additional individual amino acids, will promote muscle tone and a strong topline. Products such as HYGAIN® GROTORQUE®, HYGAIN® BALANCED® and HYGAIN® SHOWTORQUE® provide quality levels of essential amino acids to assist muscle development and added vitamins for muscle repair. These high quality protein sources provide essential amino acids in reasonable feeding levels to allow for proper muscle development.

Exercise

Exercise is also important when trying to develop or improve a horse's topline. Exercise will condition and train existing muscles and will help build a topline only if the nutritional building blocks of muscle are available in the diet. Very often, horses in low to moderate work who are also easy keepers (e.g. lower level dressage horses or horses in semi-retirement) are fed a diet that is protein/amino acid deficient. These horses have plenty of rib cover and may even be overweight, but they have a poorly developed topline, especially over the loin, due to protein deficiency.

All HYGAIN® feeds utilize superior protein sources that contain high levels of essential amino acids. Using one of HYGAIN®'s' feeds coupled with an appropriate exercise regime will ensure your horse has a superior topline.



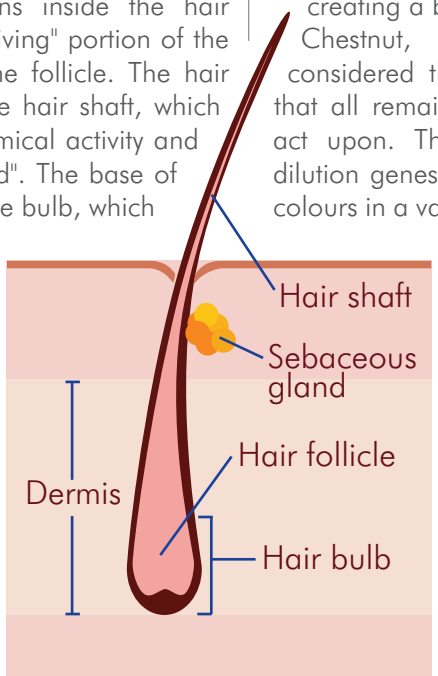
Let'em shine! - Feeding for coat health

Dr Tania Cubitt, PhD

Everyone wants to see their horses with a sleek, glowing coat and not only for aesthetic reasons, but also because the quality of a horse's hair coat is directly related to his overall health. Providing the horse with plenty of roughage and a balanced diet along with an effective parasite control regime, sufficient exercise and grooming is imperative when striving for a healthy coat. Horse owners are frequently asking "what can I feed to darken my horses coat or make him shinier"? In order to answer this we must first understand the basics of hair structure and the genetics of coat colour.

Hair structure

Hair is a filamentous biomaterial that grows from follicles found in the dermis layer of the skin. Hair is primarily composed of protein, notably keratin. Hair growth begins inside the hair follicle. The only "living" portion of the hair is found in the follicle. The hair that is visible is the hair shaft, which exhibits no biochemical activity and is considered "dead". The base of the root is called the bulb, which contains the cells that produce the hair shaft. Other structures of the hair follicle include the oil producing sebaceous gland which lubricates the hair and the arrector pili muscles, which are responsible for causing hairs to stand up.



Coat Colour

There are many different coat colours possible, but all colours are produced by the action of only a few genes. The simplest genetic default colour of all domesticated horses can be described as either "red" or "non-red", depending on whether a gene known as the "Extension" gene is present. When no other genes are active, a "red" horse is the colour popularly known as a chestnut. Black coat colour occurs when the Extension gene is present, but no other genes are acting on coat colour. The Agouti gene can be recognized only in "non-red" horses; it determines whether black colour is uniform, creating a black horse, or limited to the extremities of the body, creating a bay horse.

Chestnut, black and bay are considered the three "base" colours that all remaining coat colour genes act upon. There are a number of dilution genes that lighten these three colours in a variety of ways, sometimes affecting skin and eyes as well as hair coat, including cream, dun, pearl, champagne and silver dapple. The Palomino colour for example, is created by a single allele of a dilution gene called the cream gene working on a "red" (chestnut) base coat.

Genes that affect the distribution of white and pigmented coat, skin and eye colour create patterns such as roan, pinto, leopard, and even white markings. Some of these patterns may be the result of a single gene; others may be influenced by multiple alleles. Finally the grey gene, which acts differently from other coat colour genes, slowly lightens any other hair coat colour to white over a period of years, without changing skin or eye colour.

Sun Bleaching

Melanin is a pigment found in hair cells that gives each its colour. The sun bleaches and destroys the melanin in hair making it lighter. Since hair is dead, the hair will stay that colour until new hair comes in. The UV in sunlight oxidizes melanin into a colourless compound; this is why hair gets lighter. Keeping a thin sheet on your horse during the sunniest periods of the day may reduce bleaching of your horses' hair coat.

Nutrition and Coat Health

Firstly it should be noted that the coat colour of a horse cannot be changed, unless it is chemically dyed or bleached by the sun and for any nutrients to have an effect on the integrity of the hair, it has to be implemented prior to the new coat starting to grow in.

With that being said there are several nutrients that are known to be involved

in the synthesis of the protein found in hair. Copper, Zinc, biotin, fatty acids and protein (specifically the amino acid methionine) are necessary for hair growth and structure. Copper and zinc are required for the manufacture of the melanocytes that give bays, blacks and chestnuts their colour. Most people have heard about using biotin to improve hoof quality, but this also applies to the coat, insufficient biotin can lead to thin and brittle hair. Hair is primarily composed of protein once the water is removed. Insufficient protein intake can result in coats that do not lie smoothly, as well as brittle, slow growing coats. HYGAIN® GLEAM® will supply these nutrients to your horse and help with general health and condition of horse coats, manes, tails and skin.

Adding oil to the diet such as HYGAIN® RBO® will supply essential fatty acids that are required by the hair follicle to lubricate the hair which gives it a shiny appearance. When hair is newly grown the hair shaft has a good coating of oil (sebum), which gives a high refractive index. This means light is captured and reflected inside the shaft giving the hairs a darker and shinier appearance. As the hair ages the natural oils wear off, however, by feeding a higher fat diet there is more oil available to coat the hairs resulting in a shinier, darker coat for longer.

Management and Coat Health

Exercise improves the delivery of blood and therefore oxygen and nutrients to the skin. In time, the number of blood vessels and density of the capillaries supplying the skin actually increase so that nutrient flow is improved even when the horse isn't exercising. Exercise is also beneficial by stimulating the flow of sweat and sebum. Sebum is the oily material secreted from the hair follicles that helps give the hair its shine and forms a protective layer over the skin, preventing excess moisture loss and drying.

Deworming your horse is also important as parasites can rob the body of nutrients and hair and skin are often the first areas to show it. Also, groom your horse regularly as brushing will remove dirt, dead hair and dead skin. It will also stimulate blood flow to the hair follicles and feed new hair growth.

Additional Supplements

The amino acid tyrosine is included in some coat products, primarily those designed for dark-coated horses. The rationale behind this is that tyrosine is the amino acid used to manufacture the pigment melanin. However, while the amounts used aren't harmful, there is no research to suggest that supplementing it is helpful either.

Paprika is the primary active ingredient added to most coat colour enhancing supplements. Paprika is a spice made from ground, dried fruits of Capsicum annuum. Paprika contains many health related compounds such as Vitamin A, Vitamin C and Vitamin E. The lighter Hungarian variety of paprika also contains high concentrations of copper flavonoids. As copper is required for the manufacture of melanocytes that give bays, blacks and chestnuts their colour this is possibly why paprika maybe beneficial. HOWEVER, paprika has been shown to exacerbate gastric ulcers with overuse. Excess copper intake can also interfere with the absorption of selenium. Paprika also contains capcasin which is a banned substance and will result in positive drug tests. Capcasin is thought to have pain relieving properties and may cause hypersensitivity to touch in horses.

Remember, the skin and coat are the windows to your horse's overall nutrition and health. Making sure the horse has plenty of roughage and a balanced diet will ensure the horse is healthier on the inside and glowing on the outside.

MYTH BUSTER

I can only feed my Palomino white feeds!

NOT ENOUGH EVIDENCE - Sooty (sometimes called smutty or countershading) is a term used to describe a genetic modifier that causes black hairs to be mixed into the coat. The dark pigment can also be distributed evenly throughout the coat or concentrated on the mane, tail, legs or other parts of the body. It may express itself as smudges, patches, striping, spots, or dappling. Sootiness is presumed to be heritable, though the precise genetic mechanism, or series of mechanisms, is not well-understood. According to some horse people there are certain feeds that might exacerbate the occurrence of this colour change. These feeds include high-protein and high-fat diets as well as excessive trace minerals (copper, iron, and selenium) and vitamin A. Palomino owners will often feed a modified diet to avoid these smutting triggers. These feeds are termed "white feeds" and contain feedstuffs such as cereal hays and chaffs (wheaten and oaten), grass or meadow hay, and white grains (oats, barley, mill run), while avoiding protein meals, Lucerne, molasses, copra, fat sources, and trace minerals. Until the actual sooty gene is found and studied, we simply do not know exactly how it works or how it is inherited. It is important however to provide every horse with a balanced diet to maintain optimal health no matter what their colour is.

“ Prevention is better than cure. ”

Don’t wait until it’s too late, start feeding HYGAIN ZERO® today!

Low Carb - low GI Equine Formula

<1.5% starch * No Cereal Grains * <4.5% Sugar * Biotin enriched

Nutritional Management of Laminitis/Preventing Laminitis

- **Limit the amount of turnout time** each day to 1 to 3 hours and turn out early in the morning before 10 am and/or late at night after 8:00pm as the sugar contents are lowest late at night through early morning.
- Alternatively, **limit the size of the available pasture** by use of temporary fencing to create small paddocks or use a grazing muzzle.
- Putting your horse on a “starvation ration” and severely limit the horses’ diet of all nutrients is one of the **worst things you could do** as horses still require maintenance energy to function as well as essential amino acids, vitamins and minerals to assist in repairing damage caused by laminitis.
- At a bare minimum your horse requires approximately 1.2% of his own body weight as roughage. (6kg of roughage for a 500kg horse/day). **Ideal roughage sources** include native warm season grasses, lucerne hay and alternative highly digestible fibre sources such as beet pulp (HYGAIN® MICRBEET®)
- Overall **avoid high sugar and starch feeds** such as any type of grains, carrots or apples. As a general guideline look for products with a **combined sugar and starch level of less than 10%**. HYGAIN® ZERO® is a fantastic choice as it has a starch content of less than 1.5% and a sugar content of less than 4.5%, one of the lowest in the world.

Go to **hygain.com.au** for detailed information on metabolic issues and more.

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