



## Veterinary Specialty of the Day:

### Cardiology

Some veterinarians and veterinary technicians undergo further training to specialize in a specific field of medicine. Veterinarians who specialize in Cardiology treat conditions that affect an animal's heart and lungs. Cardiologists are experts on the cardiovascular system, which includes the heart and blood vessels. The blood pumped by the heart travels through blood vessels such as veins, arteries, and capillaries.

### Discussion Questions

- What can people do to keep their hearts healthy?
- What can pet owners do to keep their pets' hearts healthy?

Veterinary cardiologists are trained to treat...



#### **Irregular Heartbeat (Arrhythmia)**

Heartbeats are controlled by electrical activity. Electrical impulses trigger the heart muscles to pump blood throughout the body. An abnormal or irregular heartbeat rhythm, or heart rate, is called arrhythmia.



#### **Heart Failure**

Congestive heart failure (CHF) occurs when the heart cannot properly pump blood throughout the body. Fluid can then build up around the lungs or belly.



#### **Heartworm Disease**

Heartworms are parasites that can live in the heart, lungs, and blood vessels of an animal. The worms are spread to the animal through a mosquito bite.

## Diagnosing Heart or Lung Disease

There are many technologies and tests that veterinary cardiologists can use to determine if an animal has a heart or lung disease. Here are a few of those technologies:



### Electrocardiography (ECG)

An electrocardiogram (ECG) measures the electrical activity in an animal's heartbeat. Cardiologists use an ECG to check an animal's heart rate and heart rhythm for any possible abnormalities.

#### Normal ECG on a dog



#### Abnormal ECG on a dog



### Echocardiography

An echocardiogram is an ultrasound of the heart. Ultrasounds use sound waves to create an image of the inside of the body. Echocardiograms create an image of the heart and its inner structure which allows cardiologists to detect any issues.

[Click to watch a video of a normal echocardiogram](#)

[Click to watch a video of an echocardiogram of valve disease](#)

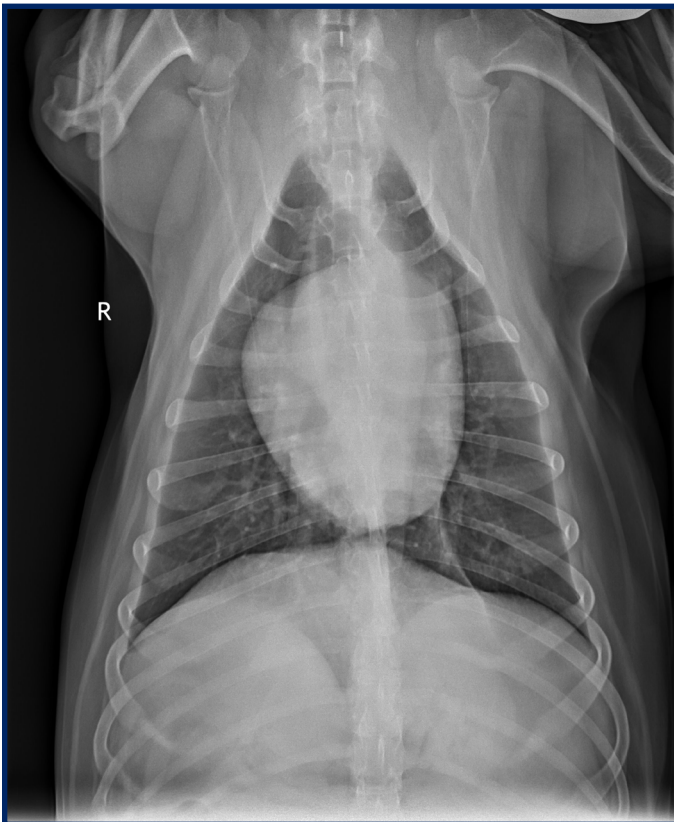
## Diagnosing Heart or Lung Disease (continued)



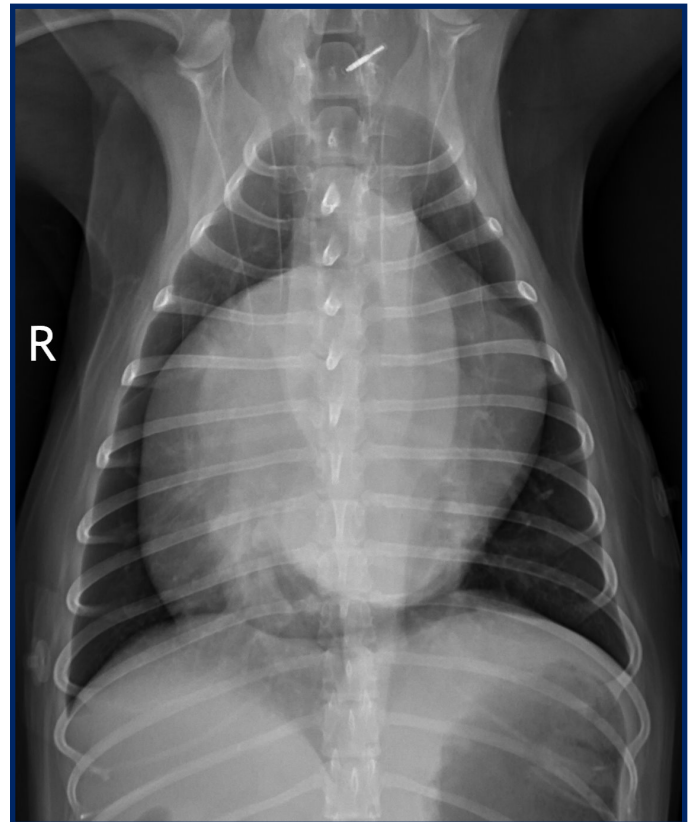
### Radiography

Radiographs are x-rays. Cardiologists will take x-rays of the chest to determine if there are any problems with the internal organs.

**Normal Heart**



**Enlarged Heart**



## Activities



### PreK & Up

#### Listening to Heartbeats!

*Materials: duct tape, scissors, paper towel tube, funnel*

- Follow this [fun craft idea for a DIY Stethoscope](#). All you'll need to do is tape a funnel to the end of a paper towel tube and let your child decorate.
- Have your child practice listening to a family member or friend's heartbeat by placing the flat end of the funnel "stethoscope" on the person's chest. Then, have your child place their ear against the cardboard tube's hole. They should hear the "lub-dub" sound of the heartbeat!
- Want to listen to a dog's heartbeat? Check out these videos below!

[Click to listen to a normal heartbeat in a dog](#)

[Click to listen to the sound of a heart murmur in a dog](#)

#### Keeping Your Heart Healthy!

*Materials: none*

- Exercising and movement are important for keeping your heart healthy. The best part is there are a lot of fun ways to incorporate movement at home.
- Challenge your child to run in place for 30 seconds!
- Have a one minute dance party in your living room!
- Play a game where you move like other animals - for example, challenge your child to hop like a frog during Simon Says!
- Ask your child to help you walk the family dog!
- For more ideas on how to incorporate more movement into your home, check out this infographic by the American Heart Association here: <https://www.heart.org/KidsActivities>

## Activities



### 3<sup>rd</sup> Grade & Up

#### Measuring Heart Rates & Respiratory Rates

*Materials: stopwatch*

##### Heart Rate

- Being able to record an animal's heart rate is an important job for veterinarians! Your child can practice measuring their own heart rate or that of a family member/friend.
- While demonstrating by using two fingers, show your child how to find their pulse on either the inside of their wrist or their neck. Using a stopwatch, set the timer for one minute and count the number of beats that occur. Alternatively, the timer can be set for 15 seconds and the number of beats can be multiplied by 4 to get the pulse/heart rate.

##### Respiratory Rate

- The respiratory rate is the breathing rate, or breaths per minute. Your child can practice measuring their own respiratory rate or that of a family member/friend.
- Using a stopwatch, set the timer for one minute and count the number of breathes that occur. Alternatively, the timer can be set for 15 seconds and the number of breaths can be multiplied by 4 to get the respiratory rate.
- Your child can also measure the respiratory rate of the family pet! You can measure this by observing the rise and fall of your pet's chest.
- Want to help your child measure the family dog's respiratory rate? Check out the "Your Dog's Heart" app at the following link: <https://apps.apple.com/us/app/your-dogs-heart-resting-respiratory-rate/id593676501>

## Activities



### 9<sup>th</sup> - 12<sup>th</sup> Grade

#### Career Exploration: Veterinary Cardiology

*Materials: computer/tablet/phone with internet access*

- The field of veterinary medicine is huge and there are many job opportunities available to those interested in pursuing a career in the field.
- If your child is interested in a career in cardiology, encourage them to research the various job opportunities and programs that exist.
- Need a place to start? Check out this article on veterinary cardiologists: <https://vetspecialists.com/what-is-a-board-certified-veterinary-cardiologist/>

#### References:

<https://acvr.org/how-we-do-it/types-of-imaging-therapy/ultrasound/>

<https://www.amcnyc.org/blog/2014/02/13/heart-healthy-tests-for-pets>

<https://www.amcnyc.org/pet-owners/specialties/cardiology/>

<https://www.fda.gov/animal-veterinary/animal-health-literacy/keep-worms-out-your-pets-heart-facts-about-heartworm-disease>

<https://www.merckvetmanual.com/circulatory-system/cardiovascular-system-introduction/the-cardiovascular-system-in-animals>

<https://vetspecialists.com/cardiac-arrythmias-in-the-dog-and-cat/>

<https://vetspecialists.com/congestive-heart-failure-chf-in-the-dog-and-cat/>

<https://vetspecialists.com/what-is-a-board-certified-veterinary-cardiologist/>