Lab Report Comments

March 2013
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Take Home Messages

Make your story easy for the reader to follow

For guidance, model a peer-reviewed publication when preparing reports

When in doubt, ASK US!

Methods

Only the information required for someone else to carry out the experiment and get similar results

Does acquiring an apron and opening the box containing the heart/lungs alter what someone else would find?

Numbered lists are not appropriate.

Methods

Preparing the Force Transducer and circuit

In order to observe and record the f traction over time, nsducer with an amplifier, A/D converter, and computer rec ftware were used. The follow hods describe the setup of the circuit used for the force ction measurements.

1. The force transducer wa ected to CH1 of an ETH-256 d nel bi fier.
2. A BNC T-connector was d on the output of the bioa
    a. One end of th nector was connected t oscope.
    b. The other end s T-connector was con o an A/D converter
3. The settings of the bio fier were adjusted t lean of signal as possi ese settings also needed to allow us to e gentle bendi force transducer, such th beating of a frog heart tied to the tran would res measureable response. Th wing settings are similar to those describ he labe uide, and allowed us to mon e force applied by individual heart beats qu
    a. The low pass filter at 5 Hz
    b. The high pass filter (H et at DC
    c. The gain was set at 5.
4. The oscilloscope was set to DC couplin vision.
5. A custom acquisition program was used, set at a rate of 150 Hz.
6. At this point it may be appropriate to create a calibration curve with the force transducer using objects with known mass that generate forces similar to those being generated by the frog heart. We chose to generate a force calibration curve using paperclips after all experimentation was done

Results

Text should be interspersed with images

Excel is a poor tool for science

Appendices not necessary – if they are results, put them in Results

Titles are not included in figures.

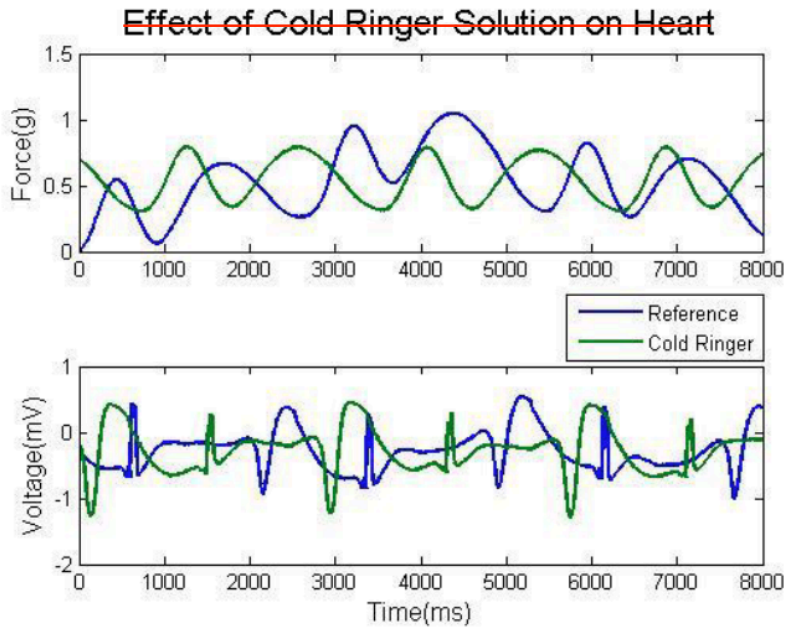
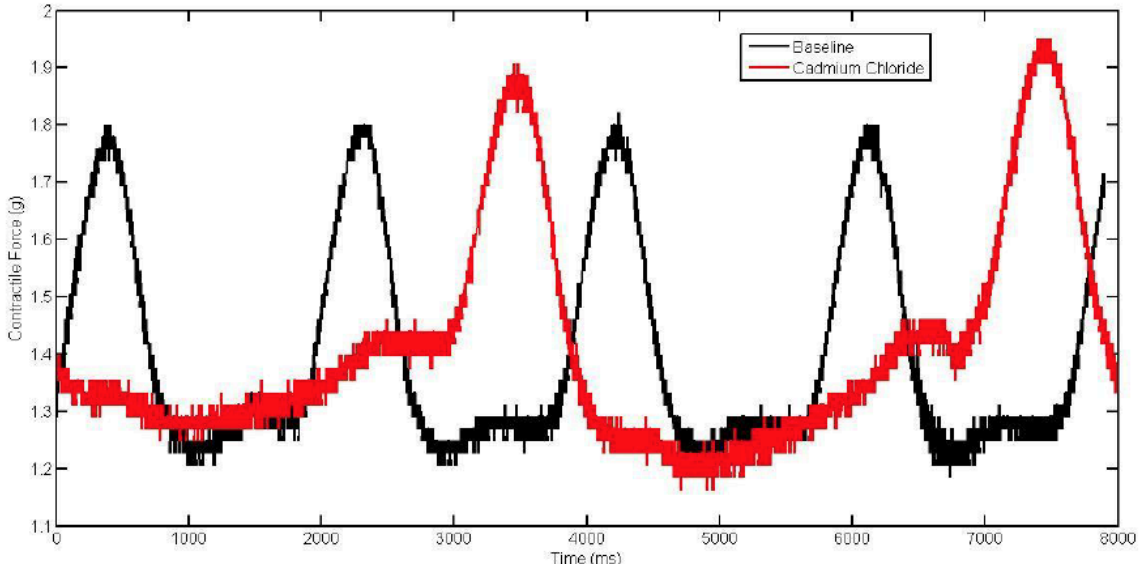
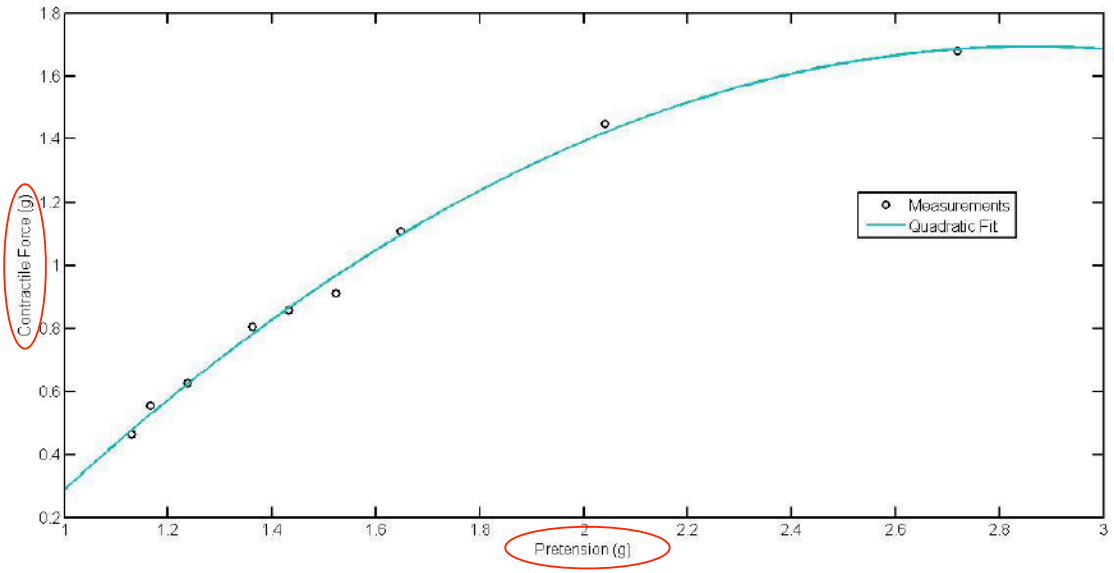


Figure 4: Effect of Cold FRS on the heart. The decrease in contraction strength is visible in the curve, while a change in heart rate is not readily visible.

Generate high quality images.



All labeling needs to be legible.



Avoid convolution.

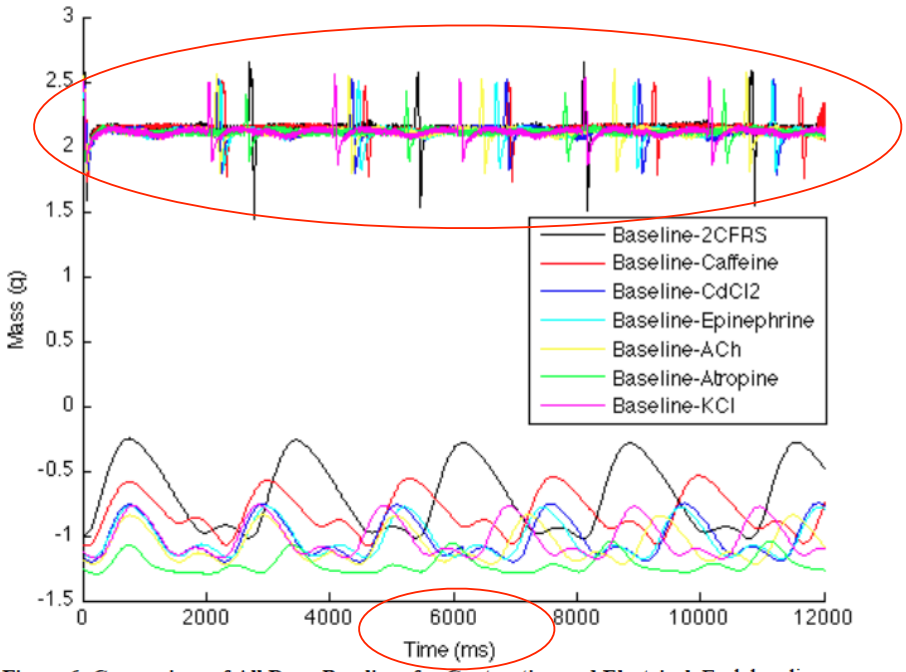


Figure 6: Comparison of All Drug Baselines for Contraction and Electrical. Each baseline was taken before the drug in the legend. This figure displays that the baselines were not consistent over time.

Captions

Captions need to convey **ALL** the information required to understand what is shown in the figure

If it is important enough to point out on the image, it is important enough to mention in the caption/text

Fully explain the images.

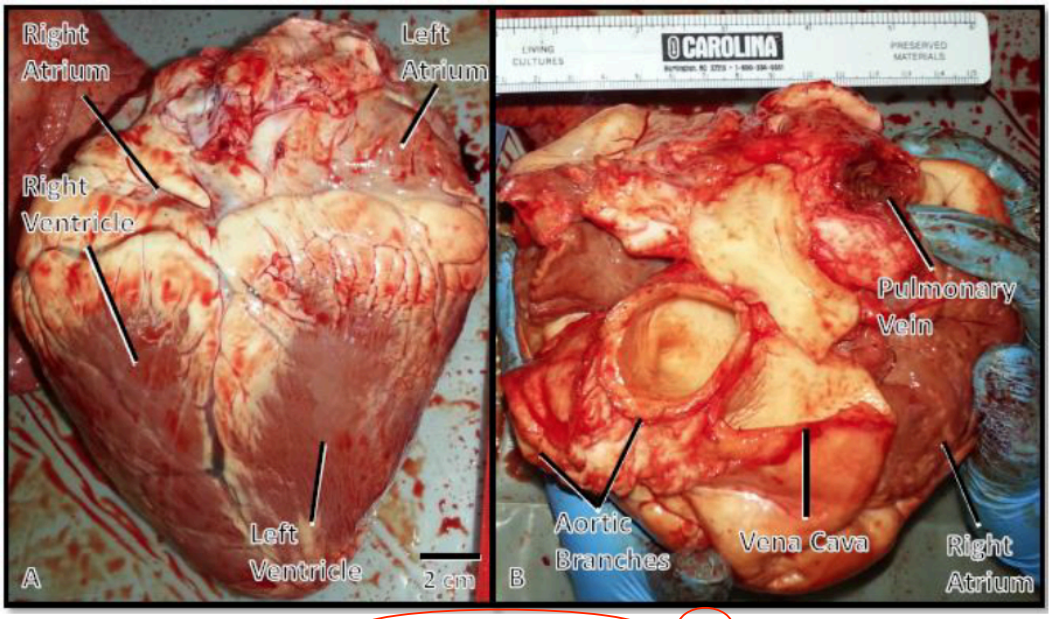


Figure 1 – Cow heart exterior surface. A: Anterior face of the heart. B: Top view of the heart giving an overview of many of the main cardiac vessels entering/leaving the heart.

Avoid stating the obvious.

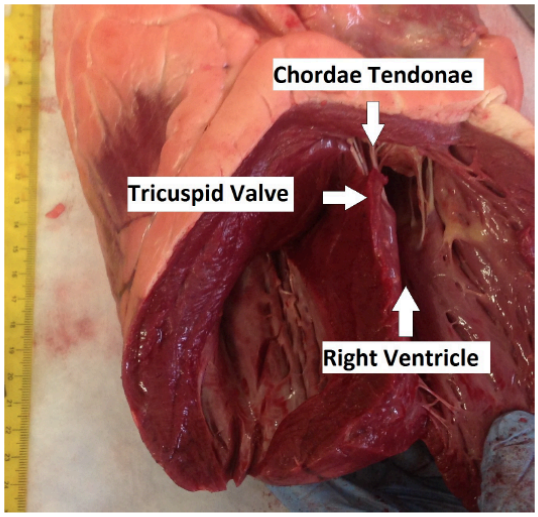


Figure 2: View of the Right Ventricle: The tricuspid valve is directly above of the right ventricle

Captions serve a purpose, not just fulfill a requirement.

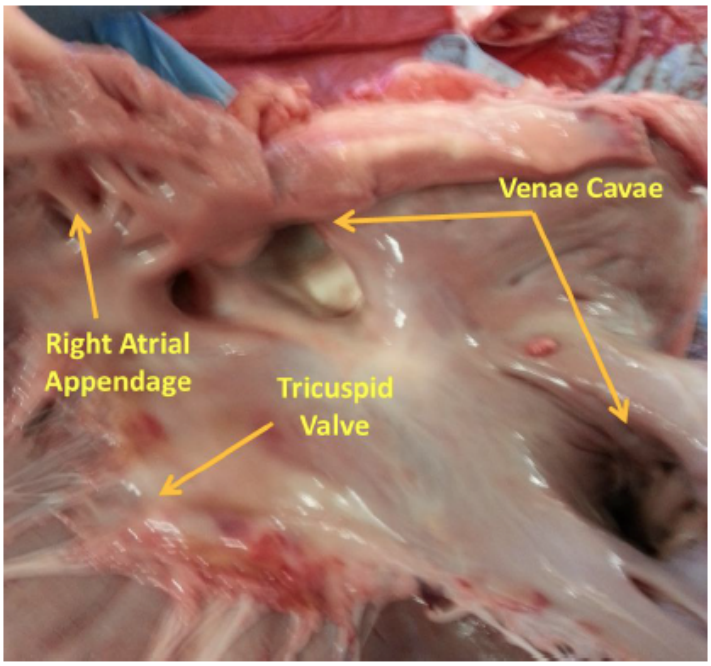


Figure 9: Opened Right Atrium

Quality Caption Example

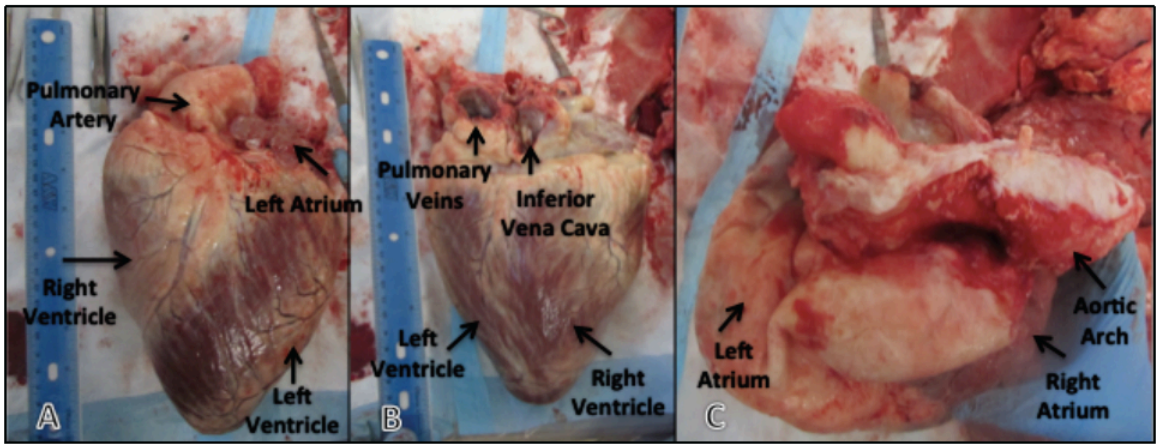


Figure 2: External Anatomy of the Bovine Heart. A: The anterior surface shows the ventricles and the pulmonary artery. B: The posterior surface provides a view of the pulmonary veins entering the left atrium, and the inferior vena cava, which delivers deoxygenated blood to the heart. C: The superior face of the heart provides a view of the aortic arch and its relation to the atria and auricles.

Tables

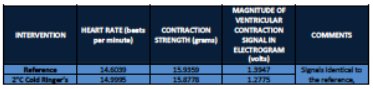
Limit to a single page

A single title, which comes at the top of the table

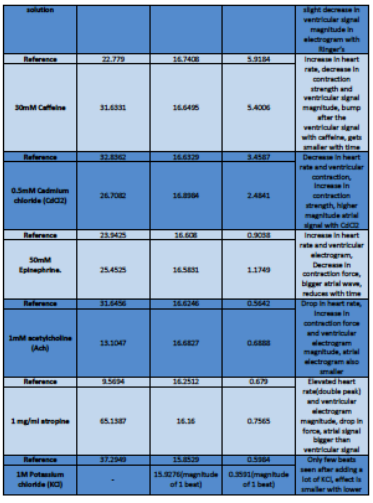
Table 2: Measurements of vessels within the lungs

Pulmonary Structure	Outer Diameter	Wall Thickness
Trachea	5.1 cm	7 mm
Left Main Bronchus	2.5 cm	2 mm
Right Main Bronchus	3.0 cm	2 mm
2nd Generation Bronchus	1.4 cm	2 mm

Page 1



Page 2



Page 3

Be clear and concise

"The heart and lungs are natures answer to the question of how to give nutrients and other lifesaving elements as well as the removal of waste from all of the trillions of different cells which make up a higher order multicellular complex life form."

Rewrite:

The heart and lungs transport gases and nutrients throughout the body.

Be clear and concise

"The tricuspid valve was located by looking for the distinct chordea tendinae that help them to function. The pulmonary valve was the final piece found within the right atrium, which were located by looking for an outflow from the ventricle that would lead to the lungs. After the right ventricle was fully inspected, incisions were made to investigate the left ventricle."

Rewrite:

The pulmonary and tricuspid valves were located and examined prior to dissecting the left ventricle.

Use scientific language and metrics.

"The incision was about 6 inches in length and almost about an inch deep. The deepness of the cut and the effort it took was not surprising as the left ventricle is known to have thicker walls due to its functionality of pumping to every extreme of the body."

Avoid repetitive language.

2.1. Preparation

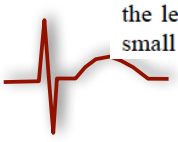
After obtaining all materials needed for the dissection, we removed the heart and lungs from the plastic containing bag and placed them on the absorbing pad. We oriented the heart and lungs to keep track of which side was which when dissecting the lungs later in the experiment. We identified the trachea first and then the left and right lungs. We were able to identify where the heart started in respect to the trachea and lungs. We removed the heart from the pericardial sac and surrounding fat, as well as from the trachea and lungs.

2.2. Heart

We identified the aorta, vena cava, pulmonary vein, and pulmonary artery from a superior to inferior view to orient the heart. We identified the right ventricle based on the location of the coronary blood vessels separating left from right ventricle. We dissected it by cutting along the direction of the coronary blood vessels and opened up the right ventricle. We identified major structures of the right ventricle and opened up the right atrium. We chose to dissect the ventricles before the atria because it was much easier to identify the ventricles due to their larger size. We then proceeded to perform the same steps on the left ventricle. We followed the curvature of the coronary blood vessels as a guideline to dissect both ventricles.

2.3. Lungs

We inflated the left lung using a tube connected to the air valve in the lab. We then cut the left lung down a second-generation bronchus all the way to where the branching was too small to see. We did this to further investigate the structure of the lungs.



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