FEATURE ARTICLES

Be a Dental Detective: Look and You Will Make a Difference!

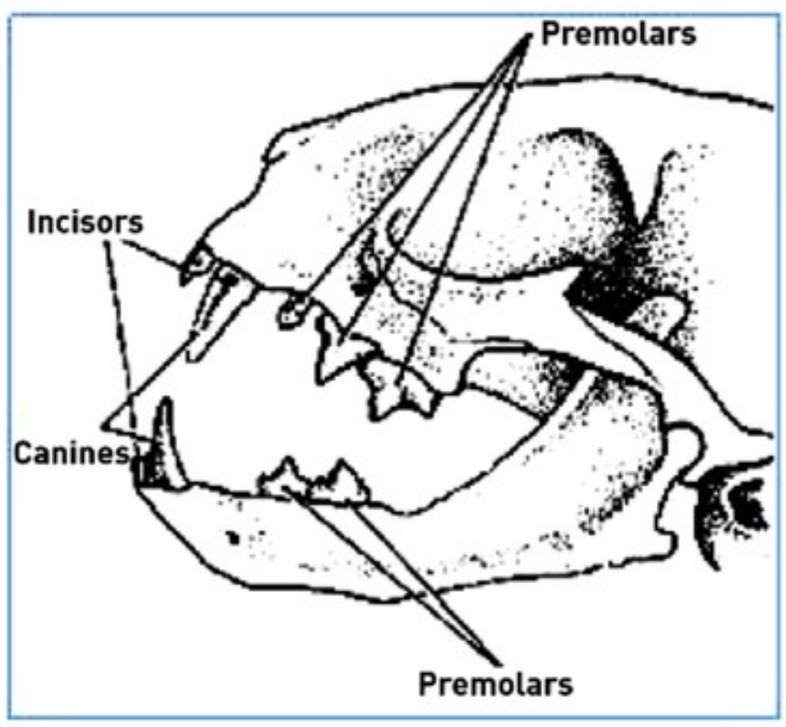
A detective looks for clues and acts on those leads to solve a problem. Sometimes those clues are obvious, at other times detectives need to have a trained eye to spot the significance of small changes.

So are you a good dental detective in your practice? Can you find the clues and piece together the information even if the client doesn't ask for a dental check up? A good examination and history will point you in the right direction so you don't wait but advocate for your patient's welfare.

Start early when the animal is young as the first 12 months are critical to identifying dental issues promptly. Also if acted on appropriately then you could be saving the pet from a lifetime of pain. Sneak a look in the mouth at every opportunity – vaccination consultations, heartworm prevention boosters and de-sexing visits are great opportunities.

At the first visit (6-8 weeks) double check for palatal defects as mild ones can be missed. The deciduous (baby) teeth should be close to fully erupted however some variation between breeds and even litter mates is normal. Look for any gross discrepancies in jaw length or teeth position that may indicate a malocclusion such as base narrow canine teeth hitting the hard palate. Those teeth are causing pain and need to be gently extracted.

Puppy dentition – Note: Puppies do not have molars or first pre-molars.



Kitten dentition – Note: Kittens do not have molars.

By the time the kitten or puppy has come for their second vaccination all the teeth should be fully erupted. Remember that they have less teeth than an adult as they have no molars (and in dogs no deciduous first pre-molars either). Too little teeth in number, may mean an impacted tooth or maybe a failure to form a tooth at all. Ideally these pets need a dental radiograph, and close follow up over their first six months of life.

Teeth begin to be exfoliated and replaced from around 12-14 weeks so if your practice has a vaccine protocol of three boosters then a mixed dentition will be seen at this time.

At around 5-6 months of age it is worthwhile setting up a reminder for pet owners to have another check up. Some pets will already be visiting for heartworm prevention boosters or desexing so it will be quick and easy to do. The most important clue for a dental detective to look for at this time is that there are no persistent deciduous teeth. There should never be two teeth in the same place at the same time! That deciduous tooth has got to go so that there isn't overcrowding, which will cause periodontal disease and tooth loss. Retained deciduous teeth will also cause a malocclusion (bite problem) which may result in a lifetime of oral pain. Persistent canine teeth are the most common cause of problems and should be extracted as soon as they are noticed. The earlier they're removed the more likely the permanent teeth will drift back into the correct position if there is room for them.

After this at any consultation (especially the annual check up) refer to the next page for the top ten clues …. and don't wait advocate!

Article supplied by Dr Tara Cashman BVSc DipVetClinStud MANZCVS (small animal dentistry)
President, Australian Veterinary Dental Society

TOP TEN DENTAL CLUES		
CLUE	**CLIENT THINKS**	**DENTAL DETECTIVE THINKS**
Halitosis	Doggy breath	■ Bacterial infection and pus is present
Calculus	Just a bit of build up	■ Wow that plaque has been there so long it's calcified! ■ What a great surface for tooth ligament destroying bacteria to live on and under. ■ If calculus is present more on one side of the mouth than the other, this pet isn't chewing comfortably on that side. I wonder why?
Gingivitis	Isn't that normal?	■ Ouch! This is going to bleed if we probe this area. ■ Time for scaling and polishing under GA as this is the first sign of periodontal disease and there could be more to find. ■ Cats with a little gum swelling near the tooth most likely have a resorptive lesion and that is painful.
Extruded teeth	They're old and long in the tooth	■ This dog or cat has lost that much gum and jaw bone that I can see the tooth root. ■ In cats this can often be a red flag for tooth resorption.
Missing teeth	Really? My pets never lost a tooth	■ This could be genetic or... ■ This could be an impacted tooth with a jaw destroying cyst or ■ This could be a broken tooth with a retained root tip… either way this needs checking under GA.
Excessive saliva	Bit of drooling	■ I wonder if there is a foreign body stuck in there? ■ Maybe a loose tooth? or a tumour? in there causing pain - we need to check all the oral cavity thoroughly under anaesthetic.
Uneven jaw lengths	All of the breed look like that /always been like that	■ Brachycephalic dogs and cats such as Pugs and Persians are more likely to have overcrowding ■ Uneven chewing pattern may be causing periodontal disease
Bolts down food	Always hungry and eats well, it can't be dental pain	■ Wow! There could be so much dental pain they would rather have daily indigestion than chew with those teeth
Chews on one side	My pet is left/right handed	■ I wonder why they don't want to chew on one side. There could be pain on eating
Won't open mouth	Got a bit of attitude and I've never really bothered He doesn't like his head being touched	■ How sore is that mouth? ■ Has there been a negative experience before?

Case Study: Approaching Feline Chronic Gingivitis, Stomatitis and Faucitis

Dr David Clarke BVSc, Dipl. AVDC, FAVD, MANZCVS

INTRODUCTION

Periodontal disease is the most common source of inflammation affecting the modern day domestic cat. Though periodontal disease usually originates as a bacterial insult, over 70% of the damage to the periodontal tissues is a result of the inflammatory response to these bacteria and their by-products. A healthy cat's mouth should have white teeth with no plaque or calculus accumulation, coral pink gingiva and the gingival margin should adapt tightly to the tooth

Figure 1: Healthy Mouth

When a cat with chronic inflammation is initially presented: a thorough history, including the cat's breed and age; the time when the symptoms commenced, their duration and severity; a complete physical examination; a thorough oral examination, including distribution and severity of the lesions; and previous treatment success or failure, should all be performed and collected.

The age and breed of the cat is important. Chronic gingivitis, stomatitis and faucitis is highly represented in the Burmese, Siamese, Abyssinian and Persian breeds.

JUVENILE GINGIVITIS

Cats aged between four and twelve months may have juvenile gingivitis associated with teething which may resolve spontaneously. If not, metronidazole @ 15mg/kg bid per os for 10 days, daily tooth brushing or the application of Maxiguard oral gel or chlorhexidine solution (Hexarinse) twice daily and feeding an abrasive diet can be implemented. In cases where the cat has gingival hyperplasia, the cat should be anaesthetised and the excessive gingival excised with cold scalpel and gentle firm pressure with a swab to control haemorrhage, as electrocautery may damage the teeth.

***Figure 2:** Juvenile Gingivitis*

FAUCITIS AND STOMATITIS

In older cats, especially those greater than eight years of age, the initial aetiology of the disease may be camouflaged and thus the gross appearance of the oral cavity may only demonstrate inflammation. These cats require a thorough work-up and appropriate treatment.

Clinical Signs

Clinical signs vary from marginal gingivitis and hyperplastic gingiva to mucosal ulceration and generalised stomatitis and faucitis. Acute oral pain, plaque and calculus accumulation, fractured or missing teeth and tooth resorption (TR) previously termed 'odontoclastic resorptive lesions' (ORL) are also common.

Aetiology

1. Bacterial or spirochete infection: Porphyromonas gingivalis or Treponema denticola
2. Viral infections: FIV, FeLV, Herpes virus, Calicivirus
3. Retained tooth roots
4. Fractured tooth crown with exposed pulp canals, TR or incompletely performed extractions
5. Systemic diseases: renal insufficency or failure, hypothyroidism, diabetes mellitis, hepatic disease, hypertension
6. Allergies to food, fleas, systemic allergens
7. Immune mediated disease / Auto-immune disease
8. Hyper-responsive immune reactions
9. Eosinophilic granulomas
10. Oral neoplasms

Figure 3: Marginal gingivitis. Note: the gingiva is inflamed whereas the mucosa is healthy.

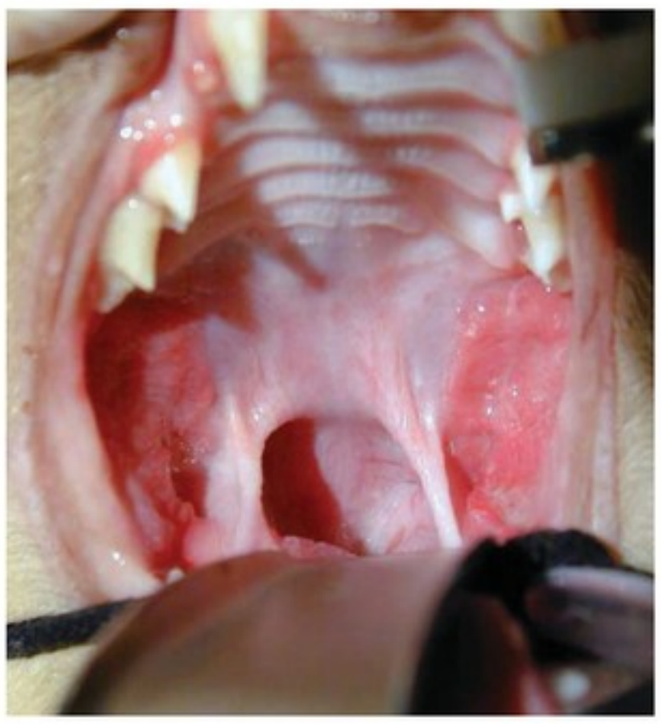


Figure 6: Marginal gingivitis and bilateral faucitis in a Calicivirus positive cat.

Figure 4: Advanced periodontitis. Note: The inflammation has extended from the gingiva into the mucosa between the maxillary canine and premolar teeth.

Figure 7: Severe inflammation and hyperplasia of mandibular gingiva.

Figure 5: Severe enamel loss due to tooth resorption in both maxillary and mandibular premolar and molar teeth.

Figure 8: Radiograph of mandible (previous photograph) demonstrating retained premolar and molar tooth roots from crown fractures and TR.

Figure 9: Radiograph of mandible (previous radiograph) post-extraction of retained tooth roots.

APPROACH TO EXAMINATION AND INITIAL TREATMENT:

1. Complete physical examination.
2. Complete blood (TBFP, T4, FIV, FeLV) and urine profile.
3. Collect and submit an oropharyngeal swab for PCR: calicivirus and herpesvirus. This is often best undertaken when the cat is under GA unless in a co-operative patient, as the fauces are usually painful and the cat may not agree to the procedure.
4. Under GA: thorough examination of the oral cavity, including measurement of periodontal probing depth (PPD), TR, fractured teeth with exposed pulp and retained roots.
5. Radiograph each jaw quadrant: looking for sub-gingival TR and retained roots.
6. Extract all teeth with advanced periodontal disease (PPD >50% root length), exposed pulp canals, retained roots or TR. The decision to extract the entire root of the feline tooth or perform odontoplasty and allow the root to continue to resorb in a tooth suffering from TR is determined by the presence of healthy periodontal ligament and periapical pathology.

   a. If a radiograph shows a healthy periodontal ligament or periapical pathology, then the tooth must be completely extracted.

   b. If a radiograph shows no periapical pathology and the periodontal is lost with the root cementum ankylosed to the surrounding bone, then it is preferable to amputate the crown to below the height of the alveolar one, lower the alveolar ridge and then suture the gingival over the site with a soft 4/0 absorbable suture and re-radiograph in 2 months' time.
7. Take several deep muco-gingival biopsies from the inflamed lesions and submit for histopathology.
8. Clean the teeth ultrasonically, paying attention to the entire crown and sub-gingival sulcus, polish with a polishing paste and wash thoroughly.
9. Post-op medications: doxycycline 5mg/kg bid per os, metronidazole (15mg/kg, bid, per os), meloxicam (0.05mg/kg, sid, per os), Maxiguard oral gel (two drops, qid, per os) and Hexarinse oral solution.
10. Feed 5mm diameter cubes of chicken or beef.

FOLLOW UP TREATMENT:

After 2 weeks, and full mouth extractions have been performed, and the fauces are still severely inflamed, then interferon can be commenced. A 5MU vial can be diluted into a 100 ml bag of WFI and aliquots of 10mls made and frozen.

1ml per os per cat per day is given for 100 days. This may be successful in many cats. If improvement but not resolution is found, repeat for another 100 days.

After 2 weeks and teeth are still present, then a homecare regime involving finger brush and Maxiguard, and Royal Canin Dental food should be instituted, with continued meloxicam and doxycycline.

ROYAL CANIN®

DID YOU KNOW?

85% of dogs and 70% of cats over 3 years old suffer from dental problems*

Dental disease leads to:

Bad Breath
Sore Gums
Loosening of Teeth
Infections in the Mouth and Body

ROYAL CANIN® Dental provides a dual action** to combat dental disease.

The kibble's shape, texture and size help produce a mechanical brushing effect on teeth.

The kibble's nutrients trap calcium and reduce the build up of tartar.

* Dr Wayne Fitzgerald, 'Dental diseases in our pets'
** Mechanical action and sodium polyphosphates.

INCREDIBLE IN EVERY DETAIL

Brush My Pet's What?

Most of us can probably remember a time in the not so distant past where pet dental care was never or rarely mentioned. Why the push today to take care of our pets' teeth?

We've learned in recent years an estimated 60-72% of pets over the age of 3 have some form of dental disease, and that dental care has a significant effect on our pets' overall health and longevity.[1]

Dental disease and infection, and its impact, increases over time if left untreated. As veterinary staff, we are all too aware of how difficult it can be to help owners understand the importance of pet dental health care. To our trained eyes, it is obvious that most pets do not have healthy mouths. It can be frustrating when owners can't see this, and won't book their pets in for dental treatment.

Dr Christine Hawke,[2] Small Animal Dental Veterinarian, Sydney Pet Dentistry, reminds us that there is one crucial point owners really need to know:

"Pets with severe dental disease will continue to eat DESPITE their pain."

This is understandable, as a healthy appetite is something we associate with good health. The truth is, animals are adept at hiding signs of oral pain and may even continue to eat.

Therefore, educate owners to look for other signs associated with oral disease, as listed below.

In short, we need to help owners realise the 'he's still eating' response is not always an indication of oral health. Educating owners on this point should reduce their reluctance to have their pets' dental disease treated.

Article Supplied by Dr Penny Dobson BVS MANZCVS (Canine Medicine) Hill's Helpline Manager and Senior Nutritional Consultant

5 tips from Dr Christine Hawke to help owners understand the need for their pet's dental care:

1. Bad breath is NOT normal.
2. Use words they understand to describe what is going on, such as pus, infection, jaw bone destruction.
3. Use human analogies such as tooth ache, broken tooth, ulcers. Things the owners know are painful.
4. Use pictures: take a quick snap of their pets' mouth in the exam room and text/email it to them.
5. Remind them that animals will eat until they can't.

7 things you need to know about AAHA's Dental Care Guidelines;

1. Dental disease begins early in life.
2. Early detection is key.
3. "X-ray vision" is essential for diagnosing dental disease.
4. Anaesthesia makes dental evaluation and treatment safer and less stressful.
5. Removing plaque from teeth beneath the gums is vital.
6. Don't forget to brush!
7. Consider using other dental products if brushing isn't an option:
   Hill's™ Prescription Diet™ t/d™ oral care:
   - Natural mechanical daily tooth brush.
   - VOHC seal for both plaque and tartar.
   - Complete and balanced.

For more information, please visit:
www.hillspet.com.au/en-au/products/pd-canine-td-dry.html
www.hillspet.com.au/en-au/products/pd-feline-td-dry.html

References:
1. Banfield Pet Hospital State of Pet Health 2016 report: https://www.banfield.com/Banfield/media/PDF/Downloads/soph/Banfield-State-of-Pet-Health-Report-2016.pdf 2. http://www.vetanswers.com.au/blog/post/talking-teeth-in-pet-dental-health-month/144 3. https://www.aaha.org/pet_owner/aaha_guidelines/dental_care_guidelines.aspx

DENTAL DISEASE

Works like a **toothbrush** and **dental floss** in one

Superior oral health nutrition you can feed every day*

VETERINARY ORAL HEALTH COUNCIL VOHC Accepted HELPS CONTROL TARTAR HELPS CONTROL PLAQUE

HILL'S™ PRESCRIPTION DIET™ t/d™

#1 VET-RECOMMENDED DENTAL PET FOOD

SUPERIOR* CLINICAL EFFICACY in reducing plaque and tartar buildup and the occurrence of gingivitis

Formulated to promote a **URINARY ENVIRONMENT** that reduces the risk of struvite and calcium oxalate crystals

A vital part of a pet's **DAILY HEALTH** regimen — helps maintain healthy digestion, healthy weight and shiny coats

myhillsvet.com.au

#Annual Veterinary Endorsement Survey – 2017, Australia Market, n=293
*Compared to a non-dental pet food.
VOHC seal is a US registered trademark owned by the Veterinary Oral Health Council.

Dental Homecare Products: What Are They Really Doing?

There are many, many dental homecare products on the market for dogs and cats but what are they really doing for oral health? And which one should you recommend?

From the moment a tooth erupts the enamel of the tooth is exposed to foodstuffs, saliva and oral bacteria. Collectively these substances create the biofilm called plaque.

Plaque forms naturally in all species and gives rise to inflammation of the gums (gingivitis). Left unchecked gingivitis will progress to the irreversible destruction of the tooth support structures (periodontitis).

Also if plaque remains on a tooth, it begins to become mineralized from elements such as calcium and magnesium from within the saliva. Mineralised plaque is called calculus. Calculus is not pathogenic in it self but is associated with disease as it provides an attachment site for destructive bacteria.

The aim of dental homecare is to reduce plaque formation and hence prevent gingivitis and calculus formation. There are two major forms in which plaque control can be achieved:

1. Physically
2. Chemically

The best home care plans usually involve more than one form of homecare treatment. No single product or technique is 100% effective, and like us pets still need regular check ups and cleaning procedures by our dentist.

Physical plaque control

The aim of physical plaque control is as the name suggests the mechanical removing of plaque off the teeth. This is the reason we brush and floss our teeth regularly!

Physical methods of plaque control include tooth brushing, foods, chew treats and some toys.

Tooth brushing is considered the gold standard method if performed regularly, however if performed less often than once every 48 hours then it is an ineffective method of plaque control. Toothpaste aids the abrasion of the plaque layer but is not essential. Human toothpastes are too high in fluoride and may be harmful if swallowed by pets so should not be used in animals.

It is best if you can describe and demonstrate the technique for your client. Encourage clients to start slowly with their animals otherwise they may be disheartened when they don't cooperate.

If recommending the technique to clients of older animals, you need to be aware of the limitations. Brushing will not remove calculus. Brushing will not reverse periodontal disease. And brushing is only recommended in animals with early gingivitis or healthy gingiva.

Be aware that gingivitis is painful and overzealous brushing will cause more pain and bleeding. Following a professional clean and scale wait until the oral tissues have returned to a normal state. Pain is a very negative experience and will result in failure of the technique to control plaque in the future, as the animal will not allow it.

Whilst tooth brushing is one of the most cost effective and useful methods of controlling plaque many clients are unwilling or unable to do it. In these patients the use of more passive mechanical plaque control methods such as dental foods and treats, and chew toys is to be recommended.

Foods help control plaque through the natural chewing action, physically moving the plaque from the teeth. Some of the dental treats and dry dental foods also have a chemical plaque control agent also.

Not all foods are equal however and many foodstuffs have not been tested or studied in spite of their support. Dry dog food itself is not any better at controlling plaque than tin or moist food except in the case of specifically formulated dental dry foods.

Commercially available dental dry foods rely on the physical characteristics such as particle alignment, shape and texture to help control plaque. Some companies also either incorporate a chemical plaque and/or calculus control agent into the food mixture, or apply it as a coating to the individual kibble pieces. The most commonly used agents are sodium hexametaphosphate and sodium tripolyphosphate.

Raw meaty bones are commonly offered by clients to their pets believing that they are aiding their oral health. There have not been extensive high quality clinical trials evaluating the effectiveness of raw meaty bones in controlling plaque in dogs or cats. The aim of providing bones is to provide a chewing substrate that encourages the mechanical removal of plaque. Ideally the animal should not consume all the bone but gnaw at it.

There are a number of concerns however with feeding raw bones. Chewing on bones may fracture the teeth, which may expose the pulp cavity, causing pain. Gastrointestinal complications such as constipation, bowel perforation and pancreatitis can also occur. Raw meaty bones are an ideal food source for bacteria especially Salmonella. Therefore not only can the health of the pet be affected but so can the owners.

An alternative to offering bones are the large number of treats and chews on the dental care market. Many of these have not undergone rigorous testing of their claims. They need to be fed regularly to have an effect so their use can become costly and calorie burdening! Using dental treats occasionally will be pleasing to the pet but will not positively impact their oral health in a significant way.

Examples of dental treats and chews that have undergone clinical studies include Greenies™ for dogs and cats, Oravet® Chews, DentaStix™, and rawhide chews. Like bones the correct size needs to be used for each pet and supervision is important

Many pet toys state a dental care claim but beware as many are not suitable or safe. Cheap plastic and rubber toys which break easily, tennis balls which abrade enamel, and rope toys that lose filaments are all inappropriate.

A few of the more expensive chew toys such as the KONG® are suitable as an aid to controlling plaque by encouraging the natural chewing behaviour of the pet in a safe manner. They are made of flexible but very durable rubber. Note there is no such thing as an indestructible chew toy!

Chemical plaque control

In addition to physical plaque control, certain chemicals can be used to reduce bacterial numbers associated with plaque formation, or to impede the formation of calculus by interfering with the binding of salivary calcium to plaque.

These chemicals maybe delivered to the oral cavity by a number of means including:

- as an ingredient in foodstuffs and treats
- in mouth rinses, gels and sprays
- as a drinking water additive
- impregnated dental wipes

The chemicals most commonly seen in veterinary dental products include chlorhexidine, zinc salts and polyphosphates.

Chlorhexidine is a true plaque control agent that is bacterial and viral killing. It binds to the pre-plaque matrix (pellicle) reducing the bacterial numbers and weakening them.

Zinc salts such as zinc ascorbate and zinc gluconate disrupt the “operating systems” of the oral bacteria. This decreases the production and release of foul smelling sulfur compounds from the bacteria. On a practical basis this means the mouth smells less!

Zinc ascorbate stimulates collagen production helping repair diseased tissue. Zinc gluconate inhibits plaque and calculus maturation. It also enhances the anti-plaque activity of chlorhexidine.

Polyphosphates are commonly added to special dental dry foods. They are mineral chelators, which mean they lock away or bind calcium from the saliva. The calcium is therefore not free to “invade” the plaque and turn into calculus. Examples include sodium hexametaphosphate and sodium tripolyphosphate.

There are numerous products available to clients to assist them in providing dental care in between professional teeth cleanings. The highest quality of evidence exists for tooth brushing (cats and dogs), chlorhexidine (dogs), dental foods with textural characteristics (dog and cat), zinc acerbate (cats) and some dental treats (dogs).

Ultimately the choices are the client’s however you should be providing the best information on which they make these decisions. As a starting point look out for those products who have earned the Veterinary Oral Health Council (VOHC) Seal. (www.vohc.org).

Article supplied by Dr Tara Cashman BVSc DipVetClinStud MANZCVS (small animal dentistry) President, Australian Veterinary Dental Society

Chew Toys and Dental Health

There's really no reason for any canine companion to suffer from poor oral hygiene! Given the current proliferation of toys, treats and other dental products on the market, not to mention all the information out there about healthy nutrition, home dental care and Veterinary intervention.

Utilizing chew toys to aid in dental health is an excellent option for helping to keep a dog's mouth in good shape. Chew toy play begins in puppyhood and KONG Rubber toys are an excellent way of establishing healthy chewing habits by teaching appropriate chewing behaviour. Chew toys assist with good oral hygiene regimes by allowing the dog to apply the simple mechanical action of repetitive chewing. Which also means that a dog can be encouraged to have fun whilst also cleaning his teeth and gums.

The trick is to make sure you're getting a non-toxic quality product made from safe materials or natural ingredients.

Not all chew toys are created equal, cheaply made products present the risk of easily breaking, splintering or falling apart and can pose a choking or gastrointestinal hazard. Look for toys made with safe, non-toxic materials like natural rubber. KONG rubber products are 100% all natural high grade rubber with no fillers and chalks that can cause damage to tooth enamel. The smooth and flexible surfaces of rubber offer some elasticity when chewed therefore avoiding the rigidity and splintering effects of bones or sticks that could potentially cause teeth to chip. As a bonus, they can be filled with a mix of hard kibble and soft dog food to encourage the dog to remain engaged in play for longer periods of time.

The KONG Dental toy range features 'Denta Ridges' or grooves that help massage the dog's gums and clean his teeth by removing food debris and plaque. To encourage chewing, the ridges or toy interiors can be stuffed with quality treats, peanut butter, or some other healthy snack.

As the dog masticates to remove the treats, he exercises his jaws and gums while cleaning his teeth. Canine toothpaste can also be applied in the toy's ridges or grooves.

Some toys incorporate a rope feature which acts as the equivalent of dental floss for dogs, the rope when chewed can create light abrasion to remove soft surface tartar whilst also working in-between the teeth. However as rope is not as durable as rubber these toys should be used under direct supervision and replaced when they begin to show significant wear.

Keep in mind that even the best quality toys and treats aren't 100% foolproof. Always recommend supervision when a dog is chewing on any toy or treat and remove it should it start to break into chunks that could be swallowed whole and potentially cause a choking hazard or intestinal obstruction. Frequent inspection of the dog's toys is recommended, examine each toy for wear and tear. Toys showing signs of wear i.e. holes or pieces tearing off should be discarded and replaced.

Article supplied by Rachael James on behalf of KONG® Company Pty Ltd