

Practical dentistry for veterinary nurses

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Dental prophylaxis

Dental prophylaxis or COHAT (Complete oral health assessment and treatment) is a procedure including oral assessment under general anaesthesia, diagnosis and formulation of a treatment plan, removal of plaque and calculus above and below the gum line and subsequent follow up. Although we commonly refer to all dental procedures under the general term of 'dental' or 'dental prophylaxis' these terms really only cover a procedure done on a healthy mouth with mild gingivitis. Animals with periodontal disease undergo dental therapy or treatment, not prophylaxis. However both procedures will be considered together here as most "dentals" that we do are a combination.

After induction of anaesthesia all animals should be intubated and placed on a heat pad or insulated bed on a table at an incline with the head slightly down. The pharynx can be packed with gauze to prevent debris and fluid from entering the throat. The mouth may be irrigated with a chlorhexidine rinse to decrease bacterial load in aerosol produced by water from the ultrasonic scaler.

Steps in a complete dental prophylaxis/treatment

1. Probe & chart to record all findings
2. Take radiographs, especially when pathology has been detected
3. Make a treatment plan
4. De-Scale – Remove both supra and sub-gingival plaque and calculus
5. Gingival surgery/extraction as necessary
6. Polish with an abrasive paste
7. Anti-microbial treatments?
8. Give home care advice/instructions at the time of discharge.

1. Periodontal probing and charting

It may be necessary to remove gross calculus with a forceps first. The periodontal probe is inserted gently into the gingival sulcus and moved within the sulcus to measure the gingival sulcus depth all the way around each tooth. Sulcus depths up to 3mm in dogs and 1mm in cats are normal depending on the size of the animal. A probe depth greater than normal indicates periodontal disease. Record sulcal depth, periodontal pockets, gingivitis and calculus grades, mobility and any other abnormalities found. Find a chart that suits everyone in the practice and use it with all dentals. See The Australian Veterinary Dental Society website at petdental.com.au for a sample chart and other useful information.

2. Radiography

Dental radiography is used to assess the bone height surrounding the tooth and this gives an indication of attachment loss and the severity of periodontal disease.

Radiography can also reveal subgingival calculus deposits, as well as showing other forms of pathology such as periapical lesions, odontoclastic resorptions and tumours both of soft and hard tissues. Record these findings on chart.

3. Treatment planning

After all abnormalities including gingival recession, probing depths and loss of attachment have been recorded, one can then formulate a treatment plan that takes into account individual teeth, the dentition as a whole, and the ability of the owner to perform home care. The plan may include extractions. The primary role of treatment is to remove plaque and to formulate a plan that will prevent or slow down its reformation.

4. Removal of supra-gingival and sub-gingival plaque and calculus

The gross removal of calculus with an old pair of extraction forceps or other purpose made equipment aids in the speedier removal of smaller deposits by mechanical scalers. The removal of supra- and sub-gingival plaque is achieved by a combination of mechanical scaling and hand scaling.

The scaler should be held, so that the long axis of the scaler tip is parallel with the tooth surface, so as to prevent the concentration of heat in one area or gouging the tooth. Spend no more than 15 seconds on any one tooth at a time. Light strokes with minimal pressure should be employed. The use of the modified pen grasp and finger rests is recommended.

The fine spray that develops when using mechanical scalers is laden with bacteria. It is recommended that face masks and protective eyewear be worn at all times to protect the operator and assistant.

Mechanical scalers can be used sub-gingivally, so long as they are used for short periods of time, and there is adequate water cooling. Some mechanical scalers are purpose built to clean sub-gingivally by directing the cooling water spray onto the tip of the scaler.

Hand scalers are then used to remove any remaining plaque and calculus.

A sickle scaler is ideal for supra-gingival plaque removal. Curettes are used for supra- and sub-gingival scaling. Curettes come in a number of types. Gracey curettes are popular choices for sub-gingival scaling and root planing. Curettes are used to remove necrotic cementum and plaque as well as calculus.

Overlapping strokes, when hand scaling, are used so as to remove as much calculus and plaque as possible.

It is imperative to ascertain the thoroughness of sub-gingival scaling by probing the gingival pocket after scaling for any remaining deposits and re-scaling if necessary.

With any form of hand scaling, the instruments must be sharp. Therefore, it is important to sharpen these instruments regularly in order to give the best results.

5. Gingival surgery and open root debridement (periodontal surgery)

Open curettage is reserved for deeper pockets (>4-5mm.) Most operators try closed curettage first and then if on subsequent reassessments of the gingival pocket, if periodontal attachment has not been stabilised or regained, open curettage should be considered. Open curettage involves the raising of a gingival flap, hand or mechanical scaling, and then replacing the flap in its original position or more apically, so as to reduce the pocket (apically repositioned flap).

It is at this stage in the procedure that extractions are performed if necessary.

6. Polishing

After scaling and root planing has been performed, polishing of the tooth surface is carried out with the use of a slow speed handpiece, prophy head, polishing cup, and polishing paste (abrasive). The paste can either be applied directly to the tooth or via the cup. It is very important to use a continuous motion, keeping the cup in contact with the tooth. Care must be taken not to hold the cup on one spot for more than a few seconds to avoid overheating or damage. The aim of polishing is not to smooth over the roughened tooth surface (caused by scaling), as previously thought, but to remove any residual plaque.

7. Antimicrobial treatments

Chlorhexidine can be used as a pre-prophy wash to reduce the amount of oral bacteria and hence decrease the bacterial aerosol that can occur during scaling. It is also used in gels or mouthwash post dental.

Chlorhexidine has a somewhat unpleasant taste and will also stain teeth, calculus and plaque if used continuously for more than two weeks.

The use of systemic antibiotics should be reserved for procedures that involve gingival surgery or surgical extractions, although systemic antibiotics can be used for short term improvement in periodontal disease.

8. Home care

This is an integral part of the dental prophylaxis, because without it, the plaque and calculus would quickly return. This is also the area where the Veterinary nurse can contribute most to the future dental health of the patient if she has a sound understanding of what the problems and the goals of treatment are. Home care needs to be tailored to the needs of the animal and the compliance of the owner. For home care to work, the owner must be committed and self-motivated, but also the veterinarian/nurse should give advice that is seen to be practical and realistic. Unwilling owners or head shy pets make it difficult to set up a successful home care plan. There is no point in sending home toothpaste and brush with an owner who obviously is not interested in brushing or has a dog which is likely to cause injury! Some uncooperative animals can be trained however.

The aim of home care is the removal of plaque. However, the periodic disturbance of subgingival plaque and the removal of plaque from areas that cannot be accessed by proper home care (i.e. furcation sites), should be performed on a regular basis under general anaesthesia by the veterinary dentist.

Homecare products

There are a large number of homecare products available to the pet owner. Ideally the animal should have had a dental prophylaxis/treatment before starting home care so that attempts to brush teeth for example do not make a painful mouth worse and discourage the pet and owner for future attempts.

Home care products fall into two broad categories -mechanical and chemical.

Mechanical refers to products that physically rub plaque of the teeth and includes dental foods, chews, treats, bones and tooth brushing. Chemical home care includes mouth washes, gels and water additives. The use of dietary texture to control plaque accumulation is an important part of periodontal disease prevention, especially when tooth brushing compliance by pet owners is low. However, with established periodontitis, the effects of 'dental' diets and chews in controlling the disease are unknown.

1. Tooth brushing

Various studies have shown that tooth brushing is by far the best form of home care and is thus often referred to as the Gold Standard for plaque removal and for the prevention of periodontal disease. Ideally the animal should have had a dental prophylaxis or treatment before starting home care so that attempts to brush teeth do not make a painful mouth worse and discourage the pet and owner for future attempts. However if it can be ascertained that the problem is not painful, I sometimes advise owners to train for tooth brushing before the dental so that they are able to maintain the plaque free mouth immediately after the dental. Discuss tooth brushing with all clients – do not pre-judge who will be interested and who will scoff at the idea. You will often be surprised! The use of flavoured 'dog' toothpastes may aid in making the brushing experience more enjoyable for the pet. Human toothpaste is not suitable for dogs because it designed to be spat out due to its high fluoride content but dogs swallow the toothpaste. Also most pets object to the foaming quality and minty flavour of human toothpaste. Advise owners to approach tooth brushing for the first time very gently and strive to make it a pleasant experience for the pet.

To begin, just use a finger with any pleasant flavoured paste on it and slide it under the lips without opening the mouth. Eventually, progress to using a finger brush or small soft toothbrush. This progress may take days or even weeks. All owners should be offered a demonstration of the tooth brushing technique and ideally, the owner should then be observed performing the brushing technique on their pet. For the maxillary teeth, the tooth brush filaments are angled upwards at 45° and the tooth brush moved across the teeth in a circular motion, concentrating on the tooth/gingival margin. For the mandibular teeth the bristles are angled down at 45° and the same circular action used. Power driven tooth brushes have an oscillating action also and can be used in

dogs. Giving written handouts to owners is very helpful. There are starter packs available with a small sample of toothpaste and a finger brush enclosed (CET Virbac). Some animals are better with the finger brush rather than the proper tooth brush.

Frequency of brushing varies depending on the severity of disease. Brushing three times a week is sufficient for dogs with no gingivitis whereas once daily is required for dogs with established gingivitis. Very few cats accept tooth brushing and if attempted caution is advised!

2. Dental diets

Dental diets may work either by mechanical or chemical means. There are balanced adult pet foods available that provide significant oral cleansing compared with regular dry, moist or snack foods. These dental foods have special textural characteristics of the kibble that provide mechanical cleansing of the teeth. Combining increased fibre content with a size and pattern (texture) that promotes chewing and maximizes contact with teeth is critical to obtaining a dental benefit. *Hills prescription diet t/d* is one such food and has been proven by clinical trials to significantly decrease the accumulation of both plaque and calculus by mechanical means and prevent gingivitis. Polyphosphates are chemicals that bind salivary calcium making it unavailable to form calculus. Hexametaphosphate (HMP) is used as a coating on various treats, dental chews and foods e.g. *Eukanuba Dental Defence* diets. Conflicting evidence exists for the reduction of calculus using HMP in these products in dogs and cats with some studies showing reduction of calculus and others showing no effect. Currently, several foods coated with polyphosphates have received the Veterinary Oral Health Council (VOHC) seal for calculus (tartar) control but no studies have documented clinically significant improvements in plaque accumulation or gingival health.

3. Dental chews

There are many of these on the market and each one should be evaluated before recommending it. Their success depends on the chewing behaviour of the animal and they will therefore only work on the teeth used to chew and not all teeth. They do not work well in cats because they do not chew enough. Refer to the VOHC below. A few of the better ones are *VegeDent*, *Dentastix* and *Greenies*. Bigger is always better and most manufacturers recommend ones which are too small for each dog size. If the dog can chew it up in a few minutes it likely has limited benefit. Some chews have enhanced action due to the addition of chemicals such as polyphosphates.

4. Chemical control

Chemical plaque control agents come in a variety of forms including toothpaste, gels, rinses and water treatments. These products contain active ingredients such as enzyme systems, chlorhexidine, polyphosphates and soluble zinc salts. Chlorhexidine in a concentration of 0.1-0.2% is the most common of these and has good evidence of its efficacy as a plaque control agent. It is the active ingredient along with Zinc in *CET oral hygiene rinse (Virbac)* and would be very useful in the days immediately after a dental procedure when tooth brushing may not be possible. It is easy to apply but tastes unpleasant and like all chlorhexidine products it may stain with prolonged use. Soluble zinc salts have been used in a number of homecare products for their antibacterial properties. Zinc salts may also be effective in controlling oral malodour (volatile sulphur compounds) by binding to sulphur and forming insoluble compounds that emit little odour. *Aquadent* is another Virbac product which is used as a water additive, contains xylitol (also used in human mouth washes and is proven to reduce plaque and calculus build up)

5. Natural diets

Often when advising clients about dental home care you will be asked about BONES. This is a contentious issue and there is no evidence that feeding bones either prevents or controls periodontal disease. However we do see evidence every day that bones can cause serious damage to animals eating them, including fractured teeth. I no longer recommend bones as part of a healthy diet but if an owner insists on feeding them the safest bone is raw, uncut and very large in relation to the animal's mouth e.g. a bovine femur. Another popular choice has been raw chicken necks and wings which may encourage better chewing behaviour but as well as the danger of impaction, there is a very high risk from Salmonella and Listeria infection so this may not be a desirable dental diet either.

A useful study (Roudebush *et al.* 2005) reviewed homecare products based on current evidence-based veterinary dentistry. The study made a number of recommendations regarding homecare products that are used to prevent periodontal disease in both dogs and cats. The study showed that for dental homecare to control plaque accumulation and gingivitis in dogs, the highest quality of evidence existed for tooth brushing, chlorhexidine, dental foods with textural characteristics, proprietary dental treats, and short term use of dental

sealants. Furthermore, tooth brushing, dental foods with textural characteristics, dental foods or treats with polyphosphates, and proprietary rawhide chews were recommended for the control of calculus formation in dogs.

The study concluded that other homecare dental products used in dogs that were supported by a lower quality of evidence should not be recommended without further published studies.

In 1997, the VOHC was established to offer a seal of acceptance to those oral hygiene products that were shown in controlled studies to retard plaque and calculus. Today, the VOHC Seal of Acceptance system for plaque and calculus control products is endorsed by a number of Veterinary Dental Organisations throughout the world. A list of endorsed products can be found at the VOHC website: www.vohc.org

Dental charting

This is the process of recording the findings of the dental examination. Charting is essential to record the presence of health and/or disease in a form that can be used now and later. The success or otherwise of treatments is impossible to gauge over time without the proper information gathered at initial treatment. It is clinically a good habit to develop. The client is often impressed by the time taken to gather information that they can easily understand and use to play their part in the maintenance of a healthy mouth. Clients should be given a copy of the chart and it should also be attached to the animal's records. There many charts available but I use the one on the Australian Veterinary Dental Society website. <http://petdental.com.au/downloads.htm#Charts>

It is important to understand the proper identification sequence when describing teeth.

Dentition: Deciduous or permanent.

Arch: Maxillary or mandibular.

Quadrant: Right or left.

Tooth: Incisor, canine, premolar or molar and its number.

Note that the first premolars (maxillary and mandibular) are missing from the deciduous dentition of the dog. Cats have only maxillary premolars 2–4 and mandibular premolars 3–4.

How to chart

Chart the mouth starting at the side uppermost.

1. Count the teeth and note missing or extra teeth and record them. See symbols chart below.
2. Determine level of calculus (0=none, 3=100% cover).
3. Determine the level of gingival inflammation (0–3). Using the blunt periodontal probe, gently run probe round the buccal sulcus to determine the degree of gingival inflammation. Take care not to use too much apical pressure or pass the same way twice as you do not wish to create damage where none exists.
4. Note any major abnormalities: fractured teeth, enamel defects, neoplasms, retained deciduous teeth and excessive wear with dentine exposure.
5. Optional: use disclosing solution to determine location and level of plaque.

After initial scaling

1. Examine the sulcus of each tooth in a minimum of six locations: three buccal and three palatal/lingual. Use the graduated probe in the long axis of the tooth in an apical direction. Apply minimal pressure. Use the probe as your eyes under the gum line and feel for missed subgingival calculus, abnormal pits and depressions in the root surfaces and periodontal pockets; describe depth and location.
2. Note other important features such as:
 - a. Gingival recession and root furcation exposure
 - b. Caries
 - c. Enamel defects
 - d. Mobile teeth
 - e. Fractured crowns or cusps,
 - f. Feline Oral Resorptive Lesions (FORLs) in cats
3. Note treatments - extractions, gingival flaps, root planning, pocket management, pulp cappings and root canals.

●	Resorptive lesion
○	Pulp exposure
#	Fractured tooth
\	Planned extraction
X	Extracted tooth
o	Missing tooth
↗	Displaced tooth
F	Furcation exposure
G	Gingivitis index (0-3)
C	Calculus index (0-3)

Figure 4. Symbols for dental chart (Hale FA. Understanding Veterinary Dentistry)



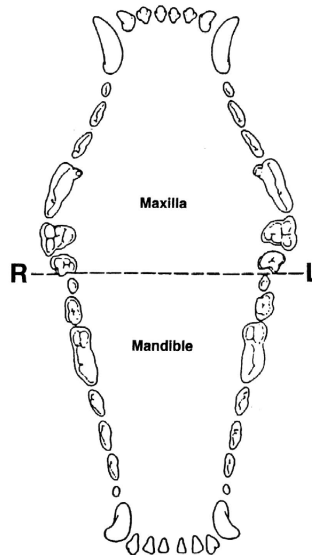
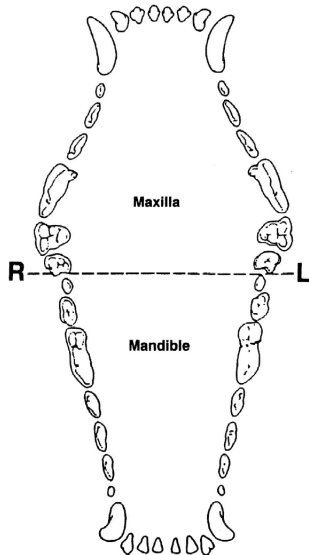
Australian Veterinary Dental Society

Canine Dental Record

Patient: _____ Owner: _____
 Breed: _____ Age / Sex: _____ Phone No.: _____ Date: _____
 Chief Complaint: _____
 Past Dental History: _____
 Existing home dental care: Brushing Oral Rinse Medication None
 Diet / Oral Habits: _____
 Occlusion: _____ Anaesthesia: _____ Temperament: _____

PRE-TREATMENT

POST-TREATMENT



REMARKS

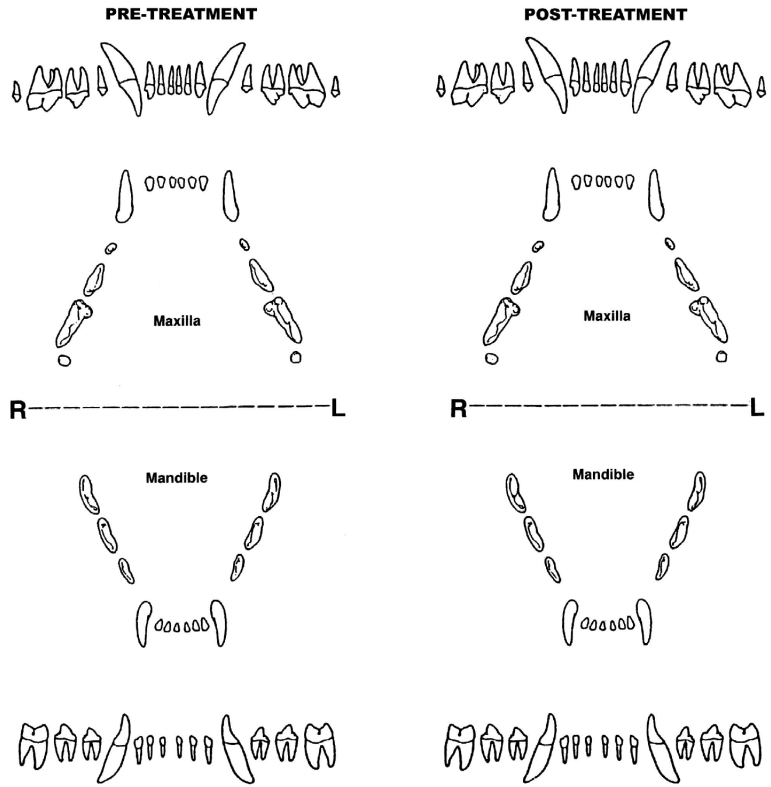
1. _____
2. _____
3. _____



Australian Veterinary Dental Society

Feline Dental Record

Patient: _____ Owner: _____
 Breed: _____ Age / Sex: _____ Phone No.: _____ Date: _____
 Chief Complaint: _____
 Past Dental History: _____
 Existing home dental care: Brushing Oral Rinse Medication None
 Diet / Oral Habits: _____
 Occlusion: _____ Anaesthesia: _____ Temperament: _____



REMARKS

1. _____
 2. _____
 3. _____

Dental suite and equipment

Most dental procedures are dirty and if possible should not be carried out in the same room as sterile surgery. If that cannot be avoided then clean surgery should be completed before starting dental procedures. Operators should wear masks, gloves and protective eye-wear. Waterproof aprons, hair nets and ear protection are optional.

The patient should be protected from hypothermia due to long procedures involving cooling water sprays by placing on a heating pad and covering with a blanket. IV fluids and good anaesthetic monitoring will optimize the outcome for all patients, many of which are elderly and compromised by other pre-existing conditions. Monitoring blood pressure, heart rate, respiratory rate and temperature is ideal. Before starting, apply lubricant eye ointment (e.g. Lacrilube) to protect the patient's eyes and place pharyngeal packs of clean swabs to reduce the amount of debris in the pharynx. With cats and small dogs a rubber band to secure the ET tube in place is easier to work around than fabric ties. A good light source is essential and having an adjustable height chair with rollers allows the operator to remain comfortably seated while still mobile.

Ultrasonic scalers

The ultrasonic scaler is the most widely used type of scaler and there are two varieties - magnetostrictive scaler ('Cavitron' type) and the piezoelectric scaler. They work by two basic principles – mechanical kick and cavitation. The mechanical kick is the effect of the vibrating tip hitting the calculus and the cavitation is from the energised water spray which forms micro bubbles that disrupt bacterial cell walls and can operate slightly beyond the reach of the tip (a benefit when used in deep pockets).

Magnetostrictive instruments operate between 18,000 to 45,000 cycles per second (cps). The electrical current is applied to a wire coil in the handpiece creates a magnetic field around the stack or rod causing it to constrict. An alternating current causes an alternating magnetic field resulting in tip vibration. The tip movement of magnetostrictive scalers ranges from linear to elliptical or circular, depending on the type of unit and shape and length of the tip. Magnetostrictive tip movement allows for activation of all surfaces of the tip at once.

The piezoelectric scaler has crystals within the handpiece that undergo expansion and contraction causing linear vibration of the tip at frequencies of 25,000-50,000 cps.

Both types of ultrasonic scaler cause heating of the scaler tip which can harm the tooth and water spray is essential as a coolant as well as producing cavitation activity within the water spray. This cavitation effect disrupts bacterial cell walls and can operate slightly beyond the reach of the tip (a benefit when used in deep pockets).

Both of the above ultrasonic scalers are unsuitable for use in narrow grooves where the tip cannot vibrate freely – hand scalers are used in such areas.

The other form of scaler is the sonic scaler. Sonic scalers are air turbine units that operate between 3,000-8,000 cps. They are used less often in veterinary dentistry than ultrasonic scalers mainly due to their expense and their slowness in removing plaque and calculus. Their benefits include lower heat production (thus reducing the chance of thermal injury to the pulp) and reduced tooth surface damage when compared to ultrasonic scalers).

Polishing equipment

Polishing is done with low-speed hand pieces which can be driven by internal electric **micro-motors** or compressed air. The motor typically rotates at between 5,000 and 30,000rpm and a variety of **nose cone** attachments are available to which the **prophy angles** are fixed. The prophy angle attaches on the end of the low speed nose cone at one end and has a 90-degree bend at the other. At the working end, a rubber prophy cup screws or snaps on or is attached by a latch-type shank. Propy angles are either autoclaveable steel or disposable plastic.

Air driven dental station

The most versatile power equipment is the air-driven dental station. Basic models come with an air driven low-speed hand piece, a high-speed hand piece and a three-way air/water syringe. More elaborate units are available which have a built-in piezo-electric scaler or an outlet for use with an air-driven sonic scaler.

Low-speed hand pieces can be driven by internal electric micro-motors, belts and pulleys or compressed air. Low-speed hand pieces are best suited for polishing teeth and for finishing and polishing restoratives. If used for cutting, the low speed cutting action is not nearly as smooth or as efficient as with high-speed hand pieces. Also, low-speed hand pieces have relatively high torque, and if used on vital tissue such as bone, can quickly generate enough heat to cause thermal necrosis. Therefore, the surgical site should be copiously lavaged with sterile saline to keep the bur and tissue cool.

High-speed hand pieces are driven by compressed air from nitrogen tanks, air tanks or from a compressor. They turn at 350,000 to 500,000rpm when under no load. At these speeds, the cutting blades of the bur cuts much more quickly and smoothly than with low-speed hand pieces. High-speed hand pieces do not generate much torque and will stall if pressed too hard. This can actually be a safety feature by forcing the operator to use a light touch, which is less likely to generate dangerous heat or bend the bur shank. The latter will cause the bur to run eccentrically and damage the chuck and turbine in the hand piece. A bur that stalls with gentle pressure is likely no longer sharp and needs to be replaced.

Burs are what we use to cut the teeth. High speed hand pieces use FG (friction grip) burs and the tapered fissure and round burs are the most commonly used in veterinary dentistry. In dogs use FG tapered fissure sizes 701, 701L and FG round burs in sizes 1, 2, 4, 6, 8. For cats consider FG 699/700 and size 1/2 or no. 1 round bur.

Hand equipment

The **periodontal probe/explorer** has been rightfully described as the most important dental instrument. One end has a blunt tip on a straight arm. This probe is graduated to act as a ruler which is used to measure the depth of periodontal pockets. The other end has a fine, sharp tipped explorer and is used to explore pockets after descaling to check for residual calculus or to detect resorptive lesions or other enamel defects. It can also be used to explore the surface of a broken cusp to detect whether the damage has exposed the pulp. These are inexpensive tools which are the first step in diagnosis of many dental conditions and there should be in every consulting room as well in the dental tools kit.

Hand Scalers are used to remove supragingival calculus and they have a triangular cross-section, a sharp tip and the cutting edges where the lateral surfaces meet the face. Scalers are used above the gum-line only, as the sharp tip may damage sub gingival structures. By keeping the tip sharp, scalers can be useful for scaling in deep grooves and tight interproximal areas. For sub-gingival scaling use a curette which has a rounded back and blunt tip (toe). There are many types of curettes and they can be used for root planning and sub-gingival curettage.

Dental elevators are the main extraction tool. Dogs and cats come in a wide range of shapes sizes and so do their teeth so a large selection of sizes is needed.

The dental elevator acts as a wedge between the root and the alveolar bone, to force the tooth against the other side of the socket. This stretches the periodontal ligament on one side and compresses it on the other side of the tooth. In order for an elevator to perform properly, it must be sharp enough to fit into the space between root and bone and have the same contour as the part of the root being worked on.

Root tip pick – this is a very useful tool particularly in cat extractions

Periosteal elevators are used for elevating and reflecting gingival, mucogingival and palatal flaps. These should be kept sharp so that they cut rather than tear.

Extraction forceps – These are not important instruments and if used prematurely can be the cause of fractured tooth roots. They should only be used when the tooth is sufficiently loose to lift out easily.

Mouth Gags are very useful to maximise access to the oral cavity. There are various types and each person has their own preferences. I find cut off syringe barrels useful in smaller patients.

Instrument care

Ideally all the hand instruments should be sharpened after each use as well as autoclaved. Power equipment should be cleaned and oiled daily as per manufacturer's instructions.

Sharpening of instruments

This is a very important part of the nurse's job and one which everyone should take the time to understand and do properly. Sharp instruments work better and make the job easy while dull ones don't work and take longer to do the job, causing fatigue in the user. With sharp instruments there is better control of the instrument with more sensitivity resulting in less work, improved result and less energy expended by operator.

The result is higher quality dental work which equates to better patient care! Sharpening saves money too because a finely sharpened instrument, consistently maintained will last longer. However poor sharpening can destroy instruments so it must be done properly. The goal when sharpening is to produce a sharp cutting edge while maintaining the original shape of the instrument.

Sharpening is best done seated at a clean work surface with a good light source and magnification if required. A variety of sharpening stones are available with the IM3 wedge sharpening stone being a very versatile option. Its rounded edges are used to sharpen dental and periosteal elevators while its flat surface can be used for scalers and curettes. Sharpening stones should be lubricated with water and rinsed periodically to remove sludge (stone grit, metal fillings and water) and keep the surface from becoming clogged. They can also be autoclaved.

The terminal shank of a curette or scaler is a key landmark and is the portion of the instrument between the cutting blade and the first bend in the instrument. This is the portion that must be aligned at the proper angle to the sharpening stone.

The diagram shows a sharpening guide with the correct angles to use.

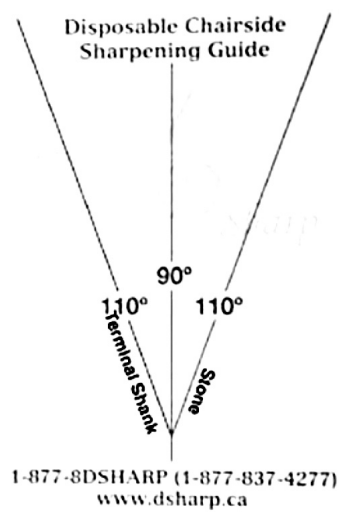


Figure 5. Sharpening guide (Hale FA. *Understanding Veterinary Dentistry*)

For all scalers and universal curettes, align the terminal shank of the instrument with the vertical central line and align the stone with either of the slanting 110-degree lines. For all Gracey curettes, align the terminal shank with one of the 110-degree lines and align the stone with the other. Use short light strokes. Try to maintain the original shape of the instrument.

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For diagrams and more detailed information refer to: Hale FA. *Understanding Veterinary Dentistry*. Chapter 9: Instrument Sharpening accessible on www.vin.com website.

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