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16th Annual Symposium: Your Veterinarian and Your Dog

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A Veterinarian's Observations on the Airline Transport of Dogs

Dr. Walter M. Woolf (V'60), founder of Air Animal Inc., a pet travel agency in Tampa, FL, discussed the intricacies of transporting animals by air.

Since 1969, when Dr. Woolf first began to arrange air transportation for animals, he has reserved "seats" for species ranging from armadillos to worms. The largest number of travellers are family pets belonging to owners who are relocating. Woolf's agency sees to it that pets are safely housed once the family begins the move, that they are placed on the proper plane, and that they reach their destination in the shortest possible time.

Dr. Woolf discussed the different types of aircraft and pointed out where family pets are housed aboard the planes. He explained that animals travel in the bulk bin, a heated, air-conditioned and pressurized space. The animal crates are placed in such a manner that there is plenty of air circulating around them. They are held in place with sandbags and cargo nets.



Nothing is stored atop a crate and this is the reason shipping a dog or a cat is so expensive. One pays for the airspace around the container.

Woolf had some tips for those planning to ship an animal. One should select the proper

The Sixteenth Annual Symposium, Your Veterinarian and Your Dog, was held on January 25, 1986, at VHUP. Following are summaries of the talks and discussions.

container. Today, USDA rules prescribe the proper size as well as the construction of animal crates. He did recommend that for international trips a crate one size larger than one used for domestic travel should be purchased as the animal will be in transit longer. He recommended that the animal be acclimated to the crate for a few days prior to the trip. He suggested that the dog or cat spend some time each day in the crate to become familiar with it. For bedding during the trip he recommended shredded paper. He felt that foam pillows are not suitable.

He also recommended that the animal receive neither food nor water for four to six hours prior to the trip. "It won't hurt the animal to travel with an empty stomach," he said. "And it will be more comfortable that way. When it reaches its destination it can eat again."

To travel by air, animals need health certificates and current vaccinations. As each state and country has different regulations, it is best to check about the requirements before taking the pet to the veterinarian for vaccinations and a health certificate. If the animal is to be shipped abroad, one should find out about the requirements from the airline or the consulate of the foreign country.

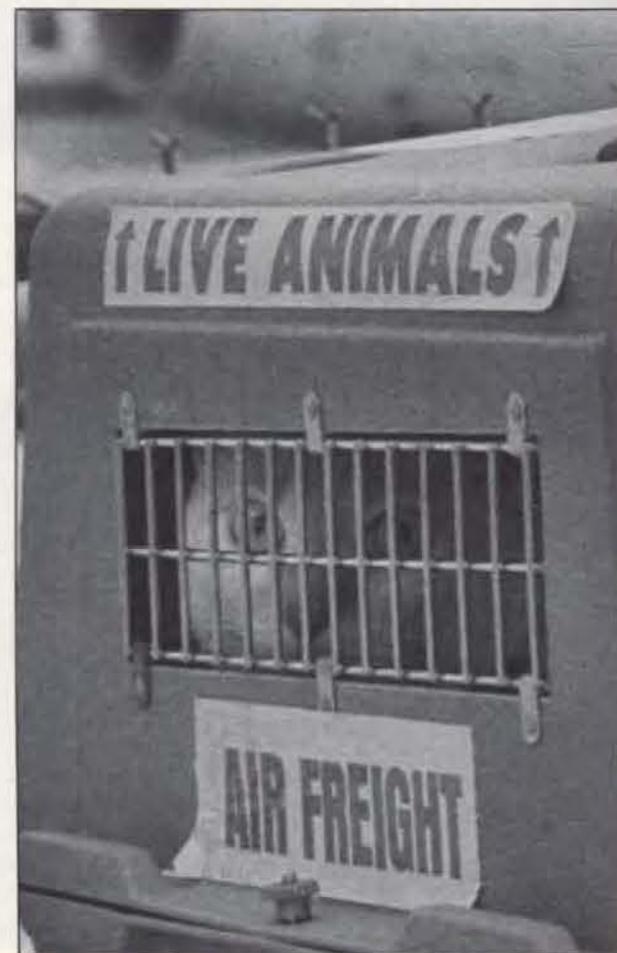
Dr. Woolf is opposed to tranquilizing cats or dogs prior to shipping. "A tranquilizer affects the respiration rate of the dog or cat and serious problems can arise," he said. "An aircraft is pressurized to about 8,000 feet, so what you are doing is taking a relaxed animal and putting it into relative oxygen insufficiency. If it starts to struggle and breathe hard, you will have a prob-

lem." He feels that many deaths of pets during air travel can be attributed to the use of tranquilizers.

He explained that airlines are very careful when handling animals and that they are treated as a priority shipment. "They are the last to board and the first to be unloaded."

He also suggested that when planning to ship a dog which requires a large crate, one should check with the airline whether such a crate can be loaded. "The dimension of cargo doors are different for each airline," he said. "You may be able to send your great Dane to California aboard a Delta 727, but you may not be able to return it aboard a TWA 727 because of the differing dimensions in the cargo doors."

According to Dr. Woolf, air travel for animals is safe and fast. "You can transport horses, cattle, chickens, tigers, dogs, cats, fish, or any other species," he said. "The airlines will accommodate these animals and get them to their destination quickly and safely."



Commonly Encountered Skin Problems in Dogs

Common skin problems were the topic of Dr. Robert Schwartzman. He prefaced the discussion by advising the audience that in many cases skin problems have a genetic basis. "Don't breed those animals which have repeated episodes of skin trouble, you will just continue the problem."

Hot spots (moist eczema) are common, particularly in longer coated breeds. "Usually the underlying cause is fleas or impacted anal glands," he said. "The animal feels uncomfortable and begins to lick the affected area. This constant 'worrying' causes a lesion and in a very short time a weeping sore will develop." Treatment involves clipping and cleaning the area, preventing the dog from licking it, and eliminating the underlying cause. In this area, hot spots appear to be seasonal, mostly in the spring and summer.

Sarcoptic mange (scabies) was the next disorder discussed. It is caused by a small mite which lives on the surface of the skin. Dogs with scabies are extremely uncomfortable and scratch continuously, causing lesions. The disease has a very characteristic distribution pattern. Usually it begins around the ears and affects the neck, belly, and sometimes the legs. It is not a difficult disorder to cure, although diagnosis is sometimes difficult. Scabies is contagious to humans, and Dr. Schwartzman said in 30 percent of the cases the owner is also affected.

Cheyletiella is another mite which affects dogs. Animals with this large organism have a lot of flaking, scaly skin and appear to be covered with dandruff. This mite primarily affects young puppies and it is contagious to other animals. If a dog has been diagnosed with *Cheyletiella* it is important to treat the environment to eliminate the mite, which can live in nature for quite a while, reinfesting the dog.

Another disease caused by mites, demodectic mange, is quite serious. The mites causing this disease are present on the skin of dogs, cats, man, and other species and normally do not cause any trouble. However, in some dogs they suddenly begin to multiply, causing hair follicles to rupture and allowing bacteria to enter. This begins a cycle of skin infections. "There is a genetic predisposition and animals which have



cigar-shaped organism is a demodex mite

had demodectic mange should never be bred."

He said that the disease takes two forms, either benign, where small localized patches of hair loss occur which often disappear spontaneously, or as generalized disease. The latter is the more serious form as self-cure does not occur and secondary infection is common. Diagnosis is made by scraping and by looking for the mite under the microscope. The disease affects mostly younger dogs. Treatment has improved over the last ten years though it still is lengthy. Dogs need baths to kill the mites and antibiotics to clear up infections. Dr. Schwartzman said that products now available are about 70 percent effective.

Seborrhea is another difficult disease to treat in dogs. "It is an internal disease," he said.



Cheyletiella

National Brands, Generics, and Specialty Dog Foods

Today's pet owner is confronted by a bewildering array of dog foods when shopping in the supermarket. Products range from canned "dinners" to dry or semi-moist foods for puppies, performance dogs and older dogs. Everything is attractively packaged and relentlessly advertised as "the best." The price conscious shopper can forego fancy wrappings and buy store brands or generic dog food. Those who attend dog shows are further confused by an additional selection of special foods, ranging from growth diets to "natural" foods.

Which then is the food for one's dog? "That depends," said Dr. David S. Kronfeld during his discussion. "If Bowser spends his days on the couch, his requirements will be different from those of a dog which hunts, is being shown or which races." He then explained that dog food manufacturers are governed by guidelines issued by the National Research Council. "NRC guidelines used to be the standards manufacturers

had to adhere to," he said. "Recently they were changed from 'adequate' to minimum requirements of available nutrients on a caloric basis. The protein requirement, for example, dropped from 22 percent to 10 percent. Whether an animal will thrive on such a diet is another question."

He explained that nutritional scientists and dog breeders look at dog food in different ways. "Scientists have been concerned with minimum nutritional requirements, while breeders want a diet that will enable a dog to reach its maximum potential as a specimen of the breed and as a performer."

The cost of the food also plays a role. If money were no object, dogs could be fed organ and muscle meat as a protein source instead of the cereal based feeds. "Economy dictated the use of grain in dog food," he said. "Cereal proteins are inexpensive and the dog, while basically a flesh eater, has adapted more or less to a grain diet, provided it is carefully supplemented with high quality protein, fat, vitamins and minerals."

"Usually these animals have an underlying problem, like low thyroid values, liver dysfunction, adrenal tumors or other metabolic or hormonal problems." Before the condition can be cured, the dermatologist must identify the underlying causes. Affected animals show excessive scaling of the skin, oily or waxy coats and they often have an odor. Frequently there is a secondary skin infection. Treatment is prolonged and, unless the underlying cause can be identified, often frustrating.

Dr. Schwartzman pointed out that most skin infections in dogs are caused by the *Staphylococcal* organism and that such infections are quite common. He did mention that skin infections can indicate that an animal is not in top condition. "It is impossible to infect healthy skin, so we must ask why did this happen." Often the answer remains elusive.

One of the most frequently occurring skin infections is due to flea bite dermatitis. "It is characteristically a disease of the lower back area," he said. "It is seasonal, July to October, though in some cases we see it in other months too." The cause of this disorder is flea bites and an allergy of the dog to the bites. The animal itches and scratches intensely and bacteria enter the lesions; infection begins. The disease occurs most frequently in dogs five to nine years of age.

To cure it, fleas must be eliminated from the environment. That often is difficult as most products can kill adult fleas but will not affect the eggs or larvae which are in carpets, cracks or bedding. "If you have a dog with flea bite dermatitis, it would be a good investment to have an exterminator treat the house. He does have chemicals which will kill the eggs and larvae." Dr. Schwartzman feels that flea collars, shampoos or dips are only of limited value. He did caution the audience to not put any insecticide on a dog that has sores.

During the question-and-answer period he was asked about shampoos for dogs. He recommended baby shampoos and Selsun-blue. Asked about flea remedies he said that powders, in his view, are better than sprays as they have a residual effect. As to the question whether dietary supplements can act as repellants, he felt, despite the publicity for certain vitamins and compounds, that these are of little help.

Dr. Schwartzman is professor of dermatology and Chief, Section of Dermatology.

Even so, the cereal ingredients are not without drawbacks. Some of the plant ingredients utilized in dog foods interfere with absorption of minerals; it is known, for example, that soy products contain goitrogens which depress thyroid action; they also contain other substances which bind up calcium. To counteract this effect, manufacturers add abundant calcium, which may diminish absorption of copper and zinc or block iodine uptake in the thyroid gland. These interactions are involved in the "generic dog food disease." It has been found that dogs fed generic foods exclusively can grow poorly, develop anemia or skin disease.

Cereal foods have to be cooked to make them digestible for the dog. This partially destroys nutrients. Also, preservatives added to dog food can influence health. Dr. Kronfeld pointed out that certain semi-moist foods contain high amounts of acids and that recently such acids have also been added to dry foods. Another substance, propylene glycol, also a preservative, can damage red blood cells.

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Dog Foods

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The picture is further complicated by the fact that the formula for dog foods changes, depending on the availability of the ingredients, in an effort to keep the cost low. "You may be buying the same brand, but the ingredients are different in each part of the country and the dog must adjust."

Discussing the minimum protein content of 10 percent established by the new NRC guidelines, Dr. Kronfeld pointed out that many studies have shown that dogs need 25 to 30 percent protein in their diet to grow properly. An even greater amount is required to cope with stress.

What can the consumer do to ensure that his dog eats the proper diet? According to Dr. Kronfeld, he first should look at the animal to ascertain whether it is in prime condition. Is the coat glossy and dense, is the animal active and alert? Is the stool dark and dense? Large amounts of stool, foamy, pale or in the color of the food, indicate poor digestion. The consumer should also look at the list of ingredients to find out the amount of protein. "When comparing foods and quantities, keep in mind that the expanded foods contain a large amount of air and are bulkier than kibbled foods." He also mentioned that breeds with a predisposition to bloat should not be fed expanded food dry, that it should be soaked to minimize the amount of air ingested.

The nutritional value of most expanded dog foods can be enhanced by the addition of meat or eggs and milk. "Eggs and milk provide the right amino acids to improve protein quality, as well as trace minerals and vitamins. If you want to add this, introduce it slowly to give the dog's system time to adjust." Another alternative is to feed a fixed formula diet. These are more expensive but denser, and dogs generally eat less.

He was asked about vitamin supplementation and responded that the national brands of dog food contain adequate amounts, making supplementation superfluous. He warned against supplementation with minerals, especially calcium, explaining that this would do more harm than good.

In closing Dr. Kronfeld mentioned that the consumer dictates what is offered for sale by the feed companies. "A few years ago, a very high quality food based on our sled dog studies was test-marketed. It did not sell and was withdrawn. People perceive the current products as adequate."

Dr. David S. Kronfeld is Elizabeth and William Whitney Clark Professor of Nutrition at the School.

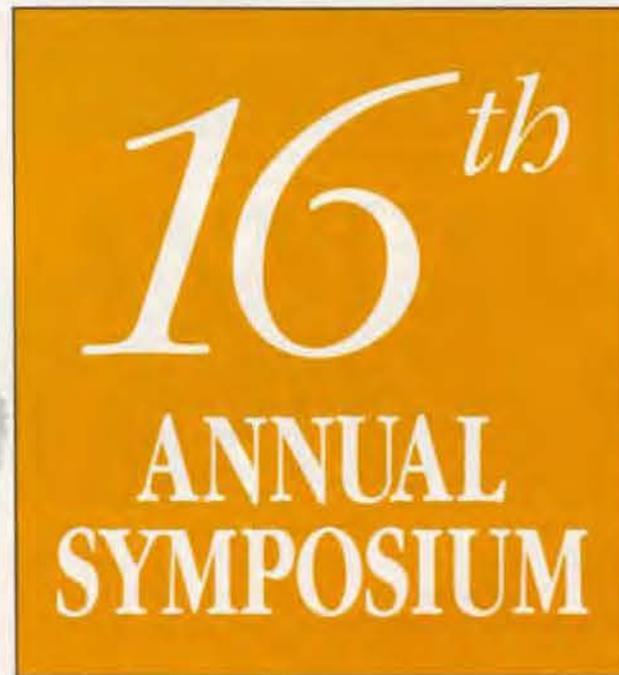
Update on Blood Diseases

Dr. W. Jean Dodds provided an update on blood diseases. She discussed three groups of disorders, acquired and inherited bleeding disorders, and immune-mediated blood diseases.

Two disease states that produce bleeding disorders in all mammals are poisoning by rodenticides and liver disease. Dr. Dodds explained that rodenticides currently are posing a new problem in veterinary medicine. "Rodents have evolved a genetic resistance to compounds. Now a new generation of more potent poisons is being produced and marketed. Non-target mammals, such as cats, dogs and man, have not developed that resistance, and they are in great

danger if they ingest these new substances." These rodenticides are 20 to 100 times more toxic per unit ingested than the previously used compounds. Effects are longer lasting. The half life is up to six to eight weeks compared to 24 to 48 hours with the older poisons.

This means that treatment to save an affected animal must be continued for a long period of time. The previous treatment of one or two



vitamin K injections is insufficient; animals or humans that have eaten the new type of rodenticide need repeated vitamin K treatment for up to six to eight weeks. Dr. Dodds recommended that if rodenticide poisoning is suspected the animal be treated as if it had ingested one of the newer compounds. She mentioned that a pamphlet outlining the effects of the new generation of rodenticides is being distributed to veterinarians nationwide to acquaint them with the changes in the nature and effect of these rodenticides already widely used by exterminators.

Rodenticides affect production by the liver of vitamin K-dependent clotting factors. However, there are other diseases which can interfere with the clotting factor production of that organ. If the liver is diseased or inflamed, clotting factor production can be inhibited, causing bleeding disorders. Also, if the animal has hepatitis, the blood vessels in the liver can thrombose (actively clot), thereby utilizing these factors which then will be in short supply in other parts of the body.

Clotting factors are also affected by drugs. "The most abused drug, aspirin, is a potent inhibitor of platelet function," she said. "The standard human adult dose of two aspirins every few hours can inhibit platelet function for four to five days. If you give aspirin to a dog with bleeding tendencies you can cause a more serious problem."

Other drugs which are potent inhibitors of platelet function are phenylbutazon (Butazolidin); promazine tranquilizers; estrogen, either as a drug or as naturally produced excess estrogen; nitrofurazones (Furadantin, furacins), sulfonamides (Tribrissen, Diatrim) and certain penicillin drugs. None of these drugs should be administered without veterinary supervision as severe problems can result for animals with bleeding tendencies.

Dr. Dodds then discussed inherited bleeding disorders. Animals, like man, can have hemophilia and von Willebrand's disease. Hemophilia A, a clotting factor VIII deficiency, is found in most breeds of dogs and it is an X-chromosomal-linked recessive trait. Manifestations of hemophilia occur primarily in males.

Females carry the trait and transmit it, on average, to half of their sons, while half of their daughters will be carriers. The disease varies in severity from mild to severe. Generally, the larger the specie or animal, the more severe the manifestations. Hemophilia A has a very high prevalence in certain breeds, particularly in rare breeds or in those where much inbreeding or linebreeding to a few individuals has taken place. This result, called the "founder effect", occurs when breeders overutilize one particular sire that happens also to carry the undesirable gene in question. The gene pool thus becomes relatively fixed and permits mutation and expression of recessive genes with greater frequency. Prevalency of the undesirable gene can thus spread rapidly. Dr. Dodds explained that a recessive gene is difficult to eliminate. "Even if you select against it, after ten generations, 25 percent of your stock will still carry it. Dominant genes can be eliminated quickly. Don't breed animals which show the trait and it will be eliminated in one generation. Incompletely dominant traits can be virtually eliminated in two or three generations if the stock is tested and carriers or affected animals are not used."

Concentration on a particular sire has had serious effects in the German shepherd breed; today one-third of the cases of hemophilia A seen world-wide occur in that breed. She stated that if one was contemplating acquiring a German shepherd from overseas or from German breeding stock here, animals of both sexes should be tested prior to breeding. The females would be assessed for the carrier state of hemophilia and the males for presence of the disease.

Hemophilia B, a clotting factor IX deficiency has also been identified in dogs and cats, though it is not as common as Hemophilia A. Tests to identify carriers for both diseases are available free of charge from Dr. Dodd's laboratory.

Hemophilia affects an animal in various ways. There can be intermittent bleeding into the joints, resulting in immobility, prolonged bleeding when teething, and the most dangerous of all, bleeding into the body cavities or the central nervous system. If one has a dog with hemophilia one should never use it at stud as every daughter will be an obligatory carrier.

Von Willebrand's disease (VWD) is the most commonly inherited bleeding disorder in the dog. In Scottish terriers, Chesapeake Bay retrievers, and German shorthaired pointers, the disease is inherited as an autosomal recessive. In this case, only those homozygous for the gene (having two carrier parents) show clinical signs. Both sexes can have the disease and both sexes can be carriers. In all other breeds it is inherited as an autosomal incompletely dominant trait, whereby homozygosity is lethal and heterozygotes can either express the gene or disease to a varying degree or be asymptomatic carriers. To date, 49 breeds have been recognized to have VWD and the condition has recently been seen in cats.

Expression of VWD varies in severity. "It is a disease with high morbidity and relatively low mortality," she said. "The animals can be fine for years and then suddenly have an episode triggered by stress, illness or trauma." VWD is most frequently seen in Doberman pinschers where 58 to 60 percent of the breed have the gene. It is also prevalent in standard poodles, Manchester terriers, Pembroke Welsh corgis, miniature schnauzers, Scottish terriers, golden retrievers, basset hounds, Shetland sheepdogs and Rottweilers.