

DAEMEN COLLEGE HUMAN ANATOMY LABORATORY RULES, REGULATIONS AND GUIDELINES 2014 - 2015

Dissection of the human body is a privilege extended to only a select group of students at Daemen College. Because of this unique privilege and the sensitive nature of working with human material there is a higher level of responsibility expected of you. The lab policies are listed below to make you aware of your responsibilities, and assist you to derive the most benefit from the gross anatomy laboratory experience.

I. Handling of Cadavers:

- 1) **Cadavers will be treated with respect at all times.** The cadavers used at Daemen College are obtained via the Anatomical Gift Program from the State University of New York at Buffalo. The cadavers are donated to the program, and these persons do not receive any financial compensation for their generosity. It is imperative that proper respect is paid to the cadaver at all times since donors are assured of this at the time of their donation.
- 2) **A professional attitude is expected during all lab and lecture sessions.** This attitude should be maintained outside of the laboratory, especially when discussing the course and the dissection experience in public.
- 3) **Human cadaver material should NOT be removed from the laboratory under any circumstances.**
- 4) **No photographs or video cameras in the laboratory.**
- 5) **Only students enrolled in the course may enter the lab.** All other people must obtain prior approval by Dr. Styn, Director of Graduate Anatomy before entering.
- 6) **Do not mix the tissue of cadavers.** All cadaver material *MUST* remain at the assigned dissection table unless you are instructed otherwise. This is done so that all bodily remains may be cremated for each cadaver and the ashes interred or returned to the family.
- 7) **Incomplete dissections or intentional destruction of dissected structures is considered *unprofessional behavior*.**
- 8) **It is the responsibility of each lab group to keep their cadaver and work area as clean as possible.** This is considered professional behavior.
- 9) **Keep the identification bracelet with the cadaver at all times.**
When you remove the bracelet during the forearm dissection, place it under the head of the body bag.

Any improper behavior should be immediately reported to Dr. Styn for appropriate action. Unprofessional behavior in the laboratory will be documented and when appropriate, will be reported to the College Administration. Students will also be subject to dismissal from the anatomy lab for the remainder of the semester.

II. Laboratory Safety Guidelines

In order to maintain a safe environment over the course of the semester, the laboratory is to be maintained in a clean and orderly manner. An obvious characteristic of the lab environment is the odor. Much of the odor originates from biological tissues and embalming fluid. Embalming fluid is the primary source of fumes and odor. The fluid is used to fix the tissues of the cadaver by cross-linking proteins and kill any micro-organisms. These cadavers were embalmed at the University of Buffalo and the embalming fluid contains the following chemicals:

formalin 2.5%
phenol [carbolic acid] 2.5%
glycerol
ethanol (190 proof)
water
thymol < 50 ml

This is a standard formula used in most medical schools. **Keep in mind that that you will be exposed to relatively low concentrations of these substances and the lab is monitored on a continual basis to assure your exposure is below the acceptable limits, as defined by New York State and the Occupational Safety and Health Administration (OSHA). Independent testing was performed in October 2006 and concentrations of formaldehyde and phenol were well below acceptable levels.** Regardless, you should be aware of the function, hazard, and, if applicable, the protection against each of these components. Material safety data sheets (MSDS) are available in the anatomy lab with a detailed explanation of each chemical. In brief:

- a. **Formalin** is a 37% solution of formaldehyde. Formaldehyde is considered highly toxic and a carcinogen suspect. It fixes the cadaver tissue and kills microorganisms by cross-linking proteins. Since formaldehyde is highly soluble in water, it is trapped in the upper respiratory tract before it reaches the lungs. Humans experience a varied response to formaldehyde. Many people have no reaction at all, while others may experience stinging and/or tearing of eyes, nose and throat irritation, runny nose, itchy skin, and headache.
- b. **Phenol** (carbolic acid) is considered highly toxic and corrosive. It is used as a mold inhibitor. Phenol has an extremely low vapor pressure, so is present in only minute quantities in the lab air. However, it can be absorbed through the skin.
- c. **Glycerol**, or glycerin, is a polysaccharide used to help keep the joints of the cadaver flexible.
- d. **Alcohol** is used as a germicidal agent and to fix the tissue by drying. It is extremely volatile, and therefore present in the lab air. It may dehydrate the skin after prolonged contact and may cause upper respiratory tract irritation.
- e. **Thymol** is used as a germicidal agent that is highly corrosive. It may cause burns or respiratory tract irritation

3. **INFUTRACE Preservative Fluid.** This fluid is used to keep the body tissues moist, prevent mold, and most importantly, decrease harmful vapors by binding to free formaldehyde and phenol. Infutrace is generally not harmful. The use of 'Infutrace' preservative fluid and observance of lab policies will minimize your exposure to embalming fumes. The solution is prepared as a 1:4 (infutrace:*filtered* water) dilution.

III. Laboratory Rules to Minimize Hazards

To minimize exposure to embalming fluids:

1) Universal precautions MUST be followed at all times.

The risk of infections from fixed human tissue is exceedingly low; however, universal precautions will protect you from the irritating effects of formaldehyde/phenol embalming fluids. This observance is also good practice for clinical situations where your automatic observance of universal precautions may save your life.

All students MUST wear:

- I. **Nitrile or latex gloves** - Students are responsible for purchasing their own gloves. Latex and Nitrile gloves are available from the Daemen College Bookstore. NITRILE gloves are recommended, because they are less porous and more puncture resistant than latex. The most economical glove I have found can be purchased from www.nitriledirect.com. If you chose to use latex gloves, it is recommended you double glove and wear a barrier hand cream.
- II. **Safety glasses or goggles when operating saws and bone-splitting instruments**- Prescription glasses are acceptable. The lab is equipped with several sets of safety goggles, kept in a drawer of the main table/counter.
- III. **Long pants, shirt and no open-toed shoes**- Old clothes, shoes or scrubs are recommended.

2) It is NOT advisable to wear soft contact lenses in the gross anatomy lab.

Soft contacts may absorb the chemicals used in the lab and cause eye irritation. If you must wear contact lenses, they should be cleaned thoroughly after each visit to the lab.

3) DISCONTINUE WORK IN THE LAB IF YOU ARE PREGNANT.

Formaldehyde and phenol exposure has been shown to be teratogenic in laboratory animals, however studies involving humans are ambiguous and somewhat inconclusive. The risk of fetal malformations appears to be increased in women who experience *symptoms* of organic solvent exposure*. Therefore, any female student who is or becomes pregnant should contact the course instructor for out-of-lab study options until you have had time to consult with your physician for their recommendation regarding participation in gross anatomy lab.

(*Khattak S, K-Moghtader G, McMartin K, Barrera M, Kennedy D, Koren G. Pregnancy Outcome Following Gestational Exposure to Organic Solvents: A Prospective Controlled Study. *JAMA*. March 24/31, 1999;281:12, 1106-1109.)

4) Spray Infutrace on the area of the body you are dissecting.

Make an effort to cover areas of the body that are not being dissected with a moistened cloth.

5) Remove excess fluids from the table with the sponge and plastic container provided.

Make sure the floor around your dissecting table is free of fluid and tissue. Dispose of excess fluid down the lab sink.

6) Place excess cadaver tissue in RED bags located at the end of each dissecting table.

Each cadaver has its own tissue receptacle. Do not mix the tissues of cadavers or place non-cadaver material in them.

*****SOILED GLOVES ARE TO BE RINSED IN THE SINK BEFORE REMOVING THEM FROM YOUR HANDS and then thrown into regular trash.*****

7) **Do not stand directly over the table if you are not dissecting.**

To minimize the risk of injury:

1) Scalpel blades must be handled with care and disposed of properly

Keep the scalpel in the dissecting case except when in use, and dispose of the blades ONLY in the 'SHARPS' container placed on the lab sink. Report any injuries to a member of the staff. A first aid kit is located on the 'CLEAN' sink.

2) Dissection tools MUST NOT be left loose on the table or in body bags.

Dissection tools are to be cleaned after each lab or dissection period. At the end of the day, all instruments with the exception of probes are to be locked in the storage room.

3) Use designated 'CLEAN' and 'LAB' sinks

The 'LAB' sink is for washing items contaminated with cadaver tissue, such as dissecting tools. It is ok to use this sink with your gloves on.

The 'CLEAN' sink is for hand washing only. Do NOT use this sink with your gloves on.

4) Do not touch the bones, models, iPads, TVs, computers, or designated clean tables with gloves on.

5) Eating, drinking, smoking, or use of other tobacco products are prohibited in the laboratory.

IV. Illness in the Laboratory

SHOULD YOU EXPERIENCE ILLNESS despite the protective measures outlined above, or you have a known sensitivity to any fluid component, or you have an existing condition that you feel may be exacerbated by the lab environment, contact Dr. Styn immediately to discuss the problem. Also, consult with your physician for a recommendation regarding participation in anatomy lab.

If you sustain a wound while dissecting,

- 1) Report the injury to the anatomy staff.
- 2) Administer basic first aid. A first aid kit is available in the laboratory. However, if the wound is serious, call 911.
- 3) Call campus security to fill out an incident report (x8246). All injuries should be documented.

Emotional Issues

Emotional adjustment to cadaver dissection is a normal process experienced by all students. Should you encounter difficulties making this adjustment please contact Dr. Styn or the Daemen College Health Services (x8446).

V. Important Dissection Procedures

Come to lab **prepared** for that day's dissection by reading/reviewing notes and viewing the dissection video, in advance, the material to be covered. The TAs have completed regional dissections – these are available for you to examine before beginning your own dissections.

Remember, you must provide your own disposable gloves and protective lab clothing,

You will be working as a member of a team. One person (ungloved) acts as the “iPad/technology operator,” navigating the video and apps, while the other members of the team dissect. Share these responsibilities over the course of the dissection and/or semester. Also, make sure everyone knows the entire material, although you will divide up responsibilities for presenting what you dissected to your non-present lab group peers during regular lab time.

The goal is to have the entire dissection completed. There will be structures that may be absent (e.g. cholecystectomy), damaged (e.g. “oops, the scalpel slipped”) or ambiguous/hard to identify due to atrophy, variation, etc... This means that it is your duty as the dissecting group to search other tables and specimens in the lab to find suitable structures to demonstrate to your lab group.

It is very important that all members of the dissection team be involved in the actual dissecting. You should **work as a team**, encouraging the one who is hesitant in dissection and controlling the over-zealous dissector.

Follow the dissection instructions as shown in the video. *Use your scalpel only when indicated*, and go back in the video to re-view if you're unsure. Most of your dissection should employ a "**blunt**" dissection technique using your probe, scissors, forceps and fingers as your instruments. Additionally, please do not place instruments on the cadaver while not using them.

Use the “language of anatomy” while you are dissecting. Speech and auditory cues will enhance your retention of the material. Information obtained through lectures and readings **MUST** be integrated with knowledge gained in the lab. The better you are at integrating these sources of information the more successful you will be.

Take time to look at the other cadavers in the lab. When you review other cadavers please treat them as if they were your own.

Bones and models are not permitted outside the lab.

When you are finished dissecting for the day it is imperative that you do the following:

- 1) Clean instruments that you have used, dry them and put away in proper location.**
- 2) Wipe up excess fluid from the dissection table, including the floor.**
- 3) Pick up any tissue from table or floor and dispose of it appropriately.**
- 4) Make sure that the cadaver is moist by spraying with INFUTRACE preservative.**
- 5) Protect the dissection from drying out by replacing the skin over the dissected area.**
- 6) Moisten and cover the cadaver head, hands and feet with the muslin cloth provided.**
- 7) Close the body bags and dissecting tables.**
- 8) Report any signs of mold to the anatomy faculty.**

VI. Anatomy Memorial Service

An Anatomy Memorial Service will be held in the spring at the end of the academic year. This service, planned and performed by the students, provides a setting for all students participating in graduate human anatomy to formally acknowledge the educational gift that was so generously given by the anatomical gifters. Attendance is *mandatory* for those enrolled in a spring anatomy course.

VII. Laboratory Access

Starting in Fall 2011, the graduate gross anatomy lab will be accessible during all hours that Schenck Hall is open (*usually 6am-11pm daily*) for independent or small group study to those enrolled in the course. Please consult the document “**POLICIES & PROCEDURES FOR UNSUPERVISED ACCESS TO SH110 - GRADUATE ANATOMY LAB**” for additional information.

VIII. Closing Remarks

Gross Anatomy is a unique learning experience that will lay the foundation for your future clinical experiences. Do yourself and the body donor justice by getting the most out of this course as possible. Most clinicians remember this experience for a lifetime. Some consider the cadaver a teacher, while others consider it their first patient. Work hard, be courteous to each other and respect the opportunity in front of you. I look forward to getting to know each of you during the semester.

Best Wishes,
Dr. Styn