



ANATOMY STUDY GUIDE—ANSWER KEY

PATHOLOGY

The suffering from gallstones and bladder stones can be quite painful. Most people did not run the risk of having them surgically removed before the 20th century, due to the fact that death was almost certain during or shortly after surgery.

Where in the human body could you expect to find stones like those on display?

Stones can be found in the gallbladder, bladder, kidney, salivary duct, and urinary tract. Most of the stones in the Museum's display come from the gallbladder and urinary tract.

How do you think stones form inside the body?

The stones form by a tiny piece of solid material being deposited in an organ, and then additional material clinging to the first speck, gradually building into a solid object.

AMPUTATION PAINTING

Look at the painting *Early Amputation*.

If this painting depicted a modern amputation, what would be different?

The patient would be under anesthesia. The people in the operating room would be wearing masks and gloves. The environment would be sterile. There would be surgical assistants, anesthesiologists, and technicians. Clamp, suction and modern surgical equipment would be used.

TREPHINING PAINTING

Look at the painting *Primitive Trephining*.

What is trephination? Why was it performed?

Trephination is the removal of a piece of skull by scraping or drilling a hole. The people of ancient cultures believed evil spirits caused disease and pain. Trephination was performed to release the evil spirits. It was performed to treat brain injuries, hallucinations, and epilepsy.

HALL OF MURALS

Find the painting *War and Surgery*. In 1536, the procedure of cauterization by pouring boiling oil onto an amputee's wounds was used to stop the bleeding.

What problems would cauterization have caused?

The boiling oil used in cauterization burned the patients, causing them to have to recover from the initial wound AND the burns.

How did Ambrose Paré change this practice?

Paré overthrew the established practice of cauterizing gunshot wounds and the stumps from amputations, instead applying salves and tying off severed blood vessels.

OPHTHALMOLOGY

Inside the eye is a lens similar to those used in eyeglasses to correct vision. When the lens within the eye becomes clouded, the patient has a cataract.

When was the first cataract surgery performed?

Susruta first performed cataract surgery around 500 B.C.

POLIO

Poliomyelitis is a disease, which cannot live on its own as bacteria,

but must infect a living cell to survive. The only way to treat a disease like this

is through prevention using a vaccine, like the one developed in 1955.

HALL OF IMMORTALS

Today we know that hormones and other secretions in the body maintain homeostasis, or a strict balance that keeps the body's temperature, pH, and other physiological processes steady. This idea of balance in the body to maintain health is not new.

What theory of Hippocrates' is based on the idea of balance? What four things did Hippocrates say had to be in balance to maintain good health?

Theory of the Four Humors: blood, phlegm, black bile, yellow bile

Antisepsis is the elimination or reduction of the spread of microorganisms that cause infection and disease.

Read the stories next to the statues to help you identify the names of the three men who contributed to the understanding of antisepsis.

1. **Joseph Lister**
2. **Ignaz Semmelweis**
3. **Louis Pasteur**

GYNECOLOGY

Look at the two examination tables on display. *What time periods are each of these tables from?*

What are the major differences between the two tables and how would this effect patient comfort and care?

One examination table is from the early 1900's and the other is from the mid-1900's. One table is very small and not concerned with patient comfort (from the early 1900's) and the other table is much larger and padded (from the mid-1900's). The second table looks very similar to what is used today.

ENDURING PAIN

Observe the different surgical tools.

Find the tools used for blood letting. *Why was blood letting performed? How would a doctor/surgeon use these tools?*

Bloodletting was believed to cure infection/disease for thousands of years. People believed that tapping the vein and letting the "bad blood" run out for a while would cure any sickness or disease. Doctors would use the tools that you see to cut the vein of the patient.

Pain can be classified according to its source, whether it is internal or external to the nervous system.

Where does neuropathic pain originate from?

A damaged nerve somewhere in the body

JAPAN HALL OF FAME

Anastomosis is the surgical connection of two hollow organs, for example, blood vessels or parts of the intestine, to ensure a continuous passageway.

What type of surgical tools are used with this procedure?

Surgical stapling instrument

MEDICAL IMAGING

The discovery of the x-ray changed the way doctors viewed the human body and diagnosed diseases.

Why was the discovery of the x-ray so important to the study of medicine?

The x-ray allowed doctors to see inside the body without cutting.

What were some of the early uses of the X-ray?

X-rays have been used in many ways. Examples include: to find problems inside the body without cutting it open, to determine the right shoe size, to treat cancer, to examine mummies, and to remove hair.



TREPHINING

Take a look at the skulls in the case. *Can you tell who lived after a trephining procedure? What clues can you find on the skull?*

The new bone growth on one skull and multiple holes indicate that the individuals survived the procedure.

Look at the green tools used to perform this procedure. Can you imagine how they might have been used?

These tools were used to bore and scrape a hole into the patient's skull. The video in this case showcases the use of these tools during a modern trephination. (not for the squeamish!)

NURSING

Modern nurses dedicate their lives to helping those who are sick and injured; working to promote health, prevent disease and help patients cope with illness.

What method did Rosemarie Acuna come up with to help the visually impaired live independently with their dialysis?

The “touch and feel” method

What is an “IV House Ultra Dressing?”

A polyethylene site protector that protects and shields the area where an IV needle is inserted.

