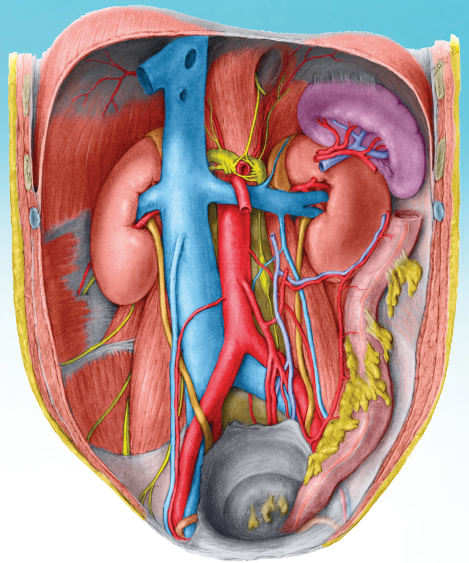
# Anatomy Survival Guide



## TECHNIQUES, TIPS, AND TOOLS FOR THE ANATOMY LAB

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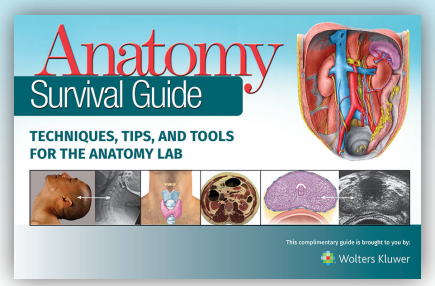


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Anne M. R. Agur, BSc (OT), MSc, PhD
Arthur F. Dalley, PhD, FAAA
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publisher of books, journals, and electronic products you will use throughout your career. When it comes to mastering anatomy, Lippincott Williams & Wilkins is ready to help you succeed.

This booklet is filled with helpful hints and comments from anatomy students and instructors. It contains introductory material that will help you prepare for your gross anatomy course. Read it before you go to lab!

Anatomy lab is challenging. Facts and information will seem overwhelming at first. However, you will persevere utilizing a quick mind and a steady hand. And, you can rely on anatomy products from Lippincott Williams & Wilkins to support you along the way. Our texts, atlases, dissectors, review books, and electronic products have safely guided thousands before you toward their academic and professional destinations.

The information included in this guide was provided by students and professors at the following institutions:

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Abinaya Chari
Jason Le
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Danielle T. Martinez
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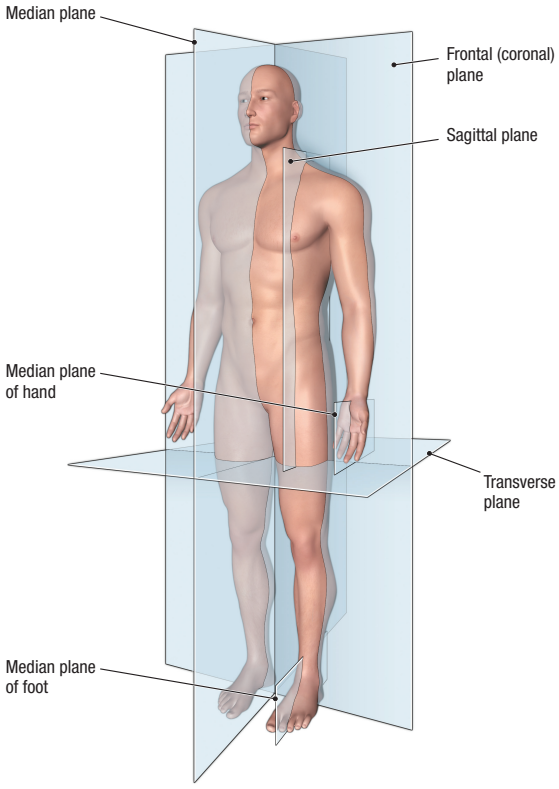
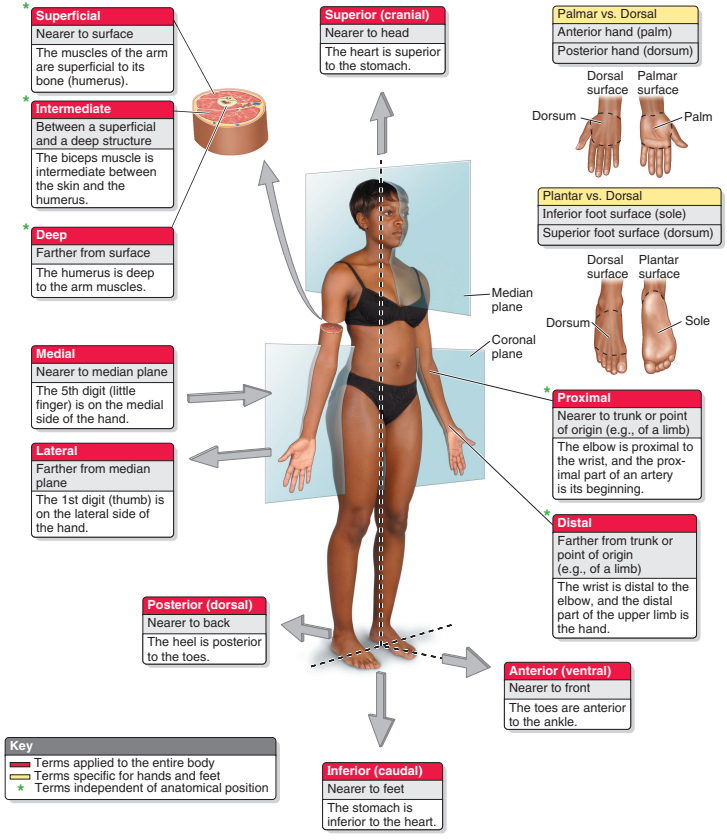
# Anatomical position and anatomical planes

## Fundamental planes in the body; sagittal, coronal, and transverse




## Terms of relationship and comparison



# Welcome to Anatomy

**Human anatomy** can be a daunting subject, but it is one of the most clinically relevant courses in medical school. The anatomy course introduces you to the basic principles of human body structure, much of which is acquired through hands-on dissection of a human cadaver.

Here's how one first-year student describes it: "The intricacies of the human body are overwhelming—there is so much to see and do. Everyone, even the brightest students, feels overwhelmed. During your time in school, you are often expected to learn in situations to which you are not accustomed. Get used to this feeling—it'll happen a lot in the years to come."

All that you learn in this course will contribute to the development of your ability to examine and evaluate a patient with confidence, authority, and assurance.

In most schools, the anatomy course consists of lectures, conferences, and lab. The highlight of the course is the lab, which is also the most time-consuming portion. Anatomy requires a lot of self-direction. Take advantage of your professors' extensive knowledge and try to keep up with the reading and the dissections. If you arrive in lab having read the steps outlined in the dissector and having studied the material in your textbook, you will be able to make maximum, efficient use of your cadaver and the time you spend with him/her. And you will undoubtedly find anatomy a worthwhile course no matter what your eventual specialty.

## Why Dissection?

**Why dissect** a human body? You'll probably ask yourself this question many times before completing this course, but here are the facts. Human anatomy is difficult to fully understand or retain from written descriptions, images, or plastic models. Organs must be seen in context, in actual relationships, with realistic texture. A surgeon will often find a structure by feel before being able to visualize it. The nature of the connective tissues and fascial planes that separate body compartments is difficult to simulate but essential to appreciating structure at a level beyond basic memorization.

During your gross anatomy course, you'll have the opportunity to:

- **Observe and palpate structures** such as blood vessels, nerves, various tissues, and organs.
- **Develop an understanding** of the topographic relationships of anatomical structures relative to one another.
- **Test the rigidity** of bones and the strength of ligaments.
- **Explore and appreciate the three-dimensional aspects** of anatomy. Note the effects of aging, disease, and nutrition on the body.
- **Hone the manual skills necessary for dissection,** and for those procedures that you will perform later on living patients.
- **Observe how human anatomy varies** (sometimes markedly) within a normal range, by making comparisons between cadavers and even between right and left sides of the same body(See Anatomical Variations on p. 15).

# The Lab

**On the first day of class,** or sometimes in advance, you will go to the lab to meet your cadaver and your lab partners. Your instructors and teaching assistants will also be in the lab to assist you. One student emphasizes, "Being prepared for lab makes all the difference." Preparedness ensures that you will learn the essential information contained in that lab and it helps to reduce errors in dissection. Students suggest that you ready yourself in the following ways:

- Read the dissector and review the atlas before each lab session.
- Develop a mental picture of what structures will look like in your cadaver, and become acquainted with the terminology.
- Know the objectives for each lab, and make sure you understand the dissection instructions. Don't attempt to dissect until you do.
- Be aware of the important structures that lie in the field of your dissection. Otherwise, you may cut something essential or waste time and effort trying to preserve something that is less significant.

Once in the lab, don't hesitate to ask professors or teaching assistants for help. They will most likely be able to show you more on your cadaver in a few minutes than you can discover with your atlas or syllabus in half an hour. They will also offer tips on technique and clinical correlations.

You will probably have to use the lab outside of your scheduled class time. Most labs are open on Saturdays and evenings, and at some institutions the lab is open 24 hours. So don't feel rushed in performing your dissections. Take your time and, if necessary, make plans to return at a later time. You'll get more out of it by exercising patience and care.

## Your Lab Partners

**Your lab partners** may be the first friends you make in medical school. They are an excellent source of support as you begin your adventures in medical education.

Communication with your partners is essential. Lab can be fun and interesting, or a virtual nightmare if you don't get along. Respect the fact that your partners have as much right to dissect as you do, and that they should know what you're doing when you are dissecting. Don't try to take charge. Work together as a team—assign each person in your group an area in which to specialize, and have them teach the group. In order to have an effective group, everyone must do their fair share of the work.

As you dissect, discuss what you are doing and seeing. Constantly compare your dissection to corresponding illustrations in your atlas and to other dissections at neighboring tables, taking note of differences and similarities. As you clean the fat from structures, review and quiz each other on what you have learned in lab, from your lectures, or in your reading assignments.

If you encounter problems or difficulties with your lab partners, be sure to address them early as tension within the group could adversely affect your productivity in lab, your well being during the course, and, most importantly, your performance and grades.

Be sure to let your lab partners know if—and what—you plan to dissect during "off" hours so that there are no unpleasant surprises. A lot of your knowledge will come from one another, so be sure to teach and show your lab partners the structures you identified in their absence. Be respectful of others' personal supply of gloves and tools, and be sure to pitch in to buy extra scalpels or other equipment shared by the group. One student suggests sharing notes and resources. "Part of the fun of anatomy was how collaborative everyone was. Sometimes we would show up to lab for a review session, see our classmates there, and just combine forces. Anatomy is tough but fun and rewarding, especially when you work cooperatively." Another says, "One of the division-of-labor techniques my lab group used was to assign one person the role of dissector reader; two people [were charged with] cutting and another cross-checked what we saw with the atlas. Then daily we would switch tasks."

# The Language of Anatomy

**Anatomy has its own language.** You will learn many new terms derived from Latin and Greek as well as the terminology of medical specialities. Listen to the pronunciation of these terms by your instructors and ask if you are unsure. Practice speaking the proper anatomical terms out loud and begin incorporating them into your vocabulary.

# Meeting Your Cadaver

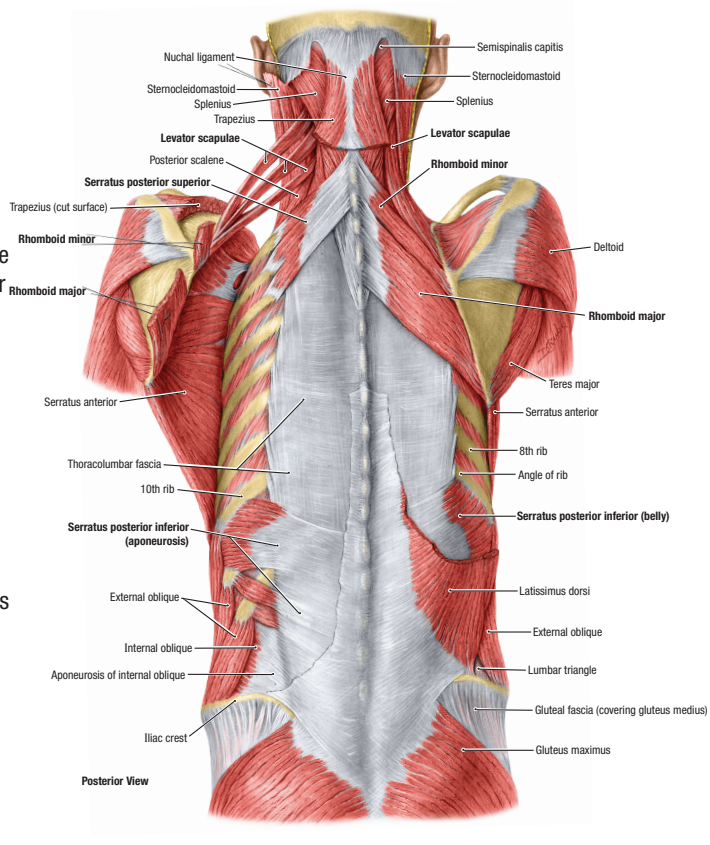
**You may have some initial reservations** about dissecting a human body. When you begin the actual dissecting process, you may feel uncomfortable, or even repulsed as some students have been. Be assured that this is not uncommon. You will be able to work through these feelings—your professor can help if you continue to experience difficulty.

Some universities provide pastoral staff or counseling for students who struggle with dissection, cadavers, death, and other aspects of this challenging experience. Don't hesitate to use this service if you feel you need it.

Everyone in the lab reacts differently to the sight of the deceased. Don't be surprised if some students do not seem affected, or even if they act irreverently.

"You will be surprised that you learn to accept dead bodies in a physical sense," said one student. As your skills develop, so will your acceptance of the cadaver as an important teaching tool. Remember, "once the skin is off, it becomes medical science."

On the first day of lab you will be assigned a cadaver. Your cadaver may be male or female, young or old, obese or thin. You really have no control over what kind of cadaver you get, and each is unique. "Some of their eyes or mouths may be wide open—some may be missing parts because of surgery or organ donation."



You may find that you have an easier time dissecting one area of your cadaver than another group and vice versa, dependent upon your cadaver's structural anatomy and anatomical variations. Dissecting usually requires more time when the cadaver is obese, but structures are often larger, more readily identified, and less prone to drying out. You'll spend less time exposing structures in slim cadavers, but the structures may be small and delicate, and the risk of dehydration of tissues is much greater. All specimens yield valuable information about the body's structures and the common anatomical variations, so learn from other groups' cadavers as well as your own.

If possible, inquire about your cadaver's probable cause of death. In this way, you can actually see the pathology of the disease. A student recalls: "One woman died of tuberculosis (TB), so it was interesting to see the condition of her lungs. Another cadaver died from melanoma, which had metastasized to her brain." Occasionally, you may be surprised to learn that the recorded cause of death may not have been the actual cause.

Some students find naming their cadaver or learning the real name of the person helpful in dealing with this experience. Your cadaver is your first patient as well as your best teacher. One student noted that their "cadaver was named Harold. Once he got his name he was officially just another member of the team."

# Care of Your Cadaver

**When assigned to a cadaver,** you'll assume responsibility for its proper care. The body will already be preserved or embalmed but the whole body must be kept moist by adequate wrappings or by submersion in a preservative fluid. Mold and desiccation are the biggest threats to a successful dissection experience. To avoid them, uncover only those parts of the body to be dissected. Routinely inspect every part, and renew and moisten wrappings, or individual body parts. No part must ever be left exposed to the air needlessly, especially the face, hands, feet, and external genitalia. Ensure that none of the wrappings hangs over the edge of the table as this will allow the fluids to leak onto the floor, leaving a dry cadaver and a mess. Remember that once a part is allowed to become dry and hard, it can never be fully restored, which makes proper dissection difficult if not impossible. If you find mold, immediately ask your instructor for assistance in preventing its spread.

You should realize that embalming fluid can may cause a number of uncomfortable symptoms, including dizziness, headaches, and skin rash. If you should develop any of these symptoms, consult your professor so that any problems can be immediately addressed. Simple solutions such as wearing a mask or double gloving can improve your experience in the laboratory.

# Respect for the Cadaver

**Remember that the cadavers were living persons** who donated their bodies for medical science in good faith. For most students, the cadaver represents their "first patient,", so it must be treated with the same respect and dignity reserved for a living individual.

You are being afforded the opportunity to learn anatomy through the generosity of those who donated their bodies for this sole purpose. Therefore, out of respect, lab rules are very strict. Eating or drinking is typically not permitted in the lab. And joking about the parts of the cadaver and mishandling the body are entirely inappropriate. Some students have expressed an overwhelming temptation to bring friends to the lab to share their experience. One student put it this way, "You are doing something that few people do and you want to share it with those close to you." But outside visitors may be prohibited; check with your instructor. You may not take photographs without permission.

At the end of the course, some institutions have a memorial ceremony where students read poems and prayers. Other schools let students choose an appropriate way of parting with the cadaver. Proper treatment of the remains is discussed and a moment of silence is usually observed out of respect.

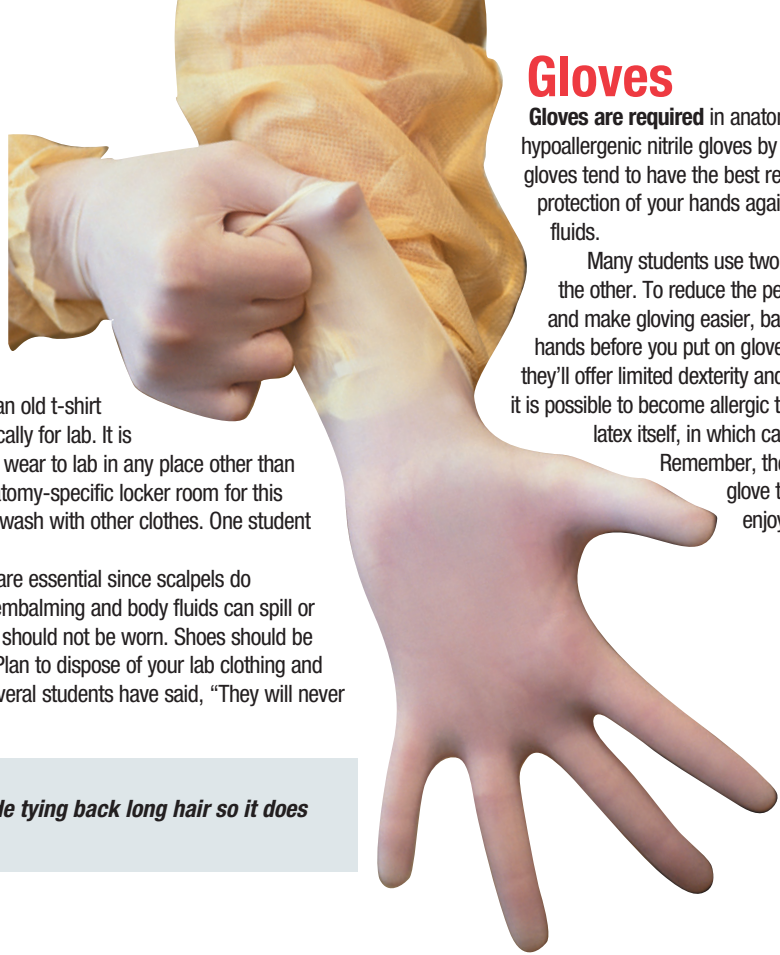
In many cases, the family of the cadaver will recover the remains for cremation. For this reason, it is essential that all body tissues be kept together in a separate container that is assigned to your lab table. Trash and discarded gloves should be placed in a separate receptacle. Dull or broken scalpel blades should be placed in another special container so that they may be disposed of properly and not pose a danger. Be sure to follow your institution's established procedures.

# What to Wear to Lab

**Protect yourself** by wearing a long laboratory coat, scrubs, and/or an apron in the lab. Clothes and lab coats absorb embalming and cadaver fluids. One student points out, "Most people buy or pick up scrubs to wear to dissection because even if nothing gets on your clothes, the odor of the fixative never comes out." Thus, it is a good idea to get an old t-shirt and pants that you will change into specifically for lab. It is advisable to avoid wearing the clothes you wear to lab in any place other than the lab; most medical schools have an anatomy-specific locker room for this purpose. If you wash this clothing, do not wash with other clothes. One student suggests never taking them home.

Shoes that cover the tops of the feet are essential since scalpels do occasionally slip from greasy gloves, and embalming and body fluids can spill or drip. Canvas shoes, flip-flops, and sandals should not be worn. Shoes should be comfortable for long periods of standing. Plan to dispose of your lab clothing and shoes once the course is complete. As several students have said, "They will never be the same."

**Student Tip:**
***Dressing for the lab should also include tying back long hair so it does not dip into the cadaver.***



# Gloves

**Gloves are required** in anatomy lab. You can buy disposable latex or hypoallergenic nitrile gloves by the box at the bookstore. Synthetic nitrile gloves tend to have the best reputation among medical students for protection of your hands against the odors of formaldehyde and embalming fluids.

Many students use two pairs of gloves (double gloving)—one over the other. To reduce the penetration of fluid, keep odors to a minimum, and make gloving easier, baby oil, or petroleum jelly can be applied to your hands before you put on gloves. You may also use dishwashing gloves, but they'll offer limited dexterity and you'll need to wash them every day. Note that it is possible to become allergic to the powder in some types of gloves or to the latex itself, in which case you should switch to hypoallergenic gloves.

Remember, the size of the glove is important. If you wear a glove that fits well, it will make your experience more enjoyable and comfortable.

**Student Tips:**

***Though you'll wear gloves, wash your hands well in laundry detergent to eliminate the odor.***

***It is okay to change gloves several times during a lab sessions to keep hands from becoming too slippery. Double gloving can facilitate this.***

***If not allergic to latex, most students use one layer of latex and one nitrile layer. Those allergic usually stick to one nitrile layer. Tuck extra pairs (2) into your lab coat if gloves are not kept in the lab.***

# Goggles

**Protect your eyes** against parts, liquids, or chips with glasses or goggles. One student noted that her goggles were especially useful during brain and spine dissection "because there's a lot of fluid that flies on or near the dissection table." Also, you may not want to wear contact lenses since phenol and formaldehyde are irritants that can be absorbed by the lens. If you decide to wear contacts instead of glasses, wear gas-permeable contacts and make sure you use goggles. Try to keep the embalming fluid away from your skin and eyes—it can cause irritation. Know where the emergency eyewash stations are located, and how to use them.

# Masks

Y**ou may find a mask** helps diminish the odor. If your school doesn't supply them, you can buy them at the bookstore. One student suggests *VapoRub* under the nose as another way to minimize strong odors.

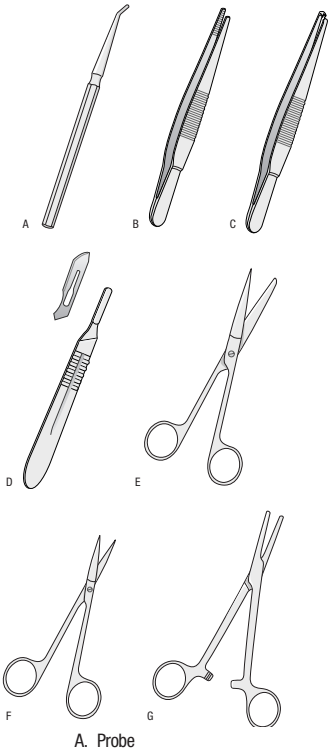
# Instruments

**On your first day** of lab, take along any dissection tools that you may have already purchased, but don't buy additional tools until you and your lab partners have pooled resources and determined what else you need.

If your school does not provide dissection kits, a list of dissecting instruments preferred by your instructor will be provided. The list may vary according to your institution and in some cases the individual instructors. Generally, however, this list will include:

- Two pairs of forceps
- A scalpel (preferably with disposable blades)
- Two pairs of scissors (1 blunt, 1 sharp)
- A seeker or probe
- Hemostats or clamps

## Personal Dissection Instruments




A. Probe
B. Forceps
C. Tissue (rat-toothed) forceps
D. Scalpel and removable blade
E. Large scissors
F. Small scissors
G. Hemostat

**Student Tips:**

***Dissectors are not always explicit about the instruments required. Read carefully and make your own determination about what will be needed.***

***Use 2-3 scalpels for the table and several blades. When dissecting a large area, it is easier for everyone to work at once.***

***Probes are invaluable and will often be your most important tool. They do, however have a sneaky way of disappearing, so make sure you have several.***

# Books

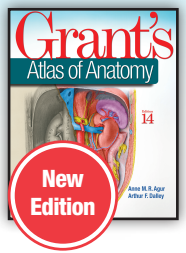
**Books and related educational products are critical to your success;** you'll use your anatomy text and atlas for years to come. Generally, you'll need to purchase the following:

- Lab Manual/Dissector: A dissector provides step-by-step instructions for the dissection lab.
- Anatomy Textbook: The textbook supplies all of the details and clinical information behind the anatomy you see in the lab.
- Anatomy Atlas: An atlas is your roadmap of the human body and is used as a reference in conjunction with your dissector and textbook to help identify the anatomy being viewed. There are two types of anatomy atlases: illustrative and photographic. The former presents idealized illustrations of dissections, the latter high-quality photographs. It is important to constantly compare your dissection with images in your atlas as you dissect, and especially when your dissecting manual instructs you to do so. At first, the two may seem very dissimilar. Soon however, you will see their similarities more than their differences, and you will eventually be able to visualize your cadaver when you consult your atlas outside of the lab.

Choose your text and atlas carefully—consider them major investments, and select the style that suits you best. You may want to buy an additional atlas and dissector dedicated for your group to use in the lab as these do tend to wear rather quickly. Some schools provide these materials for you, but if not, you can split the cost among your lab partners. Leave your lab atlas at your dissection table or in your locker at the end of each day. If you do take it home, put it in a bag—not your knapsack. You'll probably want to throw away your lab atlas at the end of the course.

**Wolters Kluwer publishes a number of anatomy titles that have become invaluable to medical education due to their fine artwork, authoritative content, and useful organization. A number of these classics are available in exciting new editions or formats to help you get more out of your anatomy courses. See pages 10-12 for more details.**

# LAB RESOURCES




## Grant's Atlas of Anatomy, 14e

**Anne M. R. Agur, PhD; Arthur F. Dalley, PhD**

*Hardbound or Softbound, Feb. 2016, 896pp*

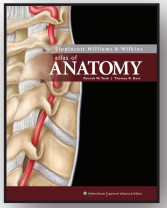
*ISBN: 978-1-4698-9068-5*

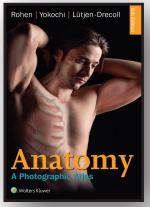
## Lippincott Williams & Wilkins Atlas of Anatomy

**Patrick W. Tank, PhD; Thomas R. Gest, PhD**

*Softbound, Feb. 2008, 448pp*

*ISBN: 978-0-7817-8505-1*




## Anatomy: A Photographic Atlas

**Johannes W. Rohen, MD; Elke Lütjen-Drecoll, MD; Chichiro Yokochi, PhD**

*Softbound, Feb. 2015, 560pp*

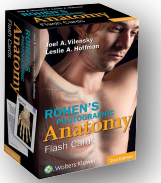
*ISBN: 978-1-4511-9318-3*

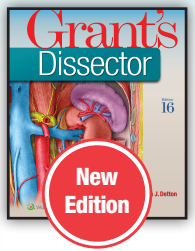
## Rohen's Photographic Anatomy Flash Cards

**Joel A. Vilensky PhD; Leslie A. Hoffman PhD; Johannes W. Rohen, MD; Chichiro Yokochi, PhD; Elke Lütjen-Drecoll, MD**

*Cards, Jun. 2015, 644pp*

*ISBN: 978-1-4511-9450-0*




## Grant's Dissector, 16e

**Alan J. Detton, PhD**

*Spiralbound, Mar. 2016, 320pp*

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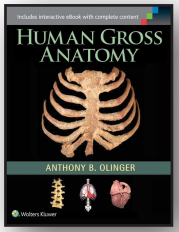
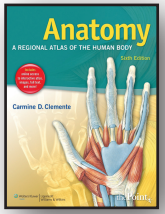
## Human Gross Anatomy

**Anthony B. Olinger**

*Softbound, Jun. 2015, 644pp*

*ISBN: 978-1-4511-8740-3*




## Anatomy: A Regional Atlas of the Human Body, 6e

**Carmine D. Clemente, PhD**

*Softbound, Feb. 2010, 752pp*

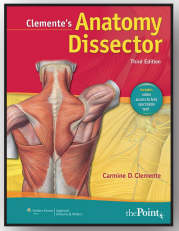
*ISBN: 978-1-58255-889-9*

## Clemente's Anatomy Dissector, 3e

**Carmine D. Clemente, PhD**

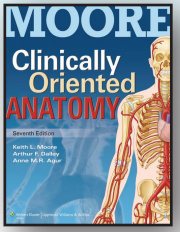
*Spiralbound, May 2010, 464pp*

*ISBN: 978-1-60831-384-6*




thePoint Visit **thepoint.lww.com** to find additional resources for your text, atlas, or dissector such as question banks and videos.

# TEXTBOOK AND REVIEW RESOURCES




**Clinically Oriented Anatomy, 7e**
**Keith L. Moore, PhD; Arthur F. Dalley, PhD; Anne M. R. Agur, PhD**
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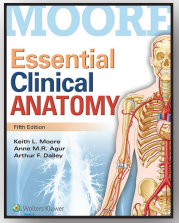
*ISBN: 978-1-4511-1945-9*

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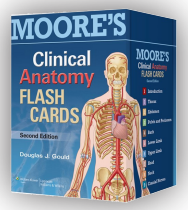
*ISBN: 978-1-4511-8749-6*




**Moore's Clinical Anatomy Flash Cards**
**Douglas J. Gould, PhD**
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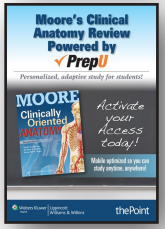


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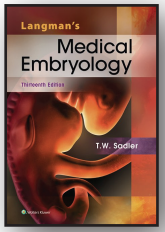


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# Dissection

**The first few lab periods** may be challenging or even overwhelming, but soon you will be able to identify a nerve, a blood vessel, or a muscle with ease. Your dissecting technique will improve with time and practice.

Despite the occasional expression of frustration, the atmosphere during dissections is usually relaxed though the pace is brisk. The main drawback to the lab is the distinctive odor which pervades the room. Relax, you'll get used to it!

While you're dissecting, be sure that the light falls on the part you are investigating. Adequate lighting is essential for efficient dissection. Work in a position that is comfortable and not tiring. Make use of blocks to stabilize parts of the cadaver and maintain its most suitable posture. To make yourself more comfortable, stretch, and change position as often as you can.

Be careful not to cut yourself. Scalpels are extremely sharp and you won't always feel the blade cutting you. Make sure none of your partners' fingers are near your scalpel while you're dissecting. Always keep your eyes on whatever you're cutting. The edges of bones—especially ribs—may be very sharp, so be careful. If you are injured, no matter how minor it may be, inform your instructor immediately. If your gloves develop a hole, replace them with new gloves.

## Dissection Techniques

**When you begin your dissection,** you may be surprised at how difficult it is to cut through human skin. Your professor will demonstrate how to hold the scalpel to eliminate unsteady movements while cutting. Make sure you expose an area completely so that underlying structures may be found.

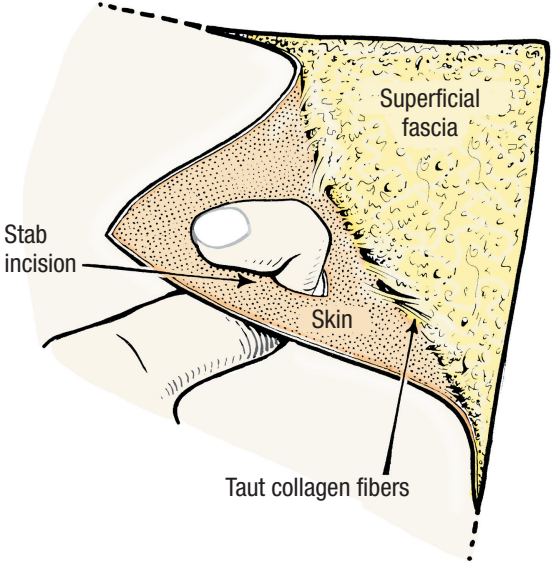
One student tells us: "You don't cut with scissors in lab like you would with paper. Use the fourth finger and thumb, not the first and second (See scissor technique illustration on page 14). This technique provides for greater stability when standing up. Also, cradle the instrument." During dissection, keep in mind that a variable amount of fat lies directly under the skin. This fat contains superficial nerves, vessels, and veins. When you remove the skin, all fat should be left behind (unless you are instructed otherwise). Therefore, you'll need to be cautious when dissecting cadavers with very little fat. The thickness of skin varies between cadavers and each body region, so try not to cut too deeply. Generally, the depth of an incision should not exceed the thickness of the skin.

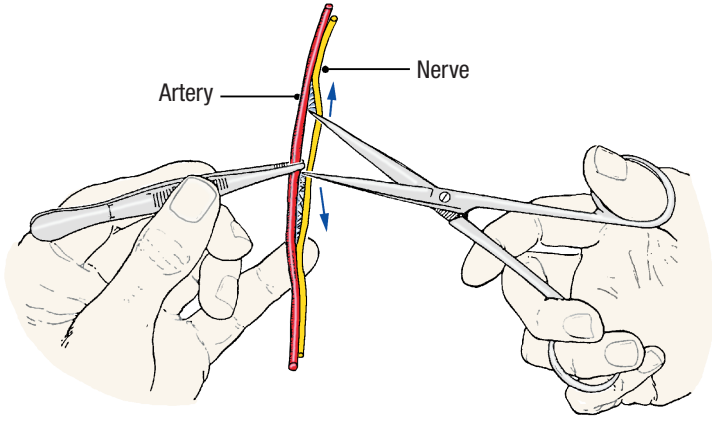
▼ When dissecting, rest the hand. Eliminate unsteady movements.

If, during removal of the skin, you see brownish muscular fibers showing through the filmy deep fascia, your cut is too deep. Cutting away fat or peeling fascia can take up hours of your time, so be sure you have a specific objective.

Always remember to put traction on the skin as it is being removed, to keep a sharp knife directed against the skin and to leave the fat in place. You can make a "button hole" in the skin, put a probe through the button hole, and pull on the ends of the probe to make exerting traction easier. With these techniques, you will work faster and encounter fewer problems.

## ▼ When removing skin, apply traction




## ▲ Separating delicate structures

You can avoid destroying many of the soft structures, and save yourself a great deal of time by using the blunt dissection method. With this technique, you'll use your fingers, scissors, or the blunt handle of a scalpel to gently separate structures from each other. Delicate structures can be separated efficiently by using the scissor technique ("spreading"). To do this, insert the closed scissors gently into the area you are dissecting, then carefully open the scissors so as to spread apart the structures and fascia.

One student observed: "There were many times that blunt dissection reduced my total dissection time in half. For example, during neck dissection, it took a while to realize that much of what I was painstakingly dissecting through was fascia. After that, it took no time at all." Another said, "I wish I had known about the constant use and need for blunt dissection before taking anatomy." Now you know.

**Student Tips**

*I use the blunt scissors a lot, as using the sharper tools increases the chance of cutting the wrong thing. With the blunt scissors, you can generally get through the material without damage.*

*Use blunt instruments like the hemostat and spreader to avoid tearing. Avoid sharp instruments especially around nerves and vessels. Your probe is also very effective during dissection. You will quickly learn that the scalpel is not really your friend because it usually results in important structures being destroyed.*

*Look carefully at the structure before cutting through it. Once a structure is removed, relationships are destroyed. Know that when you cut you will never again see where you were.*

*Caution: You may run into unexpected objects while dissecting. One student recalls that he was cutting through the head when he suddenly hit an object that was more rigid than surrounding structures—a pair of dentures. Other objects you may encounter include prostheses, pacemakers, staples, and mesh used in hernia repair. Be cautious until you are sure you've found the entire area occupied by the object(s).*

*Discussion is encouraged during dissection; however, you'll want to be careful of airborne fluids and cadaver pieces. One student told us that his lab partner was talking to others at her table and a piece (we don't need to tell you of what) flew into her mouth. It is also not advisable to chew gum in the lab.*

*Spend extra time differentiating nerves, arteries, and veins. They tend to look similar because of the preservation process. This may help to better prepare you for the practical.*

*Warm fat to make it easier to pull off. For larger, less delicate fatty areas like the back and limbs, we would position a lamp/light source to project directly onto the fat as we were cleaning our area of dissection. We would also rub the fatty area vigorously with our gloved hands."*

# Anatomical Variations

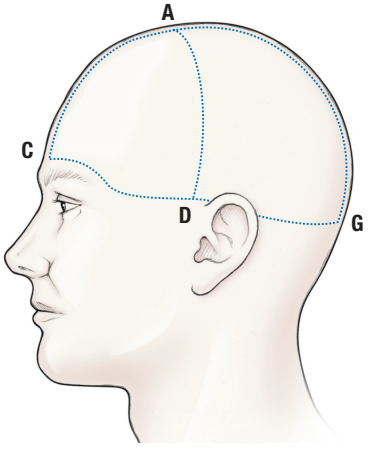
**No cadaver will conform completely** to the patterns described in your atlas and/or dissector. These manuals describe the most common patterns encountered. Minor and even major variations occur frequently. Arteries may arise from sources other than those indicated or may pursue different courses. Muscles may have extra heads of origin or be absent entirely. Organ shape and location may not always be typical. There may be accessory organs. The usual anatomical relations may be distorted by disease processes or by surgical procedures. You may want to point out especially unusual variations to other students or to professors for their documentation or research.

One student suggests that: "while in the lab, examine as many cadavers as you can, noting the differences. You may be surprised at how different the same specimens can look. For the practical, you never know what kind of cadaver you'll get; there's a lot of variation, so be prepared."

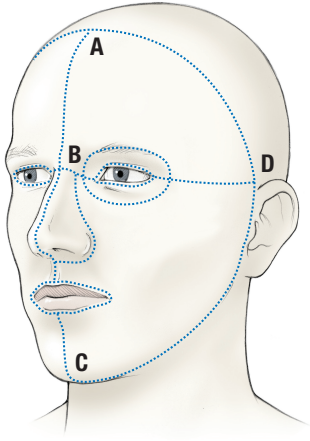
# Connective Tissue and Fat

**The term "fascia"** is used throughout the course. Fascia is connective tissue that surrounds muscles, groups of muscles, blood vessels, and nerves, binding those structures together. Learn it well and know its regionalized names.

## ▼ Scalp incisions




## ▼ Skin incisions




**Student Tips**

***There's a lot of connective tissue and fat—so much of it you never know what is connective and what isn't. You can open it up and think it's a nerve, which can be really deceiving.***

***Sometimes it's tempting to rush through the fat. It's easy to lose concentration and just kind of "dig away" when there's lots of fat. Be careful or you'll cut through pertinent nerves and arteries. To prevent damaging nerves, use scissors to separate connective tissue and pry open structures (via "spreading").***

# A Special Note on the Head and Neck

**The head and neck** are extremely intricate areas. The structures in these regions are small and compact. You may want to invest in finer forceps, probes, and scissors for these dissections. This area is very complex compared to the rest of the body. One student said, "Orienting in this region is difficult because of the shapes, and you're not really used to thinking about what is inside your face and head." The student suggests using an easily identifiable facial feature as a landmark for orientation.

Cutting into the face or cutting out the eyeball is sometimes difficult for students. During dissection of this region, the skin will be removed from the face, and the head is ultimately cut completely in half.

Be careful when removing the skin of the face because the muscles of the facial expression can be damaged due to their attachment to the subcutaneous fascia. One student pointed out: "In the head and neck you need to be meticulous; however, you can be too obsessive and fall behind. Don't clean every vein, just the big stuff." Another student had this advice to offer: "Blunt dissection in the head and neck region using the 'spreading' technique can make a world of difference when working through the tissue and maintaining the integrity of many of the delicate nerves and arteries of this region."

# Time-Saving Tips

***Time is immensely valuable during anatomy lab. Therefore, learn as much as possible in the shortest amount of time. Here are some suggestions to improve your efficiency:***

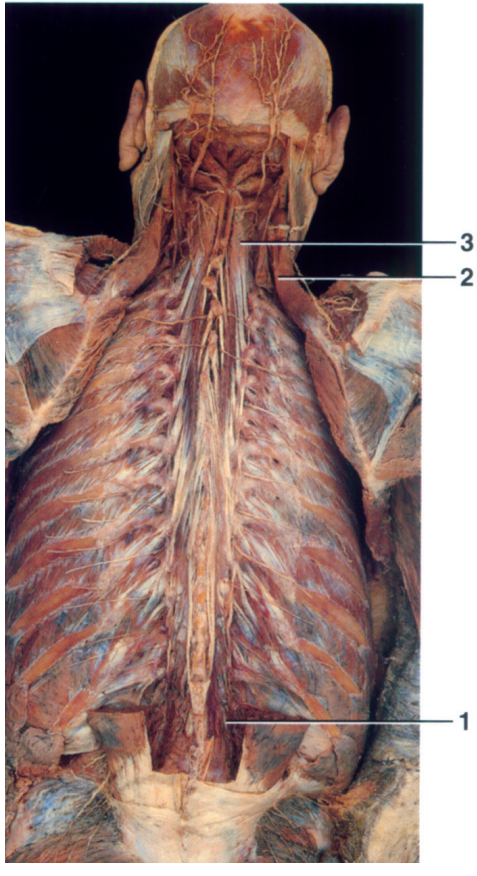
1. Mentally conceptualize the area under investigation and what you want to find. You must deliberately search for certain structures.
2. Make constant use of a good atlas, both in and outside the lab. In lab, have at least one atlas open at your table as you dissect.
3. Use available time to quiz each other and review, and relate material presented in lecture to what you are observing in the lab. Be sure to use proper terminology.
4. Always palpate bony landmarks. They are keys in your search for related soft structures.
5. Do not spend significant time tracing the terminal twigs of a cutaneous nerve when the general skin area supplied by the nerve is obvious. On the other hand, pausing to define the exact fiber direction of a ligament is time spent for great gain; you will then understand why and how that ligament limits or prevents certain movements of bony structures.
6. Demonstrate the essential features of each anatomical region. Remove fat, connective tissue, and smaller veins. If a clear-cut display of arteries is obtained, the general arrangement of the companion veins will be obvious.
7. Dissection moves more quickly when the scalpel blade is sharp. Discard dull blades. You may have to use two to three blades per dissection when you open a new region.

   Let your instructor show you the proper method for safely changing scalpel blades. Remember, don't use your fingers; use a hemostat or a strong pair of forceps to handle the blade.
8. Try to learn where you can cut corners (not the head and neck) before you leave the lab. If you have an obese cadaver, for example, dissection may take extra time. Plan accordingly to avoid falling behind your classmates. If in doubt, use your atlas and take advantage of your instructor's experience.
9. If you need help, or if the instructor or teaching assistant is unavailable, consult with the nearby teams.
10. Team learning, and especially team reviewing, is often more efficient than lone efforts. Going back to the lab with a study partner or small group provides opportunities to teach each other (you will remember what you teach!) and correct misconceptions.

# The Practical

**As part of your anatomy lab,** one of the ways you will be tested is through (dreaded to some) practical exams. Practicals are in-lab exams in which you are asked to identify specified anatomical structures, or in some cases models or radiographs, on display at several "stations." You will move from station to station, identifying tagged structures and recording your responses—with 60 or fewer seconds to complete the task before moving on to the next station. Students have offered a variety of suggestions to help you succeed on these exams:

- Save exam prep time by taking a look at other people's cadavers during the scheduled lab time (perhaps one or two each lab period) and become familiar with other cadavers (normal variations can be considerable). Select structures and try to identify them on as many cadavers as you can.
- Work together with other lab groups, and before practical exams have each group tag structures that they are most proud of and structures that are most cleanly dissected—these are structures most likely to be tagged—and make your own mock practical exam.
- Most schools have "structure hit lists" or "frequency lists" in circulation, but you cannot rely on them as your sole means of review. Bodies vary from year to year and tagged structures may vary as well. You should always study every structure discussed in your lab or course manual.
- Learn the details of how a practical is performed at your institution (timing, stations, rotations) and consider this as you are studying multiple cadavers.
- The best time to learn and understand anatomical relationships is in the lab. It is more time efficient in terms of studying, and will help you prepare for the practical. The purpose of the practical is to understand these relationships. Arteries, nerves, and veins have distinct relationships with regard to one another and to other organ/muscle structures.
- Know your school's policy in terms of challenging questions after the exam. Some questions may seem to have more than one answer or the tags may have been ambiguously placed or moved by another student.
- Spend extra time differentiating between nerves, arteries, and veins. They tend to look similar because of the preservation process.

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