Exercise Protocol: Venipuncture

Appropriate Applications

In various exercise studies, researchers may want to assess blood enzymes, blood lipids, hemoglobin, hormones, and serum parameters including glucose, electrolytes, or blood proteins that may be altered with physical exertion. The venipuncture may be taken prior to, during (with the subject stopped) and after exercise. For some studies that examine the graded effects of exercise on certain blood parameters, up to four blood samples may be taken via venipuncture (from different sites).

Test Description

Venipuncture (also known as phlebotomy) refers to a procedure in which venous blood is drawn into a small tube via needle insertion and aspiration. Steps taken by the phlebotomist to perform this procedure are to: wear safety (e.g. latex) gloves for reducing the likelihood of infection; position the subject in a seated position (unless blood is being taken from a subject standing on a treadmill stopped in the middle of an exercise protocol); clean the area (usually the antecubital fossa area) with alcohol and allow to air-dry; place an elastic band (tourniquet) around the upper arm to distend the veins; isolate the vein and insert the needle with a Vacutainer tube for aspiration. Upon removal of the needle, sterile gauze will be placed over the insertion site secured by tape. The subject will be encouraged to apply pressure to the site for several minutes to minimize bruising. The needle will be discarded into a hazardous waste (Sharps) container, which will be properly disposed.

Training/Supervision Needed

Only staff who are California-certified phlebotomists are allowed to perform blood draws. A copy of the certification document will be required as part of the investigator’s IRB application. All certified phlebotomists will have had adequate experience to perform the blood draw without supervisory assistance; hence, no supervision will be necessary to perform a venipuncture.

Risks

Under normal conditions, there are minimal risks to the subject when performing venipuncture. These risks include: bruising; perforation of the vein leading to hematoma under skin; light-headedness or dizziness due to fear of needles; and infection.

Risk Management

Whenever blood is drawn, there is a small risk of bruising. Through this procedure, the risk for perforation of the vein is minimized. To minimize the risk of light-headedness or dizziness, each subject will have blood drawn in a seated position. Although infection is a risk with venipuncture, this is minimized by use of alcohol to cleanse the area prior to the blood draw, as well as the use of safety (latex) gloves by the phlebotomist, in accordance with the bloodborne pathogens standard of OSHA. In the case of individuals with a latex allergy, the laboratories have non-latex gloves available for use.

Potential Benefits

From the blood analyses, we will be able to better understand the acute and/or chronic effects of exercise on hematological, enzymatic, and hormonal changes. This information will aid in our understanding of exercise programs that can favorably modify, or yield deleterious effects to specific blood parameters.

Consent Content “What Will Happen in this Research?” section

You will be asked to submit to a (or multiple) venous blood draw(s). All blood draws will be performed by certified technicians and follow established standard procedures. Usually, the amount of a single blood draw is about 5-7 ml or ~1 tablespoon.

Consent Content “What are the Risks or Discomforts Involved in the Research?” section

This study involves a blood draw. You may feel some pain from the needle when your blood is drawn. There is a small chance the needle will cause a bruise or in rare cases an infection. You may also feel lightheaded.