



# DOBERMAN PINSCHER Update

A NESTLÉ PURINA PUBLICATION DEDICATED TO DOBERMAN PINSCHER ENTHUSIASTS

VOLUME 19 | FALL 2021



## LONGEVITY PROGRAM

Recognizing Long-Lived Doberman Pinschers



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# DOBERMAN PINSCHER LONGEVITY PROGRAM

PROMOTES HEALTH & LONGEVITY



PHOTO: LESLIE NEWING

A Doberman Pinscher named “Corie” has given her breeder-owner, Beverly Purswell, DVM, PhD, DACT, many reasons to be proud. For starters, Corie (GCH WR Encore Of The Danse v BJJ CD OA OAJ LC-10L) has earned conformation and working titles. The 13-year-old black female also has qualified for a Longevity Certificate from the Doberman Pinscher Club of America’s (DPCA) [Longevity Program](#).

Dr. Purswell, professor emeritus of large animal clinical sciences at Virginia-Maryland College of Veterinary Medicine and health education coordinator for DPCA, says, “The Longevity Program is a great way to keep up with dogs that live into double digits. Striving for longevity in our Doberman Pinschers is so important. Some of the worst health conditions in the breed have no genetic tests. Sadly, many beloved dogs don’t live long enough to qualify for the Longevity Program.”

Breeding Corie to a Longevity Certificate male, CH Irongate’s Winter Knight CD ROM LC-10D, qualified the litter for Bred for Longevity certification (BFL). The female puppy whom Dr. Purswell kept, “Favor” (CH WR Fait Accompli v BJJ BFL-1), is now 9 ½ years old. On her birthday in 2022, she, too, will qualify for a Longevity Certificate.

The Longevity Program is open to Doberman Pinschers 10 years of age or older or those with parents that have lived to 10 years of age or older. Since the program began in 1997, the Longevity Program has certified over 4,500 Doberman Pinschers for longevity, over 1,000 for Bred for Longevity-1 (BFL-1), and over 75 for Bred for Longevity-2 (BFL-2), says Michelle Kramer, chair of the Longevity Program.

Doberman Pinschers were the 18th most popular breed registered with the

**“Maggie” (Random Wind Market Rise) pictured at age 11 lived to 14 years of age. Bred and owned by Leslie Newing of Fairfield, Connecticut, Maggie qualified for a Longevity Certificate from the Doberman Pinscher Club of America.**

American Kennel Club (AKC) in 2020, with 9,778 dogs registered. Roughly 0.5 percent of registered Doberman are longevity certified, Kramer says.

“The goal of this program is to recognize and track breeders who are breeding Doberman Pinschers that are long-lived,” says Kramer. “In recognizing them, we can help people who are looking for puppies because they can search the online database to find breeders who focus on longevity in their breeding programs.”

The late Vic Monteleon of San Diego, past president of DPCA, founded the Longevity Program to identify dogs and lines with strong longevity. It was approved unanimously at the 1997 DPCA National Specialty in Houston.

To be eligible, dogs must be registered with the AKC or a respective international breed registry. About 300 Dobermans in the program are from international countries. Dobermans must be of an approved coat color to be eligible; those with the Z-factor gene variant that causes albinism are not eligible. A breeder or owner can apply for certification for individual dogs.

Dogs accepted into the program are entered in the online Longevity Program database, [DobeQuest](#). The real-time database allows owners to regularly update information about their dogs and to include photos, earned titles, and health testing information.

Here is how the Longevity Program works:

- **Longevity Certification (LC):** Doberman Pinschers that reach age 10 may receive LC recognition. Dogs are issued a certificate such as LC-10L, which designates their age of 10 and “living” status. When a dog dies, owners are encouraged to notify the program, so the online database can be updated and a final certificate can be issued with the age at death and the ending changed to D for “deceased.” Ideally, owners will provide a presumed cause of death. Dogs also can be submitted for recognition posthumously even if they passed away many years ago.
- **Bred for Longevity (BFL-1 and BFL-2):** Doberman Pinschers of any age whose sire and dam are longevity certified (LC), or lived to at least 10

## LINKING TO THE LONGEVITY PROGRAM

Breeders and owners can apply to the Doberman Pinscher Club of America’s [Longevity Program](#) for a Longevity Certificate (LC) for dogs that live to age 10 or a Bred for Longevity (BFL) certificate for dogs having parents and/or grandparents that lived to age 10. To research dogs with LCs and BFLs, [visit DobeQuest](#).



years of age, are eligible for BFL-1 recognition. Those whose sire and dam as well as all four grandparents lived to 10 years old are eligible for BFL-2 certification.

Efforts to encourage new members of DPCA, specifically those wanting to better the breed, led to DPCA organizing the Generation Forward committee in 2015. More recently, the committee added a mentorship program to help those interested in breeding who want to learn more, says chair Theresa Connors-Chan.

“Our goals are to encourage the sharing of knowledge and to support new breeders, members, exhibitors, and competitors,” Connors-Chan says. “We have 38 mentors who are matched with mentees based on their individual goals. The program provides one-on-one support as well as webinar and seminar education.”

Veteran breeder Colleen Nicholson of Mechanicsburg, Pennsylvania, is a mentor to those who are new in the breed. “For starters, I advise breeders to health test any dogs they are considering breeding using the recommended OFA CHIC (Orthopedic Foundation for Animals’ Canine Health Information Center) requirements,” she says. “The Longevity Program has gifted us with another tool to use to help determine the best stud dogs for bitches.”

“Longevity Certificates and Bred for Longevity certificates are valuable for people researching pedigrees because it shows the longevity behind a dog,” says Connors-Chan. “The Longevity Program also gets people involved in studying pedigrees to understand health concerns in bloodlines.”

As Kramer says, “Many breeders try their hardest to breed healthy, long-lived Dobermans. Together, we can do our best to ensure Dobermans are a healthy breed.” ■

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“The goal of this program is to recognize and track breeders who are breeding Doberman Pinschers that are long-lived.”

Michelle Kramer, chair of the Longevity Program

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## INHERITED HEART DISEASE DCM IMPACTS LONGEVITY IN DOBERMAN PINSCHERS

The potentially fatal heart disease dilated cardiomyopathy (DCM) affects about 50 percent of Doberman Pinschers and thus is one of the main health detractors preventing Dobermans from reaching their 10th birthday — the age of eligibility for Longevity Certification.

The Doberman Pinscher Club of America (DPCA) has been holding cardiac clinics at its National Specialty for about 10 years to help identify dogs at risk for DCM. Each year about 100 dogs are screened at the National Specialty.

Additionally, DPCA is funding a longitudinal, prospective study of DCM-affected and normal dogs in which veterinary cardiologists are following about 385 dogs throughout their lives to gain insights about the genetic and epigenetic factors of this disease. Enrolled dogs are screened annually.

Ryan C. Fries, DVM, DACVIM (Cardiology), assistant professor of cardiology at the University of Illinois, has been helping with the cardiac clinics since 2014 and is an investigator of the DCM lifetime study. “This study offers a novel way to look at this disease in Doberman Pinschers,” he says. “Although many of the dogs were 3 years of age and younger at the initial screening, we need to see what happens to these dogs over time if they have one or more of the genetic mutations.”

Dr. Fries says that initial screening of the 385 dogs currently enrolled in the lifetime study indicates that 73.4 percent had normal echocardiogram results; 15.9 percent had occult DCM, meaning they had the disease but did not show clinical signs; 6.9 percent were equivocal, indicating

it was ambiguous whether they were affected; and 3.1 percent were diagnosed with a different heart disorder, myxomatous mitral valve degeneration. Of the dogs diagnosed with DCM, 89.1 percent had at least one genetic mutation.

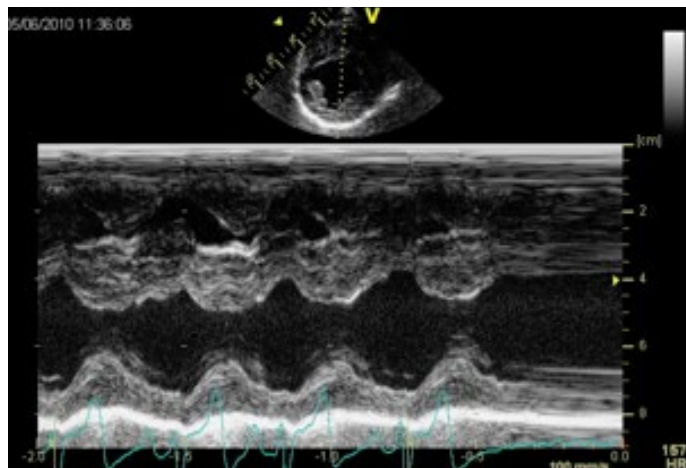
“Besides genetics and whether a dog has inherited the two known gene variants that can cause DCM in the breed, we are looking at the effect of epigenetics,” he says. “This includes the geographical area in which a Doberman lives, its exercise regimen, home environment, and nutritional supplements and diet. The goal is to understand the impact of epigenetics on the clinical expression of DCM in genetically affected dogs.”

Two types of DCM are seen in Dobermans. Congestive heart failure occurs in older dogs that inherit the heart muscle disorder. These dogs may not be diagnosed until midlife, around 7 1/2 years of age, and thus may have already been bred when DCM is discovered. As their heart dilates to compensate for the weakened heart muscle, fluid buildup prevents the heart from pumping blood correctly. This fluid buildup may occur in the lungs, known as pulmonary edema, or in the abdomen, causing ascites.

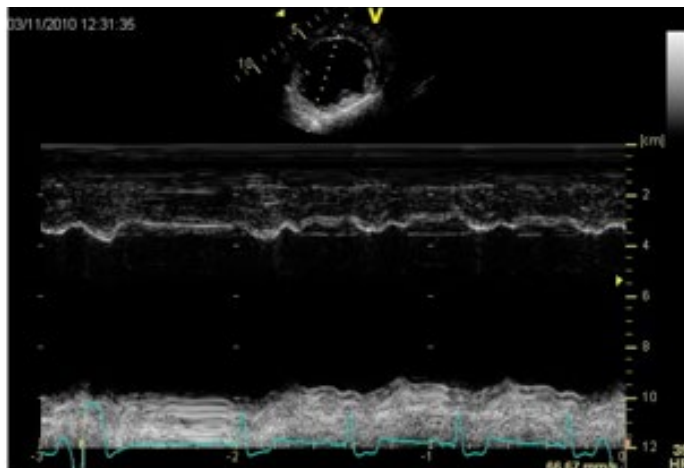
Ventricular tachycardia, a heart rhythm disorder or arrhythmia, occurs in about 25 to 33 percent of Dobermans causing sudden death. This type of DCM occurs in younger dogs in which their normal heartbeats are interrupted by rapid beats that are too close together, subsequently shorting out the heart. About one-third of dogs with ventricular tachycardia have no prior signs of the disease until they die suddenly.



***Younger dogs diagnosed with DCM may die suddenly due to ventricular tachycardia or heart arrhythmia in which normal heartbeats are interrupted by rapid beats too close together that short out the heart.***



NORMAL



DCM

**Echocardiogram images show normal heart function, left, and reduced systolic function in a Doberman Pinscher diagnosed with dilated cardiomyopathy.**

DCM is an inherited, complex disease that affects Dobermans more than any other breed. Two autosomal dominant genetic variants — DCM1 and DCM2 — have been linked to the disease in Dobermans, though they have incomplete penetrance. “Some dogs without either mutation develop the disease, and dogs with one or both mutations may never develop the disease,” Dr. Fries says.

“The inconsistent expression of the two DCM genetic variants led to this study. We believe that dogs with both mutations will eventually develop DCM with a greater frequency than dogs with a single mutation or no mutation. There is an overall incidence of at least one mutation in 86.9 percent of Doberman Pinschers.”

The DCM1 variant is due to a deletion of 16 DNA bases in the *pyruvate dehydrogenase kinase 4* (PDK4) gene. PDK4 is a regulatory enzyme in the heart’s mitochondria cells necessary for normal energy metabolism. The Doberman Pinscher lifetime study indicates the variant is found in about [37 percent of Dobermans](#) (see abstract C09) that develop DCM. Meanwhile, the DCM2 variant, caused by a missense mutation in the *titan* gene, affects the heart by diminishing normal cardiac contractions. The lifetime study reports [60 percent of Dobermans](#) (see abstract C09) with this gene variant develop DCM.

Of the 385 Doberman Pinschers in the lifetime study, Dr. Fries says that when tested for the DCM1 gene variant, 52.3 percent were negative, 38.1 percent were heterozygous positive, and 9.6 percent were homozygous positive. Regarding testing for the DCM2 gene variant, he says that 20.6 percent were negative, 51.1 percent were heterozygous positive, and 28.3 percent were homozygous positive. Only 13.1 percent of the enrolled dogs were negative for both mutations.

Early detection of DCM is important to provide medical treatment to ease clinical signs, improve quality of life, and increase longevity. “If we can identify dogs early, we can intervene with medications that offer palliative care and slow the disease progression,” says Dr. Fries. “A lot of dogs once they have the heart condition will go into heart

failure within a year or less. We can significantly improve the prognosis for dogs if we can identify them early.”

Screening with an echocardiogram, or heart ultrasound, blood testing, and a baseline Holter monitor test starting annually at age 3 until age 5 is helpful. Dr. Fries recommends having a Holter monitor test performed two times a year. Once a dog reaches 5 years of age, screening tests can be reduced to every other year.

Due to the expense and limited access to echocardiogram testing, a blood test for a cardiac specific biomarker, NT-proBNP, can help identify Doberman Pinschers at highest risk for having occult DCM, Dr. Fries says. “Because NT-proBNP increases with heart size, we can advise owners of Dobermans with this biomarker to undergo regular echocardiogram and Holter monitor exams,” he says. “However, Dobermans having only arrhythmias can be missed with this blood test. Therapy based on NT-proBNP values alone is not recommended.”

Echocardiogram and Holter monitor tests are used together because one test may produce normal results and the other may pick up an abnormality. An echocardiogram examines the structure of the heart and detects functional abnormalities at the time of testing. The Holter monitor test, which is done at home, records the heart’s electrical activity over an entire day. Premature ventricular contractions (PVCs), the most common abnormal heartbeat in Dobermans, disrupt the normal rhythm of the heart. A successive run of PVCs cause the ventricular tachycardia form of DCM that leads to sudden death.

“Owners of Dobermans should be vigilant about monitoring their dogs for clinical signs of DCM, such as coughing, fainting, panting, or rapid breathing during rest,” Dr. Fries says. “Affected young dogs won’t live to be old, as they usually succumb to arrhythmias. Older dogs are more apt to die of congestive heart failure. Even though we have genetic tests, they are not 100 percent accurate and cannot identify all affected dogs. Vigilant screening is often the only lifeline we have for Dobermans with DCM.”

## A BALANCED APPROACH TO BREEDING DOBERMAN PINSCHERS

Taking breeding advice from the “[Review of the Current State of Genetic Testing in Dogs](#)” helps put in perspective how to breed healthy dogs with quality traits when inherited diseases crop up in bloodlines.

“Doberman Pinscher breeders must balance their choices to produce the fewest affected animals while removing the fewest animals from the gene pool to avoid loss of genetic diversity,” says manuscript co-author Anita Oberbauer, PhD, professor at the University of California-Davis. “When selecting mating pairs, you should think about the characteristics of individual dogs and the puppies you hope to produce but also consider how you can make choices to improve the breed as a whole for future generations.”

Here are key learnings taken from the manuscript that apply to genetic testing of Doberman Pinschers:

- Some genetic tests are specific to Dobermans, such as the DNA test for von Willebrand’s disease. Breed-specific tests are not applicable across all dogs and dog breeds.
- Large-scale panel genetic testing, also known as multiplex testing, looks at the presence of variants from many, sometimes hundreds, of different traits. These reports tend to inform dog breeders and owners of mutations and disorders that are not relevant in their dogs since a specific genetic background may be necessary for that mutation to cause disease. If a disease mutation that typically occurs in a different breed is part of your

Doberman’s panel genetic testing report, these findings should be interpreted cautiously.

- To preserve genetic diversity, a quality dog tested as a carrier can be bred to a clear dog free of the mutation. Fifty percent of puppies would be clear and also have the genetic richness of the carrier parent. Clear puppies from this breeding could be used in the next generation.
- For complex disorders, such as the inherited heart disease dilated cardiomyopathy in Doberman Pinschers, tests for gene variants (DCM1 and DCM2) may indicate a dog is at risk for the disorder. Risk and genetic predisposition do not guarantee outcome. Most complex disorders are controlled by many genes with each having a small effect and other factors, both genetic and environmental, influence how much of the risk is realized. An owner and veterinarian must be cautious in applying genetic risk results, as in complex disorders, the presence of risk alleles confer risk but do not necessarily mean a dog will exhibit that disorder. Neither does it necessarily mean that the risk for disease will be passed on to the next generation.
- Breeders should gradually apply selection based on genetic testing to improve breed health. Most importantly, breeders should not depopulate the breed and cause a genetic bottleneck from loss of genetic diversity. Always be mindful of how your choices impact the population of the Doberman Pinscher breed as a whole.





## CHIC HEALTH TESTING REQUIREMENTS FOR DOBERMAN PINSCHERS\*

- **Hip Dysplasia** using OFA or PennHip evaluation
- **Advanced Cardiac Exam** by a board-certified cardiologist that includes an echocardiogram and Holter monitor evaluation
- **Autoimmune Thyroiditis** using OFA evaluation from an approved laboratory
- **von Willebrand Disease** (vWD) testing using the DNA-based vWD test from an approved laboratory with the results registered with OFA
- **Working Aptitude Evaluation** (WAE) by the Doberman Pinscher Club of America
- **Eye Examination** by a board-certified veterinary ophthalmologist



\* The Orthopedic Foundation for Animals, working with the Doberman Pinscher Club of America, recommends these basic health screening tests for all breeding stock. Dogs meeting these basic health screening requirements will be issued Canine Health Information Center (CHIC) numbers. Note that for CHIC certification, a dog's testing results do not need to be normal but must be made public so that responsible breeders can make informed breeding decisions. In addition to these health requirements, a dog must be permanently identified via a microchip or tattoo to qualify for a CHIC number.

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Purina appreciates the support of the Doberman Pinscher Club of America, particularly, Dr. Tracy L. Skaer, chair of the DPCA Medical Research Evaluation Committee, who helped identify this topic for the *Doberman Pinscher Update*.

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