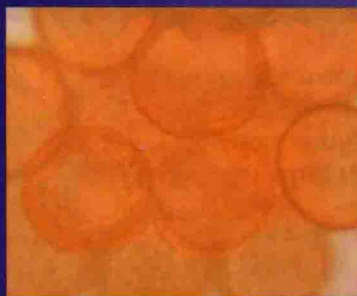


STUDY GUIDE FOR

Memmler's

The Human Body in Health and Disease

N I N T H E D I T I O N



STUDY GUIDE FOR MEMMLER'S

The Human Body
in Health
& Disease

9th Edition



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9th Edition

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Barbara Janson Cohen, BA, MEd

Assistant Professor

Delaware Community College
Media, Pennsylvania

Dena Lin Wood, RN, MS

Staff Nurse

VNA Care
Glendale, California

Preface

Study Guide for Memmler's The Human Body in Health & Disease, ninth edition, assists the beginning student to learn basic information required in the health occupations. Though it will be more effective when used in conjunction with the ninth edition of *The Human Body in Health and Disease*, the Study Guide may also be used to supplement other textbooks on basic anatomy and physiology.

The questions in this edition reflect revisions and updating of the text. The labeling exercises are taken from the all-new illustrations designed for the book. The "Practical Applications" section of each chapter uses clinical situations to test understanding of a subject. Comparing the normal with the abnormal helps a student to gain some understanding of disease prevention and health maintenance.

The exercises are planned to help in student learning, not merely to test knowledge. A certain amount of repetition has been purposely incorporated as a means of reinforcement. Matching questions require the student to write out complete answers, giving practice in spelling as well as recognition of terms. Other question formats include multiple choice, completion, true-false, and short essays. The true-false questions must be corrected if they are false. The essay answers provided are examples of suitable responses, but other presentations of the material are acceptable.

All answers to the *Study Guide* questions are in the *Instructor's Manual* that accompanies the text.

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Unit



THE BODY AS A WHOLE

1. Organization of the Human Body
2. Chemistry, Matter, and Life
3. Cells and Their Functions
4. Tissues, Glands, and Membranes

Organization of the Human Body

I. Overview

Living things are organized from simple to complex levels. The simplest living form is the *cell*, the basic unit of life. Specialized cells are grouped into *tissues*, which, in turn, are combined to form *organs*; these organs form *systems*, which work together to maintain the body.

The systems include the integumentary system, the body's covering; the skeletal system, the framework of the body; the muscular system, which moves the bones; the nervous system, the central control system that includes the organs of special sense; the endocrine system, which produces the regulatory hormones; the circulatory system, consisting of the heart, blood vessels, and lymphatic vessels that transport vital substances; the respiratory system, which adds oxygen to the blood and removes carbon dioxide; the digestive system, which converts raw food materials into products usable by cells; the urinary system, which removes wastes and excess water; and the reproductive system, by which new individuals of the species are produced.

All the cellular reactions that sustain life together make up *metabolism*, which can be divided into *catabolism* and *anabolism*. In catabolism, complex substances, such as the nutrients from food, are broken down into smaller molecules with the release of energy. This energy is stored in the compound *ATP* (adenosine triphosphate) for use by the cells. In anabolism, simple compounds are built into substances needed for cell activities.

All the systems work together to maintain a state of balance or *homeostasis*. The main mechanism for maintaining homeostasis is negative feedback, by which the state of the body is the signal to keep conditions within set limits.

Study of the body requires knowledge of directional terms to locate parts and

to relate various parts to each other. Several *planes of division* represent different directions in which cuts can be made through the body. Separation of the body into areas and regions, together with the use of the special terminology for directions and locations, makes it possible to describe an area within the human body with great accuracy.

The large internal spaces of the body are the **cavities**, in which various organs are located. The *dorsal cavity* is subdivided into the cranial cavity and the spinal cavity (canal). The *ventral cavity* is subdivided into the thoracic and abdominopelvic cavities. Imaginary lines are used to divide the abdomen into regions for study and diagnosis.

The metric system is used for all scientific measurements. This system is easy to use because it is based on multiples of 10.

II. Topics for Review

- A. Studies of the body
- B. Body systems
- C. Body processes
- D. Directions in the body
- E. Body cavities
 - 1. Dorsal cavity
 - 2. Ventral cavity
 - a. Regions of the abdomen
- F. The metric system

III. Matching Exercises

Matching only within each group, write the answers in the spaces provided.

Group A

tissue	organ	cell
system	anatomy	pathology
physiology		

1. The basic unit of life
2. The study of body structure
3. A specialized group of cells
4. The study of disease
5. A group of organs functioning together for the same general purpose
6. The study of how the body functions
7. A combination of tissues that function together

Group B

umbilicus	diaphragm	epigastric
thoracic	transverse	lateral
frontal		

1. A plane that divides the body into superior and inferior parts
2. A directional term that means away from the midline (toward the side)
3. A plane that divides the body into anterior and posterior parts
4. Another name for the navel
5. Term describing the central region of the abdomen just below the breast bone
6. The muscular partition between the two main ventral body cavities
7. A term that describes the uppermost (chest) portion of the ventral body cavity

Group C

sagittal	proximal	posterior
caudal	cranial	horizontal

1. A term that indicates a location toward the back

2. A term that means closer to the origin of a part _____
3. A plane that divides the body into left and right parts _____
4. A word that means nearer to the sacral (lowermost) region of the spinal cord _____
5. A plane of division that also is described as a transverse or cross section _____
6. A word that means nearer to the head _____

Group D

respiratory system	integumentary system	skeletal system
endocrine system	reproductive system	urinary system

1. The system that includes the sex organs _____
2. The system made up of the bones and joints _____
3. The system of scattered organs that produce hormones _____
4. Another name for the excretory system _____
5. The system made up of the lungs and the passages leading to and from the lungs _____
6. The system that includes the hair, nails, and skin _____

IV. Multiple Choice

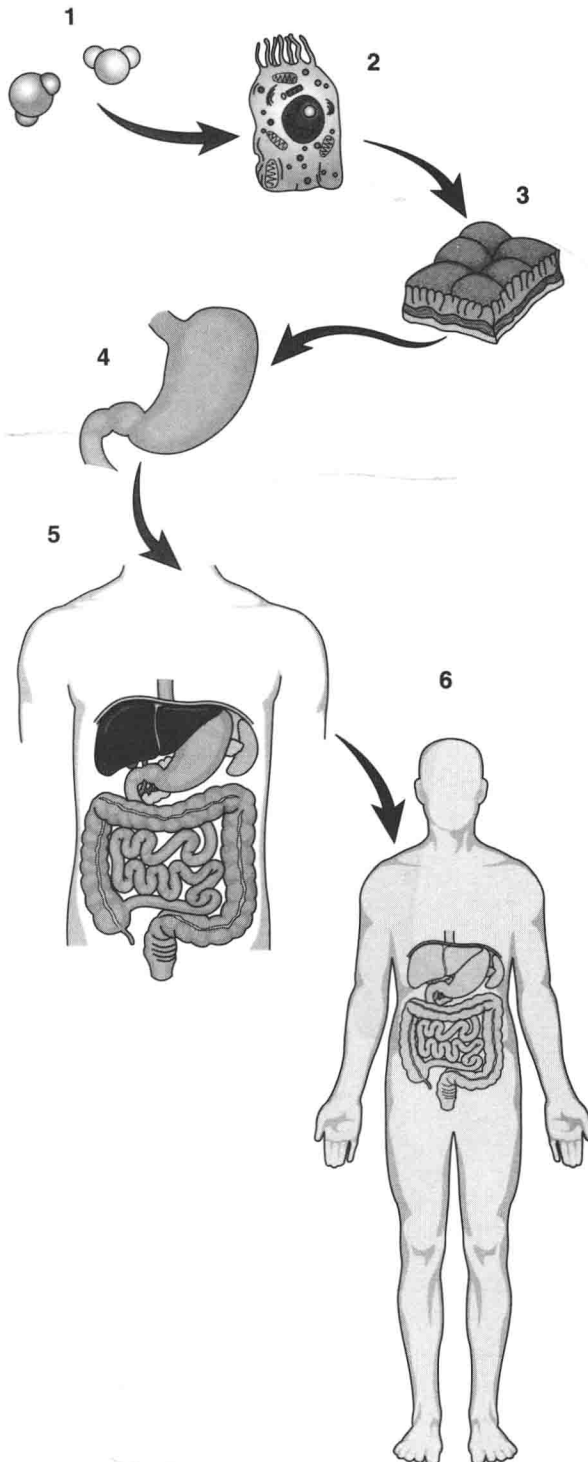
Select the best answer and write the letter of your choice in the blank.

1. Another name for a coronal plane is _____
 a. distal
 b. horizontal
 c. frontal
 d. transverse
 e. sagittal
2. The term *ventral* means _____
 a. toward the belly surface
 b. posterior
 c. in the dorsal body cavity
 d. farther from the origin of a structure
 e. nearer to the back
3. Anabolism produces _____
 a. simple compounds from more complex compounds
 b. carbon dioxide
 c. energy
 d. complex materials needed for body functions
 e. digested foods

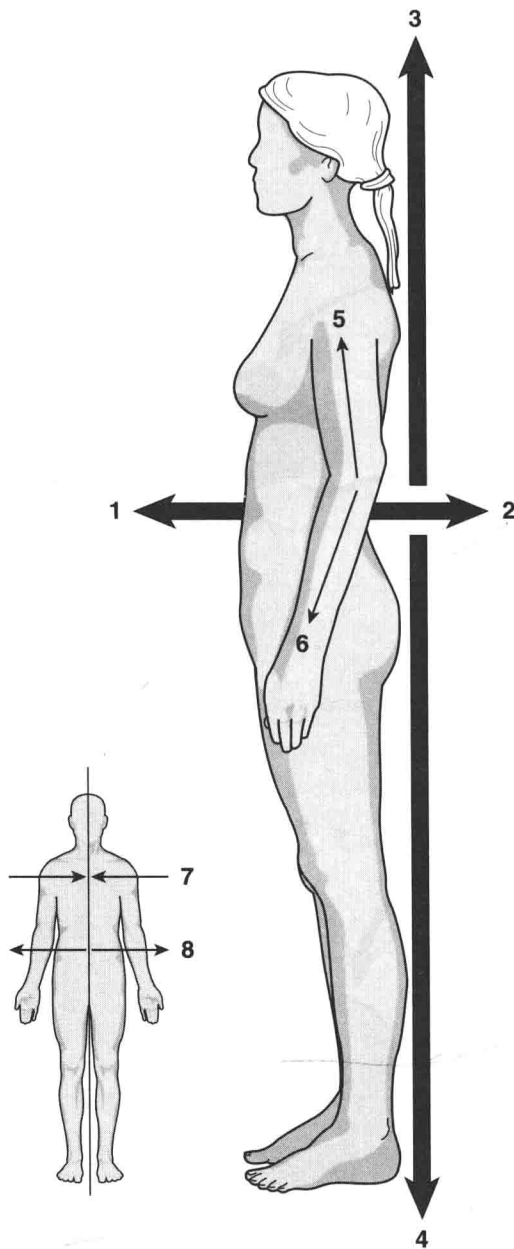
4. Fluids located outside the cells are described as 4. _____
- a. lateral
 - b. intracellular
 - c. superior
 - d. extracellular
 - e. frontal
5. A system that controls and coordinates the body is the 5. _____
- a. circulatory system
 - b. nervous system
 - c. urinary system
 - d. digestive system
 - e. skeletal system
6. The cavity below the abdominal cavity is the 6. _____
- a. dorsal cavity
 - b. frontal cavity
 - c. thoracic cavity
 - d. cranial cavity
 - e. pelvic cavity
7. A plane that divides the body into upper and lower parts is called a 7. _____
- a. transverse plane
 - b. frontal plane
 - c. midsagittal plane
 - d. superior plane
 - e. sagittal plane

V. Labeling

For each of the following illustrations, write the name or names of each labeled part on the numbered lines.



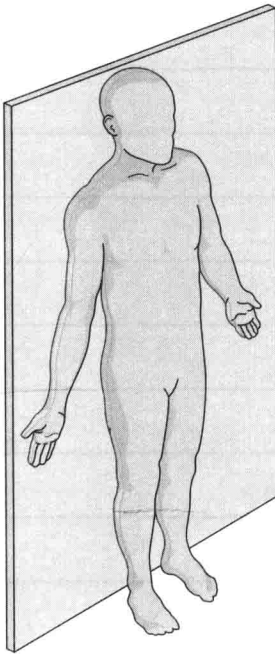
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____



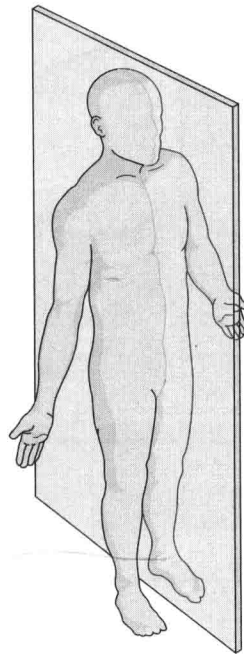
Directional terms

- | | |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

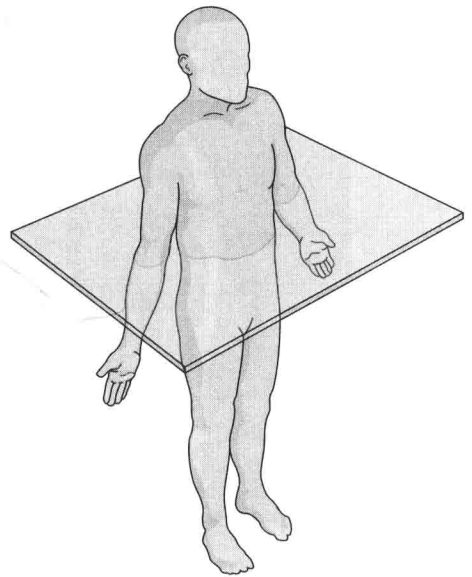
1



2



3

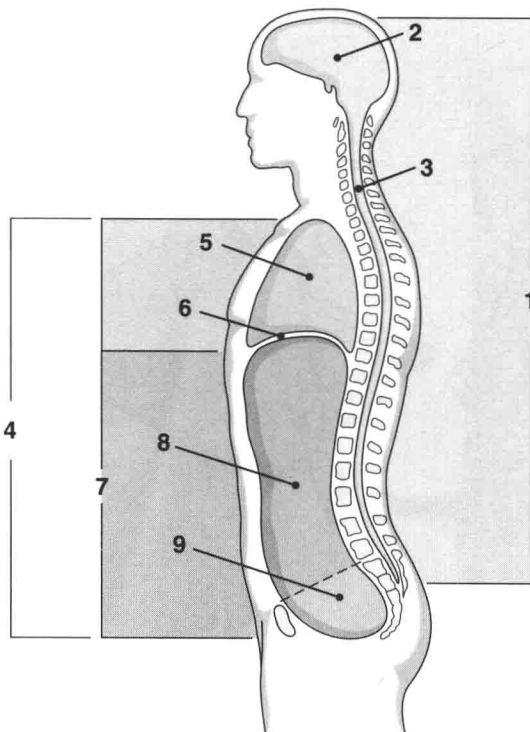


Planes of division

1. _____

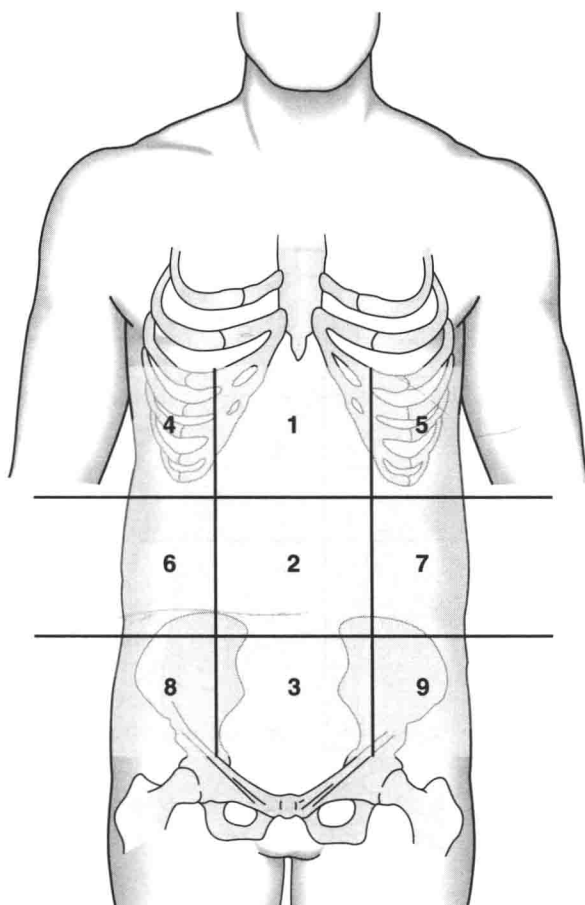
3. _____

2. _____



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

Side view of body cavities



Regions of the abdomen

- | | |
|----------|----------|
| 1. _____ | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | |