

## Salukis With Broken Hearts

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In 1976, Dr. Phil Ogburn documented the occurrence of several congenital heart defects in the Saluki. More recently, the occurrence of acquired heart disease, specifically dilated cardiomyopathy (DCM), and its possible association with defects in carnitine metabolism has received much attention. The incidence of this disease is unknown, and causes remain largely uninvestigated.

The definitive diagnosis of DCM is made using ultrasound examination of the heart (echocardiography). The typical echocardiographic/Doppler findings are decreased pump function as measured by decreased  $\% \Delta D$ , enlargement of all four heart chambers, and leaking of the mitral and tricuspid valves. In the failing heart, fluid buildup in the lungs (pulmonary edema) is assessed with a chest x-ray. Documentation of arrhythmias is done with an electrocardiogram (EKG). However, monitoring the frequency of arrhythmias over 24 hours (Holter EKG) may allow more accurate assessment of their clinical significance.

In order to interpret these studies, they must be compared to normals. To date, most of the normal echocardiographic data in dogs is based on mixed breed populations. No normal echocardiographic data exists for the Saluki. Although normal EKGs have been done in Greyhounds, the Saluki has not been studied. Thyroid hormones affect metabolic processes in all tissues including the heart. It is suspected that many Salukis are hypothyroid but thyroid normals have not been compiled for this breed.

Our pilot study of 20 Salukis (ASA Newsletter, Summer 1991) raised more questions than it answered. To further characterize the Saluki heart we now have done physical examinations, EKGs, and echocardiograms in a total of 50 asymptomatic Salukis. Some repeat studies have been done. Preliminary findings are summarized below.

### Salukis without Heart Murmurs

The electrocardiograms suggested heart enlargement when compared with mixed breed normals. They were fairly similar to the EKGs reported for normal Greyhounds. Some dogs in this group had ventricular arrhythmias. The most striking echocardiographic findings were lower  $\% \Delta D$ s and larger aortic diameters than in previously reported mixed breed normals.

### Salukis with Heart Murmurs

Seventeen of 50 dogs had systolic heart murmurs. Many dogs with soft heart murmurs (grade I-II/VI) had minimal or no changes on their echocardiograms and Doppler studies, when compared to the Salukis without murmurs. However, the presence of a soft heart murmur does not preclude the future development of significant heart enlargement. Dogs with loud heart murmurs (grade III/VI or louder) frequently had evidence of a leaky mitral valve by Doppler study. Some of these dogs had echocardiographic evidence of left ventricular enlargement.

Due to the concern about secondary carnitine deficiency in the dogs with *enlarged hearts and murmurs, these dogs especially need to have carnitine studies done, as well as followup echocardiograms.*

#### Salukis with Arrhythmias, with or without Heart Murmurs

Ten of 50 Salukis had ventricular arrhythmias. Since an EKG is routinely recorded for a few minutes, it may not accurately describe the average number and severity of arrhythmias that are present. To better characterize these arrhythmias, Holter EKGs should be done. In addition, followup studies over time will determine whether or not these arrhythmias could be life threatening.

We have evaluated 50 Salukis. Due to either the presence of murmurs, arrhythmias, or other EKG abnormalities, only 20 of these can be used to generate a normal data base. It is hoped that serial studies of the dogs with soft heart murmurs will help elucidate whether they should be included in the normal data base. We need to evaluate other Salukis to complete the normal data base. In addition, we need to document Salukis with suspected dilated cardiomyopathy with echocardiograms, EKGs, chest x-rays, and carnitine assays. Postmortem studies of diseased hearts need to be done, and a protocol for this is available upon request. If you have a Saluki diagnosed with DCM, congestive heart failure, or ventricular arrhythmias, please contact Mary Dee Sist, DVM, 1629 Meech Rd., Williamston, MI 48895, PH 517-655-1354.

Research requires time, money, and expertise. The preliminary data has been accumulated due to excellent cooperation between Saluki owners and the veterinarians involved. Each person has contributed either their time, money, expertise, equipment, or supplies to benefit the Saluki breed. However, we are unable to complete this project unless other Saluki fanciers are willing to assist us in our endeavors.

You have an opportunity to take part in funding and developing breed specific normals for Salukis. This could go far in helping to ensure the future of the Saluki.