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VIRGINIA-MARYLAND VETERINARY NOTES

Veterinary Teaching Hospital, Virginia-Maryland Regional College of Veterinary Medicine

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Thought of the Month

You can see a lot just by observing.

Yogi Berra



This newsletter is published quarterly in support of the outreach program of the Veterinary Teaching Hospital VMRCVM, Blacksburg, VA and is prepared for and distributed to veterinarians in the Mid Atlantic Region.

Wild vs. Farm Raised Salmon

The controversy regarding the benefits of wild versus farm raised salmon has several ramifications that may not provide a simple, clear cut answer as to which is better and safer for human consumption.

Farm raised have more Omega-3 fatty acids than wild salmon. But the farm raised also have much higher levels of chemical contaminants that can possibly cause cancer, memory impairment and neurobehavioral changes. So there are risks to balance against the accepted benefits of eating salmon.

Regional differences in farmed salmon contaminants have been documented. Farm raised Chilean salmon showed the lowest levels while European (particularly Scottish) farmed salmon showed the highest levels. North American raised fell somewhere in between. Probably because of diet, studies show that farm raised salmon contain roughly two to three times more beneficial fatty acids than wild salmon.

A benefit-risk analysis showed that consumers should probably not eat farmed fish from Scotland, Norway and eastern Canada more than three times a year; farmed fish from Maine, western Canada and Washington State no more than three to six times a year; and farmed fish from Chile no more than six times a year.

One problem with this approach is that salmon sold in our markets are seldom identified as wild or farm raised much less labeled as to the country and area of origin. This deficiency should be corrected with clear labels on all salmon as soon as possible.

Abstracted from the Chronicle Online, Dec. 22, 2005, Cornell News Service, Cornell University

Bombs Away

Presently more than 370 bomb sniffing dog teams patrol 72 airports in the U.S. as dogs become an increasingly important weapon in the nation's protection efforts against terrorist attacks. The transportation Security Administration (TSA) is now training dogs for mass transit systems (subways, rail lines, busses). The TSA budget of \$28 million for the dog program includes \$1.2 million for training.

Most of the dogs are Labrador Retrievers, German Shepherds and Belgian Malinois, which have to go through rigorous training in the bomb detection course at Lockland Air force base in San Antonio, Texas. The dogs best suited for this work are those which are not too excitable, with good hips and noses.

Most of the dogs are imported from Europe, and even then, almost half the dogs who start the program are "washed out" during the intensive training. TSA has it's own dog breeding program too, as a means of insuring an adequate supply.

The dogs are named for someone killed in the September 11, 2001 attack on the World Trade Center. They must learn to detect about a dozen different explosives during their ten week course, which finishes with a tough certification test.

Wall Street Journal
December 19, 2005

How's This For Irony?

China has achieved the status of a world class capitalist paradise without ever abandoning communism.

Eggs and Eye Health

While chicken eggs are best known for their high-quality protein and widespread use in bakery and other food products, they are also an excellent source of lutein. Low lutein intake has been implicated as a risk factor in age-related macular degeneration, the leading cause of vision loss among older Americans. The macula is located in the retina, behind the pupil, and is responsible for central vision. Lutein and another carotenoid, zeaxanthin, accumulate within the macula and impart a yellow pigment that helps protect the eye.

Now scientists have found that the lutein present in eggs is more readily absorbed into the bloodstream than lutein from other sources – possibly because of components in the egg's yolk, like lecithin. Their research showed that the concentration of lutein in volunteers' blood serum was three times greater after eating eggs than after consuming the same amount of lutein from other sources, including cooked spinach and two types of lutein supplements.

Elizabeth J. Johnson, Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University, Boston, MA, as reported in Agricultural Research, U.S. Department of Agriculture, March 2005

Lower Your Lipids – With Grapes

Recent research using rat liver cells suggests that a compound in grapes called pterostilbene (TAIR-oh-STILL-bean) can help people reduce their lipid levels. The study found the lipid-lowering property of pterostilbene to be superior to that of resveratrol, another beneficial compound found in grapes, as well as to ciprofibrate, a commercial hypolipidemic drug.

This novel study showed how, at cellular and molecular levels, resveratrol and similar compounds activate a biological receptor that regulated fatty acid metabolism and plasma lipoproteins, helping prevent plaque deposition in arteries. Other research detected, for the first time, pterostilbene in a genus of shrubs – *Vaccinium* – that included blueberries, lingonberries, and huckleberries.

Agnes Rimando, USDA-ARS Natural Products Utilization Research Unit, Oxford, Mississippi, as reported in Agricultural Research, U.S. Department of Agriculture, March 2005

Thoughts on Practice Management

- Accounts receivable are not liquid assets
- Too much inventory is a common practice problem
- Ideally, inventory should turn over at least six times a year
- The optimum use of inventory is to sell it before the bill is due for payment
- The average transaction charge (ATC) is the best measure of productivity in a practice
- The ATC reflects the veterinarians ability to charge for services
- Use a spread sheet to record practice revenue, fixed costs, Variable costs, number of transaction and number of full time employees (FTE). Look for trends
- Operating leverage is the art of increasing income with little or no increase in costs. Sell more services!
- Practicing good medicine and charging for it are the keys to a successful practice!

Kent Roberts, DVM
Blacksburg, VA

Research Suggests Avian Influenza May Affect More Humans Than Previously Thought

A significant association between households in Vietnam having sick or dead poultry and household members falling ill with flu-like illness has been established according to a recently published study[1]. As there were confirmed outbreaks of highly pathogenic avian in the study area during the investigation period, and no other disease is known to be transmitted from birds to humans on that scale, it is hypothesized that the reported flu-like illnesses (defined for this study as a cough and fever) were due to infections with the avian influenza virus A(HSN I).

The avian influenza virus A(HSN1) is known to cause severe disease in humans. Confirmed cases in humans worldwide have had a fatality rate of about 50% [2]. The new research suggests that many more people may be or have been infected with the avian influenza virus A(HSN1) than the known confirmed cases, but that less severe symptoms could mean that the disease remains undetected and/or unconfirmed.

Approximately 45,000 people were randomly selected and interviewed in a rural area of Vietnam. About 38,000 of these people lived in households where poultry was kept, and approximately 12,000 people reported having had sick or dead birds in their household. Keeping poultry was not in itself found to be a risk factor for flu-like illness, but dead or sick poultry in the household was found to be a significant association ($p < 0.001$), especially if the person interviewed had had direct contact with sick or dead birds.

The epidemiological data support the hypothesis that there can be a mild clinical illness in humans caused by the highly pathogenic avian influenza A(HSN1) virus. Transmission could be more frequent than reported, although direct contact seems to be necessary. Further support for this theory could be obtained by population-based serological studies in conjunction with epidemiology in areas with ongoing outbreaks of avian influenza among birds.

AnimalNet-L January 13, 2006, as reported in PennState Veterinary News, January 2006, Penn State, University Park, PA

Lactation and Lactational Effects On Metabolism And Reproduction In The Horse Mare

Prolactin plays a major role for lactogenesis and for the initiation but not the maintenance of lactation in the horse. While experimentally supplemented or naturally occurring dopamine agonists inhibit the onset of lactation in the mare via a reduction in prolactin release, treatment with dopamine antagonists stimulates lactation. In lactating mares, follicular growth and ovulation are resumed early postpartum and are not prevented by suckling or by the presence of a foal. Lactational anoestrus does not exist as a physiological condition in the horse. Mares are able to meet the increased energy expenditure during lactation mainly by increasing feed intake while mobilisation of body reserves is limited. Plasma leptin concentrations are reduced after foaling. Plasma IGF-1 levels increase in late gestation, reach a maximum at foaling and decrease gradually thereafter. After foaling, LH release increases and reaches levels comparable to nonlactating mares. This increase, together with simultaneously high IGF-1 concentrations, may stimulate the rapid resumption of cyclic ovarian activity within less than 2 weeks after foaling.

Katharina Deichsel and Jorg Aurich, Dept of Animal Breeding and Reproduction, University of Veterinary Sciences, Vienna, Austria, Livestock Production Science, Volume 98, Issues 1-2, December 2005, Pg. 25-30, as reported in PennState Veterinary News, January 2006, Penn State, University Park, PA

Selection and Acceptance of Flavors in Concentrate Diets for Stabled Horses

Like most large grazing herbivores, horses select their food based on visual cues, odor, taste, texture, availability and variety. There is relatively little published information about the role of flavor in diet selection by domestic horses in comparison with other domestic and companion animals. However, previous trials investigating effects of diet flavor in stabled horses indicated significant effects on foraging behavior and selection.

In this series of three trials we aimed to determine relative acceptance by presenting flavor preference tests to eight horses. Horses were stabled and fed hay ad lib on trial data collection days plus a standard unflavored concentrate ration at 7:30 a.m.

In Trial 1, 15 flavors were separately presented in standard 100 g cereal by-product meals and the trial was replicated. Quantity consumed, time of completion, partial rejection or refusal were recorded. Order of presentation was determined by a Latin Square design. Trial data were collected on five sampling days, separated by a minimum of 1 day. Horses were presented with six flavored meals daily; minimum 1 h between the meals. Twelve flavors were universally accepted and of these the eight flavors with fastest mean consumption times (banana, carrot, cherry, cumin, fenugreek, oregano, peppermint and rosemary) were presented in paired preference tests in Trial 2.

In Trial 2, all paired combinations of the eight flavors were presented, in two tests per day at noon and 4 p.m. Presentations of the same flavor were separated by at least 1 day. Paired presentations were in 300 g cereal by-product. Presentations were terminated when approximately half of the total amount presented had been consumed. Flavor preferences were expressed as a ratio from 0 (rejection) to 1 (exclusive consumption). Paired flavor preferences produced the following rank order: fenugreek, banana, cherry, rosemary, cumin, carrot, peppermint, oregano.

In Trial 3, relative consumption times of mineral pellets flavored with fenugreek and banana were significantly reduced in comparison with unflavored pellets.

In these short-term trials, flavor had significant effects on diet acceptance, selection and consumption times.

D. Goodwin, Univ. of Southampton, School of Psychology H.P.B. Davidson and P. Harris, UK Equine Studies Group, Applied Animal Behavior Science, Volume 95, Issues 3-4, December 2005, Pages 223-232, as reported in PennState Veterinary News, January 2006, Penn State, University Park, PA

The Prediction of Parturition Date in Canine Pregnancy

In bitches, the length of gestation is highly variable when measured from the day of mating, thus prediction of parturition may be greatly inaccurate when determined from this point. The ability to precisely predict the duration of pregnancy is of practical importance for managing parturition or planning caesarean section and this review analyses the methods that can be used to accurately forecast the day of parturition. At the time of breeding, determination of the luteinizing hormone surge and the initial rise in progesterone provide reliable information on gestational length of the bitch, but when pregnancy is ascertained, ultrasonography is the most useful tool to predict the delivery day. In fact, by ultrasonographic measurements of the extra-foetal and foetal structures an accurate prediction can be made both in early and late pregnancy.

GC Luvoni and M Beccaglia. Dept of Veterinary Clinical Sciences - Obstetrics and Gynecology, University of Milan, Milan, Italy, Reproduction in Domestic Animals, Volume 41, Issue 1, February 2006, Page 27, as reported in PennState Veterinary News, January 2006, Penn State, University Park, PA

Using Environmental and Feeding Enrichment to Facilitate Feline Weight Loss

Obesity is regarded as the most common form of malnutrition seen by veterinarians. An estimated 25% of cats are described as overweight or obese and this condition is a known risk factor for other diseases. It is crucial to find effective and practical ways for veterinarians and pet owners to achieve safe weight loss in cats. The objective of this 4 week trial was to promote weight loss by increasing the activity levels of 18 cats through feeding enrichment, food motivated play, increased intensity play sessions, and the introduction of new enrichment structures. The body condition score (BCS) of the cats was determined by one veterinarian (normal, 4; slightly overweight, 5; overweight, 6; obese, 7). Group I was composed of eight cats, which were considered to be overweight or obese (median BCS: 6; range: 5-7), while the remaining 10 cats (Group 2) were normal or slightly overweight (median: BCS 5; range: 4-5). The cats were weighed weekly to monitor for safe weight loss in Group I and weight maintenance in Group 2. The change in weight from baseline was evaluated with a paired Student t test. Both groups of cats were fed individually to meet maintenance requirements; with Group I being fed a weight reduction dry formula and Group 2 fed a feline maintenance canned diet. The cats were exercised three times daily. Two of the exercise sessions (10 min each) used food as motivation and reward for physical activity. The third session (15 min) consisted of intense play using a variety of new toys and enrichment structures, such as tunnels, large paper bags, boxes, and a custom-built play tower. The cats' participation in all play sessions was voluntary. The cats were fed twice daily. Half of their ration offered was in an enriched feeding container that required effort and activity to access the food and the balance was offered in a standard dish. The relative amounts of food consumed from either the enrichment container or the dish was recorded. Group I cats lost an average of 62 ~ 26 g from baseline (-1.1 ~ 0.06% body weight) ($p = 0.0003$) through exercise and feeding enrichment alone. The Group 2 cats did not experience a significant change in weight from baseline, with an average loss of 64 ~ 106 g (-0.9 ~ 0.7% body weight) ($p = 0.09$). Despite the short duration of this trial, environmental and feeding enrichment resulted in a small but significant weight loss in Group I.

D. L. Clarke, and K. Michel, University of Penn, Philadelphia, PA, D. Wrigglesworth, K. Holmes, R. Hackett, WALTHAM Centre for Pet Nutrition, Melton Mowbray, UK
Journal of Animal Physiology and Animal Nutrition, Volume 89, Issue 11-12, December 2005, Page 427, as reported in PennState Veterinary News, January 2006, Penn State, University Park, PA

Prevalence of Feline Infectious Peritonitis in Specific Cat Breeds

Although known that purebred cats are more likely to develop feline infectious peritonitis (FIP), previous studies have not examined the prevalence of disease in individual breeds. All cats diagnosed with FIP at a veterinary teaching hospital over a 16 year period were identified. Breed, sex and reproductive status of affected cats were compared to the general cat population and to mixed breed cats evaluated during the same period. As with previous studies sexually intact cats and purebred cats were significantly more likely to be diagnosed with FIP; males and young cats also had a higher prevalence of disease. Abyssinians, Bengals, Birman, Himalayans, Ragdolls and Rexes had a significantly higher risk, whereas Burmese, Exotic Shorthairs, Manx, Persians, Russian Blues and Siamese cats were not at increased risk for development of FIP. Although additional factors doubtlessly influence the relative prevalence of FIP, this study provides additional guidance when prioritizing differentials in ill purebred cats.

Loretta D. Pesteanu-Somogyi DVM, Christina Radzai DVM, Veterinary Teaching Hospital, North Carolina State University, NC. & Barrak M. Pressler DVM, DACVIM Dept of Clinical Sciences, College of Veterinary Medicine, North Carolina State Univ, NC., Journal of Feline Medicine & Surgery, Volume 8, Issue 1, February 2006, Pages 1-5, as reported in PennState Veterinary News, January 2006, Penn State, University Park, PA

Continuing Education Opportunities

Date	Topic	Location	Contact Hours
April 22, 2006	Emerging and Re-Emerging Infectious Diseases	Blacksburg	8
May 3, 4 & 4, 2006	Beginning Endoscopy	Blacksburg	24
May 6, 2006	Radiography for Technicians	Blacksburg	6
May 15 – 17, 2006	Orthopedic Surgery	Blacksburg	24

Please note:

The courses listed above are limited enrollment and feature a hands-on laboratory experience under the guidance of clinical faculty members. Program brochures provide course details. For more information, please contact Anne Cinsavich, aclapsad@vt.edu (540) 231-5261; or to register for a program, please contact Conference Registration, Continuing Education Center, (540) 231-5182.

Olive Britt, DVM

Dr. Olive Kendrick Britt passed away on March 13, 2006 at the age of 88 in her home in Goochland County, Virginia. A well known and beloved equine practitioner, she delivered a Thoroughbred foal named Secretariat while practicing at The Meadow in Doswell, Virginia. She was also the 1993 VVMA Veterinarian of the Year.

Thomas Bibb, DVM

Dr. Thomas Lynn Bibb, loving husband, father and friend, 69, of Riner, died suddenly Friday, March 17, 2006 in Wytheville while on a farm call. Dr. Bibb was a well known and much loved member of the community. He will be missed by all that knew him.

Virginia-Maryland Regional College of Veterinary Medicine Extension Staff:

Dr. W. Dee Whittier

Extension Specialist – Beef Cattle

Dr. Scott Pleasant

Extension Specialist – Equine

Dr. John Currin

Extension specialist – Dairy Cattle

Anne Cinsavich

Continuing Education/Extension

K.C. Roberts, Editor

Anne Cinsavich, Production Manager of VIRGINIA –MARYLAND VETERINARY NOTES

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