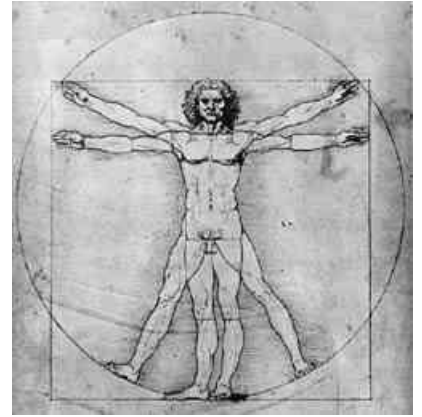


AN OVERVIEW OF ANATOMY & PHYSIOLOGY



What is the difference between Anatomy and Physiology?

ANATOMY

- The study of the **structure** and **shape** of the body and body parts and their **relationships** to one another.
- Root Words (Greek)
 - o -tomy
 - **“Cut”**
 - o Ana-
 - **“Apart”**
 - o **GROSS ANATOMY**
 - The study of **large**, easily **observable** structures
 - o **MICROSCOPIC ANATOMY**
 - The study of very **small** structures of the body

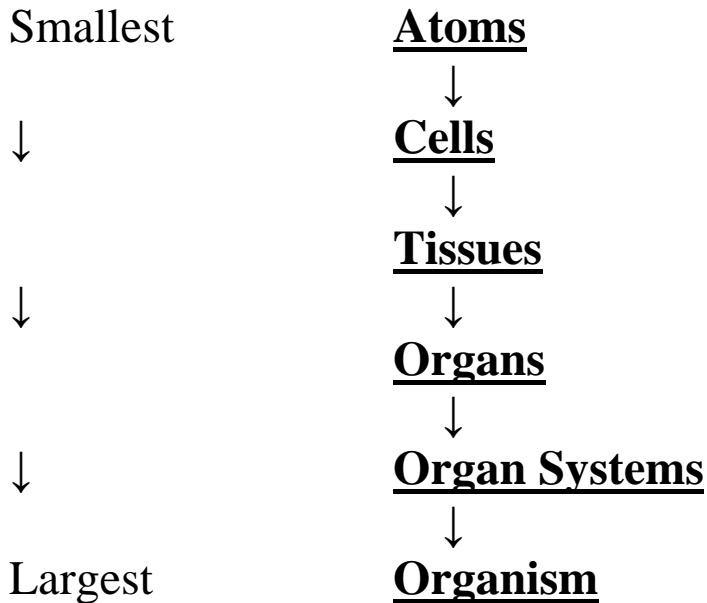
PHYSIOLOGY

- The study of how the **body** and its parts work or **function**.
- Root Words
 - o Physio-
 - **“Nature”**
 - o -ology
 - **“Study of”**

Even though **anatomy** and **physiology** are separate studies, both **intertwine** and allow us all to **function** on an everyday basis.

The human body has many levels of **complexity**, ranging from very **small** at the **chemical** level and growing larger and larger with each step, making up our body as a **whole**.

Example:



Organ System Overview

INTEGUMENTARY SYSTEM

- External **covering** of the body...(a.k.a. “Skin”)
- Functions
 - **Waterproofs** body
 - Protects deeper tissues from **injury**
 - Excretes **salts** and **urea** via perspiration to help regulate body **temperature**
 - Senses temperature, **pressure** and pain

SKELETAL SYSTEM

- Consisting of **bones**, cartilages, **ligaments** and joints
- Functions
 - **Supports** body

- Provides **framework** for skeletal **muscles** to attach and provide **movement**.
- **Protection**
- **Hematopoiesis**
 - Formation of **blood** cells within bones

MUSCULAR SYSTEM

- The “**machines**” of the body
- Functions
 - To contract, “**shorten**”
 - Types
 - **Skeletal muscles**
 - Contract to move **bones**
 - Other types (you’ll learn about these later!)
 - Contracts muscles of the **heart** or other hollow **organs** to allow movement of **fluids** in body.

NERVOUS SYSTEM

- The fast-acting **control system** composed up of the **brain**, spinal cord, **nerves**, and sensory receptors.
- Functions
 - Responds to **stimuli** coming from **outside** the body.
 - Light, **sounds**, temperature change
 - Responds to **stimuli** coming from **inside** the body.
 - **Oxygen** change, tissue **stretching**
 - Relays messages from sensory receptors to the “**central nervous system**”
 - Brain, spinal cord

ENDOCRINE SYSTEM

- **Hormone** secreting system which, via **glands**, slowly controls body **activities**.
 - **Pituitary**, thyroid, pancreas, ovaries, **testes**, etc.
- Functions

- Growth, **reproduction**, cell food use

CARDIOVASCULAR SYSTEM

- Consisting of the **heart** and blood vessels.
- Functions
 - Using **blood**, carries **oxygen**, nutrients, hormones, etc around body.
 - Using white blood cells, **protects** body from foreign substances.

LYMPHATIC SYSTEM

- An “**overflow**” for the cardiovascular system.
- Functions
 - Using organs such as the **spleen** and tonsils, it returns leaked **fluids** from the blood back to the **cardiovascular** system.

RESPIRATORY SYSTEM

- Consists of the nasal passages, **pharynx**, larynx, trachea, bronchi, and **lungs**.
- Functions
 - Keeps the body constantly supplied with **oxygen** and removes **carbon dioxide** from the body.

DIGESTIVE SYSTEM

- A **tube** running from the mouth, through the body, and to the **anus**.
- Functions
 - Breaks down **food** and delivers their products to the **blood** for dispersal in the body.
- Also includes the **liver** and the pancreas

URINARY SYSTEM

- Composed of **kidneys**, ureters, bladder and urethra.
- Functions

- Disposes of **nitrogen**-containing wastes from the body in the form of **urine**.
- Regulates body's **salt** and acid/base balance.

REPRODUCTIVE SYSTEM

- Composed of **scrotum**, penis glands and ducts in **males**
- Composed of uterine tubes, uterus and **vagina** in **females**
- Different for females and males but exists primarily to produce **offspring**.

THE LANGUAGE OF ANATOMY

- **SUPERIOR**
 - Structures that appear above other structures
- **INFERIOR**
 - Structures that appear below other structures
- **ANTERIOR**
 - The forward stance of a specimen
- **POSTERIOR**
 - The backside stance of a specimen
- **MEDIAL**
 - Closer to the midline of a specimen
- **LATERAL**
 - Farther from the midline of a specimen
- **CEPHALAD**
 - In humans, same as superior
 - In 4-legged specimens, same as anterior

- **CAUDAL**
 - In humans, same as inferior
 - In 4-legged specimens, same as posterior

- **DORSAL**
 - The “back” side of a specimen
- **VENTRAL**
 - The “belly” side of a specimen

- **PROXIMAL**
 - Near the main trunk of the body
- **DISTAL**
 - Farther from the main trunk of the body

- **SUPERFICIAL**
 - Towards the body surface
- **DEEP**
 - Towards the inside of the body