

The Heart Problem That Can Remain Hidden for Years

If your dog's breed is one of the six predisposed to this syndrome, your vet may be watchful for these subtle signs. Some dogs with the condition have no obvious symptoms at all, but if you have a physically active pet, you may notice these emerging warning signals.

Reviewed by Dr. Becker

STORY AT-A-GLANCE

- Sick sinus syndrome (SSS) is a condition in which the sinus node in the heart doesn't work as it should, resulting in long pauses between heartbeats
- SSS is most often seen in older female dogs of certain breeds, including Miniature Schnauzers, Dachshunds, Cocker Spaniels, West Highland White Terriers, and Pugs
- If your dog's breed is predisposed to sick sinus syndrome, your veterinarian may make a preliminary diagnosis based on a history of symptoms and a physical exam
- Some dogs with sick sinus syndrome have no symptoms. Symptomatic dogs typically have either a too-fast or too-slow heartbeat and can also show signs of weakness, fatigue, exercise intolerance, and fainting
- The treatment of choice for dogs with symptomatic SSS is pacemaker implantation. There are also medications that are used for some SSS patients, but they have an inconsistent track record, as well as side effects

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If you've never heard of the canine disease called sick sinus syndrome, you might think a dog with the condition would do a lot of sneezing, snorting, or coughing. But in this case, the sinus involved isn't in the respiratory tract. Sick sinus syndrome (SSS) actually refers to a sinus node located within the heart.

Sick Sinus Syndrome Is a Heart Problem

The job of the sinus node is to initiate heartbeats and establish a normal heart rate. In dogs with SSS, the sinus node doesn't consistently discharge an electrical impulse to trigger the heart to contract. The result is a long pause between heartbeats, or put another way, the heart literally stops beating.

If the heart stops for over 8 seconds, the dog will pass out. Sometimes an electrical impulse from another part of the heart will trigger a beat to prevent complete arrest. These rescue beats tend to be very rapid. In most cases, the sinus node will at some point begin doing its job again, providing periods of a normal heart rate of 60 to 100 beats per minute, interspersed with pauses.

Some dogs with SSS have a consistent, abnormally slow heartbeat (sinus bradycardia) as the result of a low firing rate from the sinus node. Even during exercise or when excited, the dog's heart rate will be under 40 beats per minute.

Other dogs with the condition will have episodes of rapid heartbeat (excessive tachycardia), plus long pauses.

Causes and Symptoms of Sick Sinus Syndrome

The exact causes of SSS are as of yet unknown. Genetics are suspected because while any breed can acquire the condition, it is primarily seen in middle-aged or older female Dachshunds, Cocker Spaniels, West Highland White Terriers, Pugs, and especially, Miniature Schnauzers. Any dog with sick sinus syndrome should not be bred.

Other potential causes include heart disease that cuts off the blood supply to or from the heart and disrupts normal heart function, and cancer of a chest organ. Some dogs with sick sinus syndrome have no obvious symptoms at all — especially if they aren't normally physically active.

In addition to a too-fast or too-slow heart rate and long pauses between heartbeats, symptomatic dogs may also show signs of weakness, fatigue, exercise intolerance, fainting/collapse, seizure, and once in a great while, sudden death.

Dogs with severe, long-term SSS may have symptoms of congestive heart failure including weakness, labored breathing, and coughing.

Diagnosing SSS

If your dog's breed is predisposed to sick sinus syndrome, your veterinarian may make a preliminary diagnosis based on a history of symptoms and a physical exam. Using a stethoscope, your vet can pick up a slower than normal heart rate that stays slow even when your dog exerts herself.

Other tests your vet will likely recommend include blood tests to look for a possible underlying metabolic problem, perhaps involving abnormal blood calcium or potassium levels. An electrocardiogram (ECG) will report changes characteristic of SSS. It may be necessary to do a 24-hour ECG, in which case the dog goes home wearing a vest that houses the testing equipment.

A provocative atropine response test may be performed to assess your dog's sinus node function. The drug atropine is administered to stimulate the electrical activity of the sinus node, which in healthy dogs increases the heart rate. Dogs with SSS generally have no response, or an incomplete response to the atropine, meaning the low heart rate remains unchanged.

X-rays of your dog's chest will help your vet determine if there's evidence of heart failure, and an echocardiogram may be ordered to check for visible changes in the heart valves or chambers.

Treatment Options for Dogs with SSS

The treatment goal for dogs with sick sinus syndrome is to achieve and maintain a normal heart rate. In the early stages of the disease, and in dogs who show no symptoms, careful monitoring may be all that is required.

For symptomatic dogs, the treatment of choice is implantation of a pacemaker, which can restore good quality of life for many years. Veterinary cardiologists are experts at implanting pacemakers, and it's strongly recommended that you have the procedure done by one. The good news is the surgery to implant a pacemaker is relatively minor. The not-so-good news is that the cost of diagnosis and pacemaker placement can range from \$5,000 to \$15,000.¹

There are also medications that are used to try to maintain a normal heart rate. These are called vagolytic drugs and include theophylline, terbutaline, and propantheline bromide. Beyond their common side effects, these drugs aren't consistently successful and carry a significant risk of worsening the extremes of a too-fast or too-slow heart rate, so they are not recommended.

Even though this condition begins as an electrical problem with the heart, many dogs end up with heart failure as a result. It's recommended to discuss heart supportive nutraceuticals such as Ubiquinol, krill oil, Acetyl-L-carnitine, Hawthorne extract, and D-ribose, as well as a homeopathic or TCM work up, with your holistic vet.

These adjunctive therapies may help minimize the doses of drugs required to treat the condition, as well as help nourish and support overall heart health. Interestingly, acupuncture (yes, there's a heart meridian!) may also benefit these patients.

Sources and References

[Cornell University College of Veterinary Medicine \(Archived\)](#),

[PetMD](#)

[Speaking for Spot](#)

¹ [Embrace Pet Insurance](#)
