**Chapter 1: Introduction to Anatomy and Physiology Notes**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the structure of body parts (also called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_). \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the function of body parts; what they do and how they do it.
2. There are five main characteristics of living things:

(1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – self initiated change in position; the motion of internal parts

(2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (irritability) – ability to sense changes within, or around the organism and react to them

(3) \_\_\_\_\_\_\_\_\_\_\_ - increase in body size

(4) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – Parents produce offspring/ producing new individuals

(5) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – Obtaining oxygen (O2), using it to release energy from food substances, and getting rid of wastes

 3. There are several biological processes you need to know that occur in the body:

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – Chemically changing (breaking down) food substances, and getting rid of wastes
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – Passage of digested products (food substances) through membranes and into body fluids
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – movement of substances throughout the body
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – Changing absorbed substances into chemically different substances
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – removal of wastes
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – all the physical and chemical changes

Bodily needs = \_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – the tendency of the body to maintain a stable, balanced, internal environment; “sameness”

1. Levels of Organization of the Body:

Atoms → Molecules → Cells → Tissue → Organs → Organ Systems → Organisms

1. Two parts of the skeleton:
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ – Head, neck, and trunk
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – arms and legs
4. 1. Several body cavities

2. Layers of membranes within cavities

3. Variety of organs and organ systems within cavities

VISCERA = internal organs “visceral organs”

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ means to disembowel or gut; popular in video games and movies

A. Dorsal Cavity ---Cranial Cavity - \_\_\_\_\_\_\_\_\_\_\_, Spinal Cavity - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
B. Ventral Cavity

C. Thoracic Cavity - right and left compartment separated by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Heart , lungs, esophagus, trachea all found in the thoracic cavity.
D. Abdominopelvic Cavity
---Abdominal cavity - stomach, spleen, liver, gall bladder, small intestine
---Pelvic cavity - part of the large intestine, urinary bladder, reproductive organs

\*Thoracic and abdominopelvic cavity separated by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
\*The organs within the cavities are surrounded by a type of two layered membrane called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ MEMBRANE

10. The outer layer of each membrane is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ layer and forms a "lining" against the inner wall of each cavity. The inner layer of each membrane covers the surface of each organ and is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ layer.

Membranes:

1. Pleura (or pleural membrane) - surrounds the \_\_\_\_\_\_\_\_\_\_\_\_\_
--outer layer = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ pleura
--inner layer = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ pleura

2. Pericardium (or pericardial membrane) - surrounds the \_\_\_\_\_\_\_\_\_\_\_\_
--\_\_\_\_\_\_\_\_\_\_\_ layer = parietal pericardium
--\_\_\_\_\_\_\_\_\_\_ layer = visceral pericardium

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (or peritoneal membrane) - surrounds all the organs within the abdominopelvic cavity
--outer layer = parietal peritoneum
--inner layer = visceral peritoneum

\*Between the layers of each membrane is a lubricating fluid which is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ FLUID

**Organ Systems**

|  |  |  |
| --- | --- | --- |
| **System** | **Organs Included** | **Function** |
| Integumentary |  |  |
| Skeletal |  |  |
| Muscular |  |  |
| Nervous |  |  |
| Endocrine |  |  |
| Digestive |  |  |
| Circulatory |  |  |
| Lymphatic |  |  |
| Urinary |  |  |
| Reproductive |  |  |

Anatomical Terminology – standing \_\_\_\_\_\_\_\_\_\_\_\_, facing \_\_\_\_\_\_\_\_\_\_\_\_\_\_, arms at side, palms facing \_\_\_\_\_\_\_\_\_\_\_\_

Superior – towards the \_\_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Inferior – towards the \_\_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Anterior - \_\_\_\_\_\_\_\_\_\_\_\_\_ or in front of

Posterior - \_\_\_\_\_\_\_\_\_\_\_\_\_ or at the back of

Lateral – toward the \_\_\_\_\_\_\_\_\_ of the body, or away from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the body

Medial – toward the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the body

Proximal – closer to the \_\_\_\_\_\_\_\_ of the limb

Distal – closer to the \_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_ of a limb

Supine – lying face \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Prone – lying face \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Anatomical Body Planes



**Homeostasis**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ describes the body’s ability to maintain relatively stable internal conditions even though the outside world is constantly changing. It indicates a *dynamic* state of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or a balance where internal conditions change and vary within narrow limits. Every organ system works to maintain equilibrium inside the body.
2. At least three components exist for homeostatic control center:
3. Receptor - The receptor is some type of sensor that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and responds to changes in the environment (\_\_\_\_\_\_\_\_\_\_\_\_\_\_). The receptor responds to the stimulus by sending information to the control center (\_\_\_\_\_\_\_\_\_\_\_\_\_\_). Examples of receptors can include: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ receptors in the skin, \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the endocrine system, \_\_\_\_\_\_\_\_\_\_\_\_ receptors, nerves.

 (2) Control center - The control center (brain) determines the \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_ at which a variable must be maintained. The control center analyzes the information it receives from the receptors and then determines the appropriate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or course of action.

 (3) Effector - The effector provides the means for the control center’s response to the stimulus. The results of the response then feedback to influence the stimulus by either \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ it (*negative feedback*) so that the entire mechanism is shut off, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ it (*positive feedback*) so that the reaction occurs at an even faster rate.

 3. Most homeostatic control mechanisms are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ systems!

EX: Your home heating system. If the thermostat is set at 68°F, the heating system will be turned ON when the house temperature drops below that setting. As it produces heat, the air is warmed. When the temperature goes back up to 68°F or slightly higher, the thermostat sends a signal to turn the furnace off.

What is the receptor in this example? The control center? The effector?

1. Because they tend to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the stimulus and push the levels that a variable must be maintained at farther, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ feedback systems rarely occur. They usually occur infrequently and do not require \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ adjustments. What is an example of a positive feedback system?

5. Homeostasis is crucial for good health! In fact, it is so important, that we consider diseases to occur as a result of homeostatic \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. As we age, our organs become less \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and our internal environments become less \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. These events make us more susceptible to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.