

“Pearls”  
of  
Veterinary Medicine



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### New AVMA dental guidelines

Among the revisions was the addition of the following statement: “When procedures such as periodontal probing, intraoral radiography, dental scaling, and dental extraction are justified by the oral examination, they should be **performed under anesthesia**.” Another addition to the AVMA policy is the following statement: “Visual or radiographic recognition of oral or dental pathology and accurate assessment of periodontal health by probing of pockets require sedation or anesthesia.” The only way you can provide dental diagnostics and come up with a therapeutic plan is to do dental radiography. There are many studies showing us of the need for that and demonstrating how something that looks normal when you’re just looking at it with your eyes is abnormal once you take radiographs.

*Dr. Kate Knutson et al.  
JAVMA, Sep 15, 2014*

### Canine demodicosis

Advantage-Multi (10% moxidectin, 2.5% imidacloprid) is licensed for the prevention of heartworm disease and the treatment of fleas and various intestinal parasites. Ear mites are also included on the cat label. In Europe, the product is known as Advocate® and has additional label indications. In dogs it can be used for the control/treatment of lice, ear mites, sarcoptic mange, demodicosis, and lung worms with a monthly application. In tough cases, the product, as licensed, has not lived up to the expectations of dermatologists. Several studies have shown that more frequent application increases the efficacy of the product. The numbers of cases reported are too small to make firm conclusions but a ~50% cure rate can be expected with application every 14<sup>th</sup> day. Cases not cured at that frequency may respond to weekly application. This product is not licensed for this application in the US but since it is an FDA-registered, not an EPA-registered, product, it can be used with informed consent for this treatment. The author has had success in the long term control of dogs that could not be cured with other products.

*William Miller, Jr., VMD Dip ACVD  
Gulf-Ail Vet Conf, Oct 2013*

### Bordetella vaccine-IN or SQ

**FICTION:** When immunizing dogs against *B. bronchiseptica*, the appropriate protocol entails administering an IN vaccine first, then, administering parenteral (injectable) vaccine for all subsequent boosters. **FACT:** Although that was advocated (10 years ago), current studies have challenged that practice. When feasible, studies have shown that it is preferable to inoculate dogs against *B. bronchiseptica* and parainfluenza virus via the IN route. Not only does this rapidly (within 3 days) reduce the risk of clinical illness following exposure, but prevents post-exposure shedding. For high-density populations at risk of exposure to infectious respiratory disease, IN vaccination is recommended. Dogs that are deemed to be at risk of exposure, but aggressively resist IN vaccination, should be vaccinated parenterally.

*Richard B. Ford, DVM, MS, Dip ACVIM  
Music City Vet Conf, 2014*

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### Maintenance of healthy weight in the cat

One factor that is important to consider, both in the development of and treatment of obesity, is the role of CHO in diet - not because CHO themselves are directly associated with fat (although excess carbs are stored as fat), but because of the effect on protein levels in the diet. Because of the metabolic requirement for cats to utilize protein as an energy source, diets with modest amounts of protein (with an average digestibility) will result in lower muscle mass, and resulting reductions in metabolism. In addition, recent studies have shown that the higher the concentration of CHO in the diet, the lower the intake of protein—resulting in a lower than needed intake of protein for maintenance and energy. Traditional weight loss plans include feeding an energy restricted (e.g. low fat, high CHO, high fiber) diet. However, while these diets may result in weight loss, they do so to the detriment of lean body mass – especially in cats who use protein for energy even in the face of other energy sources in the diet. Successful weight loss requires loss of adipose tissue as well as maintenance of lean body mass, as lean

# The Capsule Report.

body mass is the driver of basal energy metabolism (loss of lean body mass is a major contributor to weight regain as appetite is not reduced and satiety not reached). Several recent studies have evaluated use of a high protein, low CHO diet (protein 45% or higher) for weight loss in cats, and in those studies, all cats lost weight, but maintained lean body mass. Importantly, high protein, low carbohydrate canned diets not only result in sustained weight loss in these cats, but also in normalization of appetite (reduced urge to eat constantly because they are satiated, and more likely to be satiated when using canned food versus dry food with fiber).

*Debra L. Zoran, DVM, PhD, Dip ACVIM  
Gulf-Atl Vet Conf, 10:13*

## Achilles tendon repair

When the Achilles tendon has completely torn and severe hock joint hyperflexion results in a plantigrade stance, surgery is required to achieve a functional outcome. However, most Achilles mechanism injuries involve only partial avulsion of the tendon and can be treated nonsurgically using a custom orthotic device. This avoids the many complications seen with the surgical treatment of Achilles injuries, particularly as they relate to post-op immobilization of the repaired tendon in order to protect the repair during the early stages of healing. The use of a dynamic motion limiting orthosis ([OrthoPets.com](http://OrthoPets.com)) allows the tendon to be initially immobilized in extension and then gradually loaded (through adjustment of the device) as healing progresses. Adipose derived mesenchymal stem cells or platelet rich plasma are injected into the tendon to accelerate the healing process. The author has been using this technique for several years with excellent results.

*W. Preston Stubbs, DVM, Dip ACVS  
Music City Vet Conf, 2014*

## Adequan for feline arthritis

Polysulfated glycosaminoglycan (Adequan), is a chondro-protective drug designed to decrease viscosity of joint fluid. Because feline use is off-label, there is no approved dosing scheme. This author gives 0.25 ml, SQ or IM, q7d for 4 weeks, then every 4-6 weeks thereafter. In some cases the author dispenses the drug to the owner to give. This drug can be very **effective in managing arthritis in cats**.

*Phil Zeltzman, DVM, Dip ACVS  
Vet Pract News, Jul 2014*

## Early handling of puppies

Interactions and handling by veterinary staff during the early months can influence not only how dogs behave in subsequent visits to the hospital but also

how they behave in similar situations well into adulthood. Rough handling, or painful and fear-provoking experiences, are not quickly forgotten and can lead to more fear as well as fractious and even aggressive behavior years after the initial experience. Ideas for creating pleasant, positive experiences for puppies visiting the hospital follow. The goal is to make the visit as comfortable, and rewarding as possible for the puppy while minimizing experiences that are painful or may be perceived as frightening. 1) Avoid rushing through procedures and handling. Realize these are new experiences for the puppy. The more time the puppy has to acclimate to the hospital and the handling, the more relaxed and comfortable the puppy will be. 2) Create a positive expectation for the pet. Generous use of tasty food tidbits and/or toys can help puppies develop a positive "attitude" and expect "good things" from clinic staff. These items are used most effectively to proactively elicit friendly, relaxed behavior rather than giving them to the pet after he or she has become frightened or aggressive. 3) Substitute noninteractive restraints. Muzzles, double-leashes, squeeze plates, etc., may be less upsetting to some dogs than social restraints (people holding them down). Explain to owners how and why such restraints are used to prevent misconceptions. The Calming Cap ([thundershirt.com](http://thundershirt.com)), a product that is essentially a fabric covering for the pet's eyes that filters the pet's vision, can also reduce excitement and fear in many animals.

*Suzanne Hetts, PhD, CAAB and Daniel Estep, PhD, CAAB  
79th AAHA Conf*

## Estriol for incontinence

Estriol is a naturally occurring estrogen that has been used for canine urinary incontinence in Europe and Australia for several years. In one study of 129 incontinent female dogs, 82% of the dogs had improvement in their incontinence after approximately 6 weeks of therapy. The current dosing recommendation, regardless of patient size, is 2 mg per dog, once daily, for at least 14 days or until continence is controlled. This dosage may not be required in smaller animals. Once the patient has gained acceptable continence, the dose should be reduced to 1 mg daily and may be further reduced to the least effective dosage. At least 7 days should elapse between each dose adjustment. A daily dosage of 2 mg should not be exceeded. Adverse reactions with estriol are uncommon, but include vulvar swelling, attractiveness to male dogs, GI signs and hormonal alopecia. All side effects resolved after dosage reduction.

*Sheri J. Ross, BSc, DVM, PhD, Dip ACVIM  
Music City Vet Conf, 2014*

## More on effects of neutering

There is an erroneous feeling that neutering males before puberty is necessary to prevent some problem behaviors, such as urine marking in the home or aggression toward the owners. Research shows that neutering males in adulthood, after the onset of problem behavior, is as effective in changing the behavior

as neutering before puberty is in preventing the problems. As a side note: elective gonadectomy in many parts of Europe is seen as unethical and the procedure is rare.

*JAVMA, 243:9*

### Safety harness for dogs top-rated

The Sleepypod Clickit Sport dog travel harness ([sleepypod.com/clickit-sport](http://sleepypod.com/clickit-sport)) has been awarded the Center for Pet Safety's highest possible crash-test score. The five-star rating covers small, medium and large Clickit Sport harnesses. The maximum score was the first under the Center for Pet Safety's new Harness Certification Program. Harness will be available for sale beginning in mid-October at suggested retail prices of \$65-\$75.

*Vet Pract News, Oct, 2014*

### Role of Wolbachia in heartworm

*Wolbachia* are intracellular bacteria that infect numerous species of filarial worms including heartworms. Many contend that these friendly inhabitants play a role in the pathogenesis of diseases caused by heartworms and other filarids. Some contend that elimination of *Wolbachia* spp. from heartworms may affect the survival of adult heartworms and microfilariae, the ability of microfilariae to infect and develop within mosquito vectors, and may decrease the host's errant immunologic responses when adult worms are killed or die. At present, there appears to be evidence that pretreatment of heartworm infected dogs with doxycycline at the rate of 20 mg/kg/day (10 mg/kg, BID, if necessary) for one month prior to administration of melarsomine dihydrochloride may decrease the severity post-treatment thromboembolic and immunopathologic events. Data also suggest that administration of doxycycline (together with a microfilaricide) also can aid in the elimination of microfilariae from heartworm infected dogs and can render microfilariae **noninfectious to mosquitoes**.

*Dr. Byron L. Blagburn  
123rd SD VMA Conf*

### Vaginal cultures prior to breeding

"The bitch needs a negative vaginal culture prior to breeding." This is heard very often from very reputable breeders. The vaginal flora of the estrual bitch normally includes many bacteria. Studies have shown populations of *E. coli*, *Strep*, *Staph*, *Pasteurella* and other bacteria in cranial vaginal cultures obtained from normal bitches. *Mycoplasma* has been demonstrated as normal flora in bitches. Antibiotic treatments that alter the normal flora could cause over-growth of resistant or potentially pathogenic strains of bacteria. Male dogs harbor many bacteria in their prepuce and on the surface of the penis; refusing to grant stud service due to growth of aerobic bacteria in the vaginal tract of the female is unfounded. Organisms known to cause abortions and infertility, such as *Brucella* and *Herpes*, are difficult to isolate and a negative vaginal culture does NOT ensure a bitch is free of them. Vaginal cultures do

have a place in diagnosis of infertility, but are certainly **not required for every bitch prior to breeding**.

*Kit Kampschmidt, DVM  
SW Vet Symp, 09:13*

### Distemper vaccination in ferrets

Because canine distemper virus (CDV) carries an extremely high mortality rate in ferrets, vaccination with one of the ferret-approved CDV vaccines is strongly recommended in at-risk ferrets. This study provided evidence that antibody titers often remain protective against CDV in ferrets vaccinated  $\geq 3$  years before testing. Ferrets are notoriously predisposed to vaccine reactions, so results of this study suggest that less frequent vaccinations may provide adequate protection. However, as always, risks and benefits should be weighed for individual patients. For any high-risk ferret (i.e., frequent travel, contact with dogs or ferrets with unknown vaccination history), annual antibody titer measurements or booster vaccinations should be considered.

*Sarah Churgin, DVM  
NAVC Clin Brf, 11:2*

### Lidocaine as an analgesic

There's more to lidocaine than sewing up a wound or stopping post-GDV arrhythmias! The list of wonderful and mysterious beneficial side effects of lidocaine grows almost weekly. One of the ones that is better supported by the literature is as an analgesic. A good body of evidence supports the use of lidocaine as an analgesic (although some is contradictory). It seems to have found its niche as a continuous rate infusion (CRI), often in combination with ketamine and an opioid. Doses of 25  $\mu\text{g}/\text{kg}/\text{min}$  are typically used, lower than the 50-75  $\mu\text{g}/\text{kg}/\text{min}$  often used for antiarrhythmic effects.

*Tony Johnson, DVM, Dip ACVECC  
20<sup>th</sup> Int VECC Symp, 2014*

### Adjusting the dose of trilostane

There is a lot of discussion about the 'optimal' post ACTH cortisol concentration for a dog on trilostane. The manufacturers recommend a result between 1.5 and 9  $\mu\text{g}/\text{dl}$ . However, many clinicians feel that a post-stim cortisol over 5.5  $\mu\text{g}/\text{dl}$  indicates sub-optimal control, and values as low as 3.0  $\mu\text{g}/\text{dl}$  have been proposed as the acceptable upper limit for the post ACTH cortisol value. In the author's experience, patients with a post-ACTH cortisol between 2 and 7  $\mu\text{g}/\text{dl}$  are usually doing well. The following describes the author's personal preferences: If the post-ACTH cortisol is  $< 0.7$   $\mu\text{g}/\text{dl}$ —stop trilostane. Restart when patient shows signs of HAC. Restart at 50% of previous dose. If post ACTH cortisol is 0.7-2.0  $\mu\text{g}/\text{dl}$ —decrease dose by 50%. If the post ACTH cortisol is 2.0-7  $\mu\text{g}/\text{dl}$ —continue present dose. If the post

ACTH cortisol is  $>7$   $\mu\text{g/dl}$ —consider a 25%-50% increase in dose if patient shows signs of HAC.

*Dr. Audrey K. Cook  
N Amer Vet Derm For, 04:13*

## Diagnosing peritonitis

Comparative biochemical analysis of the abdominal fluid versus peripheral blood analysis can lead to a diagnosis or give the clinician appropriate direction. For example, creatinine and potassium will be higher in abdominal fluid compared to peripheral blood if uroperitoneum is present. In one study of dogs, a glucose difference of  $>20$   $\text{mg/dL}$  in the peripheral blood compared to that in the abdominal fluid was **100% sensitive and specific for septic peritonitis**. In patients with bile peritonitis, the bilirubin will be higher in the abdominal fluid compared to the periphery.

*Brandi Garcia, DVM, Dip ACVECC  
80th AAHA Conf, 03:13*

## Diagnosing cruciate disease

**Visual evaluation:** Visual evaluation provides a rapid functional appraisal of both hindlimbs, which often provides the first clues of bilateral involvement. Bilateral cruciate injuries are particularly challenging because the comparison limb is also abnormal. A gait and postural evaluation provides additional clues to help identify these patients. These clues include forward weight distribution with ventral head tilt and limb postural changes with hyperextended tarsi. Kinematic clues include a stilted, shuffling gait and often a lumbar sashay. This stilted, choppy hindlimb gait with straight tarsal posture produces a walk that looks like a ballerina. Using both the standing evaluation and the gait evaluation improves assessment of muscle mass distribution and physique. In patients with chronic bilateral hindlimb lameness, comparative forelimb muscle mass often is pronounced and hindlimb muscle atrophy more distinctive. Chronic redistribution of weight onto the forelimbs also increases lumbar stress, resulting in lumbar pain and even kyphosis. **Functional challenges (sit examination):** An awkward collapse onto the tuber ischii with an asymmetrical sitting position is characteristic of patients with cranial cruciate ligament instability. The stand-to-sit and even the sit-to-stand test are essentially functional cranial thrust evaluations. An awkward asymmetrical sit posture can be a tip-off for underlying cruciate disease. **Stifle extension:** Performed in concert with the gait evaluation, passive forced stifle extension provides a quick diagnostic tool to elicit pain and exacerbate lameness in patients with cranial cruciate ligament injury.

*Randall Fitch, DVM, Dip ACVS, MS  
AAHA Conf, 03:13*

## Perioperative antibiotics

A small amount of spillage of intestinal contents occurs during any intestinal surgery. If the patient is reasonably healthy and not geriatric, if spillage is properly

controlled, and if the abdomen is thoroughly lavaged prior to closure, the risk of bacterial peritonitis is very low and perioperative antibiotics are not necessarily indicated. However, if a complex (therefore long) procedure is anticipated, or if there are patient factors present that increase the risk of infection (e.g., old age, severe dehydration, immunosuppression, or concurrent disease), prophylactic antibiotics are indicated. Common SI bacteria include *Bacteroides*, *clostridium*, *enterococcus*, *E coli*, *staphylococcus*, and anaerobes. Good coverage for these bacteria can be provided by first-generation cephalosporins such as Cefazolin. For cecal or large intestinal lesions, additional gram-negative coverage (e.g., second-generation rather than first-generation cephalosporins, or the addition of an aminoglycoside) should be considered. Prophylactic antibiotics should be given immediately preoperatively IV, then every 2 hours during surgery, then discontinued.

*John Berg, DVM, Dip ACVS  
AAHA Conf, 03:13*

## Calming the frightened cat

Because anxiety can inhibit learning, cats with a history of being anxious on car rides and/or at veterinary visits may require anxiolytic (anti-anxiety) medication. Alprazolam is a short-acting benzodiazepine with a rapid onset of action that can prevent anxiety or distress associated with veterinary visits. The starting dose for alprazolam is 0.0125-0.025  $\text{mg/kg}$ , PO; in the author's experience, higher doses are usually needed, averaging approximately one-half of the 0.25  $\text{mg}$  tablet for a 10-pound cat given one hour before the appointment time. Alprazolam works well in conjunction with food treats and other rewards. Travel should be on an empty stomach to prevent motion sickness, increase interest in treats at the veterinary hospital, and create a more positive experience. A synthetic feline facial pheromone analog sprayed into the carrier at least 30 minutes before travel has a calming effect on the cat. Draping a blanket over the carrier can also help to prevent fear and motion sickness. If the cat is still nauseous—as indicated by lip-licking, drooling, or vomiting during transportation—Cerenia is recommended.

*Ilona Rodan, DVM, Dip ABVP  
AAHA Conf, 03:13*

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