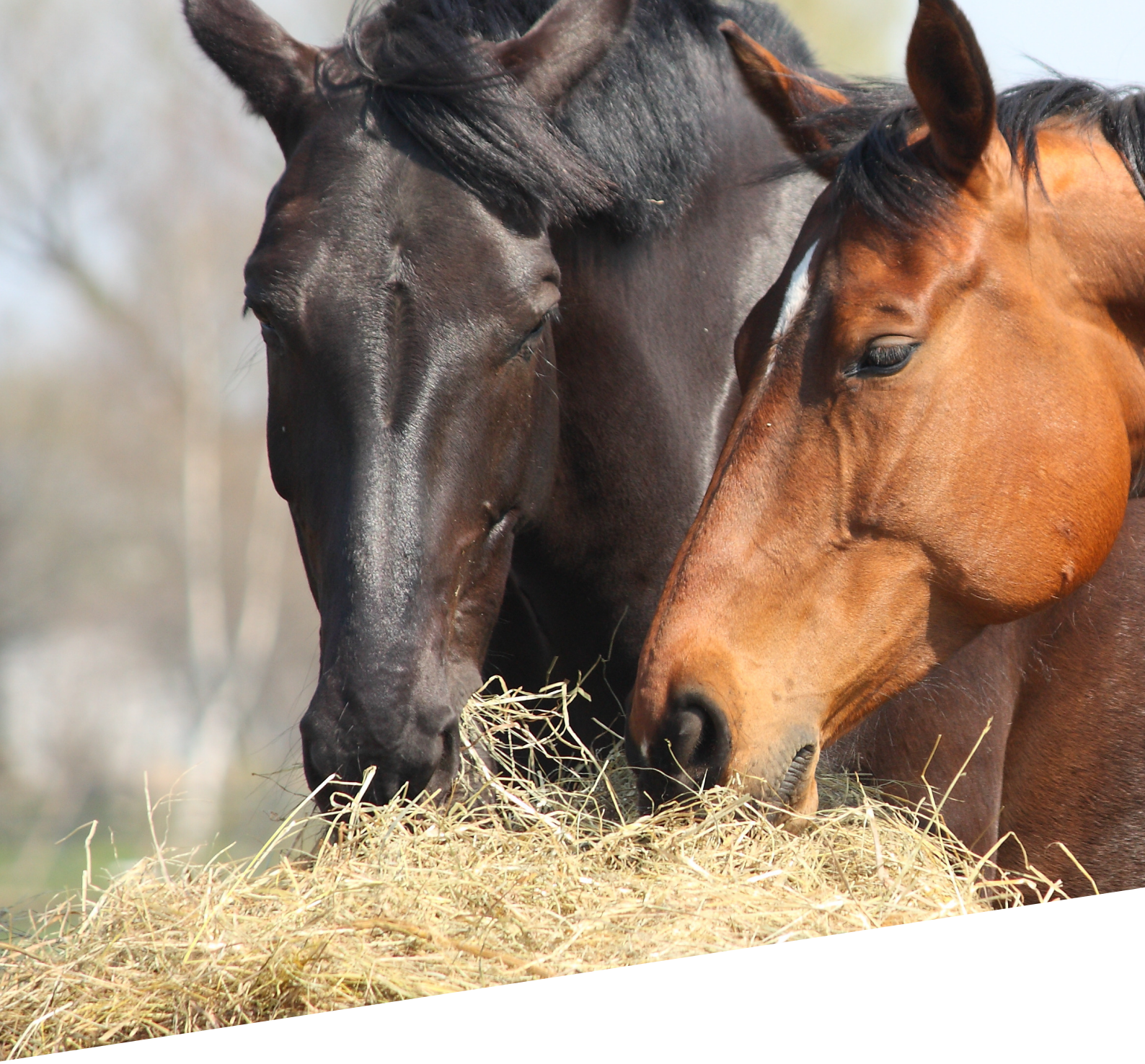

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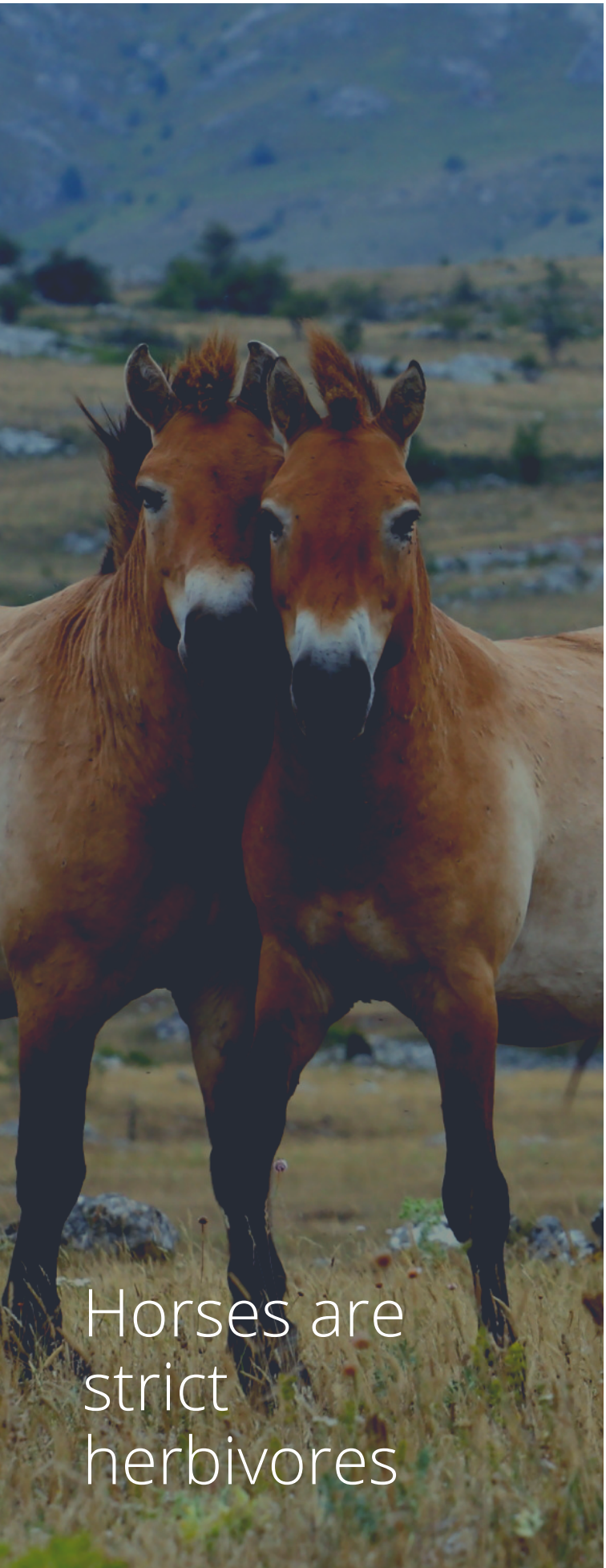
COMPARING THE CLASSIFICATIONS OF EATING



Horses are strict herbivores

The modern way of feeding horses has evolved over the years from very basic feeding practices to more complex regimes. Stemming from; new research, marketing tools and recommendations from friends. Through these factors including a lack of regulation of the stockfeed industry, there has been a general loss of understanding of the equine digestive system.

Every animals' digestive system is different. They are classified depending on what food source is natural for them to consume; meat-eaters are classified as carnivores, plant-eaters are herbivores and those who consume both are omnivores. For example, biologically horses are herbivores, snakes are carnivores and we as people are omnivores.

What does this really mean and why is the difference between these classifications so important?

Anatomy
Beginning from the mouth; carnivores have sharper teeth for ripping and breaking muscle tissue whereas herbivores have wider, flatter teeth for grinding plant material. Not to mention the mechanics of the jaw muscle and bone structure; carnivores have a hinge action which enables a slicing of meat, whereas herbivores and horses are able to have side-to-side mobility of the jaw, enabling for a grinding action.

As we travel further through the digestive tract it is noticed that some herbivores either have multiple stomachs (ruminants) and others use their colon to break down plant material (hind-gut-fermenters). Horses are hind-gut fermenters and have a long small and large intestine. As most of their diet is grass, cellulose from plants is broken down in the large intestine via fermentation. Carnivores on the other hand have shorter digestive systems as there is no fermentation process needed for them to breakdown their food.

Enzymes

Amylase is contained in the saliva of herbivores and omnivores to enable breakdown of complex carbohydrates. This enzyme is not present in the saliva of carnivores due to their food source being meat. In addition, carnivores have a gall bladder where they can store hydrochloric acid and gastric enzymes for digestion when required. Unlike horses and other herbivores, who do not have a gall bladder and have a constant slow release of gastric enzymes to support their grazing nature.

pH

The pH of the stomach is of importance when looking at the difference between carnivores and herbivores. Carnivores such as dogs and cats have a stomach pH of 1, this is extremely acidic, meaning they can destroy any bacteria that may be present in raw meat as well as having enough enzymes for break down. Herbivores on the other hand don't need to have such an acidic environment and their pH is more neutral, sitting at around 7 for horses, this is due to most of their diet being lower in protein than carnivores and the fermenting nature of the large intestine.

After evaluating these differences, it raises questions of whether products containing fish or animal material, dairy proteins, by-products such as beet pulp, copra meal, bran, soy or lupin hulls and honey are suitable for a horses' digestive system and whether they naturally support the uniqueness of the horses' digestive tract. With this in mind, we can extrapolate from human studies to horses. The effects in which unnatural substances such as artificial sweeteners and high-fructose-corn-syrup and the effects these have on inflammatory markers and disease progression in our bodies. This link has been extensively researched in cardiovascular diseases as well as metabolic diseases such as Non-Alcoholic Fatty Liver Disease, Type 2 Diabetes and Metabolic Syndrome.

If our bodies are unable to recognise these substances (as they are unnatural for us to consume), it is fair to assume the same chain reaction would occur when putting foreign substances such as animal material into a herbivores digestive system.

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