

Hope for Canine Hearts: First Open-Heart Program Launches

Responsible for 75% of all canine heart disease, dogs with this condition typically have significantly shortened lifespans.

Analysis by Dr. Karen Shaw Becker

STORY AT-A-GLANCE

- A first-of-its-kind open-heart surgery program for dogs recently launched at the University of Florida's College of Veterinary Medicine; the program is the only one in the U.S. dedicated to the repair of mitral valve disease (MVD)
- Mitral valve disease is more common in dogs than cats, is often seen in small breeds, and is responsible for 75% of all heart disease in dogs; the condition is typically managed with medications, and dogs with severe disease have significantly shortened lifespans
- The open-heart repair procedure now being performed at UF allows most dogs to stop taking medication; lifespan after surgery depends on several factors, including the dog's age and other conditions
- At this early stage, the cost of the surgery may be prohibitive for many pet parents; hopefully, as the program expands, the cost will decline over time
- A proactive approach to treating MVD in dogs includes high doses of the supplement ubiquinol, along with a species-specific, meat-based diet

A recent news item in The Gainesville Sun/Gainesville.com announced the opening of the country's first-ever **open-heart surgery program for dogs** at the University of Florida's College of Veterinary Medicine.¹ The program, the only one in the U.S. dedicated to the repair of mitral valve disease (MVD), launched at UF's Small Animal Hospital in late August 2023.

Mitral Valve Disease

The heart has four chambers. The two upper chambers are called the atria and the two lower chambers are the ventricles. The heart also has a right and left side.

Blood from the body flows into the right atrium, where it's stored briefly and then pumped into the right ventricle. The right ventricle pumps blood into the lungs where it's oxygenated then flows from the lungs back into the left atrium where it's stored temporarily before traveling into the left ventricle.

The left ventricle contains the largest and strongest heart muscle, which is needed to pump blood throughout the body.

Both the right and left sides of the heart have valves that prevent the blood from flowing backward from the lower chambers to the upper chambers. The valves between the chambers form a tight seal that keeps blood flowing in a forward direction. The valve on the left side of the heart is the mitral valve, and the valve on the right side of the heart is the tricuspid valve.

Because of the significant pressure caused by the very strong contractions of the left ventricle, whose job it is to pump blood throughout the body, the mitral valve between the upper and lower chambers on the left side of the heart can wear out over time.

The degeneration causes the valve to grow thick and deformed, so that it no longer snaps closed to form a tight seal (which is the “lub-dub” sound your veterinarian hears when listening to your pet’s heart) and allowing blood to flow backward as the heart pumps.

This means the heart has to work harder to pump the volume of blood the body needs for normal functions. As the heart muscle works harder it grows in size, which makes the valve situation worse because the valves can’t enlarge to accommodate the size of the heart muscle.

Another problem that can develop with heart valves is stenosis, which is a narrowing of the valve that prevents it from opening completely.

Mitral valve disease is more common in dogs than cats and is often seen in small breeds like the Maltese, Cavalier King Charles Spaniel, Dachshund, Toy Poodle, and Chihuahua.

Rarely, infections and surgeries have been known to cause valve degeneration. Mitral valve stenosis (narrowing of the mitral valve) can be genetic, especially in Newfoundlands and Bull Terriers, as well as Siamese cats.

Other causes include bacterial infections of the heart, cancer of the heart, and in cats, thyroid tumors can be a secondary indirect cause.

Degenerative disease of the mitral valve is responsible for 75% of all heart disease in dogs. It's also called endocardiosis, chronic valvular disease, and chronic valvular fibrosis.

MVD in Dogs Is Too Often a Death Sentence

The mitral valve repair procedure in dogs isn’t widely available because only a handful of veterinary surgery centers offer it. It requires a technique called cardiopulmonary bypass, which is a surgical procedure that uses a machine to perform the functions of the heart and lungs so that a surgeon can open and repair the heart without interrupting its essential functions.²

To be clear, other veterinary centers in the U.S. have performed open heart surgeries on dogs, but the UF program is the first designed specifically for such procedures. U.S. dog owners typically travel outside the U.S. to other countries, such as the U.K. and Japan, that have specific programs.

One of those owners is Nate Estes. In 2019, I interviewed **Nate**, who founded an organization called the **Mighty Hearts Project** for pet parents whose dogs have been diagnosed with mitral valve disease.

Nate's dog, Zoey, was diagnosed with mitral valve disease at the age of 5, which is very young. At the time of her diagnosis, a board-certified veterinary cardiologist told Nate that within 6 months to a year, Zoey's heart would fail and end her life.

The only thing traditional veterinary medicine had to offer Zoey was medication, which she would need to take until she died either of heart failure, or a side effect of the drugs. Nate just couldn't believe or accept that his 5-year-old dog would be gone in a year.

Many people with canine family members with this type of heart problem have been told there's nothing they can do to help their pet. However, as one of them, Nate did a lot of research and located the one person in the entire world at the time who performed mitral valve repair surgery on dogs with a very high success rate (over 90%).

Ultimately, he was able to get in touch with a man whose dog had undergone surgery for mitral valve disease. That man helped Nate get in touch with the team who performed the surgery. The veterinary cardiologist who developed the procedure was a professor in Japan and at the time was training veterinarians in France in his technique.

"Trying to piece it together was a nightmare logistically," says Nate. "But within three months, we figured it all out and wired money to people we'd never even met, and off we went to France to save Zoey's life."

How a Mitral Valve Surgical Repair Is Accomplished

The UF College of Veterinary Medicine open heart surgery team includes Dr. Michael Aherne, Dr. Darcy Adin, and Dr. Katsuhiro Matsuura. Matsuura, a veterinary cardiac surgeon, leads the program and came to UF from Japan, where he performed over 100 successful mitral valve surgical repairs, leading a team with a success rate of over 90%.

"Until recently, most dogs are treated medically," Adin, the program director and veterinary cardiologist, told the Sun. "So there is a lot of interest in a more definitive treatment available that's corrective, so there's definitely interest in the veterinary community and the pet owner community to have this option be available for dogs with advanced disease."³

According to Adin, mitral valve degeneration is the most common heart disease seen by veterinary cardiologists. It affects most dogs to some degree as they get older, however, not every dog shows symptoms. Because MVD causes enlargement of the heart over time, 25% to 30% of dogs will experience congestive heart failure as a result, which can cause coughing and difficulty breathing.

The surgery performed by the UF team involves tightening the area around the mitral valve and repairing the "heartstrings" (an ancient word that refers to a nerve believed to sustain the heart) that support the valve. The procedure reduces fluid leakage due to the valve not closing properly and allows most dogs to stop taking medication. Lifespan after surgery depends on each dog's age and other conditions.

"There's a lot of preparation that goes into even just deciding to do surgery and making sure that it's the right thing for the owner, for the dog so that all the owners understand all the risk factors that might be present for their dog," Adin said. "We want to make sure that everyone understands everything going in."

The procedure takes around six to seven hours start to finish, and the patient spends a week at the hospital recovering. According to Matsuura, the surgery isn't recommended for dogs over the age of 14, due to a higher risk of complications.

The Cost of the Procedure May Be Prohibitive

Pet parents from around the U.S. have brought their dogs to Gainesville for the surgery. The very first patient was **George**, owned by Kimberley David. George was discharged from the hospital on August 28.

Matsuura's team currently performs three to four surgeries a month, and there is potential for the program to expand to address other heart conditions and other species. Costs for the program have been supported by the College of Veterinary Medicine and private donors.

The cost of the specialized repair procedure may be prohibitive for many, if not most, pet parents. But Zoey's dad Nate feels passionately that pet parents should at least be aware it exists and given the opportunity to decide for themselves.

"Our job is not to judge others for the decisions they make," he told me during our interview. "Our job is to provide them with options."

Hopefully, now that the mitral valve repair procedure is being performed here in the U.S., within a few years there will be more options available for pet parents of dogs with the condition. The cost of the procedure should see a decline over time, pet health insurance companies could begin offering coverage, and certainly travel within the U.S., when necessary, won't be nearly as complicated or costly as international travel.

A Proactive Approach to MVD Using a Supportive Supplement Protocol

Conventional veterinarians often suggest doing nothing about the congenital (from birth) form of mitral valve disease until symptoms appear. However, if we wait until heart disease causes notable symptoms, usually by that point quality of life is diminished.

Waiting until mitral valve disease evolves into congestive heart failure is a reactive rather than proactive approach, and one I don't recommend. As soon as a pet is diagnosed with valve disease, I recommend doing two very important things.

First, put your pet on ubiquinol. Providing the reduced form of CoQ10 can improve myocardial cellular respiration, thereby reducing cardiovascular stress, which is extremely important. It's the most important supplement you can provide to a pet with heart valve disease.

Research shows that humans with heart disease do exceptionally well taking very high doses of this supplement. Many years ago, a human cardiologist visited my veterinary practice. He told me that when he started his human patients on ubiquinol he saw dramatic improvement with mitral valve disease. He used 1,000 milligrams or more twice a day for human patients.

When the cardiologist's Boxer developed mitral valve disease that caused a Grade 2 heart murmur, he immediately put the dog on ubiquinol at 400 milligrams twice a day. This is a very high dose for dogs, but when his Boxer's heart murmur resolved, he made a believer out of me.

His dog went from being symptomatic (with murmur) to asymptomatic (no murmur) using ubiquinol alone. The mitral valve disease wasn't cured, but he was able to resolve the only symptom the dog had (the murmur). He was also able to significantly slow the progression of the disease.

The Boxer is still alive today with a good quality of life, and the cardiologist and I believe he will not die of mitral valve disease, which is the goal.

Since that time, I've used higher than normal doses of ubiquinol to dramatically slow the progression of mitral valve disease in dogs and cats. It's one of the best defenses you can employ immediately following your pet's diagnosis.

Adding supplemental taurine and acetyl-L-carnitine have also been shown to support heart muscle function in animal model studies, and I begin all three of these supplements immediately, when the faintest murmur is auscultated, or in breeds known to have genetic predispositions to developing MVD or **dilated cardiomyopathy** (DCM).

Second Crucial Step: A Species-Specific, Meat-Based Diet

The second thing I strongly encourage you to do is remove all the fillers from your pet's diet, because they offset his critical amino acid intake. **Dogs and cats are carnivores** and require amino acids from animal meat to maintain healthy muscle function, including heart muscle function.

Commercial dry and canned foods contain fillers or starch in the form of potatoes, rice, whole wheat, lentils, peas, tapioca, etc. These are unnecessary carbohydrates pet food manufacturers use in place of the meat protein that is so critical to the health of dogs and cats.

Ultraprocessed foods are also manufactured at very high heats, which denatures meat protein and substantially alters the bioavailability of amino acids. Ultimately, pets on processed food diets are amino acid deficient, which can have a negative effect on heart health.

The mitral valve disease I've seen progress fastest is in cats and dogs fed vegetarian diets. These poor animals wind up with concurrent heart problems, and the progression of the disease is profound compared to patients fed a biologically appropriate diet. I've seen pets with mitral valve disease live a long, happy life if they're eating a **nutritionally balanced, fresh meat-based diet**.

If your cat or dog is eating processed pet food and you can't or don't want to transition to a species-appropriate homemade diet, or alternatively, to a commercially available raw meat-based diet, then I recommend supplementation. You need to provide your pet with the amino acids missing from commercial diets, including L-carnitine, taurine and arginine.

Sources and References

^{1,3} [The Gainesville Sun/Gainesville.com, September 29, 2023](#)

² [Medical News Today: Cardiopulmonary bypass](#)