

## **Sick Sinus Syndrome**

A normal heartbeat starts with an electrical impulse originating within sinoatrial (SA) node which is located in the right atrium (upper chamber of the heart). This impulse causes contraction of both atria which pushes blood to the ventricles (larger lower chambers of the heart). The electrical impulse then reaches the atrioventricular (AV) node signaling both ventricles to contract pushing blood to the lungs and out to the body.

In Sick Sinus Syndrome (SSS), the SA node intermittently fails to send electrical impulses, causing the heart to stop beating. In most cases the SA node will resume sending electrical impulses and the heart will start beating again.

The cause of SSS is unknown, but certain breeds of dog are predisposed to the disease leading to the belief that it may be genetic. Middle to older aged Miniature Schnauzers, West Highland Terriers, Boxers, Dachshunds and Cocker Spaniels are the most common breeds with SSS.

### **Symptoms**

The long pauses between heartbeats can cause weakness, exercise intolerance, collapse and fainting. Dogs with more severe cases can also have signs of congestive heart failure (CHF) which include labored breathing and coughing.

### **Diagnosis**

If Sick Sinus Syndrome is suspected, an electrocardiogram (ECG) should be done to look at the heart's electrical activity. A cardiac ultrasound (echocardiogram) and chest x-rays may also be performed to insure the pet is not in congestive heart failure as a result of the SSS. Milder cases of SSS may require a 24 hour holter monitor for diagnosis. This monitor is a small mobile ECG that is placed on the pet and worn for 24 hours as they go about their daily routine at home. The recording is then analyzed by the cardiologist and treatment recommendation are made.

Sick Sinus Syndrome can cause long pauses between heartbeats resulting in collapsing and fainting.

### **Treatment**

Mild cases can sometimes be managed with medication, but most cases with symptoms require a cardiac pacemaker implantation. A Pacemaker has a long lead that is inserted into the jugular vein and passed into the right ventricle. The lead is then connected to a small battery that creates electrical impulses which stimulate the heart to contract. The cardiologist will set the pacemaker to send impulses when the SA node fails. This alleviates the long pauses and the symptoms of SSS.