HOW WELL DO YOU KNOW YOUR BODY?

INTEGUMENTARY SYSTEM

- Includes **skin**, **hair**, **nails**, and **various glands**.
- The skin covers the exterior of the human body forming a protective covering.
- The surface area of the skin in an adult is about 20.83 square feet.
- It senses change outside the body and helps regulate body temperature.
- The skin is water proof, which prevents water loss.

THE SKELETAL SYSTEM

- Consists of bones (majority), joints (where 2 bones meet), ligaments (connect bones to joint), and cartilage (connective tissue)

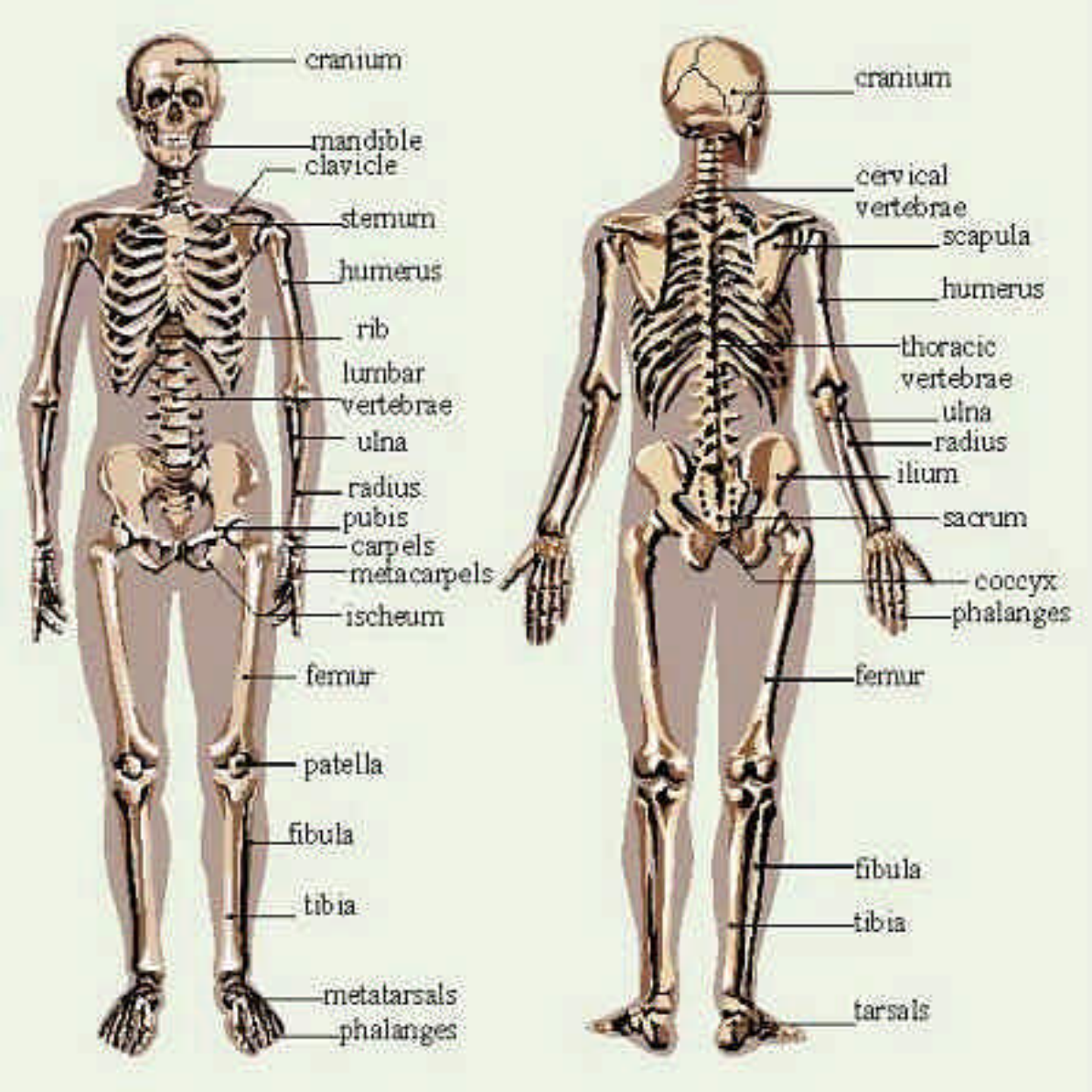
- Consists of approximately 20% of total body weight

- You are born with approximately 300 bones. As you get older smaller bones join together to make larger bones. Adults usually end up with around 206 bones.

FUNCTIONS OF THE SKELETAL SYSTEM

- Maintains upright position
- Protects the brain and internal organs
- Serve as levers, which can help change the direction and magnitude of forces generated by skeletal muscle
- Provides storage for fat and minerals
- Produces blood cells

MAJOR BONES


cranium
mandible
clavicle
sternum
humerus
rib
lumbar
vertebrae
ulna
radius
pubis
carpels
metacarpels
ischeum
femur
patella
fibula
tibia
metatarsals
phalanges
cranium
cervical
vertebrae
scapula
humerus
thoracic
vertebrae
ulna
radius
ilium
sacrum
coccyx
phalanges
femur
fibula
tibia
tarsals

MUSCULAR SYSTEM

- It consists of **cardiac**, **smooth**, and **skeletal** muscles.

- **Cardiac muscle** or heart muscle contracts involuntarily, which means without conscious control.

- **Smooth muscles**, which are contained in the internal organs such as the organs of the digestive tract, also contract involuntarily.

- **Skeletal muscles**, which consist of approximately 700 muscles attach to the skeleton. They contract voluntarily, which means with conscious control.

NAMING SKELETAL MUSCELS

The names of skeletal muscles may indicate their size, shape, direction of fibers, location, number of attachments, and action.

1) **Size**: the **gluteus** (buttocks) **maximus** (means large in Latin) is the largest muscle that makes up the buttocks
2) **Shape**: the **deltoid** is shaped like triangle, comes from *delta* –the Greek alphabet's 4th letter, which is also shaped like a triangle
3) **Direction of Fibers**: the **rectus** (means straight in Latin) **abdominis** runs vertically along your abdomen
4) **Location**: the **frontalis** (front) is a muscle that lies on top of the skull's frontal bone
5) **Number of Attachments**: the **biceps** (bi meaning two) **brachii** has two attachments; the **triceps** (tri meaning three) **brachii** has three attachments
6) **Action**: the **extensor digitorum** (digits) extends the fingers or digits

FUNCTIONS OF THE MUSCULAR SYSTEM

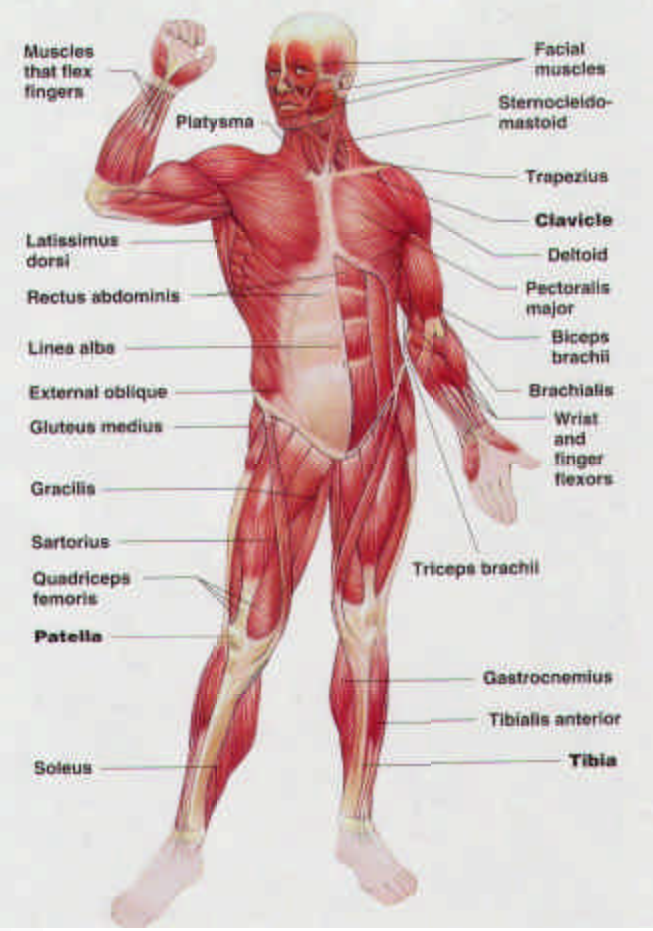
- Muscle contraction produces heat, which helps to regulate body temperature.

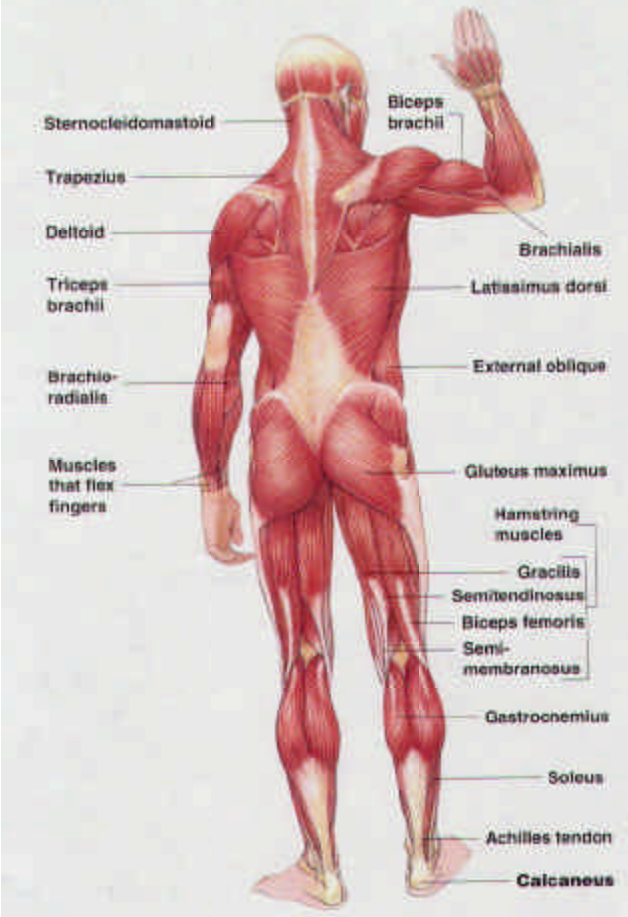
- The tendons of skeletal muscles often extend across joints, which stabilizes the joints. Without this stabilization , the skeleton would fall apart.

- Muscle contraction opposes the force of gravity and allows us to remain upright. Refinements to muscle contractions allows us to assume different positions.

- Muscle contraction produces movement. **Cardiac muscle** contraction pumps the blood. **Smooth muscle** contraction reduces the size of blood vessels and moves food through the digestive tract. **Skeletal muscle** contraction contributes to breathing, eye movements, facial expressions, and produces body movements.

MAJOR SKELETAL MUSCLES



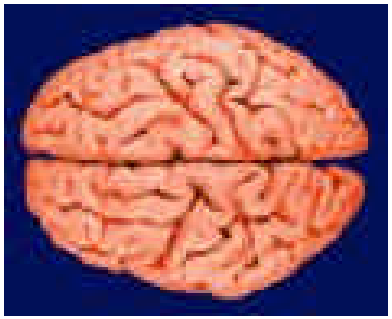


MUSCULOSKELETAL BENEFITS OF EXERCISE

- The whole system- skin, muscle, bones, ligaments, tendons, joints, cartilage, vertebrae, and disks is strengthened by exercise by bringing a flow of blood, nutrients, and fluids (lubrication by way of synovial fluid, and water), and by washing away infectious organisms and waste products.
- Resistance and weight bearing exercise strengthens and regenerates thin bone.
- Thickening of bones occurs from lifelong exercise, which counteracts the natural thinning process caused by aging.
- Range of motion (ROM) and stretching exercise improves the reaction time, function, and mobility of the entire Musculoskeletal system.
- Muscle strengthening exercise improves balance, coordination, strength, and stability.
- Well conditioned muscles are less susceptible to strain, spasms, and cramping.
- Stronger, well lubricated joints and more flexible ligaments and tendons are less apt to stiffen, become inflamed, or become injured.

THE NERVOUS SYSTEM

- Consists of the **CNS** (central nervous system)- brain and spinal cord and of the **PNS** (peripheral nervous system)- cranial and spinal nerves.



- Works with the **endocrine system** in order maintain the body's **homeostasis** (constancy of conditions, particularly the environment of body cells: constant temperature, blood pressure, pH, and other body conditions

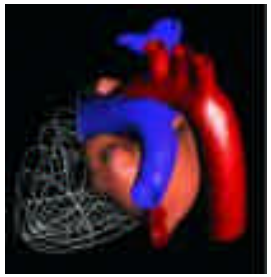
FUNCTIONS OF THE NERVOUS SYSTEM

- **Permits Sensory Input**: Organs and skin receptors respond to internal and external stimuli by generating nerve impulses that travel the the **CNS** (brain and spinal cord).

- **Performs Integration:** The **CNS** integrated (sums up) the input it receives from all over the body, which allows us to make decisions about the body in general. Nerve pulses are then sent to **effectors** (structures, such as muscles or glands, that allow a response to environmental stimuli) by the **CNS**.

- **Stimulates Motor Output:** Nerve impulses are sent from the CNS to muscles and glands. Gland secretions and muscle contractions are responses to stimuli received by receptors.

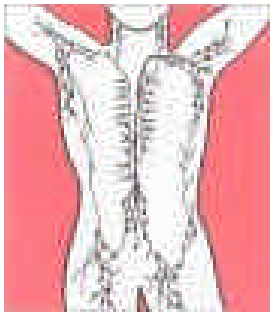
THE CARDIOVASCULAR SYSTEM



- It is made up of the **heart** (a cone shaped organ about the size of a fist) and **blood vessels**.
- It distributes oxygen and nutrients throughout the body while getting rid of wastes.

THE LYMPHATIC SYSTEM

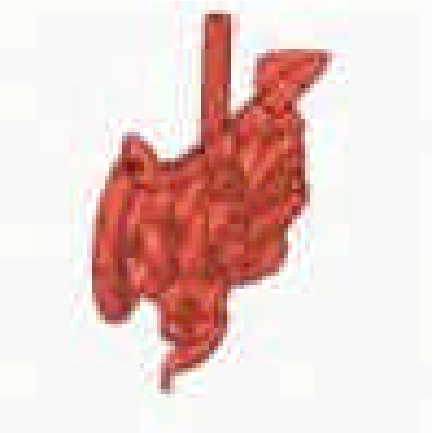
- It consists of lymphatic **vessels**, **lymph nodes**, **thymus**, and **spleen**.
- Lymphatic vessels take up excess tissue fluid and return it to the blood stream.
- Lymphatic capillaries (small blood vessels) absorb fats in the intestines and take them back to the bloodstream.
- It houses cells of immunity, which helps defend the body against disease.



THE DIGESTION SYSTEM

- It consists of the **mouth**, **esophagus**, **stomach**, **intestines**, and **accessory organs**.

- The functions of the digestive system are ingestion of food, breaking down of food into smaller particles, absorption of nutrients, and ridding of indigestible wastes.



THE RESPIRATORY SYSTEM

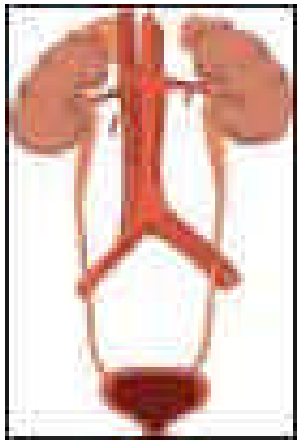
- It consists of the **nose** (nasal cavities), **pharynx**, **larynx**, **trachea**, **bronchi**, and lungs.

- Its functions include:
  1) moving air in and out of the lungs, **2)** exchanging gases between air and blood, **3)** exchanging gases between blood and body cells, and **4)** the use of oxygen and production of carbon dioxide by the cells

THE URINARY SYSTEM

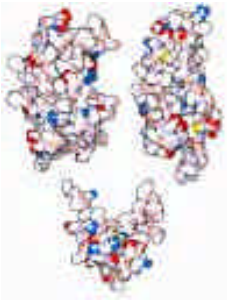
- It consists of the **kidneys**, **ureters**, **bladder**, and **urethra**.

- Its main functions consist of removing wastes from the blood and maintenance of water and electrolyte balance.



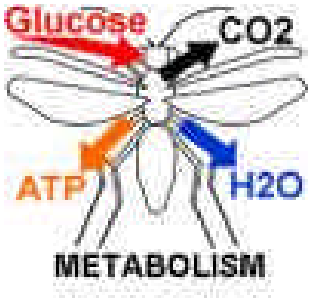
THE ENDOCRINE SYSTEM

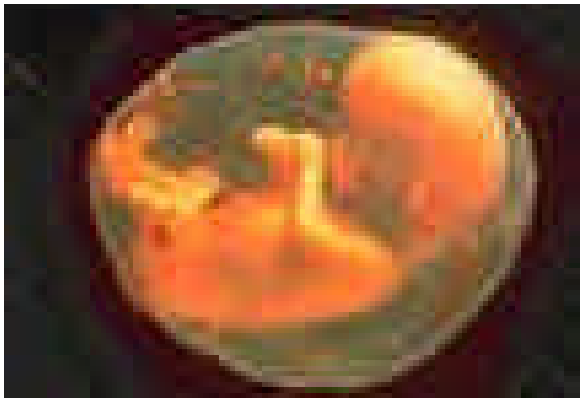
- It consists of **glands** located throughout the body that secrete **hormones** into the blood (chemical that influences or controls activity of a specific tissue or organ).



- Helps to regulate Metabolic functions.

- Works with the nervous system to help maintain the body's **homeostasis**.



THE REPRODUCTIVE SYSTEM

- The male reproductive system consists of the testes, accessory organs, and vessels that conduct sperm to the penis.
- The female reproductive system consists of ovaries, uterine tubes, uterus, vagina, and external genetalia.
- The function of the reproductive system is to produce offspring. The developing offspring is housed by the female reproductive system.