Why Float?

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Introduction

Dental corrective procedures that entail some form of crown odontoplasty have been performed on equine patients for hundreds of years. The term ‘dental floating’ as related to equine dentistry denotes the use of rasp, files, or burrs to perform odontoplasty of sharp points on the buccal portion of the upper and the lingual side of the lower row of cheek teeth. These sharp areas are thought to traumatize the mucosa of the cheeks and tongue. Performed on a regular basis, odontoplasty corrective procedures have traditionally been part of a horse’s health care program, with very little scientific evidence to support this practice. Odontoplasty procedures are often performed by veterinarians in an attempt to: 1) relieve discomfort associated with oral soft tissue injuries caused by sharp enamel points, 2) reduce dental elongations which place abnormal stress on affected teeth, jaws, and temporomandibular joints thus improving occlusion, 3) improve mastication and digestion of feedstuffs, 4) alleviate stresses and reduce attrition to abnormally worn teeth, and 5) prevent discomfort and improve performance in the horse wearing a bit and bridle. Many studies have put a shadow of doubt over the efficacy of routine dental rasping. No study designed to show the benefits of routine or “performance floating” has revealed any benefit to the horse in its ability to eat or perform comfortably. Dental floating is a gateway giving the veterinarian the opportunity to perform a dental/oral examination, diagnose and treat pathology in the early stages and educate the owner about proper lifelong dental care.

Historically the tools used for equine dental care consisted of rasps or files and dental cutters. These were all designed to reduce crown elongations and as described in Maslow’s law of the hammer “If a carpenter only has a hammer he treats everything as if it were a nail” the equine dentist with only crown reduction instruments tends to treat all dental disease as an elongated tooth. Diagnosing and treating underlying dental disease was typically not addressed because of limited knowledge of dental disease and a lack of good diagnostic aids.
Much has been learned over the past 20 years about the types, incidence, and pathogenesis of equine dental disease. Modern equine dental examination techniques have been developed and routinely used diagnostic aids include:

1. IV sedation and analgesia allowing excellent restraint
2. Comfortable light weight oral speculums
3. Portable light sources to illuminate the oral cavity
4. Long ridged shaft dental mirrors
5. Long handled calibrated periodontal probes
6. Long handled fine dental occlusal picks
7. Periodontal irrigation systems

More advanced diagnostic aids include oral endoscopy camera systems, digital and/or computer radiography and standing computed tomography (CT).

Equine dentistry involves many procedures including oral examination, and reduction of sharp enamel points. In addition to sharp enamel points, the veterinarian may identify other elongations of the clinical crown involving the hypsodont cheek teeth or incisors. These elongations can place abnormal stress on the affected tooth or teeth and may involve a portion of a tooth (hooks, abnormal transverse ridges), the entire tooth (step, ramp), several teeth (wave), or the entire arcade (shear). Stress forces resulting from overlong teeth can cause the teeth to shift and ultimately lead to rostral or caudal displacement, linguoverion, or buccoverion. The resulting diastema caused from tooth displacement can lead to periodontal disease. It is important to remember that the true pathology associated with elongated teeth in horses often involves a jaw or tooth malocclusion or developmental or acquired pathology to the tooth/teeth and periodontal tissue opposite the elongated dental area. Failure to evaluate and properly address the underlying pathological process may lead to recurrence of elongations and a temporary or unsatisfactory result for the patient. The aim of dental care for the equine patient is to alleviate pain and preserve the function of the teeth. It is very important for the veterinarian to remember to strive to do no harm to the horse or its teeth when performing odontoplasty procedures.

Two approaches to performing dental corrective procedures have become standard over the past few years. Both involve examination and dental corrections carried out in a standing, sedated equine patient. In rare cases, general anesthesia may be required to thoroughly examine and treat dental problems. The less involved type of standing restraint has been described as ‘performing dentistry by
feel’ (non-visual). This type of dentistry is performed with the horse’s head at the level of the operator’s waist or chest. This requires minimal sedation and works well for most horses with relatively normal dental occlusion needing only odontoplasty of sharp points of the cheek teeth. The horse’s head can be periodically elevated and the oral cavity visually evaluated during the procedure. The second method commonly employed is ‘visual dentistry’. Working in the horse’s mouth visually requires the patient to be well restrained and more heavily sedated. The animal’s head must be elevated and supported at a height that allows visualization of the mouth while the veterinarian maintains a comfortable ergonomic body position. Visual dentistry allows for a more thorough dental examination and precise correction of dental abnormalities. Both methods have their place in practice but visual dentistry has many advantages over dentistry by feel, especially in horses with severe wear abnormalities or other dental pathology. Working with dental instruments, including power equipment, requires strength, dexterity, and mastery of technique. The visual method allows better access to the mouth and lowers the learning curve on the use of equipment. All dental therapeutic procedures to address dental disease conditions are preformed using a visual technique.

Dental corrective procedures such as floating teeth were once considered innocuous. With the development of better quality and more efficient equipment to perform odontoplasty procedures, dental correction can be overdone and have severe detrimental effects on the patient. Rasping teeth has been shown to amputate odontoblast processes, leave deep grooves in the surface of the dentin, and/or chip the enamel surface and peripheral cement. Motorized dental tools can remove large amounts of dental tissue and create heat; this increases the risk of thermal damage to the odontoblasts contained in the pulp horns. It has recently been speculated that horses may suffer dental pain after corrective procedures. A fine-toothed burr or dental rasp used with light intermittent cutting strokes causes less damage in reduction. An efficient water cooling system and frequently cleaning the burrs may reduce the chance of thermal injury to the dentin and pulp.

Dental examination and dental prophylaxis performed on a regular basis are procedures that are advocated by veterinarians as important components of an overall horse health care program. Careful and complete oral examination is critical in the diagnosis of dental pathology and the planning of dental corrective procedures. It is important for veterinarian to be knowledgeable and possess the proper equipment to facilitate the examination and dental corrective procedures. This should include a bright light source, head support apparatus, and dental speculum. The patient should receive adequate analgesia/sedation to reduce the occurrence of undesirable or difficult behavior during the procedures.
The veterinarian should remember to keep observers at a safe distance while work is performed. High quality manual instruments and motorized dental floats are readily available for managing sharp dental points and dental elongations. An important concept to keep in mind when addressing abnormalities of occlusion of the dental arcades is to perform procedures that will allow normal mastication.

References and Recommended Reading:


