



Study Description:

- We aim to demonstrate the usefulness of daily monitoring of resting respiratory rate in dogs with advanced heart disease.
- With this information, we hope to find a way to detect heart failure earlier and thereby improving the quality of life of our patients.

Inclusion in the study:

- Dogs with advanced myxomatous mitral valve disease (degenerative mitral valve disease) that have not experienced congestive heart failure

Expectations for the study:

- Please take your dog's resting respiratory rate once daily on the *Cardalis* app (as instructed below)
- Please send chart results (directions below) to vthrespiratoryratestudy@vt.edu at the end of every month so we can track your dog's respiratory rate and input information for our study.
- We will send out an online survey every 3 months to inquire about any changes that your dog has experienced during that time and assess the quality of life.
- There will also be 6-month recheck physical and echocardiographic exams at the veterinary teaching hospital.

The incentive for enrollment:

- By agreeing to enroll in the study, 6-month recheck physical and echocardiographic exams, and chest X-rays (for confirmation of congestive heart failure) will be paid by the Veterinary Memorial Fund.

At Home Respiratory Rate Monitoring

Monitoring your dog's resting respiratory (breathing) rate is a useful tool to monitor the progression of heart disease and to determine if medication changes may be needed. For normal dogs, the respiratory rate generally does not exceed 36 breaths/minute at rest.

When to take respiratory rate:

For best practice, taking respiratory rate at least once a day is recommended. **The respiratory rate is most accurate when taken while your dog is sleeping soundly.** If your dog had intense physical activity before rest, the respiratory rate may be elevated. In that case, the measurement can be repeated at a later time. Also, if your dog is having a dream and is barking or twitching, the respiratory rate should be taken at a later time.

How to take respiratory rate:

- 1 breath is counted when your dog's chest rises and falls once.
- Count the number of times your dog takes a breath in 30 seconds.
- Multiply the result by 2 to get the number of breaths in 1 minute.

A 2-minute video tutorial for taking your dog's respiratory rate is available at the link is below:

<https://www.youtube.com/watch?v=j0n7dcMyJSQ&feature=youtu.be>

How to track your dogs respiratory rate for this study:

There is a free phone application, called *Cardalis*, which helps you monitor the respiratory rate.

Setting Up the Cardalis App

- Download the *Cardalis* app from Google Play Store or Apple App Store.
- Once you've installed the app, click on the little gear symbol in the bottom right corner of the main screen. Enter your dog's name, **Dr. Jeong** for Vet's Name, and **vthrespiratoryratestudy@vt.edu** in the Vet's Email space.
- At the end of every month, click **Breathing Rate Graph**. Then click **Email**. An email will automatically be created so you can send us your dog's respiratory rate.

Using the Cardalis App

- Tap the "Monitor" button when your dog is sleeping and you are ready to measure the respiratory rate.
- Tap the heart button in the middle of the screen each time your dog takes a breath in (chest rises).
- The "Breathing Rate Graph" will plot each reading on a chart. If the resting respiratory rate exceeds 36 breaths/min, the app will automatically alert you to contact a veterinarian. If you believe it was falsely elevated, please recheck in 10-15 minutes. In case of an emergency, please call a veterinarian.
- **Please contact us if you notice a persistent upward trend in sleeping respiratory rate OR if your dog's respiratory rate is above 36 breaths per minute when sleeping.**

Heart Disease Monitor



Monitor	Reminder Settings
Breathing Rate Graph	Medication Reminder

This is the home screen. Click on the little gear symbol in the bottom corner to enter our email address when you first install the app.

Heart Disease Monitor

Help



Timer : 30
Tap Count : 0

Menu Reset

Tap the heart to start counting the breathing rate.

Heart Disease Monitor

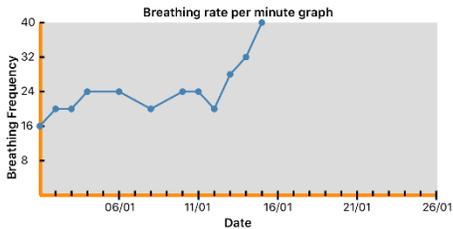
Help



Timer : 00
Tap Count : 10

Menu Reset

Once 30 seconds is finished, this pop-up window will show with the result.



Menu E-Mail Preview

Tapping "Breathing Rate Graph" will show you the chart. The "Preview" will show you the raw data. Please tap the "E-Mail" button to send us the result.

Please do not hesitate to contact Virginia-Maryland College of Veterinary Medicine at (540) 231-4621 if you have any questions or concerns.