

Laboratory Exercise 3: Electrocardiography and Blood pressure and Blood Pressure Determinations

Introduction

During this lab you will carry out Exercises 31 and 33A in the Human Anatomy and Physiology Laboratory Manual.

To prepare yourself for lab you should read all of Exercise 31 and the indicated portions of Exercise 33A (see Preparation below).

Objectives

The specific objectives for the lab are outlined in pages 310 and 333 in your lab manual.

Wear comfortable clothes to class – you will be using yourselves as subjects and will have to perform different levels of exercise throughout the lab.

The main aim of Exercise 31 is to familiarize you with the elements of the intrinsic conduction system, and the process of recording an ECG (Einthoven's triangle, limb leads). You will also be able to interpret an ECG – related the sequence of excitation of the heart to the deflection waves of an ECG tracing.

In Exercise 33A you should become familiar with the general events of the cardiac cycle – systole, diastole. We will deal the specifics in lecture. In this exercise you will also become familiar with methods for auscultating heart sounds, palpating pulse, measuring blood pressure, and performing a crude fitness level assessment, the Harvard step test. These are techniques that you will use again in the next lab cycle in assessing cardiovascular and respiratory adjustments to exercise, so you need to be able to measure this parameters quickly and accurately.

Preparation:

The following resources are available to prepare you for lab.

Required preparation:

Exercise 31

Read all of Exercise 31 in the lab manual. You will use either a standard ECG recording apparatus or a Powerlab unit for your recordings, so review both procedures.

Complete all sections of Exercise 31 – in lab you will receive report sheet that you will fill out with the data you collect.

Exercise 33A

Read pp. 333 – 343 (up through nicotine section).

You will conduct the following procedures:

- Auscultating heart sounds – relate them to systole, diastole, valve dynamics
- Palpate pulse – use common carotid artery and radial artery (other sites optional).
- Measure pulse profile using Powerlab plethysmograph
- Pulse deficit calculation
- Blood pressure determinations – sphygmomanometer
 - Estimate venous pressure (optional)
 - Observing the effect of various factor on blood pressure and heart rate
 - Posture
 - Exercise – pay special attention to this section as you will need to repeat this in the exercise lab in a few cycles

Optional preparation

1. Cardiovascular laboratory resources.

Prelab assignment

Complete review Sheets, Exercise 31 (pp. 613 – 615) and turn them in at the beginning of lab.