AMERICAN KENNEL CLUB
CANINE HEALTH FOUNDATION
PREVENT TREAT & CURE®

DISCOVERIES

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MISSION:
The Foundation is dedicated to advancing the health of all dogs and their owners by funding sound scientific research and supporting the dissemination of health information to prevent, treat and cure canine disease.

UPDATE FROM THE CEO

Update from the AKC Canine Health Foundation CEO, Dr. Terry T. Warren, PhD, JD

For the love of your dog. For the future of your breed. We hope you'll take these words to heart as the AKC Canine Health Foundation launches a new Heritage Society campaign to advance the mission of the Foundation to prevent, treat and cure canine disease. If you are thinking of either creating or updating your estate plan, be sure your legacy honors your best friend. We are here to help you make a planned gift to secure the future health of your breed. Read more about the many ways you can leave an important legacy to support canine health on page 7.

Dr. Sheldon B. Adler, MD, Director Emeritus of the AKC Canine Health Foundation, who passed away on June 1 at the age of 84, left an important legacy. From the Foundation's very beginning, Dr. Adler understood and recognized the significance of establishing a nonprofit organization dedicated to funding sound, scientific research to help dogs and their owners live longer, healthier lives. We are pleased to recognize Dr. Adler's commitment to the health of all dogs by recognizing him as our Champion of Canine Health. Learn more about Dr. Adler on page 11.

It's fall, which means the end of the year is quickly approaching! We hope to see you all at *Canines & Cocktails*, on Friday, December 14, 2012, in Orlando, Florida, at the Rosen Centre Hotel. Join us as we raise a glass to the purebred dog as the ideal research model for canine and human health. We thank *The Canine Chronicle* for its corporate support once again. For details on how to purchase tickets today, see the back cover.

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THIS ISSUE AT A GLANCE

CANINES & COCKTAILS, UPCOMING EVENTS & MUCH MORE
See back for details

It's More Than Just Bite!

This article is the last in a four-part series contributed by Dr. Karen Gellman, DVM, PhD, and Dr. Judith M. Shoemarker, DVM. For more information about postural rehabilitation or training for vets, visit: **www.PosturalRehabVets.com.**

If you could get close enough to examine a wild dog, you would almost always see a "scissors bite," where the top incisors closely overlap the bottom incisors, and both are centered on the center of the nose and eyes. However, many domestic dog breeds have other than a scissors bite. Did you know that more than half AKC breed standards allow other than a scissors bite? It's not just aesthetics we are worried about – malformed dentition and distorted skull shapes have a profound effect on posture and balance. Some simple interventions can go a long way to helping your dogs have a better bite.

In the past three articles we have discussed the importance of canine posture, how it influences health and soundness, and the most important factors controlling posture: the neck, the feet and the teeth. We learned that manual therapy can help reset the proprioceptors of the neck after injury, and that keeping toenails short can have a profound effect on back and hind-end pain and disability. What about the teeth? And what could we possibly do about them that would be ethical in the show ring?

Dogs come in all shapes and sizes. From the biological standpoint, the domestic canine shows more variation than almost any other species: body size, body shape, hair type, hair color and head shape. Since ancient times, humans have selectively bred dogs to serve our needs with their particular talents – like herding sheep, hunting rats or protecting our homes – resulting in the glorious diversity that is the present-day array of breeds.

Wild dog in Bali

All wild canids, by contrast, look remarkably similar: medium size, medium-length hair coat, long bushy tail and cone-shaped skull and nose. But, did you know that without selective breeding, colonies of feral domestic dogs will, in a few generations, revert to the same look as wild dogs?

Skull shape is one of the most biologically important variations in the dog, because changing the "default" cone-shaped head will change the size and shape of the brain case, the eyes, nose, teeth and airway. There are some health risks that are suspected to have associations with the size and shape of the dog's head. Researchers are currently trying to understand the causes of syringomyelia (SM), a common spinal-cord abnormality in small-breed dogs. It is believed that genetic factors contribute to the disease.

In a very broad sense, we have three basic skull types in domestic breeds: long-nosed (dolichocephalic), short-nosed (brachiocephalic) and medium-nosed (mesocephalic). The dolichocephalic breeds, like Greyhounds and Borzois, tend to have very narrow skulls, and may have problems with eye formation, overbites and not enough room for their incisor teeth to fit properly. Brachiocephalic breeds, like Pugs and Bulldogs, have underbites, which are even more exaggerated in some versions of these breeds. When the shape of the skull is distorted, the space into which the teeth erupt can be distorted as well. This results in crooked teeth, that don't fit together properly, or "malocclusions."

Why do dog breeders care about bite? Because well-bred, truly functional dogs have good bites! A good bite is associated with good posture and good gaiting, because the teeth and temporomandibular joints (TMJ) are giving critical postural information to the brain. A good bite results in neutral TMJs, which allow neutral

Story continued on page 10

SPOTLIGHT ON DISEASE: Supraspinatus Tendinopathy

WHAT IS SUPRASPINATUS TENDINOPATHY?

You probably have a two-legged friend who has injured her rotator cuff. This shoulder injury is painful, and if not treated with proper physical therapy, it can lead to chronic pain, and in some cases, a more severe injury or "tear," requiring surgery. In the dog, supraspinatus tendinopathy is similar to rotator-cuff injury in humans. The supraspinatus muscle is responsible for extension of the shoulder joint. Injury to the tendon of the supraspinatus muscle causes inflammation. Tearing of the tendon fibers and the resulting inflammation can lead to mineralization and calcification of the tendon, which are sources of pain and lameness. According to Dr. Wendy Baltzer, DVM, PhD, DACVS, Associate Professor of Small Animal Surgery at Oregon State University, many different breeds are diagnosed with supraspinatus tendinopathy. While it's an injury that's often seen in canine athletes, it's also seen in show dogs and family pets.

WHAT ARE THE SIGNS OF SUPRASPINATUS TENDINOPATHY?

The most common clinical sign of supraspinatus tendinopathy is lameness that gradually worsens with minimal or moderate activity. Dr. Baltzer said that supraspinatus tendinopathy is often misdiagnosed, and that traditional treatments like NSAIDS (anti-inflammatory medications) and rest may only help the dog temporarily. That's what happened to Doreen Dysert of Camas, Washington. Her English Mastiff, Diogenes, began exhibiting signs of foreleg lameness. "We were at a dog show and he began limping while we were in the ring," said Dysert. "Unfortunately, no one, until we took him to Dr. Baltzer, was able to diagnose his injury. He would rest and his limp would disappear, but it would always return."

HOW IS SUPRASPINATUS TENDINOPATHY TREATED?

According to Dr. Baltzer, traditional treatments include the surgical removal of the calcification on the tendon. While this treatment may be helpful in some cases, Baltzer's research is using platelet-rich plasma (PRP) to treat supraspinatus tendinopathy. PRP is an innovative and non-invasive procedure already approved by the FDA for use in human medicine, and it's used routinely in equine medicine. PRP takes autologous cells – the dog's own cells – and injects them into the site of the injury. Although the exact mechanism of action remains undefined, PRP is thought to contain several different growth factors that aid in the healing of bone and soft tissue. Because a dog's own cells are used, it's safe and does not produce an adverse reaction. Dr. Baltzer's study has included 12 dogs, and she's followed them for one year after treatment. According to Dr. Baltzer, "The dogs usually only need one treatment. They must rest for eight weeks and then do physical therapy at home, and sometimes I recommend underwater treadmill therapy." In tracking the dogs in her study, Dr. Baltzer has found that the lesions on the tendon heal and the lameness improves. "PRP is about 80–90% effective in the dogs I've treated," said Dr. Baltzer. Dysert echoes the effectiveness of the PRP treatment. "Diogenes only needed one injection. We followed up with Dr. Baltzer's recommendation of eight weeks of rest, then PT, and now, Diogenes is 100% and back in the show ring."

Doreen Dysert and Diogenes

PREVENTING SUPRASPINATUS TENDINOPATHY?

Dr. Baltzer said that while there is no sure-fire way to prevent supraspinatus tendinopathy, studies have shown that when the injury occurs in canine athletes, a warm-up before an event may be beneficial. Dr. Baltzer also cited studies that have shown exercises that improve balance to help dogs who are in agility competitions or similar athletic events. "Dogs that stand on a ball or wobble board will build core muscles and strengthen their ligaments and tendons."

By taking a few simple steps, pet owners can condition their dogs and help prevent injuries. In the process, they will spend quality time together and remain active, two things our four-legged friends enjoy the most.

Beyond the Genome

This past July marked the eighth anniversary of the posting of the first draft of the dog genome sequence into free public databases for use by biomedical and veterinary researchers around the globe. On the occasion of this anniversary, it's important to take stock of our progress and our future in canine health research. We are now in our third iteration of the canine genome, CanFam3.1, and much progress has been made by the Dog Genome Sequencing Consortium.

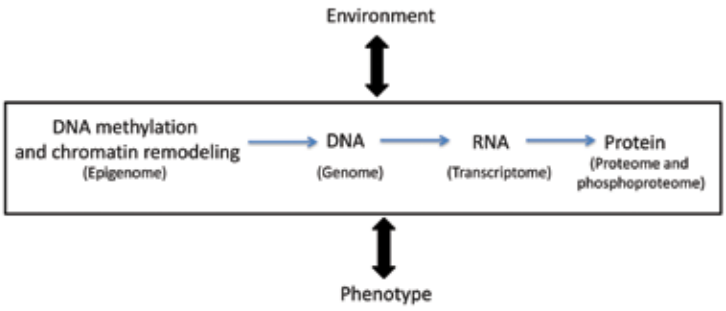
The **genome** refers to all DNA present in the cells of an organism and it's the blueprint that determines the genetic makeup of an individual. Segments of DNA encode genes, which, when turned on, lead to transcription of RNA and ultimately synthesis of protein (see figure below). Proteins help define cellular function and contribute to the roles of cells in the tissues within a body. An excellent example of the power of the genome in canine health was the discovery of the mutation that causes **progressive retinal atrophy (PRA) in English Mastiff. dogs**. This disease is caused by a mutation in the RHO gene encoding rhodopsin, a signaling protein in retinal cells. The end result of this mutation is the production of dysfunctional rhodopsin protein that prevents the rods in the eye from responding to light properly, and it ultimately leads to loss of vision.

Beyond sections of DNA that code for genes, there is a vast amount of DNA that does not code for any functional protein. In fact, the amount of DNA in the genome that actually encodes protein is approximately 1%, and for a long time the remaining 99% was considered "junk" DNA. Recently there has been a shift in this thinking, and there is now a growing respect for non-coding DNA and the role it may play in repression or activation of gene expression.

Of equal importance are the events downstream of the genetic blueprint: RNA and protein, which ultimately define a disease phenotype and are the endpoints where severity of disease is recognized. New techniques have been developed to perform rapid, large-volume (also known as "high-throughput") analysis of RNA (the **transcriptome**). Unlike the genome, the transcriptome can vary with external environmental conditions and reflects the genes that are turned on at any given time. High-throughput analysis of the **proteome**, the entire set of proteins expressed by a cell or tissue, has advanced understanding of protein expression and modification. Because protein expression does not necessarily reflect protein activity, we must often dig deeper and evaluate the activation state of protein (the **phosphoproteome**).

Finally, the importance of defining the factors that regulate gene expression is growing as well. One of the most rapidly growing fields is **epigenetics**, which is the study of the heritable changes in gene expression caused by mechanisms other than changes in the underlying DNA sequence. Epigenetic regulation explains how two identical genotypes can give rise to different phenotypes in response to the same environmental stimulus. There are four recognized epigenetic mechanisms by which gene expression is altered: modifications of histone proteins, DNA methylation, chromatin remodeling and noncoding RNAs (microRNAs or miRNAs). Aberrant DNA methylation has been identified in human and dog cancers and is found in two distinct forms – hypermethylation and hypomethylation – when compared to healthy cells.

Developing a greater understanding of all of these mechanisms of disease development in the dog is critical and will likely help solve some of our most complex health problems – not just in dogs, but in humans too. The Canine Health Foundation looks forward to supporting cutting-edge research in these areas so that we can fulfill our mission to prevent, treat and cure canine disease.



Educational Grant Named for Angus, Durham Highway Fire Department's Beloved Dog

Most dog owners can tell you about the "one." That special dog that surpassed all others in temperament and bond. For the Durham Highway Fire Department in Raleigh, North Carolina – and for many residents of north Raleigh – the "one" was Angus, a beloved Dalmatian who served with distinction for more than 14 years.

Angus came to the fire station in 1996. Mike Greenham, a volunteer with the Durham Highway Fire Department, said that the idea for a fire dog was originally raised by a few members of the department. "They wanted a traditional fire dog, so a Dalmatian was the only option." Angus was acquired through a local breeder and trained by members of the fire station. Angus received his name when he rode along on his first call. The firefighters responded to a fire at a local restaurant, The Angus Barn, and the name "Angus" stuck.

Angus served his community well, appearing at local fire-safety events and showing off his fire-safety skills. Angus made regular appearances at local elementary schools, teaching children to "stop, drop and roll" and how to feel a closed door for heat. Greenham said, "Having Angus demonstrate fire safety to children helped them remember what to do in case of fire. It was much more effective than having one of the firefighters explain what to do."

This past February, because of increasingly painful seizures, Angus was put down. Once they knew it was time, the firefighters picked a date two weeks out, giving the firefighters and the community time to say their good-byes. Greenham said that the response was overwhelming. "Dozens of people stopped by each day, bringing Angus a cozy new bed, or culinary treats like a cheeseburger or steak." When it came time to put Angus down, his long-time veterinarian, Dr. Amy Watras, came to the station to do the procedure. All members of the department wore their Class-A uniforms with mourning bands on their badges. Angus' body was placed in a basket stretcher on the back of one of the fire trucks, covered with the Durham Highway Fire Department flag, and given a full funeral procession to the animal hospital, where he was cremated. To learn more about Angus' story, visit: www.dhfd.org/angus.

Photographer: Gregory Wiggs

Angus served his community well, appearing at local fire-safety events and showing off his fire-safety skills. Angus made regular appearances at local elementary schools, teaching children to "stop, drop and roll" and how to feel a closed door for heat.

Angus' mission to educate will be carried on by the AKC Canine Health Foundation. The first education grant to develop our new webinar series will be named in Angus' honor. Dr. Shila Nordone, CHF's Chief Scientific officer, said, "We feel strongly about honoring a dog that meant so much to our local community, and we are pleased to be able to carry on Angus' educational mission through our new webinar series." Webinars will be released quarterly and will focus on topics that will educate dog owners about health concerns that are of importance to all dogs.

Looking to honor a dog or a dog lover and make a difference for canine health?

Set up a *Heroes for Health Research* personal fundraising page. Get started at www.akcchf.org and click the *Heroes for Health* button.

SPOTLIGHT ON GENETIC TESTS: Cleft Palate in the Nova Scotia Duck Tolling Retriever

A cleft palate is a birth defect whereby a hole (cleft) in the roof of the mouth (palate) develops in a puppy during gestation. Puppies born with cleft palate can experience difficulty nursing, which will greatly increase their risk of developing aspiration pneumonia – a serious, life-threatening condition. There are multiple genetic causes of cleft palate within the Nova Scotia Duck Tolling Retriever (NSDTR) breed; however, the most common form has been identified as CP1.

DISCOVERY

Scientists from the Bannasch Laboratory at the University of California, Davis, through a grant funded by CHF, have discovered the genetic cause of one form of cleft palate in the Nova Scotia Duck Tolling Retriever. Dogs with this form of cleft palate have a large insertion into a gene known to affect the proper development of the palate. This mutation is not present in any other breed based on testing conducted on over 300 individual animals of over 80 different dog breeds.

THE MODE OF INHERITANCE

Cleft palate caused by CP1 is a simple autosomal recessive disease, meaning an affected puppy has inherited one mutant copy of the gene from each parent.

Test results

Clear: CP1 N/N This dog has two normal copies of CP1.

Carrier: CP1 N/A This dog has one mutant (abnormal) copy of CP1.

Affected: CP1 A/A This dog has two mutant (abnormal) copies of CP1.

Tests are ordered online through the Orthopedic Foundation for Animals (OFA) website. OFA administers all order handling. Upon receipt of an order, OFA will send out the test kit, which will include an FTA card for DNA sample collection, along with sample-collection instructions. Using the FTA card technology, owners can safely collect DNA samples at home. The collection process is non-invasive, and no veterinary appointment is necessary. Samples are then sent to the lab for processing. Results will be forwarded to OFA, and OFA will issue the resulting report to the owner. The fee for each test is $80 and includes the test kit, laboratory processing and subsequent registration in the OFA databases. More information about ordering the test kit is available on the OFA website: **www.offa.org/dnatesting/cp1.html**

The mutation test developed identifies carriers of CP1 within the NSDTR breed. At this time, it does not apply to any breed other than the NSDTR. If you have a puppy of a different breed with cleft palate and wish to participate in the identification of the gene(s) responsible, please contact the Bannasch Laboratory at the University of California Davis (ztwolf@ucdavis.edu).

COUNSELING

CP1 is an inherited autosomal recessive disease. Animals that have only one mutant copy of CP1 (N/A) are normal, but they are carriers of the disease. When two carriers are bred to each other, the resulting puppies can be affected. At the time that this test was released, approximately 15% of Tollers were carriers of CP1 (N/A); however, the number of carriers can change with each generation.

To date, the Bannasch Laboratory has received 29 samples from North American NSDTR puppies with cleft palate, 18 of which had two mutant (A/A) copies of CP1. Dogs that are carriers of CP1 (N/A) are completely normal and they can be safely bred to dogs that are non-carriers of CP1 (N/N) in order to maintain diversity within the breed and to select for other positive attributes in carrier dogs. Puppies affected with cleft palate will be tested at no charge. Please contact Zena Wolf for more details (ztwolf@ucdavis.edu).

New Planned Gift Options Available to Secure the Future Health of Your Breed

LESS THAN HALF OF ALL AKC-RECOGNIZED BREEDS ARE REPRESENTED IN THE HERITAGE SOCIETY. MAKE A PLANNED GIFT AND JOIN TODAY!

The AKC Canine Health Foundation Heritage Society honors donors who have made a commitment to the Foundation through a planned gift. Heritage Society members secure the future health of their beloved breeds and advance the mission of the Foundation so that all dogs live longer, healthier lives.

If you're thinking of either updating or creating your estate plans, be sure your legacy honors your best friend. We're here to help you make a planned gift to secure the future health of your breed.

FOUNDATION ANNOUNCES NEW CHARITABLE GIFT ANNUITY PROGRAM

Having recently established a charitable gift annuity, Pam Goldman is one of the newest members of the AKC Canine Health Foundation Heritage Society. A loyal supporter of the Foundation, an AKC judge and a longtime Bichon Frise fancier, Mrs. Goldman knows her gift will help future generations of dogs live longer, healthier lives.

If you would like to make a gift to prevent, treat and cure canine disease that guarantees you an income for life and tax benefits, consider a charitable gift annuity. A charitable gift annuity is a simple contract that enables a donor to make a charitable contribution that generates an immediate charitable income tax deduction and provides an annuitized income stream for life.

The AKC Canine Health Foundation is partnering with Comerica Legacy Foundation to enable a charitable gift annuity program with ease and more flexibility. This partnership provides a financially secure way to make a real impact on the future — helping all dogs and their owners live longer, healthier lives.

Contact us at www.akcchf.org/heritagesociety or call 1-888-682-9696 to have custom illustrations prepared for you. We will use your individual situation to demonstrate how your donation will make an impact on the mission of the AKC Canine Health Foundation and provide you with immediate benefits.

Pam Goldman with her Bichons

"I think it's extremely important for everybody who owns a dog — any dog — to think about doing something to give back to the Canine Health Foundation, to keep the research going. And one way to do that is with a charitable annuity."

PET PROVISIONS SERVE DOUBLE DUTY TO HELP DOGS

The AKC Canine Health Foundation understands how important it is to you that your dogs are well cared for, even in the event of your death. We encourage you to make plans for your current and future pets so your wishes will be honored.

A Pet Provision in your will or trust specifies who should care for your dogs when you're gone; sets aside funds for the care of your dogs; and allows any remaining unused funds to be left to the AKC Canine Health Foundation to help prevent, treat and cure canine disease.

We can help with your pet provision. Sample language is available at www.akcchf.org/heritagesociety or call 1-888-682-9696. A pet provision that names the AKC Canine Health Foundation makes you eligible for membership in the Heritage Society.

New Acorn Grants

New ACORN research grants are detailed here. For more information about any of these studies, including ways to provide financial support, visit us at **www.akcchf.org.**

Grant 01854-A: Behavioral Epidemiology of Canine Compulsive Disorder
Principal Investigator: Dr. Clive D.L. Wynne, PhD; Institution: University of Florida
Grant Period: 7/1/2012 – 1/31/2013
Total Grant Amount: $9,180.00

Project Abstract: Canine compulsive disorder (CCD) is a serious health problem that negatively impacts both dogs and their owners. Dogs with CCD engage in repetitive abnormal behavior, often to the point of self-injury. Unfortunately, our understanding of the causes of this disorder is limited, and therefore treatments are often not fully effective. Dr. Wynne's group believes that the first step towards more effective treatments must be a thorough description of the disorder, followed by a clarification of how the general behavioral tendencies of dogs with CCD differ from those of normal dogs. Their experiments will help explain why certain dogs engage in undesired and unhealthy behaviors by investigating individual behavioral tendencies and environmental factors that lead to the development of CCD. A better understanding of CCD will lead to novel and more effective treatments.

Grant 01855-A: Fecal and Tissue Cytokine Profile in Dogs with Inflammatory Bowel Disease Before and After Successful Treatment
Principal Investigator: Dr. Caroline S Mansfield, BVMS; Institution: The University of Melbourne
Grant Period: 7/1/2012 – 6/30/2013
Total Grant Amount: $12,960.00

Project Abstract: Inflammatory bowel disease (IBD) causes diarrhea, vomiting and occasionally weight loss, occurring commonly in dogs worldwide. The pathogenesis of IBD is not completely understood. Although it is widely accepted that IBD may be triggered by different factors such as food sensitivity, intestinal bacterial alterations (dysbiosis) or exaggerated auto-immune response, no guidelines exist on how to differentiate between these underlying causes in a prospective manner. The objective of this study is to compare changes in immune mediators (cytokines) in the intestine before and after successful treatment of dogs with IBD. Dogs will be classified upon successful resolution of their diarrhea as having dietary, antibiotic or steroid-responsive diarrhea. A secondary aim of the study is to determine if non-invasive methods (fecal testing of cytokines) can aid in identifying the etiology and enable monitoring of therapy success. This could lead to more targeted therapeutic options and prospective determination of treatment plans for dogs affected with IBD.

Grant 01857-A: A Phase II Trial Evaluating Goal Directed Therapy Including Tissue Oxygen Levels in Canine Patients with Evidence of Shock
Principal Investigator: Dr. Kelly Hall, DVM; Institution: University of Minnesota
Grant Period: 7/1/2012 – 6/30/2013
Total Grant Amount: $12,960.00

Project Abstract: Without medical intervention, dogs that develop shock from hemorrhage (e.g., trauma, hemangiosarcoma, gastrointestinal ulcers, etc.), severe dehydration or severe infection are at risk for organ failure and death. Mortality is staggeringly high in septic canine patients, with less than 50% surviving sepsis. The ability to identify shock in canine patients is hampered by the diagnostic tests that are available to veterinarians, and standard monitoring tools are not specific for shock and have limited ability to guide patient treatment. More invasive methods for identifying and treating critical patients that are used in human medicine are often not financially feasible in the veterinary setting and require advanced training for placement and monitoring. A search for a more-sensitive, non-invasive, readily available and easy-to-use monitoring tool is needed to better evaluate veterinary patients, guide therapy more effectively and improve overall survival. The objective of this study is to evaluate the effectiveness of the InSpectra™ Tissue Spectrometer, a non-invasive technology, as a tool in the development of a goal-directed therapy protocol for use in critically ill dogs. The pilot data obtained will be used to design further studies in dogs in an effort to improve outcome in dogs presenting to the emergency room in shock.

Grant 01859-A: Evaluation of Occurrence of Ventricular Arrhythmias in Normal Saluki Dogs
Principal Investigator: Dr. Robert A. Sanders, DVM; Institution: Michigan State University
Grant Period: 7/1/2012 – 6/30/2013
Total Grant Amount: $12,723.00

Project Abstract: Ventricular arrhythmias are caused by abnormal electrical activity in the ventricles. In people and dogs, ventricular arrhythmias are known to cause significant clinical signs and/or sudden death. Identification of these arrhythmias requires monitoring of the heart rate and rhythm. As ventricular arrhythmias may not occur during any given short period, they may not be detected on a standard surface electrocardiogram (ECG). Furthermore, a brief ECG may not fully evaluate the true frequency and complexity of detected ventricular arrhythmia. Consequently, longer-term monitoring is required for reliable detection and complete characterization of ventricular arrhythmias. Holter monitors can be placed to record heart rate and rhythm for up to seven days. Dr. Sander's group proposes to place Holter monitors on 25 normal Saluki dogs to evaluate the frequency and complexity of ventricular arrhythmias that may occur in Salukis.

Grant 01860-A: Diagnostic Accuracy of the Multistix 8 SG Reagent Strip to Diagnose Bacterial Peritonitis in Dogs with Ascites
Principal Investigator: Dr. Elizabeth J. Thomovsky; Institution: Purdue University
Grant Period: 7/1/2012 – 6/30/2013
Total Grant Amount: $6,258.00

Project Abstract: Bacterial peritonitis is a life-threatening condition in dogs where bacteria colonize the abdomen. The source of these bacteria is typically leakage from the GI tract, although in some cases it can also be blood-borne. Dogs with peritonitis require surgery to treat the condition. Reported mortality rates in dogs for this condition range from 30%-68%, with outcomes worsening the longer the condition goes untreated. Unfortunately, clinical and physical exam signs are variable and non-specific, making it difficult for veterinarians to diagnose this condition without the need to send out samples to reference laboratories. There is a need for a bed-side diagnostic test that can aid in the diagnosis of bacterial peritonitis. This project will evaluate the ability of a readily available and commonly used urine dipstick to rule out bacterial peritonitis in dogs that develop fluid in their abdomens.

Grant 01861-A: The Effect of IV Infusion of Doxorubicin on the Incidence of Cardiac Arrhythmias and Cardiac Troponin I Levels in Dogs
Principal Investigator: Dr. Leigh G. Griffiths, DVM; Institution: University of California, Davis
Grant Period: 8/1/2012 – 7/31/2013
Total Grant Amount: $12,960.00

Project Abstract: Doxorubicin is a commonly used chemotherapeutic agent in veterinary oncology with efficacy in the treatment of many cancer types. It has been well-documented that Doxorubicin can cause toxic changes to the heart that can result in heart failure and even death. Abnormal heart rhythms can also occur; however, in veterinary medicine, the extent of these abnormal heart rhythms has not been well-documented. The purpose of this study is to evaluate the effect of doxorubicin on the occurrence of abnormal heart rhythms. The study additionally aims to evaluate the use of a biomarker for heart damage (cardiac Troponin I) as a measure of early heart-muscle damage due to Doxorubicin toxicity and to determine whether serum levels of this biomarker are correlated with early changes in heart function.

Grant 01868-A: Ti02 Nanotube Film for Controllable Drug Delivery of Gemcitabine, Carprofen and Lidocaine for Canine Implant Surgery Applications
Principal Investigator: Dr. Lei Kerr; Institution: Miami University
Grant Period: 8/1/2012 – 7/31/2013
Total Grant Amount: $12,960.00

Project Abstract: Titanium (Ti) implant is a widely used implant material. There are numerous Ti implant surgeries performed in both human and animals each year. In this proposal, Dr. Kerr will develop an innovative drug carrier to control drug release for canine implant surgery applications (e.g., orthopedic and dental). The drugs under investigation in this proposal are Carpofen and Lidocaine due to their importance in canine implant surgeries. This novel technology has broad applications on preventing and treating various canine diseases, such as hip and elbow dysplasia, osteosarcoma, tooth replacement, etc., and for speeding the wound healing after implant surgeries.

Kudos

We appreciate the support of *Eileen B. Flanagan* and *The Irish Wolfhound Club of America, Inc.* Together they presented the details of Grant 1601 to Irish Wolfhound clubs across Europe, raising over $5,000, and counting towards this important research. In total, they have supported this grant for over $12,000.

We applaud the *American Foxhound Club, Inc.* for sponsoring lymphoma research with over $3,500 from their Donor Advised Fund.

Kudos to the *American German Shepherd Dog Charitable Foundation, Inc.* for donating $5,000 to help fund Grants 1585 and 1609.

In memory of Mr. John P. Boelte, *Mr. John L. Tishman* made an especially generous contribution to help further our mission of helping all dogs live longer, healthier lives!

Helping to fund Grant 1476, the *Labrador Retriever Club of the Twin Cities* showed their support with a $6,352.46 donation towards research for Labrador Retrievers.

Many thanks to *Dr. Linda L. Sell* for supporting hemangiosarcoma research funded by CHF.

More tails are wagging thanks to *Oakland County Kennel Club* for their donation of $5,000 supporting canine health!

Terrific work from *Saluki Health Research, Inc.*, for donating $5,000 towards Grant 1859-A.

Special thanks to all our *Calendar Participants* in the 2013 Champions for Canine Health Calendar who have made generous contributions for canine health research. The calendar project has helped the Foundation raise over $300,000 over the last four years!

For as little as $20 you can show your support for canine health research and purchase your copy of the 2013 calendar at **www.akcchf.org/calendar.**

New Club Members

Sussex Spaniel Club of America, Inc.

HEALTH EDUCATION

It's More Than Just Bite!

(cont. from page 2)

posture. Try this exercise: Stand on level ground with easy neutral stance, arms at your sides. Feel how your weight is centered between your feet. Thrust your lower jaw forward as far as you can voluntarily, creating an underbite. Wait, and feel the postural changes. Now pull the jaw back as far as you can. Most people will feel their bodies pitch forward and back with the movement of the jaw. You can experiment with side to side as well, and feel your weight shift from foot to foot. This is a cool "party trick," but it actually shows something very profound: Jaw position helps determine weight-bearing, because the top priority of the nervous system is to keep the brain safe by making sure the nearby TM joints are symmetrically stimulated, indicating that the head is level and symmetrically supported. When a dog has a congenital or genetic malocclusion, the rest of the body may have an adapted posture, which may make them susceptible to some weight-bearing injuries over time.

What about dental anomalies outside the brachiocephalic/dolichocephalic pattern? While orthodontic procedures can help some adult dogs become more functional, it is considered unethical to use these techniques on a potential breeding animal. But some dental problems are from juvenile injury, and can be helped with early intervention. It is critically important to evaluate the baby teeth at six weeks, because missing teeth and non-symmetrical jaw growth can be most easily influenced in the fast-growing young dog. Why should we do this? Cutting-edge research in epigenetics shows that life experience influences gene expression in a heritable way. And having a functional bite will improve a dog's quality of life and athletic performance. A truly functional bite is self-cleaning, requiring less dental intervention. And it will help reduce

the risk of musculoskeletal problems secondary to postural abnormalities, like hip dysfunction, ACL tears, arthritis and disc disease.

In this four-part series, we have explored a variety of causes for common postural problems in domestic dogs. This has been a tiny peek into the amazing world of posture, of which every dog owner, dog breeder and veterinarian should be aware. Postural rehabilitation training for veterinarians teaches how to recognize and solve postural problems that may be complicating health or performance issues.

PREVIOUS SEGMENTS:

* **What is Posture and Why Should We Care About It?** (*Discoveries:* Issue 39)
* **Oh, That Flexible Neck** (*Discoveries:* Issue 40)
* **Feet on the Ground** (*Discoveries:* Issue 41)

To read each article in this four-part series, visit: www.akcchf.org/news-events/library

UPDATE FROM THE CEO

(cont. from page 1)

With the holidays coming, it's also the time to order the new *Champions for Canine Health Calendar*. Each calendar you purchase goes to help further our mission to support canine health research. The more you buy, the more you save. These calendars make great holiday gifts for all your friends and family. Order your 2013 calendar today at www.akcchf.org/calendar. Engraved bricks that honor or memorialize a dog or dog lover are also a great holiday gift idea. The engraved brick program was established by longtime CHF corporate alliance, Nestlé Purina PetCare Company. Purchase a brick on the Walk of Champions or the Path of Honor at the state-of-the-art Purina Event Center in Gray Summit, Missouri by going to http://support.caninehealthfoundation.org/bricks.

We thank all of you for your generous and continual support as we work together to further our mission of helping all dogs and their owners live longer, healthier lives.

CHAMPION OF CANINE HEALTH: DR. SHELDON B. ADLER

In 1975, Dr. Sheldon B. Adler and Mrs. Marcia Adler were living in Rockland County, New York. Their oldest son, Daniel, had recently left for college, and their younger son, Edward, who was only 12 at the time, wanted to stay home alone without a sitter. Mrs. Adler remembers, "Eddie was responsible enough to stay home alone, but we were wary of the idea since we lived in an isolated area." The Adlers' solution? A guard dog. At the time, the Adlers had a Toy Poodle and Miniature Schnauzer, two wonderful dogs, but they certainly did not fit the "guard dog" profile. Mrs. Adler remembers they made a list of possible breeds that could be guard dogs and while attending the Westminster Kennel Club dog show at Madison Square Garden, they settled on Giant Schnauzers, a breed they would go on to be passionate about, breeding more than 50 champions through their "Ramahill" prefix.

Dr. Sheldon B. Adler, MD, Director Emeritus of the AKC Canine Health Foundation, passed away June 1 at the age of 84. Dr. Adler completed medical school at NYU School of Medicine before he was 23 years old and was a Fellow of the American College of Surgeons. He served as the Chief of Surgery at Good Samaritan Hospital in Suffern, New York, a title he would hold until his retirement in 2000 when the ambulatory care center was named in his honor.

Early on, Dr. Adler recognized the need for the creation of an organization dedicated to the research of canine-related illnesses. "Dr. Adler was a visionary and a leader," said Terry Warren, CHF CEO. "His commitment to canine health, both through his time and monetary gifts, helped establish the AKC Canine Health Foundation as the most highly regarded organization funding sound, scientific research exclusively for dogs." Dr. Adler also helped found CHIC, the Canine Health Information Center, a centralized canine health database that provides a resource for breeders and owners of purebred dogs to research and maintain information on the health issues prevalent in specific breeds.

In speaking about their commitment to canine health, and to Giant Schnauzers in particular, Mrs. Adler said, "Shelly liked the competition of dog shows, as well as the camaraderie they offered. He wanted to improve the breed by breeding and showing hard-coated, well-muscled working dogs." Dr. Adler also saw the bigger picture and the implications of One Health One Medicine. "He understood the advances that were possible in human medicine thanks to the research being done in canine medicine," said Mrs. Adler.

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In addition to his wife Marcia, Dr. Adler is survived by his daughter Deborah Poppel, his sons Daniel (Sheree) and Edward (Cheryl), and six grandchildren. Mrs. Adler said, "Each of our children have grown into successful, responsible citizens, and I'd like to think that has to do with the fact that they had a great role model in Shelly." In thinking back over their 59-year marriage, their family, their involvement in the Giant Schnauzer breed, and their commitment to canine health, Mrs. Adler sums it up by simply stating, "We've had a good run."

The AKC Canine Health Foundation is very grateful for the many contributions made in memory of Dr. Adler to prevent, treat and cure canine disease.

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Please join us for a celebration of our canine companions, benefitting the AKC Canine Health Foundation.

Friday, December 14, 2012
6:30 - 9pm

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Tickets $125 per person
More information and to purchase tickets, visit:
www.akcchf.org/caninesandcocktails

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