

Cinder Hill Equine Clinic



Dentistry

Horses, ponies, and donkeys are herbivores that have evolved to graze for long periods and one of their key adaptations is a set of hardwearing and specialised teeth that enable them to process forage efficiently throughout their lives.

What sort of teeth do horses have and how do they differ from our own?

Horses have ‘hypsodont teeth’ which means that they have a finite period of growth but continue to erupt throughout life as the surface is worn through grazing. Equine dentition can be broken down into the following types of teeth:

Incisors

Incisors were historically called “nippers”. These are used for cropping the grass close to the ground with movements of the head. Horses have 6 upper and 6 lower incisor teeth, which appose each other to grasp stalks. These are simpler in structure than the cheek teeth, but they have deep-roots and are much more sensitive than many people realise.

Canines

Canine teeth, or ‘tushes’ as they were commonly known, are the short, and often sharp, teeth found in the gap between the incisor teeth and cheek teeth on both the upper and lower sides of the mouth. Although generally only found in male horses, small canine teeth can also be found in some mares. Canine teeth erupt at around 4-5 years of age. These have no role in mastication, and their original function is for fighting weaponry and as such they serve no useful function in the modern horse. In other species these are the teeth that develop into tusks.

‘Wolf’ teeth

Wolf teeth are small (often tiny) teeth that can be found in some, but not all horses immediately in front of the first upper cheek teeth. They usually erupt at 6-18 months of age and vary considerably in size and position; they can also rarely be found in the mandible. Not all horses have wolf teeth and not all of those that do have fully erupted wolf teeth on each side.

Wolf teeth have no function in the modern horse, but in evolutionary precursors were probably ‘molarised’. In horses with large displaced or mandibular molars they can impinge on the bit when ridden and cause sensitivity, but in many horses normally placed small wolf teeth are clinically insignificant.

Cheek teeth (= premolars + molars)

Historically these were referred to as ‘grinders’ which accurately describes their function. The dentition of horses enables them to graze abrasive grasses for many hours a day. The teeth that do all the work grinding these grasses to prepare them for digestion are the cheek teeth, and this results in wear and tear of the grinding surface. In the foal there are three deciduous premolars (or

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temporary teeth) that are eventually pushed out by the permanent premolars by the age of three years. Mature horses have a total of 12 premolar and 12 molar teeth with six teeth (three premolars and three molars) in a tightly packed row on each side in both upper and lower jaws. The deciduous premolars in foals & young horses are commonly called ‘caps’.

The permanent cheek teeth of young horses have a large amount of ‘reserve crown’ below the gum. As the occlusal surface is worn away the tooth erupts further into the mouth to maintain good contact between grinding surfaces, which maintains their efficiency in chewing. In old age this constant eruption eventually results in depletion of the reserve crowns and eruption slows, so that chewing efficiency is lost and eventually some teeth will wear out completely.

Cheek teeth are a composite of three hard materials: enamel, dentin and cementum, which complement each other to provide a uniquely abrasive surface ideal for breaking up food material. Inside the tooth is a complex network of blood vessels and nerves, called the pulp, which maintains the integrity of the tooth from within. Damage to the tooth can lead to exposure of the pulp to bacteria and subsequently death of the tooth. Despite their solid appearance the presence of these nerves just under the surface makes the teeth much more sensitive than is often realised, as shown by the fact that horses are very fussy feeders and very rarely chew foreign materials.

What is mastication?

Mastication means chewing food, which mechanically crushes it so that digestive juices can penetrate it after swallowing and extract the nutrients. In the horse, food is grasped by the incisor teeth and moved back to the cheek teeth by the combined action of the tongue and cheek muscles which press on the roof of the mouth. The chewing motion of the mouth is achieved by several pairs of large muscles, which move sideways as well as up and down in a grinding motion, thousands of times each day. The jaw hinges at the temporomandibular joint which enables sideways as well as vertical movement and is very resilient to problems.

Why do horses need routine dental care?

Horses survived perfectly well for thousands of years before domestication, so it is sensible to question why it is necessary to perform equine dentistry at all. In the natural state, horses would enjoy a life of grazing on tough grasses for up to fourteen hours a day migrating to the best pastures. Domestication has brought with it restriction of movement (by stabling and limited grazing), altered feeding patterns (such as feeding from a height and processed foods), and many horses now spend little time grazing due to the feeding of energy dense concentrates and preserved forage. Not only is less time spent chewing but it has also been shown that the type of feed given to the horse can alter its chewing pattern. The same features that make the cheek teeth ideal for a life of free-range grazing (such as continual eruption and abrasive grinding surface) are less appropriate in the stabled, domesticated horse. The altered pattern of chewing, that is demonstrated during concentrate chewing results in less extreme chewing movements and altered wear patterns on the surfaces of the cheek teeth. Consequently, sharp points can develop on the outer edges of the upper cheek teeth and on the inner edges of the lower cheek teeth especially at the back of the mouth. These can cause

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abrasions and ulceration the cheeks and tongue which are painful.

In addition to the effects of an altered diet on the domesticated horse, horses are often asked to carry a bit, ride in collection and be responsive to the rider's aids. A comfortable mouth is an important component of a relaxed horse when ridden. Horses these days are also living much longer and being ridden to an older age than they historically were. It is not uncommon for horses to 'outlive' some of their teeth and routine dental care is especially important in older horses and ponies and focuses on preserving good function for as long as possible.

What does routine dental examination and rasping involve?

Before rasping the teeth, a thorough examination of the mouth should always first be performed so that a plan for treatment can be ascertained. An oral examination should be undertaken on a regular basis depending on the age of the horse and the health of the mouth. Powered tools can be used much more safely and accurately if the horse is relaxed and still, with its head supported, and this is best achieved with sedation. Mechanical tools are only problematic in an anxious or poorly restrained horse, where accuracy is impossible, especially to reach the back of the mouth, or through over- heating of the instrument, over-reduction of the teeth or laceration of the soft tissues within the mouth.

A thorough examination can only be done properly by using a device called a speculum or 'gag', to safely keep the mouth open, in combination with a bright light. This allows the practitioner to look and feel inside the horse's mouth to check not only for sharp points but also for other problems such as broken or missing teeth. Only once the mouth has been examined will the teeth be rasped.

Many domesticated horses benefit from removal of sharp edges that cause ulcers, but excessive rounding of the teeth or smoothing of the surface will undermine the chewing function. Many horses will tolerate a brief examination of the mouth and placement of the speculum in the stable. Some horses generally tolerate rasping of the teeth very well, but in most cases, sedation enables a much more thorough examination to be done, right to the back of the mouth with additional benefits of reduced pain and relaxation of the chewing muscles to make the experience more tolerable for the horse and safer for all involved.

How often should routine dental examinations be carried out?

Although it is sensible for foals' teeth to be checked at a young age to pick up any developmental abnormalities, the first thorough dental examination and rasping usually occurs at 18 months to 2 years of age especially in racehorses. Young horses in training can have surprisingly sharp teeth and it is wise to make the mouth comfortable prior to breaking- in.

The frequency of dental examinations varies according to individual needs but, in general, more frequent examinations are necessary in younger animals and geriatric horses and ponies. Horses will shed 12 cheek teeth caps and 12 incisor caps and erupt 36 or more permanent teeth before the age of 5. This period of very dynamic change in the mouth frequently means that there are sharp or loose teeth in the young mouth and 6 monthly examinations are commonplace.

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When horses gain a mature mouth, annual visits are often sufficient to examine the dentition and perform such procedures as necessary to keep the mouth comfortable.

All horses are individuals, so some horses need more frequent care, particularly if there are any abnormalities of growth such as overlong or displaced teeth. When horses reach old age (i.e. late teens) it is important not to be too aggressive when rasping to preserve the remaining effective grinding surfaces in the mouth. For this reason, the management of old horses often simply involves checking for loose or obviously diseased teeth.

What should I do about my horse's wolf teeth?

Most of the time wolf teeth do not cause problems, but traditionally owners and riders have considered them to be a potential cause of biting problems. When wolf teeth are taken out it is usually because of this historical custom of them being removed rather than due to any demonstrable problems. However, in some cases, wolf teeth are sharp or mal-erupted or suspected to be associated with discomfort.

Removal of wolf teeth can be very simple in many cases but is sometimes difficult due to the configuration of the tooth or the animal's nature, and from a welfare perspective should require local analgesia and sedation by a veterinary surgeon.

How accurately can the age of horses and ponies be determined by examining their teeth?

Historically, it was common to age horses by the appearance of their incisor teeth. The eruption and appearance of various features of these teeth have been associated with particular ages in the development. However, we now know that this is breed and age variable and is, therefore, inaccurate. Nevertheless, a reasonable degree of accuracy exists up until the age of around 10 years. After that time, it is purely an estimate. Since 2009 when passports became mandatory the age of horses should be easy to establish from documentation.

What advanced dentistry is now practiced for horses and ponies?

Many horses get through life with minimal dental intervention other than regular examinations and rasping as necessary. However more serious problems do occur:

Development abnormalities: Some horses develop teeth that erupt abnormally. The most common of these is the 'parrot-mouthed' horse that results in an "overbite". Severe cases can have incisor teeth that do not meet at all. While these incisor problems rarely cause the horse discomfort, the same horses often have a misalignment of the cheek teeth. Because the cheek teeth are designed to wear against each other, any unopposed tooth or part of a tooth can become overgrown. Where the rows of cheek teeth on opposing jaws are of an unequal length, large overgrowths termed 'hooks' can develop at the front and back of the mouth. On a similar note, horses are sometimes encountered which have an uneven number of teeth (due to a missing tooth or extra tooth) and if left untreated these can cause oral discomfort and pain when chewing.

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Fractured teeth: Fractured cheek teeth are a common finding in horses' mouths and are being identified more commonly with thorough examinations and oroscopic examinations.

Often the cause of these fractures can never be determined but in some cases, it is the result of the normal forces of chewing acting upon a tooth already weakened by disease. Fractured teeth do not always cause problems, for example, if only the outer surfaces are involved, but on occasion complex fractures can involve the dental pulp, paranasal sinuses and can cause lacerations inside the mouth resulting in painful chewing and infection and, ultimately, death of the entire tooth.

Cheek tooth pulp infection: These are often perceived as non-painful, but this is probably misleading. They are often signalled by a swelling on the horses' face or jaw or a nasal discharge. Infected cheek teeth often require removal, or in some cases, root canal treatment may be attempted.

Teeth are extracted by several techniques which can involve standing dental extraction with sedation and local anaesthetics in most cases, but occasionally under general anaesthesia. Evaluation and treatment of dental infections can be complicated and for this reason they are usually best undertaken at veterinary centres with specialist expertise that have access to radiographic, scintigraphic, endoscopic and surgical facilities.

Periodontal disease and diastema: The cheek teeth of horses should erupt in close proximity to each other as a tight unit, effectively acting as a single tooth in each arcade. However, horses are occasionally encountered with gaps between some of the teeth, either due to the loss of a tooth or to variation in eruption. Food may become trapped in these gaps (called 'diastema'), resulting in painful inflammation of the gums and soft tissues and sometimes eventually even tooth loss. This is more common as the horse gets older.

Affected horses may suffer pain to the extent that they spill food (especially hifi, hay and haylage) and can even lose weight. The management can be challenging and ongoing treatment is often necessary.

What about 'caps'?

'Caps' are the remnants of the deciduous premolars or milk teeth. Horses shed 12 cheek teeth caps between the ages of 2.5 and 4.5 years of age. Usually these are shed spontaneously, although occasionally a young horse will salivate or show signs of mouth pain due to a partially dislodged or loose cap. These can be quite disruptive to horses in training. Removal of these is usually simple and readily undertaken at a routine dental examination. Premature removal of caps is not advisable as it can damage the underlying 'adult' tooth.

Who should I ask to look after my horse's teeth?

Recently there has been a burgeoning of interest in equine dentistry in the UK, reinforced by research from veterinary schools and practicing veterinarians. As a result, many vets have re-ignited their interest in the subject, investing in additional training and equipment and the service offered by most equine practices is also complemented by many independent accredited equine dental

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technicians (EDTs). Although not equivalent to human dentists, accredited EDT's are competent in many technical dental skills and most will work collaboratively with a veterinary surgeon whenever there is a need for pharmaceuticals, diagnostic imaging or invasive procedures such as dental extractions.

To perform anything other than the most basic manual rasping demands further training and accreditation on the part of the individual. Certain procedures and all invasive operations can only be legitimately undertaken by veterinary surgeons. Whilst this does not guarantee quality of work there is no doubt that the general level of education about equine dentistry amongst practitioners has never been higher and the horse owner has a choice on where to obtain services.

While assumed competence is often transmitted solely by word of mouth this can be unreliable, and in the UK, for an EDT to join the accredited association (BAEDT) they have undertaken a rigorous examination overseen by the British Equine Veterinary Association and the British Veterinary Dental Association. This is a good benchmark of competency, and commitment to legal and ethical practice.

The Horse Health Programme includes a dental check with routine rasping including some sedation (if required) as part of the many benefits. Call your us for further details or go to our website. This articles also appears on our Horse Health Programme website:

<https://www.horsehealthprogramme.co.uk>