

Dane Line
REIMAGINED

JUNE
2024



Published by the Great Dane Club of New England

President - Sue Davis Shaw
Vice President - Marcia Roddy
Recording Secretary - Kim Thurler
Corresponding Secretary - Tiffany Cross
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Note from Sue

Hi Everyone,

I hope you are enjoying this fantastic weather. We had a very pleasant day at Norm and Kathleen's for our last meeting. Thank you to them for hosting a very successful event and

thank you to all who attended. The food was delicious and more than plentiful and it was so good to see everyone and meet in person. I hope we can do it again soon.



The Fall Specialties and the National 2025 are both quickly approaching. Please look over the fall specialty trophy list that was sent to you by Tiffany and support the club by offering a trophy. Thank you to Carol Urick and Jayme Lemaire for again chairing the trophies. Theresa Lento has taken over as Raffle Chairman for this year but she will need your help. Normally our show profit in the fall depends totally on our raffle so we need to help make it a success. We also need a couple of people to help with transporting raffle and trophy items to the ring from the storage area at the Big E. It would only take a few minutes and your help would be SO appreciated.

Laurie is still looking to fill several positions for committee chairs for the 2025 National. If you can help, please do. We will have more information on the National as it becomes available.

Our club's Specialty Committee has voted to not consider putting in an application to host the specialty after the 2025 National. Thank you to Carol Urick for thoroughly investigating all aspects of the specialty including the work and the cost breakdown to help us make that decision.

Best wishes,

Sue Davis Shaw

President

Save the DATE

September
25-28th, 2025



New Cluster Coming!

- 🐾 4 Day All Breed Show
- 🐾 6 Open Shows (MISC & FSS Breeds)
- 🐾 National Owner-Handled Series
- 🐾 Bred by Exhibitor
- 🐾 Best Puppy in Show
- 🐾 Beginner Puppy (4-6 MO)
- 🐾 Specialty & Supported Entries
- 🐾 and so much more!

**Follow us on Facebook
for updates!**



Hosted by the York County Kennel Club

Cluster Partners to be Announced

www.yorkcountykennelclub.org | PO Box 204 Alfred, ME 04002 | yckcmaine@gmail.com



SUNSHINE

Our sympathies go to Annette Larareo and her family on the loss of their beloved Oha — CCH Saul's Kealoha Mohican Rainbow.

Best wishes go out to Naida Parker as she recovers from knee replacement and to Karen Pacino as she recovers from a broken ankle. We hope you are both well on your way to a full recovery!

ANNUAL AWARDS REMINDER

The deadline for 2023 applications is July 15 . Please send completed applications to kimthurler@gmail.com or 5 Bush Pond Road Norfolk, MA 02056. There is also a link to the application on the club website or members can contact Kim directly.



Membership

At the last meeting we welcomed Laura Curry into Associate Membership. Welcome Laura!!

Millie Pike's membership is pending until she completes the attendance requirement.

We have no new applications.

Dehydrating Dog Treats – Guest Blog Post

Reprinted from Hemopet

March 24, 2024 / [Nutrition](#) / By [Dodds](#)

Submitted by Sue Davis

From the archives! One of Hemopet's most popular posts detailing how to dehydrate dog treats from organs to muscle meat and from start to storage! Please remember to make sure your companion dog does not have a [sensitivity or intolerance](#) to the protein you dehydrate. Bon Appétit!

Reviewed by W. Jean Dodds, DVM; June 20, 2013

A special thank you to Kathryn for writing this up for us and teaching others how to dehydrate their dogs' treats.

The main reason I decided to buy a dehydrator to make my dogs' treats was cost. Already dehydrated liver is very expensive. Why spend \$4.00 for 4 ounces if I can buy grass-fed liver for \$2.40/pound? I will dehydrate pretty much anything for my dogs. It's really not unlike carving a Thanksgiving turkey more frequently.

Dehydrating and General Preparation Tips

I bought the Nesco dehydrator and extra plastic fruit roll tiers. I find it easier to clean when the food is not directly on the plastic tier. Just rinse off the fat and throw it in the dishwasher.

I use plastic gloves (either food service or latex), a sharp kitchen knife or kitchen scissors. Total preparation time is roughly an hour depending on what is being cut up.

I cook all the meats at the highest temperature. The unit will be hot and the directions say to make sure nothing is around it so the air can go through. I just have it on my counter with a clear path.

The Meat Source

I must give credit to the co-op, [San Francisco Raw Feeders](#) (SFRAW), of which I am a member. SFRAW only sells the best meats from sustainable local

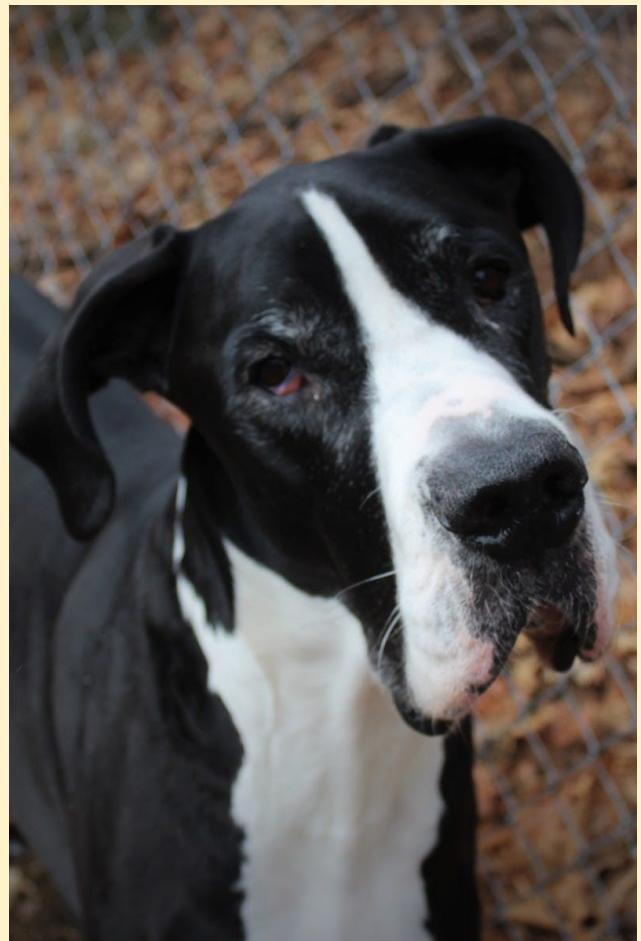
farms. If your town doesn't have a similar co-op specifically for pets, I'd look into farms, Whole Foods, or human food co-ops.

Gizzards

Gizzards come out like leather and I believe they are more beneficial raw than cooked.

Hearts

I buy a 5 pound bag of duck hearts and it will fill up all the tiers that come with the dehydrator. 10 pounds of turkey hearts will be at least 2 batches, maybe 3. I cut the tops off the turkey hearts with kitchen scissors and then cut them again length wise so they lay flat on the tray. My house smells like Thanksgiving! Duck hearts I cut lengthwise, again, to lay flat. Chicken hearts can remain whole. I do try to lay them in an orderly fashion but sadly I get impatient and just throw them on there for a minimum of 12 hours. I'm sure this adds to the time, but since it's cooking while I sleep, it makes no difference to me. Simplicity is my motto.



Liver

Beef liver is very easy to cut up. I will either use a sharp kitchen knife or kitchen scissors. Depends on my wrists, 30 years of typing have made them worn. I suppose I should cut them up uniform but having astigmatism makes that impossible. I can't draw a straight line let alone cut up slimy liver in perfect form. The plastic fruit roll trays are a must with liver. Be prepared for a liver smell when cooking. The smell doesn't linger so I don't mind. I have also used chicken, duck, or turkey liver and leave them whole. The total dehydration time is a minimum of 12 hours.

Tripe

How people dehydrate tripe is beyond me. I can only imagine what that smells like so I don't go there.

Muscle meat

I slice as thin as I can until I get bored. Partially frozen is easier to cut versus thawed. The only downfall is the cold while holding onto it. The muscle meat dehydrates quicker than the hearts and liver, so I leave it on for 6-9 hours and check to make sure it's cooked all the way through.

Ground Meat Patties

I will use ground meat and put some sweet potato puree or pumpkin and mix it together. I then get a spoonful and smash it on the tray. This is time consuming and I don't make them often enough. I will dehydrate the patties for well over 14 hours.

Storage

Once they are finished I will portion them out into baggies and freeze what I am not going to use for the week. If the majority of the food is finished, the ones that are still a little red I just feed to them there when cool. Needless to say, I have an audience at the dehydrator. Like the seagulls or pelicans at the dock when the boats come in, hoping for some scraps. The beauty of raw for the

dogs, refreezing is not an issue.

Permissions was requested and received to reprint this article.



Disclosure

Opinions or statements expressed in DaneLine Reimagined are not reflective of the Great Dane Club of New England.

Neither the Editor, the Great Dane Club of New England, the Great Dane Club of New England's Board of Directors nor any of their respective affiliates guarantee the accuracy or completeness of any information contained herein.



Next Deadline

*The next Deadline for Dane Line Reimagined is **August 15, 2024** followed by the deadline of **November 20, 2024.***

The November deadline will be for our Holiday issue.

Be sure to send in your Holiday Christmas pictures!

Braggs

Kai

Dulce Jus Buckaloose Island Style, NA, OAJ, BCAT, CGC, TKN



Kai earned his Agility Standard and Open Jumpers titles on February 17th at American K9 in Amherst, NH.

Kai is owned by Annette Larareo and Tracy Powell, DVM

Bred by Tracy Powell, DVM

Brag

Two New Titles!!!

Now they are:

**Sterling's Bluebonnet V Krw CD RN NA OAJ
Sterling's Obsidian Rosette Delizy MX MXJ XF ACT₁ CGC TKN**



We went to the BOTC agility trial in Shelburne, Vt recently. These dogs had a blast and worked hard!! Rosette came home with 2 master jumper's Q's, 2 master standard Q's, a QQ for Saturday, and a time to beat Q and BEST OF ALL!!! HER MASTER STANDARD TITLE!!!!!! Bonnet had some silly moments but she got an open jumper's Q for her title and her second open standard Q.

I am so very proud of these girls. Look at Bonnet weave!! Her tail is like a propeller driving her through those poles!! https://youtu.be/ro_jbFvXXFc?feature=shared

Bred, Owned and Loved by Sterling Moffatt

Braggs

Stevie

MULTIPLE BEST IN SPECIALTY
GCH LEMAIRE'S GO YOUR OWN WAY



THE EXCITEMENT CONTINUES



Our sincerest gratitude to Breeder Judges:
**Mr. Thomas Davis, Ms. Nancy E. Ridgway,
Mrs. Jennifer Bell and Ms. Susan E. Yotive**
for awarding Stevie Best in Specialty at the Great
Dane Club of Northern California Specialties
and **Breeder Judge, Mr. Jeff Lawrence**, for
awarding Stevie Best in Specialty at the
Monterey Bay Great Dane Club Specialty.

Exclusively Presented to the Fancy by:
John & Jessie Gerszewski

Bred, Owned & Loved By:
Jayne Lemaire, Carol McKenna Urick & Robert E. Layne

MBISS GCHS Old Mission's Lemaire's Know When to Hold 'Em AOM
X GCH Divine Acres Lemaire's Kiki Do U Love Me

Braggs

New Champion!

Ch. Timbercreek's Simply Mehvelous



Kim Thurler's Field Spaniel Red – Timbercreek's Simply Mehvelous -- finished his championship March 3rd by going BOB under Alessandra Folz at the First Company Governor's Foot Guard Athletic Association Show, presented by his best friend Jess Thibault.

Owned by: Tia Noel Prather, Kim Thurler & John Pacewicz Bred by: Tia Noel Prather, Charles Robert Prather, Everly Noelle Prather & Nichole Dooley Bunch

Decade after decade, this show continues to be special with its colorfully uniformed guard members!

Brag

It's now...

GROUP WINNING

Group Placing Best In Specialty Show GDCA Best In Futurity
CH COSMIC NOBONZ I'M THE POPSTAR!

MBISS CH Maitau's No Bones About It "Paesan" X MBISS GCHB Cosmic NoBonz I'll Leave You Starry Eye'd, GDCA AOM

*...following in her
Daddy's pawprints!*



Pictured @ 13 months

Appreciation to Breeder Judge
MR. VINCENT MULLIGAN



*Proudly Bred and Owned by
Tami Bradford, Karen Pacino and Allison Gallant
Co owned by Leslie Solnick
Always Presented by Karen Pacino*

Ad by CosmicCreations

GDCA



North Division National Specialty

Plans are well underway for the 2024 National in Wisconsin Dells. You can go on the GDCA website for more information.

Judges are:

Best of Breed	Judy Harrington
Dogs	Warren Simon
Bitches	Bob Edison
Futurity	Denise Matulich and Jan Miner
Jr. Showmanship	Judy Harrington
Obedience	Kathleen Sweet and TBD
Rally	Kathleen Sweet and TBD
Agility	TBD

They have announced that there will be no FastCat.

2025 East Division National Specialty

Our East Division National will be held at the Kalahari resort in Pocono Manor, PA. Plans are getting underway and you will be getting lots of updates as things go forward.

Judges are:

Best of Breed	Fay Rogstad
Dogs	Joy DeGruccio
Bitches	Gina Jaebon
Futurity	Nichole Conneen-Holmes and Allison Paxton
Obedience, Rally, Agility	TBD

The GDCA has just voted to mandate that the 4th place judge in the national voting will judge the independent specialty after the national beginning in 2025. This is not well received by the membership, as the club hosting the specialty will have no input as to who their judge is, although they need to pay the judge's expenses. I hope they will reconsider.

Nominating Committee Report

The recommended slate for the 2024-2025 GDCA Officers and Board of Directors:

President – Jamie Harshfield, Washington (2025)
***1st Vice President - Nancy Ridgway, Texas (2025)**
***2nd Vice President – Jim Remaklus, Georgia (2025)**
Corresponding Secretary – Wanda Hepler, North Carolina (2025)
Treasurer - Kathy Munyan, Arizona (2025)
***AKC Delegate – Dale Tarbox-North Carolina (2027)**
Affiliate Club Representative-Linda Cain (2025)
***Director – Lisa Barratt, Connecticut (2027)**
***Director – Nichole Bartlett, Arizona (2027)**
***Director – Karen Desjardins, Connecticut (2027)**
Director – Jason Hoke, Wisconsin (2026)
Director - Joy Lobato, Missouri (2025)
Director - Darryl Pitts, Georgia (2026)
Director – Jay Roden, Ohio (2025)
***Director – Sue Finck, Wisconsin (2028)**
Director – Mary Lee Williams, Minnesota (2025)

***The names in bold font are the positions up for election**

GDCA Charitable Trust



The Charitable Trust voted to fund in its entirety the new research study on Post Operative Bleeding in Great Danes. You can expect to receive the study announcement and a questionnaire to come out by GDCA constant contact in the very near future. I know many of us have lost dogs to this and I hope this study will give us some insight. Report from Mary Anne Zanetos is in this issue of Daneline. Mary Anne is happy to answer any questions or send out the questionnaire to anyone who would like it.

The scholarship winners for 2025 are Sydney Hickman and Rebecca Anne Fuller (Mary Martha Woodworth's granddaughter). Each received a \$1,500 scholarship from the Linda Ridder Scholarship Fund as well as a \$500 scholarship from the Don Carmody Scholarship Fund.

We had our first on-line auction in a couple of years and it was very successful, raising a little over \$1,400 for rescue. There will be a couple more this year so please visit the GDCA Trust Fundraising Group on Facebook and join the group so you will receive notifications.

Announcement: Study of Post-Operative Bleeding in Great Danes

The GDCA Charitable Trust has approved a series of studies of Post-Operative Bleeding in Great Danes. We hope you will take the time to complete the questionnaire attached to this announcement, regardless of whether your dog experienced a bleeding event associated with a surgical procedure. Please write your responses directly on the questionnaire and e-mail to Mary Anne Zanetos at MAZ850@aol.com. We will get back to you with questions and/or a kit for collecting a cheek swab sample from your dog.

Background:

Post-operative death has long been recognized as a major cause of death among Great Danes, having been documented as the 9th most frequent cause of death (in both sexes) and even more common in females. There is little reason to believe this situation has improved. In fact, these death rates may have increased, owing to increased number of elective c-sections, spays, gastropexies and orthopedic surgeries since the 2000 GDCA National Health Survey of over 1560 Great Danes. We are aware of many reports in social media of unexpected deaths following surgery in otherwise healthy Great Danes and are seeking to reveal patterns in

these cases and potentially confirm whether a specific gene associated with post-operative bleeding in Scottish Deerhounds is also seen in Great Danes. If confirmed, we will be inviting potentially "at risk" Great Danes to participate in a laboratory study where their clotting patterns will be measured directly to identify those likely to benefit from preventive medication(s) routinely used in humans. Study participants will receive their test results.

Great Dane Club of America

Survey: Surgical Procedures and Outcomes in Great Danes

[Please fill out a separate questionnaire for each dog who had surgery]

Did any of your Great Danes undergo a surgical procedure in the past 7 years? yes no

If yes, name of dog (AKC/Registered Name): _____

Dog's AKC Registration Number: _____

Dog's Gender: Male Female

Dog's Date of Birth / / (month/day/year)

Surgical Procedure:

Spay

C-Section

Neuter

Gastropexy

Bloat/Torsion

Orthopedic (Please provide name of procedure): _____

Other _____

Date of this surgery: / /

Was the above procedure: planned emergency/unplanned

Was your dog treated with Amicar (aminocaproic acid) or tranexamic acid before/after the surgery? yes no

Did this dog experience any complications/problems soon after surgery? yes no

If yes, what type of problem?

anesthesia/anesthesia recovery

medication/pain

bleeding from incision or surgical site

other bleeding (Please specify) _____

other complication: (Please specify) _____

Did the above problem occur while in the clinic or within 24 hours of the surgery?

yes no

Did the above problem occur after discharge from the clinic but within 72 hours (3 days) of surgery? yes no

Did this dog recover? yes no (died) other: _____

Did this dog have pre-operative blood testing done?

yes no uncertain

Do you believe veterinary records would be available for this surgery? yes no

We may be interested in following up with you and/or the veterinarian for further information about this case.

Can we contact you? yes no

If yes, please provide owner's (or respondent's) contact information:

Name: _____

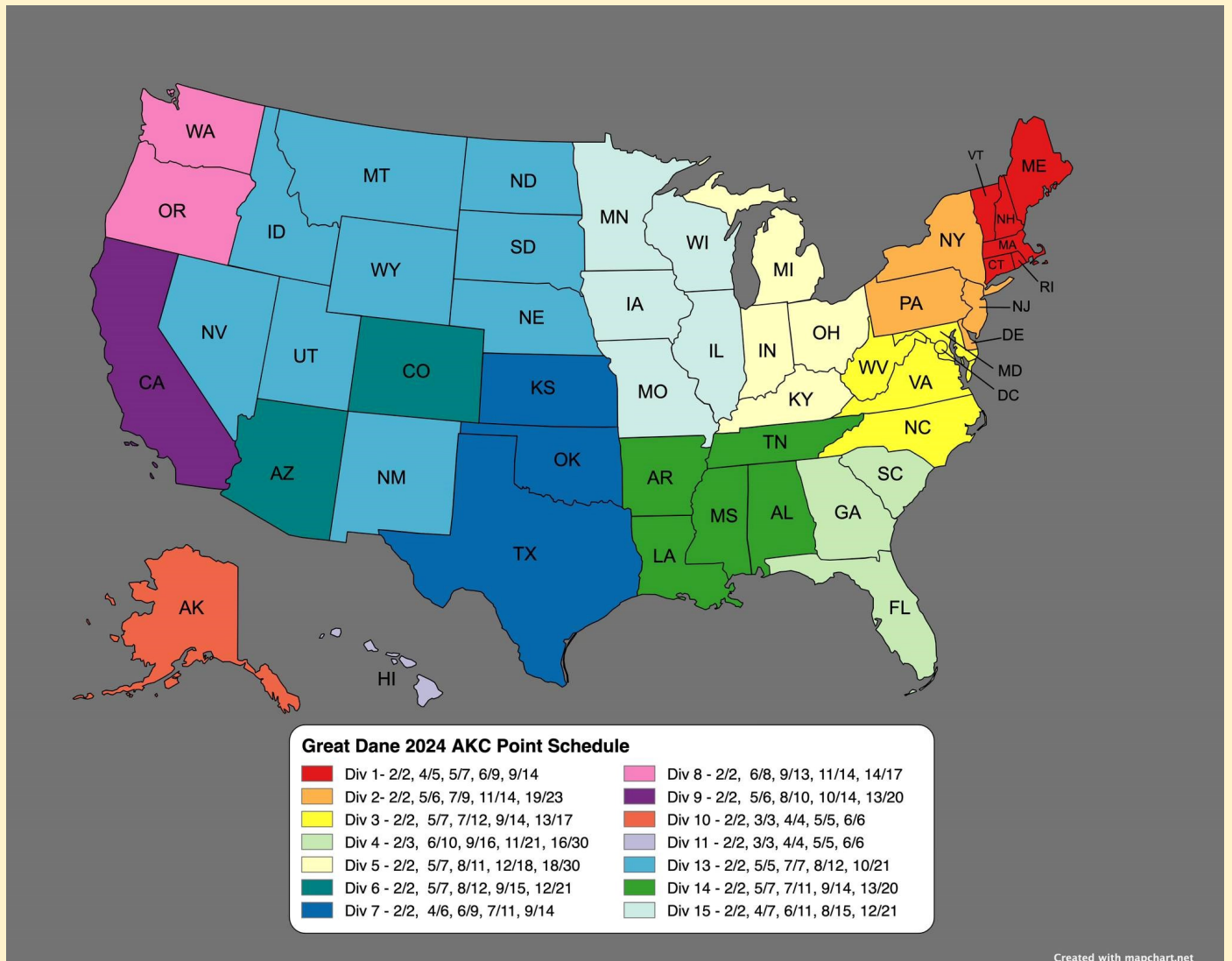
Phone number: _____

E-mail address: _____

Is there any other information you would like to provide?

Please let me know if you have any questions.

~Mary Anne Z.



Size Matters

Submitted by Betty Lewis

In a study published in the open-access journal PLOS ONE in mid-January,¹ a team of researchers with the [Dog Aging Project](#) linked dog size to health conditions over the span of a dog's life.

The study looked at more than 25,000 U.S. dogs across 238 breeds. The co-authors write: *"Age in dogs is associated with the risk of many diseases, and canine size is a major factor in that risk. However, the size patterns are complex. While small size dogs tend to live longer, some diseases are more prevalent among small dogs,"* noted the researchers.

*"In this study we seek to quantify how the pattern of disease history varies across the spectrum of dog size, dog age, and their interaction."*²

Size Plays Role in the Types of Diseases Dogs Acquire

It's common knowledge that smaller dogs tend to live longer than larger dogs. Previous research suggests that big dogs aren't prone to more health conditions, but that dogs of different sizes may face different levels of risk for different conditions.

Lead study author Yunbi Nam of the University of Washington and colleagues reviewed Dog Aging Project survey data from the owners of 27,541 dogs of 238 breeds. They discovered that overall, larger dogs were at some point in their lives more likely to have faced health conditions such as cancer, bone-related disease, gastrointestinal (GI) disorders, ear/nose/throat issues, neurological and endocrine conditions, and infectious diseases.

Smaller dogs, on the other hand, were more likely to have dealt with ocular, cardiac, liver/pancreas, and respiratory diseases. The incidence of kidney/urinary disease didn't differ significantly between the two groups; however, for many types of conditions, including cancer, ocular, cardiac, orthopedic, and ear/nose/throat conditions, different dog sizes were associated with differing patterns of risk over the course of a dog's lifespan.

The results held up even after the researchers accounted for variables such as the dogs' sex, living environment, and whether they were purebred or mixed breed.

The researchers make clear that their study results

don't confirm a causal relationship between dog size, age, and disease. However, the findings should prove valuable in gaining a deeper understanding of the types of conditions that may underlie the shorter lifespan of larger dogs.

"Our study has several strengths and limitations that should be noted. Strengths include the large sample size of this study, which allows us to estimate patterns with high power across the whole age and size spectrum," the researchers wrote. *"Additionally, we have a very diverse sample of dogs distributed across the entire United States. Since the sample is not veterinary-hospital or clinic-based it may be more representative of the general population of dogs.*

*Conversely, while our observations can suggest which conditions manifest differently across age and size, they do not prove any causal relationships due to the cross-sectional nature of the analysis. Over time, longitudinal data will be collected on these dogs, and we will be able to examine disease incidence."*³

A Big Dog's Life 'Unwinds in Fast Motion'

Contrary to what happens in the canine species, when it comes to the lifespan of most mammals, the general rule is the bigger the creature, the longer it will live. For example, [elephants](#) in their natural habitat can live into their 60s. The average lifespan of a squirrel, on the other hand, is only about 6 years. Small mammals normally have lower metabolic rates than larger species, which is why larger animals with higher metabolic rates live longer. However, when it comes to domestic dog breeds, even though smaller dogs have lower metabolic rates, they live longer than large and giant breeds.

This is essentially the opposite of what occurs in other species. A Yorkshire Terrier, for example, can be expected to live from 13 to 16 years, whereas a Great Dane will live only about half that long.

A 2013 study established that big dogs die younger primarily because they age quickly.⁴ Study authors believe these findings can help scientists understand the biological links between growth and mortality. Dogs were the perfect subjects for the study, because humans have bred them throughout history to be wildly variable in size. The heaviest dog on record was probably an English Mastiff that weighed 343 pounds, while the smallest was a terrier weighing in at under a quarter pound.⁵ There is no other species of mammal with such tremendous size disparity.

The study looked at ages of death in 74 breeds and over 56,000 dogs that visited veterinary teaching hospitals. Researchers learned that large breeds seem to age at faster rates than smaller breeds, and the speed at which the risk of death increases with age is also greater with big dogs.

According to study authors, large dogs age at an accelerated pace, suggesting “their adult life unwinds in fast motion.”⁶ For a dog, every 4.4 pounds of body mass takes about a month off his life.⁷

The researchers believe that going forward, we need to look at the growth and health histories of dogs to narrow down the leading causes of death for large breeds. For example, bigger dogs more often acquire **cancer**, which makes sense when you consider they grow more than small dogs, and cancer is the result of abnormal cell growth.

It is possible humans have inadvertently selected for characteristics such as rapid growth that predispose large dogs to cancer. Other large animals like elephants that have many more cells than smaller creatures — and should therefore also be at greater risk for cancer — seem to have evolved special defense mechanisms against disease.

These mechanisms probably developed through natural selection over a very long period of time, whereas most dog breeds have evolved through **selection by humans**, and over a much shorter period of time.

Evolutionarily speaking, dogs have evolved in the blink of an eye, and protective mechanisms against cancer and other diseases haven’t had time to catch up.

Oxidative Stress Levels in Large vs. Small Dogs

In 2017, two undergraduate students at Colgate University decided to investigate why smaller dogs seem to age more slowly than large ones.⁸ For their study, the undergrads wanted to look specifically at the influence of free radicals and oxidative stress on the aging process in dogs.

Oxidative stress, which is associated with aging, is defined as physiological stress on the body caused by the cumulative damage done by oxygen free radicals inadequately neutralized by antioxidants. Free radicals are unstable molecules with an uneven number of electrons.

These unstable molecules travel around the body looking to bond with stable molecules so they can steal an electron and stabilize themselves. When they are successful, they create new unstable molecules that damage cell membranes and eventually contribute to cancer and other diseases.

The researchers contacted veterinarians and collected about 80 tissue samples from both large and small breeds of varying ages, from puppies to old dogs. With the help of a Colgate animal physiologist, they isolated cells from the tissues, grew them in a lab dish for several weeks, and then analyzed them.

Cell Damage From Free Radicals Starts Early in Large Dogs

The students discovered that energy and free radical production in the cells from the adult dogs was comparable for both large and small breeds, as was the amount of antioxidants. However, the cells from large breed puppies had excessive amounts of free radicals — too many for antioxidants to effectively neutralize.

Large breed puppies have faster metabolisms and growth rates than smaller breeds, and the results of this study suggest cellular damage starts accumulating at a young age in larger dogs. “Cell damage even at this young age can have long-lasting effects,” says researcher Josh Winward.

The Colgate study results are preliminary, but if they can be replicated in future research, according to Winward, it might be possible to extend the life of large and giant breeds by supplementing antioxidants in puppies to help destroy free radicals before they can do damage.

Helping Big Dogs Enjoy Long, Healthy Lives

If you’re the pet parent of a large or giant breed dog or are thinking about adding one to the family, I hope you’ll consider the **advice of Newfoundland breeder Dr. Jeff Bergin**, whose dogs live into their late teens. Some of the wonderful practices Dr. Bergin follows with his dogs include:

- **Feeding exclusively raw diets.**
- **Breeding for health, first and foremost** -Dr. Bergin breeds his dogs only once or twice during the course of their lives, with at least 6 years between litters. He does not breed dogs with congenital defects.

- **Performing regular chiropractic adjustments** — With large and giant breed dogs, it's very important to take care of the musculoskeletal system. Dr. Bergin happens to be both a licensed animal chiropractor as well as a human chiropractor. He performs regular manual orthopedic manipulation on all his dogs, from the moment they first stand on their own through the remainder of their lives. This practice is one of the keys to keeping a big dog's frame from degenerating with age.
- **Limiting vaccines and other assaults on the immune system** — Dr. Bergin only revaccinates his dogs against rabies, because the law requires it. By strictly limiting the number of vaccines they receive, he helps keep his dogs' immune systems strong and resilient. To measure ongoing protective immunity, rely on vaccine antibody titers instead.
- **Ensuring litters go to the right families**— Dr. Bergin performs a mandatory home visit to families interested in his dogs. He won't release a dog without seeing the new home. He conducts in-depth interviews with prospective owners to ensure the puppy will be well taken care of, and he also insists on a commitment from prospective owners to feed raw.

By focusing on what I call the three pillars of health: nutrition, maintenance of the frame (the musculoskeletal system), and a strong, resilient immune system, you can ensure you're providing your canine family member with everything she needs for an excellent quality of life for as long as she lives.

Sources and References

- 1,2,3 [ScienceDaily, January 17, 2024](#)
- 4 [Nam, Y. et al. PLOS ONE, January 17, 2024](#)
- 5,6 [The American Naturalist, Vol. 181, No. 4, April 2013](#)
- 7 [LiveScience, March 6, 2013](#)
- 8 [LiveScience, March 8, 2013](#)
- 8 [Meeting Abstract, Society for Integrative and Comparative Biology 2017 Annual Meeting](#)

Take the Guesswork Out of Preparing Homemade Dog Meals Submitted by Betty Lewis

Want to give your dog the best nutrition but don't know where to start? Our Meal Mix and Recipe Generator have you covered! The Recipe Generator allows you to customize your adult dog's homemade meals based on their weight, activity level, ingredient preferences and your budget, while Meal Mix fills the nutritional gaps some fresh ingredients do not contain.

Together, these tools ensure that your pet is eating the nutritionally complete and balanced diet they need for a happy, healthy life.

[Create Your Recipe Now!](#)

The GDCNE is so thankful to one of its distinguished, honorary members, ***Dale Suzanne Tarbox.***

Dale donated 19 bronze GDCNE medallions back to the club for our use. We are so very grateful for this gift.



Remember that it is the time of year when we collect items for our **raffle table**. If you do not have an item, or are unable to get the item to us, we gladly will accept checks/PayPal and we will buy an item for you. Theresa Lento is the Chair this year assisted by myself, Carol Urick. Send all checks to me made payable to GDCNE, 74 Briarwood Dr., Manchester, CT 06040 or let me know if you make a PayPal contribution. We need your help! Thanks to those of you who have already donated.



Puppy Formula

Submitted by Sue Shaw



Can be used at any premature newborn Best formula for well worth the to prepare it.

Boil gently one in one cup of water. and put aside. feed to mom. (You another type of (not fatty ground is best. You are acids in the beef.)

age from to elderly adult. your puppies and extra time it takes

large piece of liver Strain the liquid Discard liver or can substitute beef of any kind beef) but the liver after the amino

10 oz can of condensed goat's milk (can sub with evaporated cow's milk but do not dilute either goats or cows) You can find this where you get other canned milks.

1/3 cup of strained liver water (you can substitute with freshly made beef broth)

2 raw egg yolks

1 T mayonnaise or canola oil, your choice

1 cup whole fat yogurt, best quality and freshest possible

1 tsp Karo syrup any color

1 dropper of baby vitamins (any drug store)

This can be used as is for tube feeding or bottle feeding and can be used from birth (including VERY premature puppies) to old age on any dog. You can start them on this formula from birth and you don't need to dilute it.

It contains 10-12 calories per cc

Freeze in ice cube trays and the cubes can be stored in a plastic freezer bag for six months. When you are ready for a feeding, simply thaw the cubes as needed. This formula will prevent the formation of juvenile cataracts that were associated with homemade formulas because of the addition of the beef liver juice which contains the important amino acids, arginine and taurine. It prevents diarrhea because of the yogurt and prevents constipation because of the Karo. It will stay fresh refrigerated for 7 days and can be kept frozen for six months. Remember that you are after the calories, so choose the highest fat content that you can and don't dilute the canned milk. You will love it. Puppies thrive on it, and will grow as quickly as litter mates.



Irish Spotting Gene - Study Results!

April 22, 2024

Hello GDCA Members!

We are excited to share the results of the Irish Spotting Gene Test Validation Study. The study results highlight some interesting information that we hope will be helpful and utilized in making breeding decisions that affect 'ideal' coat color and markings described in our breed standard.

We would like to thank Mary Ann Zanetos for her significant time and efforts working on this study as well as those of you that participated and submitted samples.

GREAT DANE CLUB OF AMERICA

To encourage and promote the quality in breeding of purebred Great Danes and to do all possible to bring their natural qualities to perfection.

GDCA IRISH SPOTTING TEST VALIDATION:

Exploration and Validation of Irish Spotting in the Great Dane: Phenotype vs. Genotype

Rationale and Objectives:

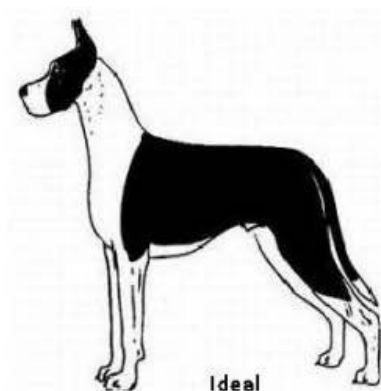
This prospective study recruited owners of Great Danes who show significant white markings to submit photos and samples from these dogs to: (1) assist the Veterinary Genetics Laboratory at UC Davis in validation of their MITF Promoter Length Polymorphism Test; (2) provide owners with information useful for future breeding decisions; and (3) support development of educational material on the topic of coat color/pattern inheritance to be shared with members and non-members of GDCA.

The primary objective was to provide VGL with samples of genetic material from members of the harlequin family (and other Great Danes with significant white markings in locations typical of the Irish pattern) to enable validation of their laboratory test. Secondary objectives were to explore the relationship between phenotype and genotype by examining the relationship between location and size of white markings (via photographs) versus base pair (bp) length via VGL genetic test.

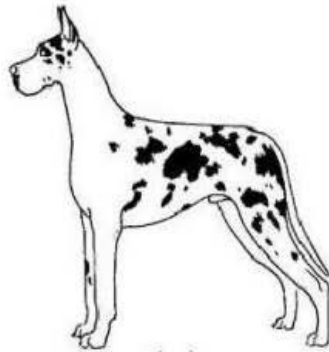
Background:

Irish Spotting describes a distinctive pattern of white markings seen in the black mantle, merle mantle and the harlequin Great Dane. These include a white muzzle with or without a blaze, partial or full white collar, white chest and underside, white on the forelegs and hind legs and a white-tipped tail. The Irish pattern is described in the GDCA Standard and considered highly desirable and worthy of preservation.

Irish Pattern on Mantle



Irish Pattern on Harlequin



Ideal

Irish Spotting has been assumed to be inherited in an autosomal recessive fashion. It “breeds true” in the sense that offspring from litters where both parents of a litter display the classic Irish pattern will inherit and display the pattern depicted above, although minor variations are common.

Historically, this pattern was attributed to specific alleles, s^i , s^p or possibly s^w , located at the *S* locus (Little, 1957). More recently, however, Irish Spotting has been described instead as a variable length polymorphism in the promoter of microphthalmia-associated transcription factor (MITF). MITF is co-localized with the white spotting locus, *S* and encodes a transcription factor that controls the development and migration of melanocytes. The expression of MITF protein plays a major role in coat pigmentation (Karlsson et al. 2007). Genetic testing has shown that those dogs with a longer fragment in the promoter, but lacking the mutation that causes piebald, have an observable Irish Spotting pattern. (*See comment regarding piebald below). Data from Korberg et al. 2014 suggests that the composition of the polymorphism may also play a role in the pattern.

Preliminary analysis of genetic sequencing of approximately 3500 Great Danes in the VGL database has revealed as many as five alleles in the MITF promoter that may be involved in determining the appearance (phenotype) of the pattern of white on these dogs. These are expressed as the length of the variable fragment in the MITF promoter as base pairs (bp). In Great Danes tested thus far, the following combinations have been seen: 31/31 (41%), 31/35 (16.5%), 31/36 (8.1%), 35/35 (14%), 35/36 (12%), 36/36 (<1%), and 33 and 34, each with <1%. Unfortunately, photographs are not available for the previously tested Great Danes so it's not possible to correlate these genetic results with specific coat color or variation in white spotting or pattern in those individuals.

Karlsson et al. reported that base pair lengths of 32 bp or less do not appear to be associated with the Irish Spotting phenotype whereas numbers 35 bp or greater have been shown to be associated with the Irish Spotting phenotype. VGL needs additional data on these combinations. If there's correlation of these with phenotype (based on photos), VGL will have evidence their genetic test is, in fact, able to accurately predict the appearance of the dog.

**Note: Unlike Irish Spotting which produces a symmetrical "mantle-like" pattern of markings, less symmetrical white spotting, often called piebald, parti, or random white, is present in many breeds. A specific variant in MITF is associated with piebald spotting and is the basis of commercial tests for piebald offered by several genetic testing labs.*

Irish Spotting alleles act by restricting the areas where color (e.g., black, merle or patches in the harlequin) may appear on the dog. Great Danes who inherit the Irish Spotting allele from both parents are expected to display this pattern and reliably produce it in their offspring. Danes who do not have the genotype will appear as solid colors, piebald, almost entirely white or various "mismarks".

Uncertainty arises when Great Danes display some, but not all of the white markings or where there are large breaks in the mantle or other partial Irish pattern. These can arise when one parent is a solid color ("mixed color breeding"), when one or both parents are mixed color bred or have unusual markings in the pedigree. Knowing and/or confirming the genotype can help guide future breedings and increase the probability of Irish patterned offspring.

Until recently there has not been a commercial test for Irish Spotting. Researchers at the University of California Davis Veterinary Genetics Laboratory (VGL) have developed a test, but it is not fully validated. The variable region attributed to Irish spotting has been roughly characterized, but extensive phenotype and genotype data are required to tease out the correlation between the two. This project will collect samples for genetic testing along with photographs in order to confirm the genotype of dogs who appear to be Irish marked and to determine the genotype of others with unconventional markings.

Methods:

Participant Great Danes were recruited via advertisements on the GDCA website, Facebook, letters to GDCA affiliate clubs, flyers at specialty shows and direct appeal to owners.

Owners were asked to provide identification, demographic information and genetic samples similar to that collected on the present VGL Coat Color Test request form. In addition, clear, full body photographs of both sides of the dog and a signed consent form from the dog's owner agreeing to use of the test result and photographs were required.

Great Danes already on record with a piebald test at VGL were also enrolled, provided they submitted the required identification, demographic data and photographs and consent for release of their VGL test report.

A database was created, assigning a unique identifier to each Great Dane enrolled in the study, along with accession numbers assigned to the right and left view photographs, as well as demographic and other information collected on the Irish Spotting –MITF test order form.

Inclusion Criteria (must meet *all* of the following criteria):

Great Dane, including the following:

Harlequin, black, merle, other colors with significant white markings

Owner provided requested dog identification data

Owner provided acceptable photographs of both sides of dog showing white markings

Owner completed and signed a consent form providing permission for GDCA/study team to receive test results and to use dog's information and photographs for study purposes.

Exclusion Criteria (subjects must meet *none* of the following criteria):

Solid color Great Dane

References:

Little, CC. The inheritance of coat color in dogs. 1957. New York, Howell Book House

Korberg IB et al. 2014. A Simple Repeat Polymorphism in the MITF-M Promoter Is a Key Regulator of White Spotting in Dogs. PLOS One: Volume 9 | Issue 8 | e104363

Karlsson EK et al. 2007. Efficient mapping of mendelian traits in dogs through genome-wide association. Nat. Genet. 39(11): 1321-1328. doi: 10.1038/ng.2007.10. Epub 2007 Sep 30.

Results:

A total of 201 Great Danes enrolled in the study. Of those, 197 received and submitted a cheek swab sample to UC Davis Veterinary Genetic Lab (VGL) for testing for MITF-LP, a test proposed to correctly identify/discriminate those with the genotype most closely associated with the Irish Spotting pattern. Despite contacting owners several times, three dogs failed to submit a sample for testing. One dog died before his sample could be collected. Thus, the results below include 197 of the 200 dogs planned for this research.

Demographics of Study Participants

Gender:

Male: 83/197 (42.1%) Female: 114/197 (57.9%)

Age:

Range: 0.14 years to 11.07 years. Average: 3.98 years

Country (of Owner):

Country	Number of Dogs
United States	150
United Kingdom	28
Australia	8
Canada	4
Belgium	3
New Zealand	3
Denmark	1
Total	197

Study Participants, by Color/Markings:

Color/Markings	Number	% of Participants
Harlequin	100	0.51
Black Mantle	52	0.26
Merle Mantle	17	0.09
Fawn or Brindle Mantle	3	0.02
Black & White/not mantle	6	0.03
Black (solid/showable as black)	5	0.03
Piebald (black or merle)	6	0.03
Piebald (brindle or blue)	2	0.01
Other*	6	0.03
Total	197	1.00

*Other includes harlequin with fawn patches (1), harlequin with brindle patches (1), solid merle (1), merlequin (1), white (1), chocolate (1)

Color Test Results:

VGL performed the color/pattern tests using only the information owners provided on VGL's test request form. They did not have access to photos of the dogs. These were provided to VGL after lab testing and used to confirm that color/pattern, as reported by the owner, was consistent with photos of the dog.

1. Harlequin Gene:

Do all dogs listed as harlequin by the owner have one copy of harlequin gene? Yes. All 100 tested as N/H.

Do any dogs listed as merle (N=23) have the harlequin gene? None of the 17 mantle merles had the harlequin gene (N/N). Of the remaining six which included merle piebalds, merlequins, etc., three had harlequin gene (N/H), three did not (N/N).

Of those listed as black mantles (N=52), 40 had one copy of the harlequin gene (N/H), 12 did not (N/N).

Interestingly, all dogs listed as black (N=5) had a harlequin gene (N/H). These appeared to be blacks from mixed color breedings.

Of 28 with “unconventional” colors, 19 had harlequin gene (N/H) and nine did not (N/N). Of the six listed as “black with white markings”, one had harlequin gene (N/H) and 5 did not (N/N).

Harlequin Gene vs. MITF-LP Score:

Harlequin Test Result	MITF-LP Score						Total/ (%)
	31/31	31/34	31/35	31/36	35/35	35/36	
N/N	1	0	7	2	17	12	39 (19.8)
N/H	9	1	24	8	51	65	158 (80.2)
Totals	10	1	31	10	68	77	197 (100)

*Based on VGL Harlequin test result (column AF in spreadsheet)

2. Piebald gene:

Of the 100 which owners identified listed as harlequins, 60 (60%) had no copies of piebald while 38 (38%) had one copy. There were two who tested as S/S (two copies of piebald), however upon inspection of the photos, these were a harl headed white and a mantle headed white. Thus, the owners had mis-identified these piebalds as harlequins.

Of the 52 black mantles, 30 (58%) had one copy of piebald (N/S) and 22 (42%) did not (N/N). Of the 30 that had one copy of the piebald gene (N/S), all had MITF-LP of either 35/35 or 35/36. Of the other 22 without piebald (N/N), 21 were either 35/35 or 35/36 on MITF-LP length. The deviant case had one copy of the harlequin gene (N/H) and tested as 31/36. On inspection of photos, this dog was black with white on chest and front toes, but lacked the other pattern features of a mantle, so this individual appears to be a color classification issue.

Of 18 merle mantles, 11 (61%) have one copy of piebald (N/S) and 7 (39%) did not (N/N). So, the percentages are nearly the same, whether the dog was a black mantle or a merle mantle.

Every dog identified by the owner as piebald tested as S/S (2 copies of piebald). Two others, identified by the owner as brindle piebald tested as N/N, so these were not genetic piebalds. The photos confirmed neither of these were piebald, so these seemed to be owner error in reporting color.

None of the dogs listed as miscellaneous color (fawn, chocolate, blue, etc.) had a piebald gene.

Piebald Gene vs. MITF-LP Score:

Piebald Test Result	MITF-LP Score						Total/ (%)
	31/31	31/34	31/35	31/36	35/35	35/36	
S/S	0	0	0	0	8	0	8 (0.04)
N/S	0	0	16	0	38	32	86 (45.5)
N/N	10	1	15	10	22	45	103 (54.5)
Totals	10	1	31	10	60	77	189 (100)

*Based on VGL Piebald test result (column AD in spreadsheet)

3. MITF-LP:

Of the five that identified as blacks, 4 tested as 31/35 or 31/36. One tested as 31/31. This was an interesting case because this dog appeared to be a black with some white markings (not a mantle), but upon more extensive color testing, had a gene for black and tan. So, the MITF-LP test did detect a case which would not have been predicted, based on phenotype.

Of the 52 that identified as black mantles, 51 tested as 35/35 or 35/36. The single deviant case tested as 31/36 and is the same dog mentioned above. It is neither a harlequin or a mantle and phenotypically is in-between. So, the MITF-LP did identify a deviant genotype and a color identification error.

The six identified as black with white markings (other than the above), all tested as 31/35 or 31/36 as expected.

Of 17 identified as merle mantles, 15 tested as 35/35 or 35/36. One tested as 31/36 and the other as 31/35. Upon viewing the photos, neither was a true mantle merle, although they had some white markings. Again, the test was able to distinguish these from classic mantle markings.

Taken together, the 66 dogs identified by owners as either black mantle or merle mantle whose phenotype was consistent with the color the owner identified:

- 28 were 35/35 and of these, 10 did not have piebald gene (N/N) and 18 did have piebald (N/S).
- 38 were 35/36 and of these, 16 did not have piebald gene (N/N) and 22 did have piebald gene (N/S).

Thus, among mantles with the expected MITF-LP scores, there did not appear to be a relationship with piebald status (or harlequin gene status).

MITF-LP Results, by Color/Pattern:

Color/Pattern	Number of Cases	MITF-LP Score						Comments
		31/31	31/34	31/35	31/36	35/35	35/36	
Harlequin	100	5	0	20	4	33	38	All 20 cases of 31/35 were N/H on harlequin test. 10/20 had piebald (N/S), 10 did not.
Black Mantle	52	0	0	0	1	20	31	31/36 may really be a very heavily marked harlequin
Merle Mantle	17	0	0	1	1	8	7	31/35 has white on chest and feet. No collar. May be more of a solid merle. Has piebald gene (N/S). No harl gene (N/N). 31/36 has white on chest and toes. No collar. White tipped tail. No piebald (N/N) and no harl gene (N/N)
Fawn or Brindle Mantle	3	0	1	1	0	1	0	35/35 has piebald (N/S) and harl gene (N/H). 31/34 had brindle markings, no copies of piebald (N/N), has harl gene (N/H) and also blue dilute (D/d1). 31/35 has fawn markings, has piebald (N/S) and harl (N/H), but also has 2 copies of dilute (d/d) and also black and tan (ay/at).
Black w White/not mantle	6	0	0	5	1	0	0	31/36 appears to be a black with white on chest and white toes. Showable black???
Black (solid/showable as black)	5	1	0	2	2	0	0	31/31 has 237 on merle, no piebald (N/N). Has harl gene (N/H). This dog has white on chest and toes. No collar, no tail tip but small white on face.
Piebald (black or merle)	5	1	0	0	0	4	0	#203-35/35 has merle markings, piebald (S/S) and has harl gene (N/H). #114,197 and 260 were all 35/35, piebald (S/S) and had harl gene (N/H).
Piebald (brindle or blue)	3	2	0	0	0	1	0	35/35 is piebald (S/S), has harl gene (N/H) is blue, but carries brown, per AG testing. Both 31/31s did not have piebald gene (N/N) but did have harl (N/H). These two are from same breeder and are both oddly marked.
Other than above	6	1	0	2	1	1	1	These are odd colors/markings not captured in named categories
Totals	197	10	1	31	10	68	77	

The tabulation above is based on color as reported by owner (column R) in spreadsheet. Comments reveal that in some cases, the color/pattern shown in the photographs was inconsistent with that reported on the VGL color test application.

Discussion:

To achieve validation of a laboratory test requires that the test accurately discriminates between discrete groups of individuals, in this case Great Danes which exhibit vs. those who do not exhibit the specific pattern of white markings defined as Irish Spotting. In other words, does the MITF-LP score match and predict the phenotype of the dog in the absence of other information?

Published literature and data from VGL suggest that MITF-LPs of 35 and 36 are associated with the Irish pattern as seen in Great Danes we call "mantles". Consequently, we should expect

black mantles and merle mantles to be either 35/35 or 35/36 (there were no 36/36 in this study).

Looking at the group of black mantles above, we see 52 cases. Of these, none were 31/31, 31/34 or 31/35, which is what we would expect. Fifty-one cases tested as either 35/35 or 35/36. There was one 31/36. Upon inspection of photos, this individual has white markings on the feet and chest, but no white on the neck, underside or belly, so it does not meet the definition of Irish Spotting pattern. In general, those dogs with a "31" have some white markings, but not the complete Irish spotting pattern. The test therefore performed as expected. It does not appear that the presence of one copy of the piebald gene influences phenotype in the black mantle. Thus, one could not predict this genotype visually. Although there were few in this study which reported results of the merle test, we did not see evidence that scores below 237 affected the phenotype, judged visually. All six individuals displayed the elements of the Irish pattern.

In the group of merle mantles above, 17 were reported by owners as such. Of these, none were 31/31 or 31/34. There was a single case of 31/35 and one case of 31/36. The 31/35 has a white chest and feet, but no collar or white on the underside of body or inside of legs. The 31/36 individual has white on feet and chest, but no collar or white on underside of body or inside of legs. The remaining 15 were either 35/35 or 35/36. The test therefore performed as expected.

Considering the group of 100 identified as harlequins, MITF-LP results are a bit more ambiguous. Examination of photos revealed some of these were actually piebalds (and confirmed by piebald gene results), while others were actually mismarked blacks or mislabeled mantles.

There were five which tested as 31/31. None of these had Irish markings. Some were spotted dogs without pattern; others had minimal white markings. All had one copy of the harlequin gene (N/H) and all tested negative (N/N) for piebald. There were no 31/34's.

Twenty tested as 31/35. All 20 had one copy of the harlequin gene. Ten had one copy of piebald and 10 did not. Based on their photographs, approximately half of these appeared to have normal Irish pattern. Could these reflect the pseudo-Irish genotype (S/sp) as opposed to the "true" Irish genotype: (si/si)? The other half of this group showed some elements of Irish pattern such as white on chest or feet, but were lacking other elements such as white collar, white on underside or inside of legs. There's a definite trend in this group to have very large areas of black and/or strikingly asymmetry of black markings on left vs. right sides.

Among the 20 harlequins in this group there's also a trend of mixed color parentage involving solid color fawn, black or blue Great Danes. Five of these 20 were from the same breeder with three of these five having merle length of 266. Three dogs which appeared to have normal Irish spotting were sired by the same individual who had mixed color breeding farther back in the pedigree.

Four harlequins tested as 31/36. None of these individuals could be described as classic Irish pattern. As a rule, they exhibited some white markings and usually had large, usually asymmetrical black markings. All were negative for piebald and had one copy of the harlequin gene.

The remaining 71 harlequins were either 35/35 (N=33) or 35/36 (N=38), consistent with what one would expect in harlequins which meet the breed standard. Two of the 35/35 identified by owners as harlequins had two copies of the piebald gene (S/S). Upon inspection, their photos confirmed both cases as piebalds, so the MITF-LP test did discriminate piebald from Irish Spotting pattern as was expected. The piebald gene was distributed fairly evenly among the remaining 31 dogs with MITF-LP of 35/35. Twelve were N/N (no copies of piebald) and 19 had one copy (N/S).

Of the 38 harlequins with MITF-LP of 35/36, none had two copies of the piebald gene. Twenty-nine had no copies of piebald gene (N/N) and nine had one copy (N/S). Interestingly, there were three very lightly marked harlequins in the 35/36 group which some might have assumed to be piebald. Two of these had one copy of the piebald gene. The third one did not. Interestingly, none of these dogs showed merle patches in their photos. Many Great Dane breeders have claimed that all harlequins necessarily have some merle markings. It appears this is not the case.

Discussion:

Although Great Danes with any "31" (MITF-LP of 31/31, 31/34, 31/35 or 31/36) did not display the full set of markings defined as Irish pattern, visual inspection of photographs did not suggest systematic differences in white markings between the groups of dogs with MITF-LP of 35/35 vs. those with 35/36.

Of the 68 cases of MITF-LP of 35/35, all showed white in the areas expected of Irish Spotting pattern. However, there were eight cases where the dog in question was actually a piebald, as confirmed by photos and presence of two copies of the piebald gene (S/S).

Of the 77 cases of MITF-LP 35/36, all showed Irish pattern. There were no piebalds in this group. Is this a clue?

Looking closer at the group of cases with a 31:

Of the 10 cases with MITF-LP of 31/31, all were oddly marked. Some had large, rounded markings like a piebald, but none tested as a piebald (SS). Several carried genes for colors not typical in the harlequin family (e.g., sable, blue, black and tan) so there is evidence of mixed color breeding (MCB) in the pedigree. Several cases were from the same breeder, although not necessarily full or half siblings.

There was only one case with MITF-LP of 31/34. This was a “harlequin” with brindle patches instead of black. This individual was referred to us for testing. Unfortunately, her breeder and pedigree are unknown. She tested as D/d1, K/N, ay/ay.

There were 31 cases with MITF-LP of 31/35. Approximately half of them showed white markings in locations typical of Irish pattern (photographs). Of those whose pedigrees could be located, most were from MCB breeding. Few were tested for merle. Those that had results did not show length <264. Many in this group were from “solid blacks” that carried blue or another recessive). Three, plus another dog from the 31/31 group were from the same sire, who himself was oddly marked.

There were 10 cases with MITF-LP of 31/36. There were no piebalds or piebald carriers in this group. Eight of these carried for harlequin, two did not (N/N). Those two were black with a few white markings on the feet or chest. In general, this group of dogs were heavily marked often with quite asymmetrical markings. All or nearly all dogs in this group were products of MCB. Several carried for unusual colors, e.g., wild sable and showed evidence of MCB with fawn at mask locus E (Em/E) or K (K/N). Several of these ten were from the same two breeders.

Relevance to GDCA Breeder’s Color Code:

Although the primary objective of this project was to validate VGL’s Irish Spotting Test, many of the study’s findings are directly relevant to Great Dane breeders, assuming they have a desire to make decisions consistent with preservation of the Irish pattern and maximizing the number of genetically appropriate breeding partners in the future.

In the past, GDCA endorsed specific breedings with the objective of maximizing the production of offspring having colors and markings which meet the standard. To that end, GDCA defined color “families” as depicted in the figure below:

Color of Dane	Approved Breedings	Desired Pedigrees
1. FAWN 1. BRINDLE	1. FAWN bred to FAWN or BRINDLE only. 1. BRINDLE bred to BRINDLE or FAWN only.	Pedigrees of FAWN or BRINDLE Danes <i>should not</i> carry BLACK, HARLEQUIN or BLUE upon them.
2. HARLEQUIN 2. MANTLE 2. BLACK (HARLEQUIN BRED)	2. HARLEQUIN bred to HARLEQUIN, BLACK from HARLEQUIN BREEDING or BLACK from BLACK BREEDING only. 2. MANTLE bred to HARLEQUIN, MANTLE, BLACK from HARLEQUIN breeding or BLACK from BLACK breeding only. 2. BLACK from HARLEQUIN BREEDING bred to HARLEQUIN, BLACK from HARLEQUIN BREEDING or BLACK from BLACK BREEDING only.	Pedigrees of HARLEQUIN, MANTLE or HARLEQUIN BRED BLACK Danes <i>should not carry</i> FAWN, BRINDLE or BLUE upon them.
3. BLUE 3. BLACK (BLUE BRED)	3. BLUE bred to BLUE, BLACK from BLUE BREEDING or BLACK from BLACK BREEDING only. 3. BLACK from BLUE BREEDING bred to BLUE, BLACK from BLUE BREEDING or BLACK from BLACK BREEDING ONLY.	Pedigrees of BLUE or BLUE BRED BLACK Danes <i>should not</i> carry FAWN, BRINDLE, or HARLEQUIN upon them.
4. BLACK (BLACK BRED)	4. BLACK from BLACK BREEDING bred to BLACK, BLUE or HARLEQUIN and MANTLE. (<i>See note below</i>)	Pedigrees of BLACK BRED Danes <i>should not</i> carry FAWN, BRINDLE, HARLEQUIN, MANTLE or BLUE upon them.

If one adheres to these guidelines, those in the harlequin family should not carry dilute at D locus, should have two copies of dominant black at K locus, and be homozygous for fawn/sable at the agouti (A) locus. Thus, we can expect results of color testing, if done, to be D/D, K/K, ay/ay. Although very small amounts of white markings (toes, front of chest) are allowed on members of the fawn/brindle, blue/blue-bred black or black-bred black color families, these should not have white markings on the face or elsewhere on the body.

Insights from Extended Color Testing:

Less than half of the Great Danes who participated in this study requested extended testing for the above color tests. Nevertheless, results of these tests are instructive and demonstrate the influence of MCB on today's Great Danes and its impact for future choices of breeding partners.

Of 197 Great Danes in the study, 102 (51.8%) underwent testing for color related genes at the D, K or A locus. If one considers only the optimal breeding group in this study, namely, harlequins, black mantles and merle mantles, there are 169 such individuals. Of these, 88 had additional color results available.

Fawn (K locus)

Of the 88 harlequin, black mantle or merle mantle individuals with K locus results, 14 (15.9%) were K/N, indicating they carry for fawn. If we include all study participants with results for K locus, the percentage increases to 21.6% (19/88). This can result either from breeding directly to fawns or to other colors (e.g., black, blue or brindle) which carry a fawn recessive. None of these were evident from the photos but could usually be predicted based on examination of the pedigree.

Dilute (D locus)

Of the 77 harlequin, black mantle and merle mantles with D locus results, 14 (18.2%) were D/d, indicating they carry the gene for dilute color. If one includes all 89 study participants with testing for D locus, the percentage increases to 20.2% (18/89). None of these were evident from the photos but could usually be predicted based on examination of the pedigree.

Agouti (A locus)

Of the 74 individuals with A locus results, 67 (90.5%) had the expected ay/ay genotype associated with fawn color. Of the seven with unexpected results, 4 tested as ay/at, a recessive associated with black and tan coloration, while 3 others tested as ay/aw, a recessive associated with wolf or sable coloration. Five of the seven also had abnormal ("31") results on the MITF-LP test and did not display the Irish pattern. Of those with available pedigrees, all were products of MCB. Of the other two, both were 35/35 on the MITF-LP test and displayed the Irish Spotting pattern. One was a fawn mantle of obvious MCB. The other was a classically marked harlequin and rather surprising, demonstrating the value of testing for all colors included in the Great Dane panel.

Conclusions:**Test Performance:**

The primary objective of this study was to provide data to evaluate the performance of VGL's MITF-LP Irish Spotting test. From the perspective of the Great Dane owner/breeder, this means ability to distinguish those possessing the genotype associated with Irish pattern (si/si) which breed true from the "pseudo-Irish" (S/sp) which can appear to be Irish patterned but will not reliably produce Irish patterned offspring. For additional explanation, see: <http://www.Yaresville.com/standard/mantle-coat-colour-genetics>

VGL's MITF-LP test performed well in identifying piebald dogs, even when misidentified by the owners as harlequins, etc. Since we had information on parentage and pedigrees were available for most individuals, it was possible to ascertain mantle individuals likely to be S/sp pseudo-Irish) vs. those expected to be si/si (true Irish). The MITF-LP test was successful in that these tested as either 35/35 or 35/36, however several piebalds tested as 35/35. Thus, further work will be needed to validate the test. More detailed sequencing of the MITF gene showed that MITF-LP lengths of 35 or 36 showed either five (for MITF-LP of 35) or two (for MITF-LP of 36) different allele sequences. This may provide opportunity for further test refinement.

The results of these research efforts validate MITF-LP allelic association of Irish-spotting in the Great Dane that is consistent with observations in other breeds. Genetic testing provides results that identify allelic variants of the Irish spotting locus status independent of the phenotype of the animal. Thus, true Irish spotting can be distinguished from pseudo-Irish spotting resulting from piebald, higher number merle alleles or Great Dane Harlequin. Similarly, dogs with Irish spotting masked by significant white patterning can be identified. This test offers breeders the opportunity to further identify genetic variants contributing to genetic composition in litters. While this information is valuable and a validated test for allelic size determination at MITF-LP is possible, sequence variation of those sizes may be associated with heritable differences in the pattern observed. Additional research is needed to assess sequence level variation of Irish spotting 35 and 36 alleles. Additionally, the 36 variant needs to be further interrogated. Based upon the frequency of the 36 allele in the study population, homozygous 36 individuals should be present, but were not observed. The absence of a homozygous 36 Irish spotting identified individual may represent ascertainment bias, but it is interesting to note that a 38 allele in other breeds do not correspond to any visible white pattern. Thus, there may be more to this locus than a threshold value of 35 correlated with the Irish spotting pattern.

Impact of Mixed Color Breeding:

Traditionally, Great Dane breeders have attempted to maximize the percentage of puppies which correspond to the color and pattern description in the AKC standard. As noted above, the GDCA Breeder's Color Code was written explicitly to endorse specific matings which support that goal and to discourage others. Based on the findings of this study as well as AKC litter

registrations and advertisements, clearly this advice is not being followed, not only by “backyard” and other casual breeders, but also by well-known and successful show breeders. We found at least 15% of harlequin family breeding stock carry genes for one or more undesirable recessive color (fawn, brindle, blue).

Since the average age at enrollment was approximately 4 years, our results reflect breeding practices of the late 2010’s. Judging by litter advertisements and announcements, the practice of MCB is even more prevalent today. This poses a significant reduction in potential future breeding partners if one wishes to maximize the percentage of show-marked puppies in their litters.

At least 12 individuals in the study were phenotypically neither mantle nor solid black or merle. These “in-betweens” typically had white markings on the feet/toes and large patches of white on the chest or front, but without white on the neck or underside of the dog. A few had a white-tipped tail and/or very slight, asymmetrical white markings on the muzzle. All were “31’s” on MITF-LP and all (where a pedigree was available), were products of MCB. Under the current standard, these are neither showable blacks or mantles. In addition to these, several individuals had such asymmetrical markings they appeared to be either mantle or harlequin, depending on which side they were viewed from.

Challenges and Opportunities:

Numerous instances of errors in reporting the color/pattern of their dogs complicated analysis of the data. This was especially true of piebalds identified as harlequins, but also merlequins and black and white mismarks which were neither solid nor mantle. Photographs enabled amendment of color/pattern in this study’s database and resolved some discrepant genetic test results.

These misidentifications were probably unintentional. Nevertheless, they diminish the accuracy of research based on AKC, VGL and other health registry records and can lead to incorrect conclusions.

Suggested Actions:

1. GDCA should add clear definitions and photos of non-standard colors and markings in the Illustrated Standard and in Breeder and Judges’ Education materials.
2. GDCA should provide education to dispel the myth of benefit of the piebald gene, whether as homozygote or heterozygote. The piebald gene does not “clean up color”.
3. GDCA needs to work with VGL and other color test providers to develop clear guidance on color testing and materials which aid owners in interpreting the results. Similarly, owners should be encouraged to take advantage of the entire panel, including extended testing of all options, as appropriate to color.
4. GDCA’s decision to approve showing of solid merles has sent a mixed message which creates confusion and leaves the impression that preservation of Irish pattern is no

longer an important objective. A clear statement on this should be added to GDCA's educational materials.

5. Breedings between harlequins and solid blacks/black mismarks, many of which carry undesirable recessives, decrease the proportion of offspring with true Irish phenotype and genotype. GDCA needs to provide clear guidance on the impact of introducing solid color individuals into the harlequin/mantle breeding pool.

While color and pattern should not take precedence over conformation in judging the Great Dane, the impact of undesirable color and pattern genes needs to be weighted more heavily when making breeding decisions as these impact future options.

Special thanks to the owners and breeders who participated in this research project and to the Great Dane Club of America and the GDCA Charitable Trust for their continued support.

Funny

Submitted by Betty Lewis

**What does a tapeworm have in common with
the Eiffel Tower?**

They're both Paris sites.

Canine Vaccination Protocol by Dr. Jean Dodds



April 6, 2024 / [Infectious Diseases & Vaccines](#) / By [Dodds](#)

The following vaccine protocol is offered for those companion dogs where minimal vaccinations are advisable or desirable. The schedule is one I recommend and should not be interpreted to mean that other protocols recommended by a veterinarian would be less satisfactory. It's a matter of professional judgment and choice.

9 – 10 weeks of age
Distemper + Parvovirus, MLV
e.g. Merck Nobivac (Intervet Progard) Puppy DPV

14 – 15 weeks of age
Distemper + Parvovirus, MLV

18 weeks of age
Parvovirus only, MLV
Note: Research states that last puppy parvovirus vaccine should be at 18 weeks old.

20 weeks or older, if allowable by law
Rabies – give 3-4 weeks apart from other vaccines
Mercury-free (thimerosal-free, TF)

1 year old
Distemper + Parvovirus, MLV
This is an optional booster or titer. If the client intends not to booster after this optional booster or intends to

retest titers in another three years, this optional booster at puberty is wise.

1 year old
Rabies – give 3-4 weeks apart from other vaccines
3-year product if allowable by law; mercury-free (TF)

Perform vaccine antibody titers for distemper and parvovirus every three years thereafter, or more often, if desired.

Vaccinate for rabies virus according to the law, except where circumstances indicate that a written waiver needs to be obtained from the primary care veterinarian. In that case, a [rabies antibody titer](#) can also be performed to accompany the waiver request. A titer alone is not justification to waive the required rabies vaccination boosters. A titer simply indicates that an animal has mounted an immune response to vaccination and has the specified level of protection to the rabies virus. In other words, titer is simply an assurance to the medical exemption grantors that a dog has the specified protection against the virus.

Submitted by Sue Shaw

GREAT DANE CLUB OF AMERICA

CHARITABLE TRUST



As you may have heard, the GDCA Charitable Trust is sponsoring research on the early detection of osteosarcoma being done by Dr. Jaime Modiano and his staff at the University of Minnesota. Research is done through the AKC Canine Health Foundation and Great Danes are one of six large breeds involved in this study. The other breed clubs/foundations also funding this research are Irish Wolfhounds, Leonbergers, Golden Retrievers, Irish Setters, and Rottweilers.

We are delighted that the AKC Gazette has chosen to feature the veterinarians involved in this research in a feature article and we thought you might enjoy reading it. This article first appeared in the AKC Gazette and is reproduced here with permission.

Also, the Charitable Trust now has the capability to accept recurring monthly donations via autopay. Donors can now make monthly contributions to the Trust via direct withdrawal from saving/checking accounts.

If interested in autopay, contact Lisa Foltz at 708-645-1216 to sign up.

FEATURE



From CHF: A Brighter Future

New Researchers Tackle New Strategies for Canine Bone Cancer

By Sharon M. Albright, DVM, CCRT

We need new strategies to treat and even prevent bone cancer in dogs! Osteosarcoma, the most common form of bone cancer in dogs, is a tumor that usually affects the limbs of middle-aged to older,

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FEATURE

large-breed dogs and carries a dire prognosis. As cancerous cells replace the normal bone, causing swelling, pain, and increased risk of fracture, the need for innovative treatment strategies intensifies.

Standard treatment involves removing the primary tumor through amputation of the affected limb or various salvage techniques, plus chemotherapy to address cancer cells that have spread to other parts of the body. Unfortunately, less than half of dogs receiving standard treatment survive more than a year after diagnosis. Osteosarcoma in dogs shares many characteristics with the human form of this disease, typically diagnosed in adolescents. Given the striking parallels, our insights into canine bone cancer may have the potential to significantly advance our understanding and treatment approaches for both

dogs and children.

Not only new ideas but also new researchers who can build on our current understanding of canine bone cancer and use evolving technologies to fight this devastating disease are needed to improve outcomes for affected dogs. Thankfully, [AKC Canine](#)

[Health Foundation](#) (CHF)—funded investigators at the University of Minnesota are doing just that—testing bold new strategies to address bone cancer while training the next generation of canine health researchers!

HELPING DOGS AND PEOPLE

One CHF-funded study is examining why dogs and children with immune cells inside their bone tumors survive longer than those whose immune cells remain outside of the tumors (CHF



Julia Medland, DVM, MS, DACVIM

Grant 03015: The Immune and Molecular Landscape of Canine Osteosarcoma at the Single-Cell Level). This cutting-edge research is using DNA technology to pinpoint the specific types of immune cells and their precise location within the tumor. Understanding the immune landscape that leads to improved clinical responses is a deliberate step toward a brighter future for dogs facing this devastating disease.

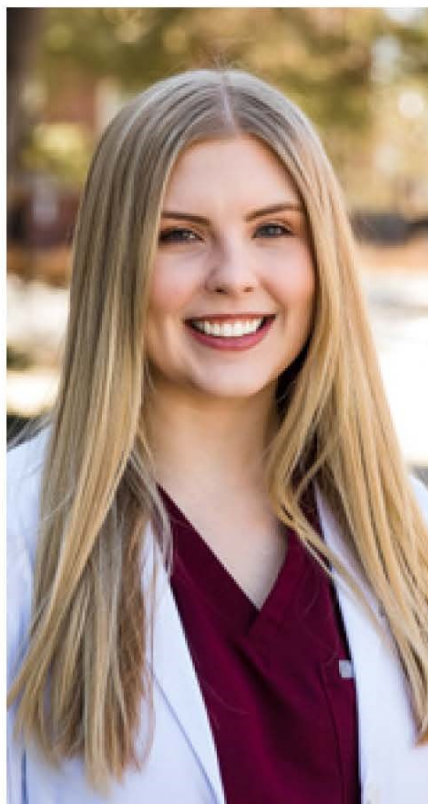
Dr. Julia Medland is a newly appointed Assistant

FEATURE

Professor of Oncology at the University of Minnesota College of Veterinary Medicine contributing to this research. Originally from Australia, Medland was mentored by the study's Principal Investigator, Dr. Jaime Modiano, during her residency and invited to join the project team.

"Osteosarcoma is a frustrating cancer with a lot still unknown about it," says Medland. "The more we learn, the more complex and challenging the disease appears. We really need to reframe how we approach and treat the disease to benefit both dogs and people."

Medland plans to stay in a university setting where she can be active in clinical practice plus have ample opportunities to collaborate on more extensive research projects. "I like to stay busy in the clinic, but still contribute to research," she says. "I love to teach students both in the classroom and the clinic. Oncology is



Caitlyn Callaghan

poorly understood in veterinary medicine. I want to show students what is available for cancer treatment in companion animals, so they can take that with them no matter what they do in their career."

YOUNG BLOOD

Those are important lessons that have been passed along to veterinary student Caitlyn Callaghan. Callaghan knew she wanted to specialize in oncology as soon as she entered veterinary school at the

University of Minnesota. She secured a Veterinary Summer Scholars position in Modiano's lab during her summers, where she learned sample processing techniques for this bone cancer study and shadowed Medland in the clinic. "It was a great experience and solidified my interest in oncology," Callaghan says.

Since her father is a human oncologist, Callaghan grew up with exposure to the science of cancer. "Cancer treatment options for dogs are definitely increasing," she notes. "I want to make sure dog owners know that they have access to these many options."

Callaghan also attended the 2023 AKC Canine Health Foundation National Parent Club Canine Health Conference, where she learned about breed clubs and their dedication to supporting canine health research through CHF. "It was a positive introduction to working

FEATURE

with purebred dog club members and their unique breed health needs.”

Callaghan will present about the conference experience to her peers in Minnesota so others can learn what organizations like CHF, the American Kennel Club, and the Orthopedic Foundation for Animals provide to the veterinary profession.

LIFELONG LEARNING

Another Veterinary Student Scholar, Courtney Labé, has contributed to the bone cancer immunology study as well as a CHF-funded study seeking to develop a blood test for early detection of bone cancer (CHF Grant 03032-MOU: Early Detection of Canine Osteosarcoma). Given the challenges of effectively treating canine bone cancer, this study focuses on detection of the earliest cancer cell changes and will help scientists develop strategies to prevent the abnormal cells



Courtney Labé

from developing into a full-fledged tumor.

“Prior to veterinary school, I worked as an assistant to the internal medicine and oncology department at a referral hospital and fell in love with clinical oncology,” Labé says. “I entered veterinary school with a desire to contribute to the small animal medical oncology community. It has its challenges, but I don’t think there’s a more rewarding or exciting field out there.”

Labé plans to pursue specialty training in med-

ical oncology following graduation. “I’m grateful for CHF’s support of ongoing projects such as the Canine Osteosarcoma Early Detection study,” she continues. “I think it’s important for veterinary students to view continual engagement with research as part of the lifelong learning involved in veterinary medicine. I am thankful to be surrounded by classmates and instructors who value continued improvement in patient outcomes and critical analysis of new research.”

FEATURE

INNOVATION AND ACCELERATION

Exciting developments mark this ongoing bone cancer research. The bone cancer immunology study has wrapped up its DNA sequencing phase, while the early detection study is actively collecting samples. Thanks to Modiano's entire laboratory team—including students, residents, professors, technicians, and more—progress is being made against this devastating cancer. CHF and its donors know that bold new strategies and attracting bright minds into canine health research are needed to continue the fight against cancer and many other diseases affecting our beloved dogs.

"I am fortunate that these projects merge two of the best parts of my job: working with and for dogs and working with brilliant and motivated people," Modiano says. "Bone cancer is a dreadful disease,



Jaime Modiano, VMD, Ph.D.

and far too common in large and giant dogs. Our projects are addressing the impact of this disease by developing strategies for prevention, with the intent of reducing its overall incidence, and by improving our understanding for how we can use the immune system to improve treatment outcomes.

"One way in which we find strength and creativity to innovate and accelerate progress is through diversity and inclusion. Our team members come from many walks of life, and their individual life experiences and motivation are a constant source of new ideas. Fostering their relationship with CHF and the

community of dog lovers who support us reinforces their enthusiasm and brings even greater hope for the health and wellbeing of future generations of dogs."—**S.M.A.**

To learn more about CHF-funded cancer research and educational grants, visit akc-chf.org/research.

Sharon M. Albright, DVM, CCRT, is the AKC Canine Health Foundation manager of Communications & Veterinary Outreach.



Support CHF

Your donation helps to support canine health research and provide educational resources to dog lovers.

Learn more about the [Top 5 Reasons](#) why your support matters.

Novel cancer vaccine offers new hope for dogs — and those who love them

This article was contributed by Kim Thurler and appears with permission of Yale University

A Yale researcher developed a vaccine that can slow or halt certain cancers in dogs. And it could be used to treat humans in the future.

By Mallory Locklear March 5, 2024

During a sunny morning on Florida’s Gulf Coast last month, an 11-year-old golden retriever named Hunter bounded through a pine grove. Snatching his favorite toy, a well-chewed tennis ball attached to a short rope, he rolled through the tall grass, with an energy that seemed inexhaustible. A passerby might not have even noticed that this playful golden has only three legs.

For Deana Hudgins, the dog’s owner, it seems almost unthinkable that two years ago Hunter was diagnosed with osteosarcoma, a form of bone cancer that kills upwards of 65% of the dogs it afflicts within 12 months, in his left front leg.

For many years Hunter worked alongside his owner as a search-and-rescue dog, helping find victims of building collapses and other disasters. He no longer performs those duties, but does still help Hudgins train other dogs. The energetic golden can also run, fetch, and catch as well as ever.



Hunter searches debris after Hurricane Michael made landfall in Florida in 2018. (Courtesy of Deana Hudgins)

And two years since his initial diagnosis, Hunter has no signs of cancer. The dog’s life-saving treatment incorporated typical approaches, including amputation of the left leg and chemotherapy. But Hunter also received a novel therapy — a cancer vaccine developed by Yale’s [Mark Mamula](#).

The treatment, a form of immunotherapy that is currently under review by the U.S. Department of Agriculture (USDA), which regulates animal treatments, has been subject to multiple clinical trials over the past eight years. And the results are promising; for hundreds of dogs, including Hunter, the vaccine has proved effective.

Mamula, a professor of medicine (rheumatology) at Yale School of Medicine, believes the vaccine offers a badly needed weapon in the fight against canine cancer.

“Dogs, just like humans, get cancer spontaneously; they grow and metastasize and mutate, just like human cancers do,” said Mamula. “My own dog died of an inoperable cancer about 11 years ago. Dogs just like humans suffer greatly from their cancers.”

“If we can provide some benefit, some relief — a pain-free life — that is the best outcome that we could ever have.”

Even as recently as a decade ago, Mamula didn’t anticipate that he would one day develop a cancer vaccine for dogs. A rheumatology researcher, he studies autoimmune diseases like lupus and Type 1 diabetes and how the body gives rise to them.

But that work eventually led him to cancer research as well.

Autoimmune diseases, Mamula says, are characterized by the immune system attacking the body’s own tissues; in the case of Type 1 diabetes, the immune system targets cells in the pancreas.

Then several years ago, using what they knew about autoimmunity, Mamula and his research team developed a potential cancer treatment that they say initiates a targeted immune response against tumors.

“In many ways tumors are like the targets of autoimmune diseases,” he said. “Cancer cells are your own tissue and are attacked by the immune system. The difference is we want the immune system to attack a tumor.”

It was a chance meeting with a veterinary oncologist soon thereafter that made Mamula think that this novel treatment might work well in dogs.

Targeting tumors

About 10,000 dogs are diagnosed each year with osteosarcoma, a type of bone cancer. With typical treatment, only 30% of dogs with this type of cancer live longer than 12 months. (Courtesy of Deana Hudgins)

There are about 90 million dogs, living in 65 million households, in the United States alone. Around one in four dogs will get cancer. Among dogs 10 years or older, that ratio jumps to around one in two.

Yet the therapies used to treat these cancers remain fairly antiquated, Mamula says.

“There have been very few new canine cancer treatments developed in decades — it’s a field that is begging for improvement,” he said.

In 2015, Mamula met a veterinary oncologist named Gerry Post. During his 35-year career Post has treated cancer in snakes, turtles, and zoo animals. But most of his patients are dogs and cats.

Through conversations with Post, Mamula realized that it wouldn’t be difficult to make the leap from human to dog cancers. Together they would launch an early-phase study into Mamula’s dog cancer vaccine.

“Dog and human cancers are quite similar in a number of ways,” said Post, chief medical officer of One Health Company, a canine cancer treatment group, and an adjunct professor of comparative medicine at Yale School of Medicine. “Whether it’s how the cancers appear under the microscope, how the cancers behave, respond to chemotherapy, develop resistance, and metastasize.”

Even the types of cancers that afflict dogs and humans are similar. Like humans, dogs can get melanoma, breast cancer, colon cancer, and osteosarcoma, among others.

When it comes to curing these diseases, these similarities bring an important benefit: understanding cancer in one species will help scientists understand cancer in the other. And treatments that work well for one may actually work well for both.

Several types of cancers in both humans and dogs have been found to overexpress proteins known as epidermal growth factor receptor (EGFR) and human epidermal growth factor receptor 2 (HER2). These include colorectal cancer, breast cancer, and osteosarcoma. One type of treatment currently given to human patients with these cancers involves monoclonal antibodies, proteins that can bind to and affect the function of EGFR and/or HER2. However, patients can develop a resistance to them and their effects wane over time.

For their treatment, Mamula and his team wanted to take a different approach.

Monoclonal antibody treatments are produced from one immune cell and bind to one part of the EGFR/HER2 molecules, but Mamula and his team wanted to induce a polyclonal response.

Doing so, he says, would create antibodies from multiple immune cells, rather than just one, which could bind to multiple parts of the EGFR/HER2 molecules instead of a single area. This would, in theory, reduce the likelihood of developing resistance.

The research team, led by Hester Doyle and Renelle Gee, who are both members of Mamula’s Yale lab, with assistance from the New Haven-based biotechnology company L2 Diagnostics, LLC, tested many different candidates in order to find just the right compound. They eventually found one.

After first testing it in mice, and finding promising results, they initiated their first clinical trial in dogs in 2016.

'I was willing to try whatever I could'

Deana Hudgins knew there was something special about Hunter before she brought him home as an 8-week-old puppy, back in 2012, and began training him to be her next search-and-rescue partner.



Hudgins with Hunter, her dog (and former search-and-rescue partner). (Courtesy of Deana Hudgins)

The smallest of 18 puppies from two litters, Hunter wasn't the obvious choice when she began looking for a partner.

"He was the runt," said Hudgins, who has been training search-and-rescue dogs since 2001 and now runs her own company, the Center for Forensic Training and Education, which provides canine training in Ohio and Florida. "But in his case, it made him a little scrappy. He was small but very confident and very brave.

"When all of the other puppies were sleeping at the end of the day, he was still running around, climbing all of the toys, retrieving things. We need confident puppies, and that's what he possessed.")

By the time he was a year old, Hunter began aiding searches at sites across the United States, working with local law enforcement and the Federal Emergency Management Agency (FEMA), following natural disasters. His first search, in 2014, was at the site of a mudslide in Oso, Washington that killed 43 people. In his final FEMA search, he helped search for victims of the devastating condominium collapse in the Miami suburb of Surfside, Florida, in June

2021. Hunter was involved in hundreds of searches in the years between.

In 2022, Hunter was still very active — and had just earned another service certification — when Hudgins noticed that he seemed uncharacteristically sore following a five-day training class.

"I've always been very proactive with my dogs because I spend every day with them, and so I notice very little things," she said. "And he's not a dog to limp."

A veterinarian assumed that Hunter had strained something, suggesting anti-inflammatories, but Hudgins insisted on an x-ray. The test revealed the osteosarcoma in Hunter's leg.

After doing a lot of research, and consulting with different veterinary groups about what steps to take, Hudgins decided that amputation offered the best chance for Hunter's survival, along with chemotherapy.

But during that research, Hudgins had also come across Mamula's vaccine trial. So she reached out to a colleague, James Hatch, a former Navy SEAL who trained dogs in the military and whose nonprofit supports service dogs. Hudgins knew that Hatch also happened to be at Yale, where he is a student in the Eli Whitney Students Program.

"I was willing to try whatever I could to keep [Hunter] around as long as possible," said Hudgins. "We ask a lot of our working dogs. They work in environments that are very dangerous and often deadly. And my promise to all of them is I will do whatever I have to do to give them the best, healthiest, longest life possible. Dogs don't survive this disease so there was no downside to me for trying the vaccine."

Hatch connected her with Mamula, and soon Hunter was part of the clinical trial. He received his first vaccine dose ahead of his amputation surgery, his second before initiating chemotherapy, and a booster last summer.

Twenty-two months since his cancer diagnosis, Hunter is now considered a long-term osteosarcoma survivor and Hudgins says he's thriving.



to have Hunter's front left leg amputated. Hudgins credits that surgery, along with the Yale-developed vaccine, for the osteosarcoma remission. (Courtesy of Deana Hudgins)

"He adjusted very well to his front limb amputation," she said. "He continues to run around the yard. He swims in the pool. He comes with me to training and chases the other dogs around the yard." After consulting with doctors at The Ohio State University Veterinary Medical Center, Hudgins decided

During a recent morning in Florida, Hunter drifted toward a nearby pond while playing outside. Hudgins, knowing the potential risks of straying too close to a pond in Florida ("There are alligators everywhere"), quickly called him back. Hunter immediately returned to her.

"From a very young age, Hunter wanted to learn the rules of the game," she said. "He was eager to go to work every day. I am very, very lucky to have been able to be his partner for 10 years. Hunter is one of those once-in-a-lifetime dogs."

'A whole new toolbox'

Hunter's positive response to the treatment is one many other dogs have experienced as well.

To date, more than 300 dogs have been treated with the vaccine during a series of clinical trials, which are still ongoing at 10 sites in the U.S. and Canada. The findings, which have been published in [a peer-reviewed study](#), have shown that the treatment creates antibodies that are able to home in on and bind to tumors, and then interfere with the signaling pathways responsible for tumor growth.

According to the research team, the vaccine increases the 12-month survival rates of dogs with certain cancers from about 35% to 60%. For many of the dogs, the treatment also shrinks tumors.

While future studies will determine if the vaccine can reduce the incidence of cancer in healthy dogs, the treatment for now remains a therapeutic treatment option after a cancer diagnosis has been made.

But even this represents something more than just "a new tool" in the fight against canine cancer, Post says. It's a whole new toolbox.

"And in veterinary oncology, our toolbox is much smaller than that of human oncology," he said. "This vaccine is truly revolutionary. I couldn't be more excited to be a veterinary oncologist."

Mamula has created a company, called TheraJan, which aims to eventually produce the vaccine. Last year, the company (whose name is inspired, in part, by the late Yale immunologist Charles Janeway, who was Mamula's mentor) won a Faculty Innovation Award from Yale Ventures, a university initiative that supports innovation and entrepreneurship on campus and beyond.

While launching clinical tests of the vaccine's effectiveness in humans may be a logical future step, for now Mamula is focused on getting USDA approval of the vaccine for dogs and distributed for wider use.

No matter where it goes, it's a project close to his heart.

"I get many emails from grateful dog owners who had been told that their pets had weeks or months to live but who are now two or three years past their cancer diagnosis," he said. "It's a program that's not only valuable to me as a dog lover. Witnessing the happiness that successful therapies provide to families with dogs is incredibly rewarding."

And once the vaccine becomes available for public use, he says, for working dogs like Hunter it will always be free of charge.

Learn more about clinical trials *Clinical trials of the vaccine are underway for three dog cancers: osteosarcoma, hemangiosarcoma, and transitional cell carcinoma. The trials are taking place at 11 sites around the United States and one in Canada, and you must contact the clinics directly to ask about enrollment, appointments, and other important restrictions. Yale staff and faculty do not personally pre-qualify or enroll patients. The clinical trial sites are listed on the website for the [Canine Cancer Alliance](#), including a video explanation of the therapy, and at [therajan.com](#). We wish you the best of luck with the treatment of your pup.*

Prescription Diets Evade Regulations

Submitted by Sue Shaw

On February 17, 2012 Hill's Pet Nutrition made one of the most profitable marketing moves in pet food history: they filed a trademark application for the term "Prescription Diet."

Previous to this, nobody thought about how lucrative selling the same crummy ingredients could be if they simply required a prescription from vets. It was an ingenious way to sell virtually the same foods found in the grocery store aisle with a grossly inflated price tag: through the influence of a trusted health professional. This worked so well for Hill's that other brands introduced veterinary diets. Soon, vets happily reported that between 35-40% of their patients were on veterinary diets. It was a win for the vets because they enjoyed a percentage of sales and it was a win for pet food makers.

Because Hill's owned the trademark for "Prescription Diet" competitors like Iams, Royal Canine and Purina, were forced to use the term "Veterinary Diet." Regardless of the name, these companies made a fortune using prescriptions as a means to inflate prices on virtually the same foods they were already selling. Together, veterinary foods are expected to earn over \$21 billion in 2024 and reach over \$33 billion by 2029.

WHY PRESCRIPTION DIETS AREN'T REGULATED

Prescription and veterinary foods present a challenge when it comes to standards and regulations.

The Association of American Feed Control Officials (AAFCO) sets the standards for pet food claims and ingredients. But dog food labels can't claim to treat, prevent or reduce the risk of any disease. They also can't make claims such as "hypoallergenic" or "improves skin and coat" or any other claim that suggests any type of therapeutic benefit.

Once a pet food label makes any type of health claim, it becomes a drug and the claim would be

regulated by the FDA, not AAFCO. So, unlike other dog foods, prescription diets are foods that are being marketed as drugs.

But the FDA clearly states that veterinary diets do not meet the requirements of a drug: "most dog and cat food products that claim on their labels or in their labeling or other manufacturer communications to treat or prevent disease are not approved new animal drugs, and do not comply with drug registration and listing requirements, or with current good manufacturing practices applicable to drugs even though the products are drugs under the FD&C Act."

In the end, the FDA chooses to practice something called "enforcement discretion" for veterinary diets. The agency would 'look the other way' and allow prescription foods to be sold as long as:

1. They provide all or most of the nutrients in support of the animal's total required daily needs.
2. The product labels and labeling and other manufacturer communications that were available to the general public (i.e., non-veterinary professionals) did not contain claims to treat or prevent disease, and
3. Those products are distributed only through licensed veterinarians.

The assumption is that, because the food is prescription only, the vet writing the prescription can safely and appropriately use the product. So prescription foods don't need to meet AAFCO minimum nutritional requirements because they fall under FDA purview, while the FDA allowed pet food makers to sell an adulterated and misbranded product.

PET OWNERS WAKING UP?

Although AAFCO and the FDA continue to look the other way when it comes to veterinary diets, consumers may finally be waking up to the prescription fallacy. A group of pet owners in Illinois recently filed an \$80 million class action lawsuit

against Hill's Pet Nutrition, claiming Hill's is using deceptive practices to sell their prescription diets.

The suit claims: Reasonable consumers expected, but did not receive, a substance that:

1. (a) is legally required to be sold by prescription;
2. (b) contains a drug, medicine or other ingredient that is not common in non-prescription pet food;
3. (c) is medically necessary to the health of the pet for which it was prescribed;
4. (d) has been evaluated and approved by the FDA as a drug; and/or
5. (e) as to which Hill's representations regarding intended uses and effects have been evaluated by the FDA.



Attorney Mike

McGlamry, who represents the Illinois pet owners in the suit, explains:

"Hill's picked the name 'Prescription Diet.' Hill's spends millions to convince veterinarians to 'prescribe' these foods to the vulnerable owners of sick cats and dogs. And, no surprise, Hill's charges a lot more for these products compared to similar and cheaper off-the-shelf pet foods that the company also makes."

When questioned under oath in our case, however, Hill's executives had to admit that its high-priced 'Prescription Diet' products contain no drugs or medicines and that no prescription is legally required."

Pet owners who wish to join this class action or learn more information can call 877-265-7656.

Dana Scott

Reprinted from Dogs Naturally Magazine



Urgent Notice: Potential Danger of Dog Hair Submitted by Betty Lewis

In a press release today, the National Institute of Health announced the discovery of a potentially dangerous substance in the hair of dogs. This substance, called "amobacter caninii" has been linked with the following symptoms in females: Reluctance to cook, clean or do housework. Apparent aversion to make-up, good clothes and high heels. Reluctance to spend money on home or car repairs until 'Baby' has new collars, leashes, beds, treats, food, blankets or toys.

"Amobacter caninii" may lead to a loss of physical contact with other humans and is emerging as equally contagious in men and may cause loss of interest in golf and cars. "Amobacter caninii" is thought to be addictive, driving the need for additional sources which may lead to a "pack mentality". Beware! If you come in contact with a human male or female infected by this substance, be prepared to talk about dogs for hours.

Reprinted with Permission from Dog Press

How Dog Foods Are Causing Liver Disease

By Dana Scott

Submitted by Sue Davis

In 2021, Cornell University circulated a report to veterinarians telling them that pet foods are causing liver damage at an alarming rate. Here's how AAFCO and pet food makers allowed this problem to happen...and how you can protect your dog from copper toxicity.

How Copper Harms Dogs

Copper is an essential trace mineral—which means dogs can't make it and need to get it in their diet. Copper is involved in activating enzymes that pretty much run every metabolic function in the dog's body—plus it helps build red blood cells and grows healthy connective tissue, skin and coats.

When dogs get too much dietary copper (which is called copper toxicity), the copper accumulates in the liver and can cause inflammation and damage. This can scar the liver and, over time, it causes liver failure and even death.

The problem with liver inflammation is that most dog owners have no idea it's happening because dogs don't show symptoms until the damage is really advanced. The only reliable early sign is changes in the ALT levels. As the liver damage progresses, dog owners might see abdominal swelling, diarrhea, loss of appetite, jaundice, increased thirst and vomiting. But by that time, the damage is fairly serious. In a nutshell, liver disease is a hidden disease that typically goes unnoticed until it's too late. Even if your dog's ALT levels are high, vets rarely consider copper toxicity as a cause.

Copper Levels Rising in Dog Foods

Back in 1929, researchers looked at how much copper was stored in the dog's liver. On average, they found about 10 ug/g. So the amount of copper in the average dog's liver doubled in just 13 years and continues to rise. As a result, dogs today are walking around with livers that are equivalent to those of alcoholics.



How Many Dogs are Affected?

One of the authors of the Cornell study found that 58% of liver biopsies showed signs of inflammatory liver disease and averaged more than 400 ug/g copper concentration. So it's estimated that more than half of dogs could be affected by excess copper.

How Is Copper Getting Into Dogs?

When researchers looked into the issue of copper toxicity, they first looked for breed-specific diseases. But that wasn't the cause. In fact, the amount of copper in dogs' livers was directly related to the amount in their diet. This was a surprise since all of the foods met the Association of American Feed Control Officials (AAFCO) nutritional requirements.

AAFCO sets nutrient guidelines for pet food manufacturers—but in most cases, AAFCO nutritional requirements are based on minimum amounts only. They look at the minimum amount a dog needs to get by without overt signs of disease.

When it comes to most nutrients, AAFCO has not set a maximum allowable amount. And this is the case with copper. The minimum copper requirement for adult dogs is 7.3 mg/kg but dog food makers are free to put as much copper in the food as they want—as long as they meet the minimum requirement.

Why Is Copper on the Rise?

Why are pet food manufacturers putting so much copper in their food? And why is there more and more every year? There are a number of reasons for this...Many of the nutrients in pet foods are lost in the heating and processing. Foods can suffer a 40% loss in copper (as well as other nutrients). To compensate for this, pet food manufacturers add something called a premix to their foods.

A premix is a bag of vitamins and minerals that is intended to either replace the nutrients that are lost during processing or add them to foods with low quality ingredients. These premixes contain an assortment of vitamins and minerals and the mix is usually just added to dog foods = often in excess since AAFCO is mainly concerned about minimum nutrition requirements.

To compound this issue, most premixes used an inorganic form of copper (copper oxide). But 15 years ago, AAFCO worried about this because copper oxide has terrible bioavailability in dogs.

At the time, there were no reports of copper deficiency in dogs—and the amounts of copper were already rising in dog's livers. Despite this, AAFCO recommended a much more bioavailable form of copper be used in pet foods—like copper sulfate. They did this without any peer reviewed studies or re-evaluating the minimum requirements. Since then, dog foods contain even more bioavailable organic forms of copper like copper chelate—especially the premium brands since these forms of copper are more expensive.

To make matters worse, a lot of dog foods today are adding foods that are innately rich in copper. The worst offender is liver—but copper is also naturally rich in fish and seafood, chickpeas and sweet potatoes.

How Do You Find Excess Copper?

Pet foods aren't required to report the amount of copper on pet food labels. So if you're worried about copper toxicity (and you should be), then you need to ask your manufacturer for a nutritional analysis that shows the amount of copper in their food. If they don't give it to you, then just keep asking until you find a manufacturer that will tell

you the amount of copper in their food. Ideally, the copper shouldn't be too much higher than AAFCO's recommended minimum, which is 7.3 mg/kg for adult dogs and 12.4 mg/kg for puppies.

These are some dog foods that are low in copper, but they're often low in protein too so they're not a good choice.



Nutrition

Vegan Diets...Show Promise?

By Joanne Keenan
Submitted by Sue Shaw

Can dogs survive on a plant-based, vegan diet? The answer from raw feeders is no. But a team of researchers in California say yes. However, this comes with positives...and a few negatives you should be aware of.

For a year, they followed 15 dogs in Los Angeles. These family dogs ate a nutritionally complete and commercially available diet. Pet owners followed diet instructions that included monthly check-ins. After 12 months, testing showed they maintained health without eating meat.

And they noted some additional surprises:

- 7 of the 15 dogs had insufficient levels of 25-hydroxy vitamin D at the start. This isn't unusual. A US study found 85% of dogs on meat-based diets lacked vitamin D, even with supplementation.
- Most dogs had normal vitamin D levels by 6 months. All had normal levels by 12 months, without supplements.
- Vitamin E levels were more than enough.

- Cobalamin (vitamin B12) stayed within the normal range.
- Folate (vitamin B9) levels were low in some dogs, but they had no clinical signs. However, this improved in 50% of the dogs following this diet.

Researchers also spoke out to say plant proteins provide all essential amino acids for health. This is in contrast to previous opinions that they don't. Essential amino acids are the ones that humans, dogs and cats must obtain from diet. Humans need nine essential amino acids. They are: histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine. Dogs require one more: arginine. Cats need another: taurine.

They offered studies that show plant proteins can provide amino acids within the body. Previous studies examined protein sources for dogs. They included peas, potato, faba bean, soy and dried yeast. They determined these sources provide high-quality protein. And they have easily digestible essential amino acids for dog food. Along with other ingredients, they provide balanced nutrition. That last statement is key.

First, the positives: Researchers used Kind Kibble from V-Dog. The nutrients met AAFCO standards. However, as we often note, these are minimal levels. Also the kibble's glyphosate level was low at 0.18 mg/kg. It was well below the human allowable daily intake.

Now...let's point out a couple of things. While nutritionally balanced, this food did have added vitamins and minerals. It also had supplemental amino acids: taurine, L-carnitine and DL-methionine. So it raises the question as to whether the plant proteins provided enough nutrients. Especially amino acids. That means, without supplemental amino acids, a plant-based diet might not have the amount needed. But a meat-based diet would.

That calls the following information about amino acids into questions. They found the dogs' essential amino acids were at or above normal levels. Tryptophan and L-carnitine levels are essential for heart health. They were within the expected range. Notably, the dogs did not have any heart problems. Essentially, the study diet met their amino acid needs. Dogs make their own taurine from

methionine and cysteine. Taurine helps regulate calcium levels and neutralize free radicals. Lastly, L-carnitine converts fatty acids into energy.

This study went beyond typical AAFCO recommendations for feeding trials. AAFCO recommends 6 months of research on 8 dogs. This study offered more length and depth. It covered all blood nutritional markers and analyses. Accredited labs did the testing. And it's the longest trial to assess a complete plant-based diet for pet dogs. The study also checked heart biomarkers. They showed no harm from the diet on dog heart health. In fact, it might be improved it. So this study also challenged concerns about pea protein affecting heart health.

That concern stems from an investigation by the FDA in 2018. It looked into possible links between plant-based dog food and dilated cardiomyopathy (DCM). In 2022, the FDA couldn't confirm a connection between DCM and the food affected dogs ate. It's notable that the study involved 15 dogs. It's a larger sample than in AAFCO feeding trials done through kennels, reputable and disreputable as recent investigations have shown. These are family dogs so it's expected their care is better managed than through kennels.

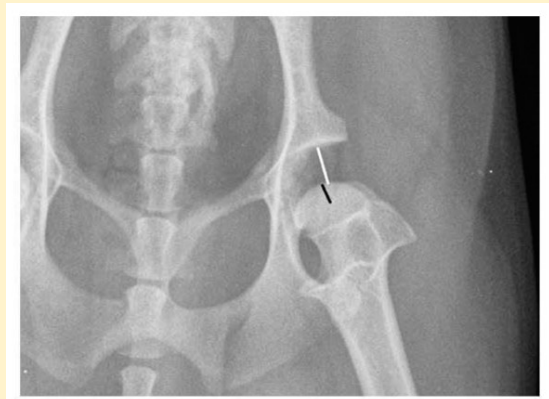
The findings match shorter studies on dogs fed the same food. An earlier study found no deficiencies in essential amino acids or taurine. They didn't see any significant changes in health markers. A 2009 study on sled dogs supported the same findings. Sled dogs stayed healthy and performed well on a meat-free diet for 16 weeks. Globally, dogs thrive on vegetarian diets with few or no animal proteins.

However, researchers at the University of Liverpool recently debunked a 2022 study on vegan diets for dogs. They found minimal evidence to support earlier claims about the benefits. The original study relied on owner surveys and observations. So it showed correlations, not causation. It didn't account for variables like dog age or owner characteristics. The U of L study indicates that factors other than diet play a more significant role in how owners perceive their dog's health. They found the impact of feeding a vegan diet was minimal.

It's a complex issue. A plant-based diet for dogs offers environmental sustainability. Yet, we recognize the value of a species appropriate meat-

based diet for dogs. It's a balance between sustainability and a dog's natural dietary needs. Understanding both is key.

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What Are The Best Joint Supplements For Dogs?

Dana Scott
May 31, 2024

Submitted by Sue Shaw

You might assume that you don't need joint supplements for dogs. But did you know that 25% of dogs suffer from arthritis?

And arthritis isn't just an issue for older dogs ... a study found that 20% of dogs over one year old have osteoarthritis, and this figure is likely underestimated.

That's why it's never too early to start thinking about your dog's joint health and natural joint supplements. But before we reveal the best ones, let's get clear on what exactly causes joint problems in dogs.

Best Natural Joint Supplements For Dogs

There are many excellent natural supplements that can help support joint health and help maintain a normal inflammatory response in dogs. These supplements can play a crucial role in maintaining joint mobility, and improving the overall quality of life for your canine companion.

Natural joint supplements are often packed with beneficial compounds that work synergistically to nourish and protect your dog's joints without the side effects associated with conventional medications.

However, when selecting a joint supplement, it's important to consider ingredients that not only alleviate symptoms but also support long-term joint health. Look for supplements that promote cartilage development and joint health, and provide high quality nutrients. Incorporating these natural options into your dog's routine can help manage existing issues and potentially prevent future problems.

Here are our top choices if you're looking for the best joint supplements for dogs:

Astaxanthin

Astaxanthin, a powerful antioxidant found in certain algae, helps support healthy bones and joints while also supporting overall cellular health. It's a great choice for promoting cartilage development and joint health.

Giving Your Dog Astaxanthin: Follow the dosage instructions on the supplement. For human supplements, adjust the dose for your dog's weight (1 mg to 1.6 mg per 20 lbs of body weight daily).

Chondroitin

Chondroitin is a crucial component of cartilage, helping to inhibit enzymes that break down cartilage and supporting its repair and hydration.

Often paired with glucosamine, chondroitin provides connective tissue support by improving shock absorption and protecting existing cartilage.

Giving Your Dog Chondroitin: Look for freeze-dried powders. Adjust the human dosage for your dog's weight, and consider bone broth as a natural source of chondroitin.

You can also see chondroitin suppliers approved by the national animal supplement council (NASC) by clicking [here](#).

Green Lipped Mussel (GLM)

Green lipped mussels are popular joint supplements for a reason. They're from New Zealand and rich in natural glucosamine, which supports healthy joints and can promote a normal inflammatory response. Unlike synthetic glucosamine, GLM is more bioavailable, meaning your dog can absorb the active ingredients and use it more effectively.

Studies have shown that GLM can support healthy mobility in many dogs, making it as effective as prescription products without the harmful side effects. GLM also contains essential fatty acids EPA and DHA, which help may help relieve discomfort associated with normal daily exercise and activity
Giving Your Dog GLM: Ensure the supplement contains at least 6% fatty acids and is cold-extracted to preserve nutrients. Dosage: 200 mg per day for every 10 lbs of body weight.

Natural Eggshell Membrane (NEM)

NEM is derived from the thin membrane inside eggshells and is a powerful joint support substance. It's rich in collagen, glucosamine, chondroitin, and hyaluronic acid. Studies in humans and dogs have shown that NEM supports healthy joints and flexibility and supports normal joint and connective tissue.

Giving Your Dog NEM: Ensure the product has the NEM® trademark. Dosage: 60 mg per 10 lbs of body weight per day.

Turmeric

Turmeric a plant in the ginger family, is well-known to help maintain a normal inflammatory response.
Giving Your Dog Turmeric: Add 1/8 to 1/4 tsp per day per 10 lbs of body weight to your dog's food. Use organic turmeric for the best results.

CBD Oil

CBD oil from the cannabis plant is another potent supplement that can help support a normal inflammatory response. It does this by interacting with the body's endocannabinoid system.

Giving Your Dog CBD: Use a full-spectrum CBD oil and follow the manufacturer's dosing instructions, starting at the lower end and gradually increasing until you find the right dose for your dog. Typically, a 500 mg or 1000 mg strength oil is recommended.

Poria Mushrooms

Poria mushrooms have been used in traditional Chinese medicine for centuries and are known for enhancing the immune response. They can also help support a normal inflammatory response and aid in maintaining joint mobility.

Giving Your Dog Poria Mushrooms: Look for supplements specifically formulated for dogs, and follow the dosage instructions provided. Typically, the dosage is based on your dog's weight, so adjust accordingly to ensure optimal benefits.

Collagen

Collagen is a major structural protein in connective tissues, including joints. It supports the strength and elasticity of cartilage, helping to maintain joint health



and flexibility. Collagen supplements can be beneficial for supporting normal joint and connective tissue.

Giving Your Dog Collagen: Opt for powdered collagen supplements. Mix the collagen powder into your dog's food according to the dosage instructions, usually around 1 gram per 10 lbs of body weight per day.

Cat's Claw

Cat's Claw is an herbal supplement derived from a vine native to the Amazon rainforest. It is known for its antioxidant properties and its ability to support a normal inflammatory response, which is essential for maintaining joint health.

Giving Your Dog Cat's Claw: Ensure you use a product formulated for pets. The dosage is typically based on your dog's weight, with common recommendations being 1-2 mg per pound of body weight per day.

Always start with a lower dose and gradually increase as needed.

How To Ease Your Dog's Joint Pain

Aside from the foods and supplements mentioned above, there are also some lifestyle changes you can make to help ease your dog's joint pain:

Switch To A Raw Diet

Processed foods can contribute to inflammation due to advanced glycation end (AGE) products formed during manufacturing. A fresh, whole-food diet reduces these inflammatory agents and supports overall joint health. Foods rich in antioxidants combat oxidative stress and inflammation.

Maintain A Healthy Weight

Extra weight puts unnecessary strain on your dog's joints, exacerbating pain and inflammation. Keeping your dog at a healthy weight alleviates pressure on the joints and promotes better mobility.



Regular Exercise

Consistent, moderate exercise helps tone the muscles around the joints, providing better support and maintaining joint fluid viscosity. Short, frequent walks or swimming can be particularly beneficial for dogs with joint pain.

Final Thoughts

If joint discomfort is hindering your dog's quality of life, it's time to explore natural joint supplements. These popular supplements, along with dietary and lifestyle changes, can provide effective relief and support your dog's joint health.

By focusing on natural third-party tested supplements, you can help your dog live a more comfortable and active life.

FAQ

What is the best vet recommended joint supplement for dogs?

The best vet-

recommended joint

supplement for dogs often includes a combination of glucosamine and chondroitin, which are known for their effectiveness in supporting joint health.

Do any joint supplements really work for dogs? Yes, many joint supplements are effective for dogs, especially those containing ingredients like glucosamine, NEM, green lipped mussels, chondroitin, and collagen.

How do I know if my dog needs a joint supplement?

You might need to consider a joint supplement for your dog if you notice signs of joint pain or stiffness, such as difficulty getting up, reluctance to jump or climb stairs, or decreased activity levels. Consulting with your veterinarian about pain relief can help determine the appropriate dosage and best dog supplements based on veterinary medicine and your dog's condition.

Reprinted from Dogs Naturally Magazine



Getting to Know You

Laurie Malvezzi

I was trying to figure out how to start this article about me and my danes! It seems like I have always been around, but it goes way back to the early 70's when i got my first Dane.

I always loved Great Danes, when i was in my early teens, I used to walk a neighbor's fawn Great Dane and i was hooked. When i went off to college i met my boyfriend (who is now my husband) Charlie. He knew my passion for Danes. It was over Christmas break that he called me and said his father's friend has a litter of Great Danes and did we want to get one! Of course, YES was the answer. So when he came back to school after Christmas break, he brings the puppy, not a fawn like i had imagined but a stripey puppy, which they called a brindle.... Never heard of it, but i fell in love right away. We named him Dane of Laurel, so original, but I always called him MYdane!!! So now we have a puppy at college hiding him for 4 months but with the help of all our friends and my roommate, we were able to pull it off.

Dane was also featured in the yearbook that year. We had graduated, got married and settled in our new condo. I decided I should start going to obedience classes with him. After several weeks of school , my instructor asked if we were interested in showing in the breed ring... I had no idea what that meant or what a "show" quality Dane was!

Off we went to our first match and surprisingly, we won the breed. So I became hooked, and we went to every match around and won !! Then the education came about the "point shows". Dane was a good Dane but not of quality for the point shows. So Charlie and I decided we could find a breeder and buy a quality show dog, still knowing basically nothing. We did purchase a show puppy, another brindle. I just loved the color by now. His name was Fjord's Dauntless Cowboy. I started handling myself, owner-handled, still not knowing much. I would be in the ring with all the top handler's at the time, just to mention a few: Dan Lasky, Joel Rosenblatt, Judy Harrington, Terry Silver and Ed Lyons.

Needless to say, I didn't do a lot of winning but certainly learned a lot. I did manage to put 3 points on that dog tho!!

I think Eddie felt sorry for me and kind of took me under his wing. He told me about handling classes that the Great Dane Club of Oxford offered once a week and that I should come to learn more. So off I went to those classes. Little did I know that this club had very well known members in the Dane community, to name a few, Nancy Carroll Draper, Rose Sabetti, Patti Glanz, Terry Goldman, Diane Taylor, Dr Ken Doeg. They all sat ringside as we practiced with our dogs and Eddie was the instructor. Little did I know who these people were. As I look back, this probably should have been intimidating, but what did i know.



So it was time now to get another show puppy of better quality and this is when I met Beth Algie, who was also a member of the club. She was breeding a litter soon and it was going to have brindles in it. So I brought home Dane #3. This was Skystone Beau Brummel. My handling skills got better and my friend, Eddie, was always around mentoring me. I did much better with this boy but still had not "finished" a Champion yet.

Beth had bred another litter with Ruth Shipman and from that litter I got my first bitch, brindle, of course. Her name was Skystone Heirloom. She was almost finished just needed a major, but we decided to breed her. My first litter and we bred to the very handsome CH Sandale's I Kid You Not. I had 4 lovely puppies, 3 fawn girls and 1 brindle boy. I could not keep a boy at the time so this was the beginning of my 35+ year friendship with Suzanne and Ted Kelley.



They bought this brindle boy and decided they would start showing. Long story short, he became Ch. MyDane Colby, my first homebred champion and Suzanne owner handled him to that Championship!



Along the way, I met Linda and Dave Slezak, Quaker Hill Great Danes, and got a lovely fawn boy from them. Again, I step into the ring with this handsome boy and finally, finally I finished this boy owner handled. He was CH Quaker Hill Get Tough at MyDane (Cosmo).

I got a lovely brindle bitch from them, Quaker Hill Kalamity Jayne, which we decided to breed to Cosmo. I kept a fawn bitch from that litter, Halle, Mydane I'm the Cosmic Star. I didn't have as much success in the show ring with her, she just didn't really like it, but I decided to breed her to the handsome CH. Kativa's Infrared of Maitau. This produced a lovely litter of 5.

Three of these puppies finished and I finally had my first breeder owner handled champion (Triton). He was CH Mydane What a Superstar! Not only was he a super star but he also became my model. We did shoots with Ralph Lauren, Volkswagen and even Playboy!!





Ch MyDane Star Studded Affair and
Ch Mydane What a Superstar

Suzanne had taken the only girl in the litter, Stella or Ch MyDane Allegro ' By Starlight. When Stella was bred, I took a pretty brindle girl, Lyric or Allegro Mydane Upon a Star. We didn't show very long as she injured her shoulder so I had a little hiatus from the dog show ring. We were running a boarding stable and, of course, had show horses. So with my daughter showing the horses, I had an absence from the dog show ring for awhile. We ended up losing Lyric way too young and I found myself Daneless.



CH MyDane A Dance with a Star

I had heard that Dale Tarbox was breeding a litter with Patty Ostrout. So I inquired and off we went to look and we chose a lovely fawn girl and home she came. This was my Pippa. So back to the shows we went. Pippa was the ultimate show dog and finished very quickly and then we went on to our grand championship. She was GCH Sandale-PAJ Star-Ting Over at Mydane.



Pippa was bred to Suzanne's handsome brindle boy, CH Allegro Apoggiatura, she was bred twice and her second litter of 2 produced Suzanne's Giulia, GCH Mydane Allegro Dance of the Comets



and our goofy Ballas, CH MyDane A Dance with a Star. I have one very special photo with Ed Lyons awarding Ballas BOW. I believe it was Eddie's last judging assignment, it was like coming full circle to a man that mentored me way back when and boy did he make me work for that point.

So this is a very condensed version of many years of great memories, great friends, too many to name, and so much fun and for me that is what it is all about.

OnLine Pedigree Database with Photos

**By: Mark Davenport
River Rock Great Danes**

I, like many of us, have maintained a personal kennel database in some type of software for years. However, late last year (2023) I had the thought of creating an online Great Dane pedigree database that also contained pictures of dogs. My thought being that it would offer a visual to the pedigree that could be extremely useful as we research pedigrees, plan breedings, etc. especially when looking back at dogs we have never had the pleasure of seeing in person due to geography or time era. Afterall, breeding is an art, mixed with science so more information is always better.

I started talking with Glen Beech about his Quintessa Great Dane Pedigree site and eventually decided that it could and should be done. It was going to take funds to get things moving, and a lot of work to input pedigrees, and upload pictures. But it was worth the investment of both my time and money to do this and early this year (2024), I started contacting website developers and looking at kennel software that could do what I wanted. During this time, Glen made a very generous offer to provide an extract of his complete Dane pedigree database so that I could have the best possible foundation from which to move forward with. We plan to periodically “true-up” the pedigree portion of the two databases to help keep them both as current as possible. Keep in mind that they are indeed two separate databases on two separate websites. My site is located at <https://breedpedigrees.com/>

Some have asked why I chose that name. Well, someday there may be a database offered by my niece who breeds Spinone Italiano. So, I thought it best to pick a more generic URL as that would allow me to create a subdomain more easily under it for them later without seeming odd to either breed.

There is also a link available from the reference section on my kennel website, <https://riverrockdanes.com/> right next to the link to the Quintessa Database (Glen’s site).

First, this site is free and available to all for research purposes and cannot be used for commercial purposes. This follows the Breedmate Pedigree

Software’s licensing agreement. The site is fully maintained and funded by me. Any donations are welcome to help cover the related costs of site hosting, software, customization, and future site upgrades.

The site is comprised of two sections. The submit function, and the search function.

The submit function is how you can provide pedigrees, registration certificates & pictures to be included in the database. When submitting pictures, please submit pictures that are of only one Dane. Groups are extremely hard because most users will not know which dog is which. Ads can be used, but most will have to be cropped because they are too large. I will leave as many people in it as possible as they are part of our history too. Please note that there will only be one picture for each dog in the database, and that I do not do any photoshopping other than cropping if necessary.

I should point out that to date, I have not started to scan ads, or otherwise gather pictures as I have received over 2,000 pictures in the few months of operating. Eventually that day will come, and I do plan to scan old magazines, etc. as I can obtain them. I much prefer to have them submitted by all of you if it all possible. Please be sure to fill in all the requested information on the submission form as it helps to attach the picture to the correct dog. When you click send it creates an email to the website which I then will take the submitted information and attach to the correct dog. Nothing is posted live. It all goes through a manual upload process. This is done to maintain site consistency and integrity.

The other section, the search function, is how you can generate pedigrees and other reports for a specific dog. The search screen is as follows:

- You have your choice of 3-9 generations – default is five.
- Enter the dog’s name or partial name.
 - ◇ The system defaults to a dog named “red,” just type over it.
- Choose sort order of Name or Date of Birth
 - ◇ There are instances internationally where dogs

may have the exact same name. So, their DOB becomes your friend.

* This is not just an AKC site, so it does happen.

· The database defaults to the only choice available.

· Click “Search”

Now you have choices of six different reports from the result. They are listed at the bottom of each dog’s box. They are Pedigree, Vertical Pedigree, Siblings, Offspring, Reverse Pedigree, and External Pedigree. You can also click on its Sire or Dam which will go straight to their pedigree, and you then have the option of the same six reports.

If you select “Pedigree” for the dog we searched for, it gives us a “working” pedigree.

- The specific dog’s picture is in upper left corner.
- Name, titles, gender, DOB, Registration Number, Color, COI (on 10 generations), Breeder/Owner will be there if in the database. Most are not present.

- Then you have the six available forms/reports to choose from, as well as 3-8 generations to adjust the report if desired.

◇ Note that there is a Printable Version link in the upper right corner. This will remove the form option lines and clean it up a bit for better printing. This is available for all six forms.

◇ Note that there is also a Printable without images link in the upper right corner. This will do the same as the Printable Version link, but also removes all pictures, producing a traditional pedigree.

- Pedigree is the default form.

◇ The colored boxes are a result of the system’s linebreeding color coding. Match up the color boxes and you can see how many times that dog appears in the pedigree displayed. This is automatic. It does go away when you choose either of the printable versions.

◇ Note that you can click on any dog in the pedigree to jump to their pedigree.

- Vertical Pedigree adds information on Full Siblings for each dog in the pedigree.

- Siblings report shows parents, full siblings, and then half-siblings by breeding.

- Offspring will show parents, and then each breeding with litters DOB and names.

- Reverse Pedigree will show offspring, and then their offspring, etc.

- External Pedigree removes the linebreeding color coding and then you can use Printable version to remove the form option lines. Much cleaner for printing and emailing PDFs.

◇ You can save the links to pedigrees, just like in Quintessa. But just like in Quintessa the database will occasionally re-sequence itself for updates and those links may be broken.

- Trial Mating

◇ Name can be whatever you want.

◆ Example: Otto x Bentley

◇ Sire: Enter the search string – Full or Partial Name

◆ Click red circle and it will offer the pulldown menu to select the right dog.

◇ Dam: Enter the search string – Full or Partial Name

◆ Click red circle and it will offer the pulldown menu to select the right bitch.

◇ The Number of Generations – Defaults to five, can be 3-9.

◇ Database defaults to Pedigree.

◇ Click Create Trial Mating

◇ The proposed pedigree is displayed.

- ◆ Note that the linebreeding color coding shows here until you choose either the Printable Version or Printable w/o Images Version.
- ◆ It does not currently calculate the COI % for the proposed litter. This must be programmed by Breedmate (Software company), and they tell me they are working on that update. As soon as it is available I will update the site. No ETA currently.
- Menu options across the top: Home (go back to the actual website), Return to Search, or do a Trial Mating

Please keep in mind that this is going to be a work in process as I add pictures and dogs to the database and work with the software company to modify forms and add several features (example COI % for trial mating). My hope is that someday we will have a picture for every dog, currently have over 120,000 individual dog records and only 2,000 pictures. So, obviously, there is a lot to be done.

Thank you to the Great Dane Club of New England and Susan Shaw for inviting me to present this project for their bulletin. I greatly appreciate the opportunity to share it with you all.



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