



Skyline College – Biology Department Student Information and Safety Sheet Preserved Specimen Dissection

Introduction

In the following lab exercises you will examine in some detail the external and internal anatomy of the fetal pig (*Sus scrofa domestica*). As the pig is a mammal, many aspects of its structural and functional organization are identical with those of other mammals, including humans. Thus, a study of the fetal pig is in a very real sense, a study of humans.

The fetuses you will use in the followings weeks were salvaged from pregnant sows being slaughtered for food. They are not raised specifically for dissection purposes. If the purpose of this exercise were simply to have you memorize diagrams (or computer screens), we would only do that and bypass the expense, time and controversy of dissecting! Dissection is a powerful teaching method, especially for concrete learners and visual thinkers. Only by dissecting can you really appreciate the structural and functional role of the many membranes, mesenteries and connective tissues that impede your progress every step of the way. Only by dissecting can you really appreciate the relationship between an organ's texture, location and function. We do not take the life (or death) of your pig specimen lightly – this is why we require that you take your dissection seriously and utilize your pig to the fullest extent possible.

During these exercises, keep several points in mind. First, be aware that “to dissect” does not mean to “cut up,” but rather to “expose to view.” Actual cutting should be kept to a minimum. Tissues are picked and teased apart with needle probes, forceps and blunt probes to visualize structures. Never cut or move more than is necessary to expose a given part. Second, pay particular attention to spatial relationships of organs, glands and other structures as you expose them. Third, we encourage you to engage in collaborative discussions with your classmates and compare dissections.

Safety and Hygiene

Safety is always an important component to a laboratory experience. One of the most important aspects of lab safety is advance preparation. Be sure to read the lab exercises thoroughly prior to your lab period. The most significant hazard in this lab is the preservative that is used in your dissection specimens. Although manufacturers make every effort to minimize the amount of formaldehyde in the preservative, it is present. The specimens you are using were first preserved with formalin – a solution of formaldehyde, water and methanol. They are then washed and placed in formaldehyde-free Carosafe. This produces a formalin-preserved specimen that, when dissected, minimizes student and educator exposure to formaldehyde. The primary component of

Carosafe is propylene glycol, a common ingredient used in cosmetics and foods. Holding specimens in Carosafe reduces the presence of formaldehyde, thereby diminishing unpleasant odor. However, Carosafe preserved specimens and their surrounding fluid do contain some residual formaldehyde, a by-product of the initial formalin preservative process. To make this a safe laboratory experience for you, we recommend using the following good laboratory practices during the procedures:

- Each person handling preserved specimens must wear gloves and goggles
- Practice safe hygiene when dissecting. Do not place your hands near your mouth or eyes while handling preserved specimens
- If the preservative gets on your skin, wash with soap and warm water
- If the preservative gets in your eyes, rinse thoroughly with the safety eyewash
- Each student must thoroughly wash his/her hands after the procedure
- Lab gloves and paper towels go in the regular trash. Skin and pieces of pig go into the red plastic bags designated by your instructor

Is dissection of preserved specimens harmful to pregnant women? Preserved specimens do expose one to residual amounts of formaldehyde, a known carcinogen. No components of Carosafe have been shown to cause adverse reproductive effects. For the utmost in safety, we recommend that women carefully consider avoiding unnecessary exposure to any chemical substance during pregnancy.

What has Skyline done to make this dissection a safe experience for you? Besides the personal protective equipment required of those performing dissections, an important component of safety is ventilation. If your class will be dissecting a small number of specimens, you will be in a room providing 15 complete air exchanges/hour. The air is not re-circulated. If your class will be dissecting a larger number of specimens in addition to the air exchanges, you will also be asked to keep your specimen within 18 inches of the down draft on your lab bench. The downdraft will help evacuate residual fumes from your specimen. Both Formalin and Carosafe have Material Safety Data Sheets (MSDS) sheets. These sheets discuss the safety, hazards and response to exposure for all chemicals. These are in your classroom should you wish to review them prior to lab.