

# Lab 2 Cardiac Conduction

- Cardiac Conduction System,
- ECGs,
- Pacemakers,
- Defibrillators,
- Cardiac Output

**Conduction System and EKG videos worth watching.** These are also available as active links on my webpage. You can just click the link rather than type in the address. If typing, addresses are case sensitive.

[http://www.youtube.com/watch?v=SMXBR\\_YFocs](http://www.youtube.com/watch?v=SMXBR_YFocs)

[http://www.youtube.com/watch?v=te\\_SY3MeWys&feature=related](http://www.youtube.com/watch?v=te_SY3MeWys&feature=related)

**Practice Quiz:** After you've studied the notes from lab you should be able to do the following. You might need more room than what is provided here.

Define/Explain the conduction system of the heart.

ID the components of the conduction system in order.

Each of these components has the potential to act as the pacemaker of the heart. What HR would you expect from each?

Explain the concept of autorhythmicity and what it is about the cells of the SA node that makes them the "pacemaker" of the heart the majority of the time.

Under what condition are cells other than the SA node most likely to become ectopic foci?

Define electrocardiogram (EKG/ECG)

Draw a tracing representing a normal sinus rhythm and identify each of the 3 components.  
View EKG in motion at <http://www.youtube.com/watch?v=7N4vilanngg&feature=related>

What electrical event in the heart does each component represent?

What electrical event of the heart is not represented on a normal EKG tracing and why?

What is the generic name for any abnormal EKG tracing... those that are not “normal sinus rhythm?”

Draw and label the 3 examples of abnormal EKGs discussed in lab.

In each case identify what part of the conduction system is malfunctioning.

## **CARDIAC PACEMAKERS**

Identify the **PULSE GENERATOR** and pacemaker **LEADS**.

Where on the body is the incision made for implantation?

Through which veins are the leads normally inserted?

Into which chambers of the heart are the pacemaker leads normally placed?

### **OYOs:**

Most of today's pacemakers are "rate responsive." Explain how they work.

Average battery life for a pulse generator is \_\_\_\_\_. Can we replace just the battery? \_\_\_\_\_

Distinguish between a "dual chamber" and "biventricular" pacing systems.

What kind of heart problem is treated with biventricular pacing? \_\_\_\_\_

## **FIBRILLATION and DEFIBRILLATION**

What is FIBRILLATION of the myocardium? Why is this a problem?

How does DEFIBRILLATION work?

ICDs (Implantable Cardioverter Defibrillators) are becoming more common. What are they supposed to do?

## **Cardiac Output (C.O.)**

Define Cardiac Output:

What is the formula for calculating C.O.?

Measure your HR and calculate your C.O. using an assumed SV of 70 ml/beat.

Calculate your blood volume based on 33 ml/lb of body weight. \_\_\_\_\_

So approximately how often is your entire blood volume circulating through your heart at rest?

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