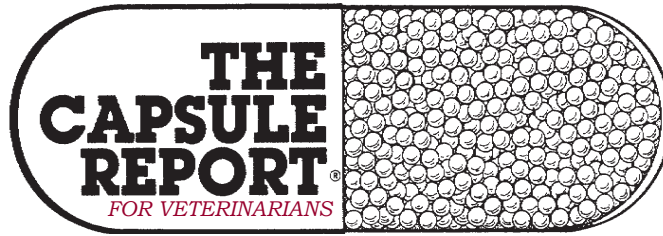


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Nutritional myth

MYTH: "Dogs and cats do not require carbohydrates, so they should consume foods low in carbohydrates and grains." **FACT:** While adult, non-reproducing dogs and cats do not require a dietary source of carbohydrates, they DO require carbohydrates at a cellular level (glucose). To assure that cells have a constant supply of carbohydrate, mammals have evolved numerous mechanisms, including hormonal controls (e.g. insulin and glucagon), and synthetic and release systems (e. g., gluconeogenesis and glycolysis) to produce and control glucose. Thus, dogs and cats can survive without a dietary source of carbohydrates because they can make carbohydrate from amino acids and the glycerol backbone of triglycerides. However, if they consume adequate carbohydrates in their diet, the need to produce carbohydrate *in vivo* is reduced. This allows dietary proteins to be used to support protein synthesis rather than being diverted to gluconeogenesis. Normal dogs and cats are both **well able to digest and utilize dietary carbohydrates** from properly processed or cooked sources, such as grains.

R.A. Lobos, DVM, CCRT
Music City Vet Conf, 03:13

ER tips

Thoracocentesis saves lives! It is not often that a procedure can be diagnostic and therapeutic at the same time. If after your clinical examination/assessment you suspect pleural space disease => tap the chest. Don't take pretty radiographs of dead patients! Hypertension with bradycardia should increase your suspicion for increased intracranial pressure. Is there a suspicion of head trauma? Check mentation! Consider therapy to decrease intracranial pressure before it's too late. There is no comeback from brain herniation! Rib fractures might not need surgical treatment, but they always indicate a significant trauma, so be aware of complications developing (such as lung contusions/hemorrhage). **Not every rib fracture is traumatic** though, chronic respiratory disease can lead to rib fractures! In the trauma patient, bruising around the umbilical area can indicate hemoabdomen (Cullen sign). Oxygen is your friend, BUT don't stress patients out with your mode

of administration (e.g. "face mask wrestling") and don't overdo the relationship with oxygen. It can lead to toxicity if administered in high concentration over a prolonged period of time. Puppies that seized due to hypoglycemia at home can have glucose serum levels within reference range on admission (counteracting hormones!). Don't take hypoglycemia off of your differential list! PCV and total solids/protein are like lovebirds! Don't separate them! Watch them together! A high lactate reading does not automatically mean patient cremation! Don't use a single reading as a prognostic indicator. If, after initial fluid resuscitation, the value is not improving, re-evaluate the patient and re-assess your treatment.

Dr. Tobias Grave, TA, GP Cert (SAP), Dip
ACVECC, ECVECC
21st Int VECCS Conf, 2015

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Behavioral changes in the cat with OA

Behavioral changes are important indicators for feline OA and discomfort. If the family cat changes from years of house training to disuse of the litter box, perhaps the box is too difficult to climb into or located too far away to reach in comfort. Litter boxes should be shallow and more numerable for cats with OA. Normally you would want one extra litter box above the number of cats in a household, but with OA you will need more to be easily accessible without a long trek. If the cat normally climbs onto a sunny windowsill but has stopped sunbathing

due to its height, this could be another sign of OA. The same can be seen for getting onto kitchen countertops or the family couch. Owners may think their pet has outgrown these less desirable habits, when in reality they may have stopped due to discomfort from these activities. Stairs also pose concussive forces on painful arthritic joints. Cats with OA are less likely to travel upstairs to family bedrooms where they used to sleep and snuggle. Another common behavioral change is a cat that would normally dominate the house has stopped chasing the younger cats or dogs. If they normally torment housemates but have stopped doing so, the effort may be too much with arthritic joints and may not be an indication of a mellowing older feline, but a painful one. NSAIDs are available for short term use but not ap-

The Capsule Report.

proved for long term management of OA in cats in the US. Tramadol and Gabapentin are used in cats with success. Cats tend to be more excitable with tramadol and when this side effect is encountered, lowering the dose does not help. Also, splitting tramadol tablets to dose the smaller patients creates a very bitter taste, so it should not be added to food.

*Jennifer L. Wardlaw, DVM, MS, Dip ACVS
Music City Vet Conf, 03:13*

End of life care

Monitoring the patient's weight is essential. Malnutrition, weight loss and cachexia develop quickly in anorectic animals if pet owners are not educated regarding minimum caloric intake or resting energy requirement (RER). **Appetite stimulants** such as mirtazapine at 1/8th of a tablet per cat, SID or EOD or cyproheptadine at 1-2 mg, BID, per cat along with coaxing, hand feeding or gentle force feeding with wholesome, flavorful foods might restore and maintain adequate nutrition intake. If the pet drops 10% of body weight or more and is not consuming its RER for 3-5 days, then feeding tube placement must be considered.

*Alice E. Villalobos, DVM
100th WI VMA Conf, 10:15*

Biopsy of oral tumors

Despite visual appearance, the only way to definitively diagnose an oral tumor is via histopathology. A biopsy of the tumor should be obtained; however, preanesthetic diagnostics should include a complete blood count, chemistry panel, urinalysis, and 3 view thoracic radiographs. Peripheral lymph node aspirates may also be performed when indicated. Once the patient is confirmed to be a reasonable candidate, he/she should be placed under general anesthesia for further diagnostic testing. Intraoral digital dental radiographs should be obtained to assess whether bony involvement is present at the tumor site. A biopsy of the oral tumor should be obtained - multiple biopsies should be taken if the tumor is large. When obtaining a biopsy of an oral tumor it is important to **obtain a sample from the most aggressive-looking region** of the tumor. Unlike obtaining a biopsy sample from other parts of the body, obtaining normal tissue along with abnormal tissue is contraindicated as it may seed malignant cells to normal tissue in the oral cavity.

Jessica Wilson, DVM

So Cal VMA Pulse, Feb 2016

H3N2 canine influenza virus

Dogs infected with the H3N2 canine influenza virus may need to be isolated at least three weeks to prevent spread to naive dogs. It is recommended that at least 21 days of quarantine be imposed for dogs infected with the virus, which emerged in the US in spring 2015 and was responsible for outbreaks in Chicago and Atlanta. Dogs have been noted to shed the virus for up to 20 days after their first positive test results, and results of PCR assays of nasal swab specimens have shown dogs could remain positive for the virus for up to 30 days. Positive results beyond 20 days were rare. The

authors recommend testing of dogs with respiratory signs to determine whether an influenza virus is present and, if so, which one (H3N2 or H3N8) is causing the illness. This approach will help veterinarians know which vaccines are needed in their communities and how long dogs with signs of illness should be kept away from dog parks or boarding facilities.

*Dr. Sandra Newbury and Dr. Keith Poulsen
JAVMA, Jan 15, 2016*

Pharmacology myths

Fluoroquinolones are broad spectrum antimicrobials. This is false. Fluoroquinolones have little to no activity against anaerobes (except pradofloxacin) and very poor activity against *Streptococcus* species. Therefore most fluoroquinolones are not broad spectrum, but have a limited spectrum that are effective against many gram negative and some gram positive aerobic bacteria. **Acepromazine lowers the seizure threshold.** This myth appears false because of the way acepromazine is used in veterinary medicine. Phenothiazines administered at high doses for long periods of time decreases the seizure threshold in human psychiatric patients. However acepromazine is used as single doses or for very short periods of time in veterinary medicine, which does not appear to increase the risk of seizures. A retrospective study demonstrated potential anticonvulsant effects of acepromazine or at least no worsening of seizures in 36 dogs with a history of seizure activity.

*Butch KuKanich, DVM, PhD, Dip ACVCP
CVC Kansas City, 08:15*

Determining if bitch is spayed

Luteinizing hormone (LH) is negative (<1 ng/mL) in intact bitches or those with ovarian remnant syndrome (ORS). In addition, LH is negative in bitches exposed to endogenous or exogenous estrogen. LH tests are not performed if the patient is currently showing signs of estrogen stimulation. A negative result in a non-estrogenized bitch is consistent with the presence of ovarian tissue. Serum LH is positive (>1 ng/mL) in bitches without ovarian tissue unless the test has detected the LH surge for that cycle. The LH test can be used to screen for ovarian tissue if the bitch does not show evidence of estrogen stimulation at the time of evaluation. Two positive tests performed several days apart (to ensure the sample was not taken during the LH surge) provide conclusive evidence that ovarian tissue is not present. Progesterone concentrations are consistently <0.2 ng/mL in bitches without ovarian tissue and rise following ovulation in intact bitches or those with ORS. Documenting serum progesterone >5 ng/mL in a bitch with evidence of estrogen stimulation 3-4 weeks prior confirms the presence of ovarian tissue. In addition, progesterone concentrations <1 ng/mL alone do not rule out ORS, as the dog may be in between heat cycles (anestrus). Anti-Müllerian hormone (AMH) is produced solely by the ovaries in females, so AMH measurement can be used to distinguish between intact and spayed bitches. The AMH ELISA can be used successfully to diagnose ORS in bitches. The in-house lateral flow test is not recommended

for ORS screening as it is not sensitive enough to detect some ORS cases, AMH is not suppressed by estrogen and can be used at any time in post-pubertal bitches to evaluate for the presence of ovaries. The AMH ELISA is currently performed at the Animal Health Diagnostic Center at Cornell; the Clinical Endocrinology Lab at U of California, Davis; and AVID Laboratories.

*Milan Hess, DVM, MS, Dip ACT
NAVC Clin Brf, 13:2*

Pyoderma-shampoo therapy

It is in the owner's and their dog's best interest to bathe their dog frequently; by doing so they can reduce the need for systemic therapy. Tell owners to "Treat the problem area first, then the rest of the body; rinse in reverse order." When most owners bathe their dogs, they get the dog wet, put a line of product down the spine, and swish around with their hands for 5 to 10 minutes, then rinse; 80% of the product and 80% of the time is spent on the patient's back. That is not particularly effective if most of the infection is on the ventral neck, axilla, or groin. By telling owners to start on the problem areas first, you direct the majority of time, product, and attention to the most affected skin. Then work on other areas before rinsing in reverse order. Even if the owner is trying to rush through the process they are certain to get at least 5 minutes contact time on lesional skin.

*John C. Angus, DVM, Dip ACVD
N Amer Vet Conf, 01:14*

Topical products for otitis

Synotic Otic Solution is approved to relieve pruritus and inflammation from acute and chronic otitis externa in dogs. It is labeled for twice daily application for no more than 14 days. According to the Synotic Otic Solution package insert, fluocinolone acetonide is approximately 100 times more potent than hydrocortisone. Dimethyl sulfoxide enhances systemic absorption. For animals that require potentially lifelong otic corticosteroids, twice-daily administration has the potential to result in iatrogenic hyperadrenocorticism. It is not known if less frequent administration would provide anti-inflammatory benefits while minimizing adverse effects. The authors use a solution of 1 mg/mL dexamethasone in propylene glycol for longer-term ear care. This compounded moderate-potency steroid formulation is applied daily for 7-14 days until clinical signs of pruritus and erythema are controlled; it then is used once or twice a week for long-term maintenance. Be aware of federal and state regulations regarding veterinary compounding. For preparation, see uwveterinarycare.wisc.edu/wp-content/uploads/2012/10/ear_formulary.pdf.

*Douglas J. DeBoer, DVM and Elizabeth A. Layne, DVM
NAVC Clin Brf, Dec 2015*

Effect of euthanasia on feti

Euthanasia of feti in the case of a gravid spay has been widely debated. The center of the debate has been over two issues: 1) feti have been seen to move after removal of the uterus despite the fact that they should be anesthetized and 2) feti do not breathe, so depression of the

respiratory center is ineffective. The following is an excellent explanation of the fetal status of lambs which can be **extrapolated to dogs and cats**. Although the fetal neural apparatus may be able to support consciousness during late pregnancy, the evidence is that the fetal lamb remains unconscious throughout. Fetal, placental, and uterine tissues play a key role in providing chemical and physical factors that together actively maintain the fetus in a continuously unconscious state. The movements often observed before fetal death are subcortical reflex responses to the increasing hypoxemia and hypercapnia, and are not a cause for welfare concern. If fetuses are kept in the uterus until they are dead no welfare compromise can occur. Consciousness appears after birth only when breathing oxygenates the lamb sufficiently to remove the dominant neuroinhibitory effects of adenosine on its brain function. The lamb that never breathes will never become conscious and will die without suffering. A further summary of research on fetal consciousness explicitly refers to fetal unconsciousness during and after spay, as long as the uterus is not opened and the fetus is not allowed to breathe air.

*Cherie Buisson, DVM
Gulf Atl Vet Conf, 09:14*

Topical antibiotics when tympanum is compromised

Topical antibiotic and/or anti-Malassezia therapy if the integrity of the tympanum is unknown or the tympanum is known to be perforated. 1. For bacteria: injectable enrofloxacin (22.7 mg/mL); dexamethasone sodium phosphate (4 mg/mL) 1:2 (one part enrofloxacin to 2 parts dexamethasone). 2. For Malassezia: dexamethasone sodium phosphate; 1% miconazole (1:1). 3. For bacteria and Malassezia: enrofloxacin; dexamethasone sodium phosphate; 1% miconazole (1:1:2). 4. Volumes of the above: medium sized breed - 0.5-0.7 mL per treatment; small dogs - 0.3-0.4 ml; large breed dogs - 0.8-1.0 ml.

*Rod A.W. Rosychuk, DVM and Howard B. Seim III, DVM
N Amer Vet Conf, 01:14*

Status epilepticus (SE)

Diazepam is the drug most commonly used in veterinary medicine for the initial treatment. With its relatively brief duration of action however, diazepam is not a definitive therapy for SE. Intravenous diazepam produces transiently high serum and brain concentrations of the drug, so it can be a useful drug therapy. Because SE may end spontaneously, IV diazepam should not be administered to a patient presenting in a post-ictal state unless there is another seizure. It has been recommended to use 0.5 to 1.0 mg/kg, IV, up to a maximum dose of 20 mg, in dogs and cats. This dose can be repeated to effect maximally twice within 2 hours. Constant rate intravenous infusions of diazepam have been advocated in human and veterinary patients. The recommended dose is 2-5 mg/hr, in 5% dextrose in water. If the diazepam does not control the seizures, the use of phenobarbital should be considered. Probably the most common

and **most dangerous error made in the management of SE** is to treat repeated seizures with repeated doses of IV diazepam without administering an adequate loading dose of a longer-acting anti-epileptic drug. In this situation, the patient will continue to have seizures, toxic concentrations of diazepam or diazepam metabolites will accumulate, and serious morbidity may result from diazepam over-dosage.

*Simon R. Platt, BVMS&S, MRCVS, Dip ACVIM, Dip ECVN
Music City Vet Conf, 03:15*

Atopy - protective body suits

Affected dogs should be wiped down with a damp cloth or baby wipe (paws, legs, underside) after walking outside to remove sticky pollen grains and mold spores from the skin and hair coat, which can be transcutaneously absorbed to worsen the allergic response. Other ways to prevent allergen over-absorption and self-trauma include the use of **protective dog body suits** (designerdogwear.com, K9topcoat.com). These lightweight protective suits can be worn daily and washed frequently, and do seem to help some dogs.

*Michele R. Rosenbaum, VMD, Dip ACVD
Music City Vet Conf, 03:13*

Puppy socialization

Take advantage of the opportunity to influence the fourth stage of development: the sensitive period for socialization. Between the ages of approximately 4 and 14 weeks, puppies are more prepared to accept new people and animals than at any other time in their development. Early exposure to a wide variety of people, healthy puppies, and friendly dogs, as well as to assorted sounds, sights, and scents, is crucial for normal development. If possible, introduce puppies to other species (e.g., horses, cats, livestock, birds) as well. In short, this is the period to introduce puppies to anything they may encounter as an adult. Even before the vaccination series is complete, puppies can be safely socialized. Reasonable precautions should be taken. For instance, puppies should interact with puppies and dogs that appear healthy and whose owners are following their veterinarian's advice regarding necessary vaccinations. The risk for contracting a life-threatening disease is likely less than the risk for developing a behavioral concern secondary to inadequate socialization later in life. Behavior problems are the main reason that pets are relinquished to shelters, so early socialization is critical; **it cannot wait until the puppy is fully vaccinated.**

*Ellen M. Lindell, VMD, Dip ACVB
NAVC Clin Brf, Feb 2016*

Suture material and MRSP

The objective of this study was to evaluate adherence of methicillin-resistant *Staphylococcus pseudintermedius* (MRSP) to 5 suture materials commonly used in small animal surgery. It was found that adherence of MRSP was lowest to TC-monofilament suture (of all the absorbable sutures tested); thus, TC-mono-filament suture should be

considered for use in surgical patients at high risk of surgical site infection (SSI). Adherence of MRSP to barbed suture was comparable to adherence of MRSP to uncoated monofilament suture. This suggested that barbed suture may be used in procedures that benefit from its distinct advantages, without concern of increased bacterial adherence and subsequent SSI development. In accordance with results of other studies of other bacteria, adherence of MRSP to braided polyglactin 910 was greater than adherence to poliglecaprone 25 or TC-monofilament polydioxanone. Thus, TC-polyglactin 910 may be considered for use if multifilament suture is selected and may provide the benefit of a reduced potential for development of SSI.

*Shauna Morrison, BSc et al.
Am J Vet Res, Feb 2016*

Importance of hypothermia in rabbits

Several textbooks of rabbit medicine have questioned the clinical value of measuring rectal temperature in rabbits. However, a new cohort study involving 316 client-owned rabbits found that rectal temperature at hospital admission was **a major predictor of death**. Specifically, rabbits with hypothermia at admission had a risk of death 3 times that of rabbits without hypothermia. For each 1.8°F decrease in admission rectal temperature, the odds of death were doubled. In the present study, it was demonstrated that there was a significant association between the presence of hypothermia at admission and mortality in client-owned rabbits. Because of the size of the effect, this association should be also considered clinically important. Thus, rectal temperature should be considered a major prognostic predictor in client-owned rabbits and should always be measured during a physical examination.

*Nicola Di Girolamo, DVM, MSc et al.
JAVMA, Feb 1, 2016*

Alphs-2 antagonists

The availability of alpha-2 antagonists is one of the advantages of alpha-2 agonists compared to other drugs producing similar desirable effects. The antagonists allow control of the duration of effect, and to reverse the adverse effects produced by the agonists if necessary. On their own, they produce limited adverse effects. Yohimbine and atipamezole have been widely used in dogs and cats. Atipamezole is a highly selective alpha-2 antagonist. It is more effective than yohimbine. Although it is claimed to be particularly well adapted to the reversal of the effects of dexmedetomidine, it has been used successfully to antagonize other alpha-2 agonists as well. For antagonism of dexmedetomidine, the **recommended dose of atipamezole** is 10 times the dose of dexmedetomidine administered in dogs, and 5 times the dose of dexmedetomidine administered in cats. Lower doses may be sufficient, particularly when reversal is attempted long after dexmedetomidine has been administered. About half the recommended dose has been successfully used to antagonize xylazine and romifidine.

*Bruno H. Pypendop, DrMedVet, DrVetSci, Dip ACVAA
N Amer Vet Conf, Vol 29, 01:15*