



**SNS COLLEGE OF NURSING
SARAVANAMPATTI ,COIMBATORE.**

**DEPARTMENT OF NURSING
COURSE NAME : BSC (NURSING) I YEAR
SUBJECT : ANATOMY AND PHYSIOLOGY
UNIT: IV- MUSCULOSKETELAL SYSTEM
TOPIC : MUSCLES PART-I**

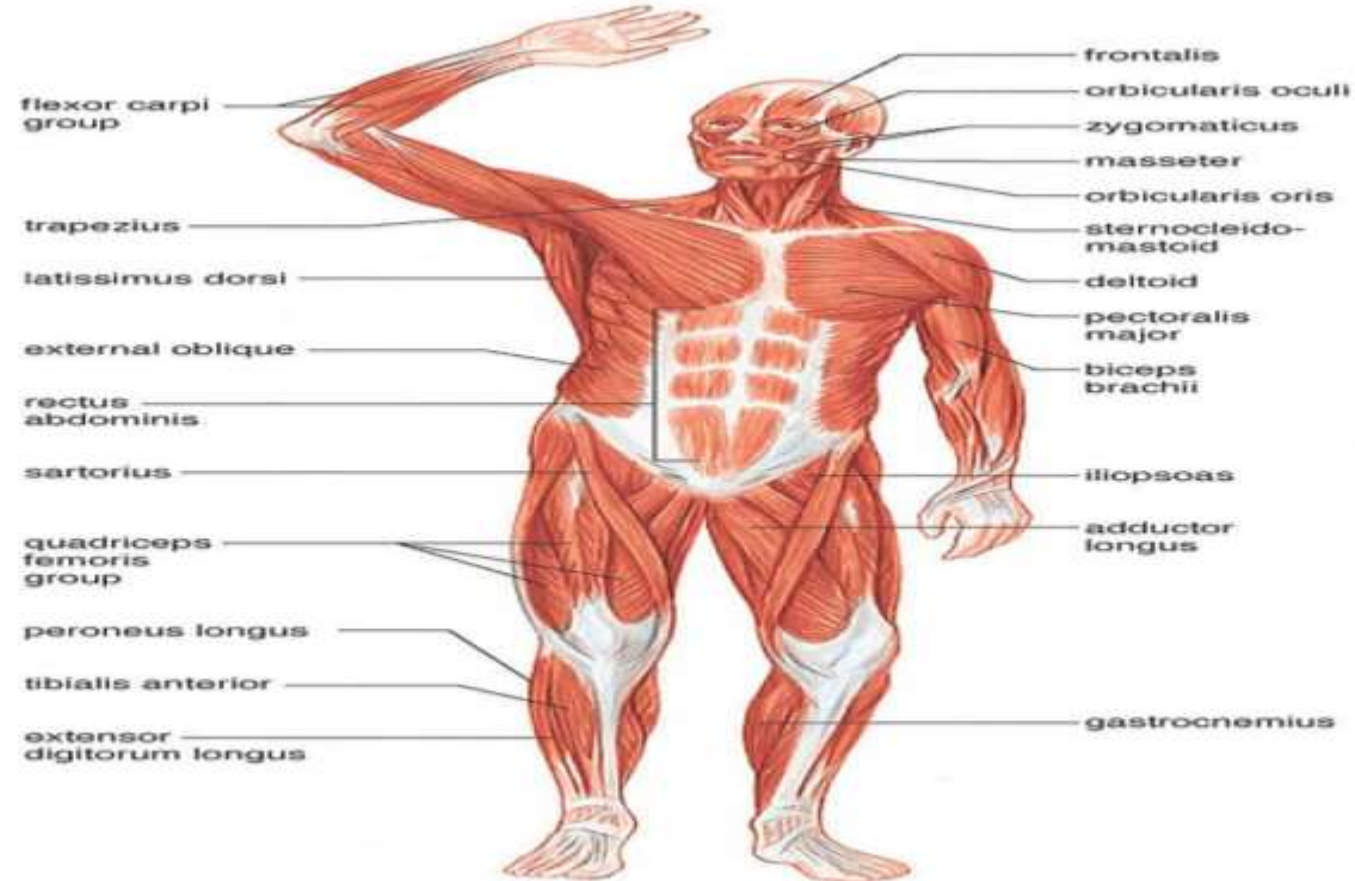


FUNCTIONS OF THE MUSCULAR SYSTEM

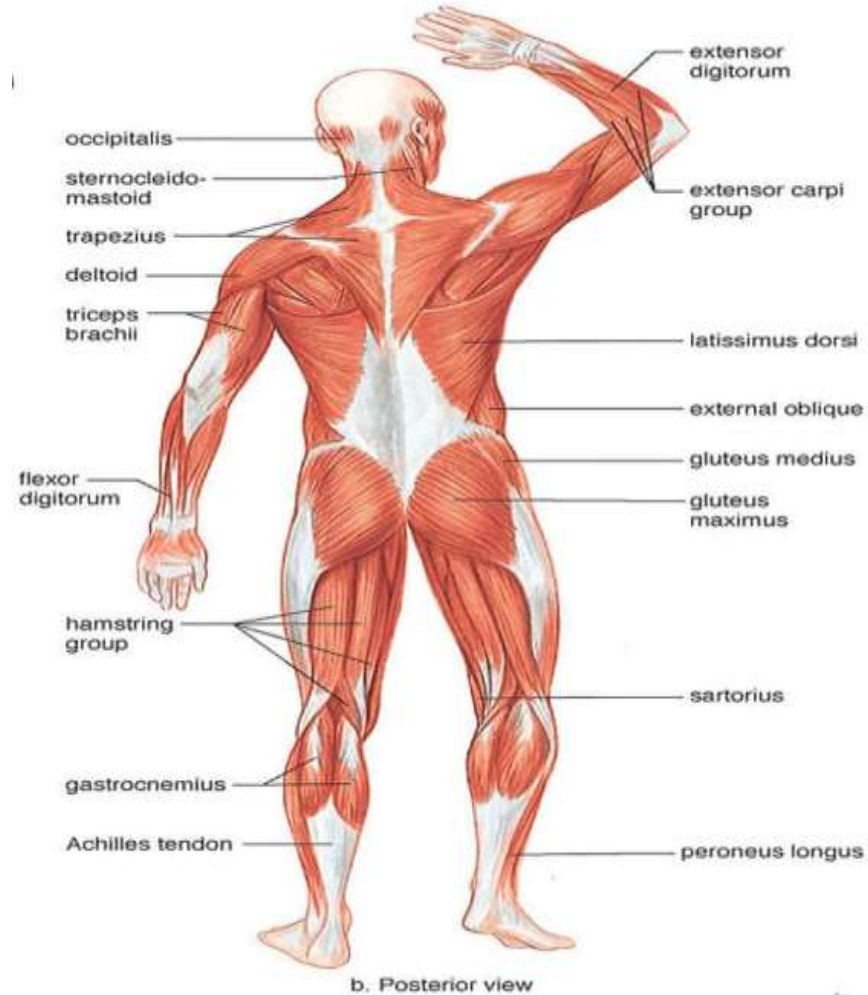


- Producing movement.
- Maintaining posture.
- Stabilizing joints.

MUSCLES OF THE ANTERIOR BODY



MUSCLES OF THE POSTERIOR BODY





SKELETAL MUSCLE



- Cells are multinucleate.
- **Sarcolemma.** Many oval nuclei can be seen just beneath the plasma membrane, which is called the sarcolemma in muscle cells.
- **Myofibrils.** The nuclei are pushed aside by long ribbonlike organelles, the myofibrils, which nearly fill the cytoplasm.

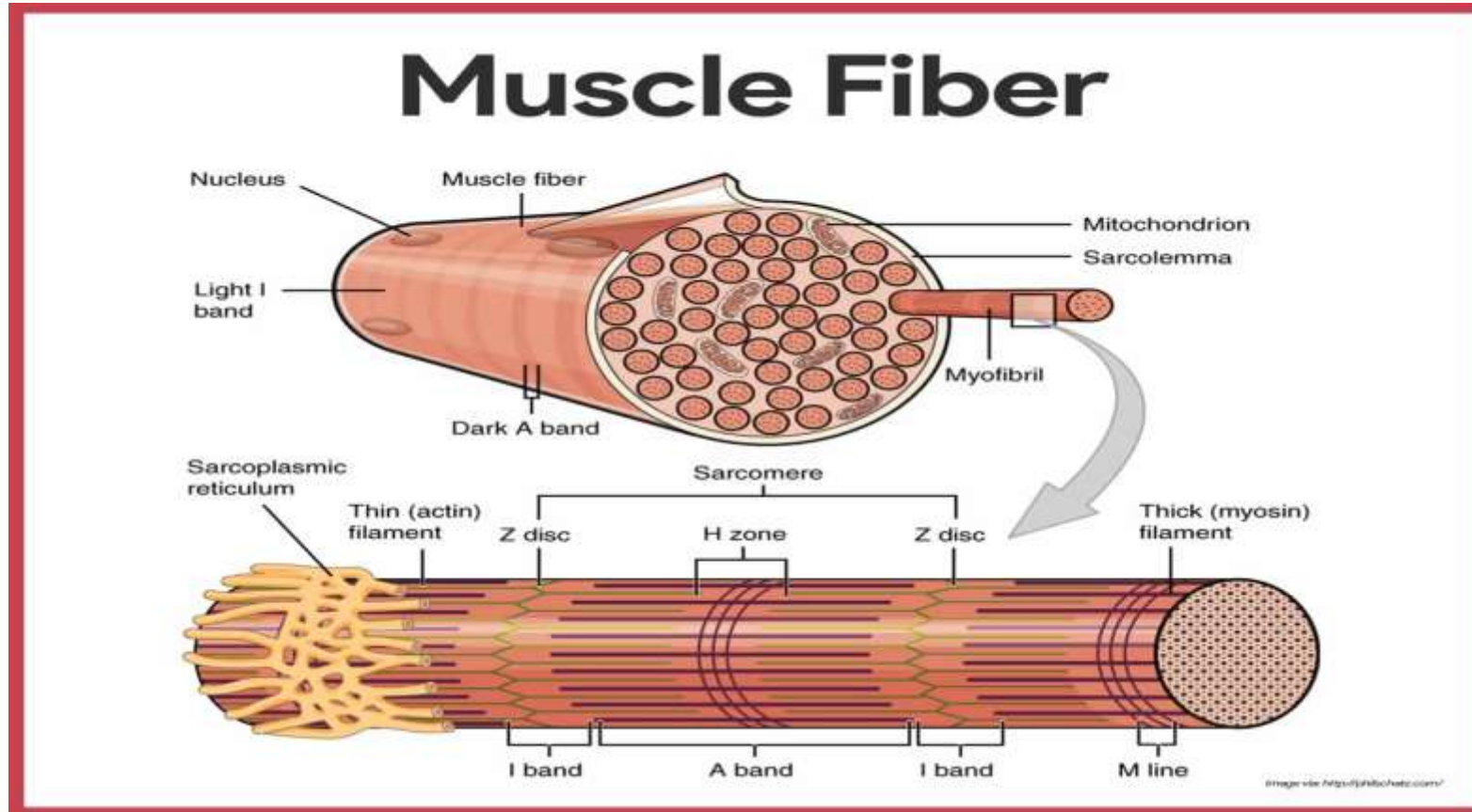


SKELETAL MUSCLE



- **Light and dark bands.** Alternating dark and light bands along the length of the perfectly aligned myofibrils give the muscle cell as a whole its striped appearance.
- **Sarcomeres.** The myofibrils are actually chains of tiny contractile units called sarcomeres, which are aligned end to end like boxcars in a train along the length of the myofibrils.
- **Myofilaments.** There are two types of threadlike protein myofilaments within each of our “boxcar” sarcomeres.

STRUCTURE OF MUSCLE FIBER





SKELETAL MUSCLE



- **Thick filaments.** The larger, thick filaments, also called **myosin filaments**, are made mostly of bundled molecules of the protein myosin, but they also contain ATPase enzymes, which split ATP to generate the power for muscle contraction.
- **Cross bridges.** Their ends are studded with thick projections; these projections, or **myosin beads**, are called cross bridges when they link the thick and thin filaments together during contraction.



SKELETAL MUSCLE



- **Thin filaments.**
- The thin filaments are composed of the contractile protein called **actin**
- Myosin-bead binding to actin; the thin filaments, also called **actin filaments**, are anchored to the **Z disc** (a disclike membrane).
- **Sarcoplasmic reticulum.** a specialized smooth endoplasmic reticulum



MUSCLE MOVEMENTS, TYPES, AND NAMES



- **Rotation.**
- **Abduction.**
- **Adduction.**
- **Circumduction.**



NAMING SKELETAL MUSCLES



- **Direction of the muscle fibers.**
- When a muscle's name includes the term **rectus (straight)** its fibers run parallel to that imaginary line;
- the term oblique as part of a muscle's name tells that the muscle fibers run **obliquely (at a slant)** to the imaginary line.



NAMING SKELETAL MUSCLES



- **Relative size of the muscle.**
- Such terms as **maximus (largest)** , **minimus (smallest)**, and **longus (long)** are often used in the names of muscles.
- **Location of the muscle.**
- Some muscles are named for the bone with which they are associated; for example, the temporalis and frontalis muscles overlie the temporal and frontal bones of the skull.



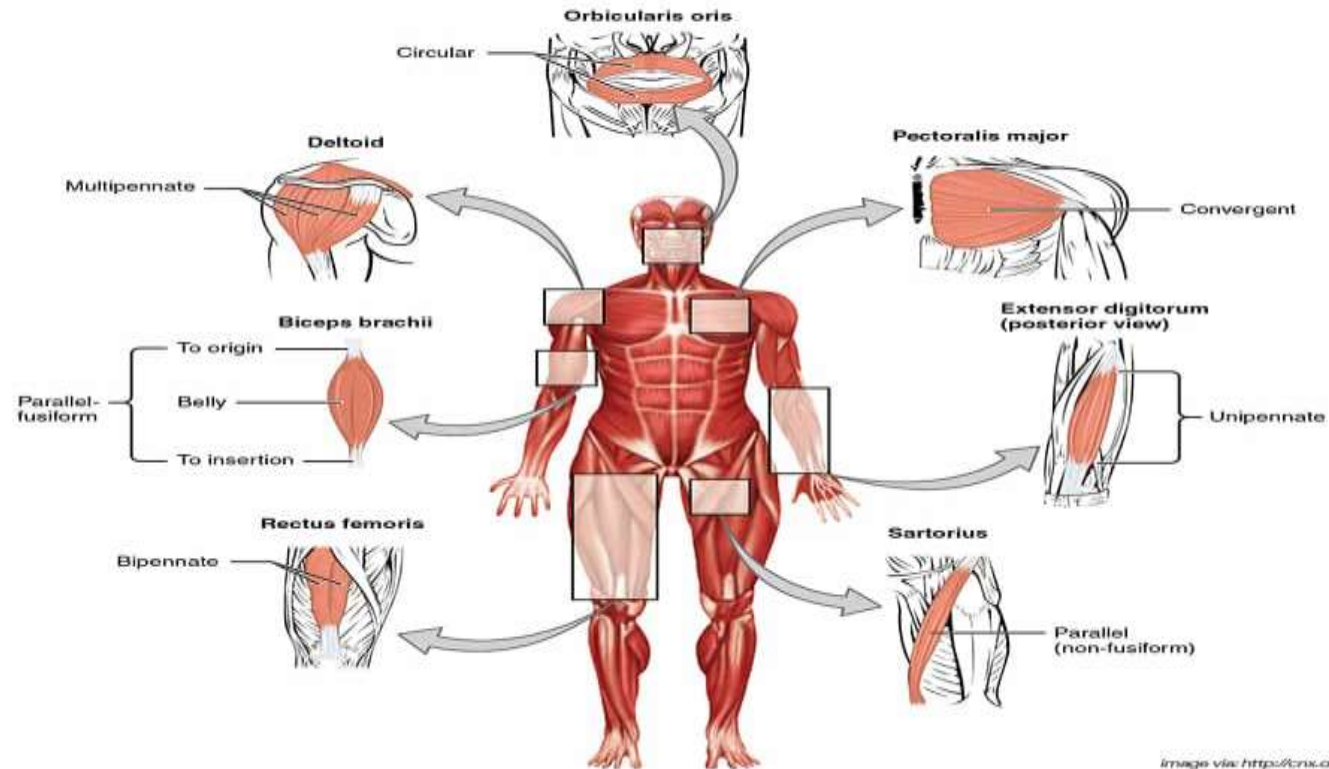
NAMING SKELETAL MUSCLES



- **Number of origins.** When the term biceps, triceps, or quadriceps forms part of a muscle name, one can assume that the muscle has two, three, or four origins.
- **Location of the muscle's origin and insertion.** Occasionally, muscles are named for their attachment sites.
- **Shape of the muscle.** Some muscles have a distinctive shape that helps to identify them.

SHAPES OF SKELETAL MUSCLES

Skeletal Muscle Shapes



SHAPES OF SKELETAL MUSCLES

Head and Neck Muscles

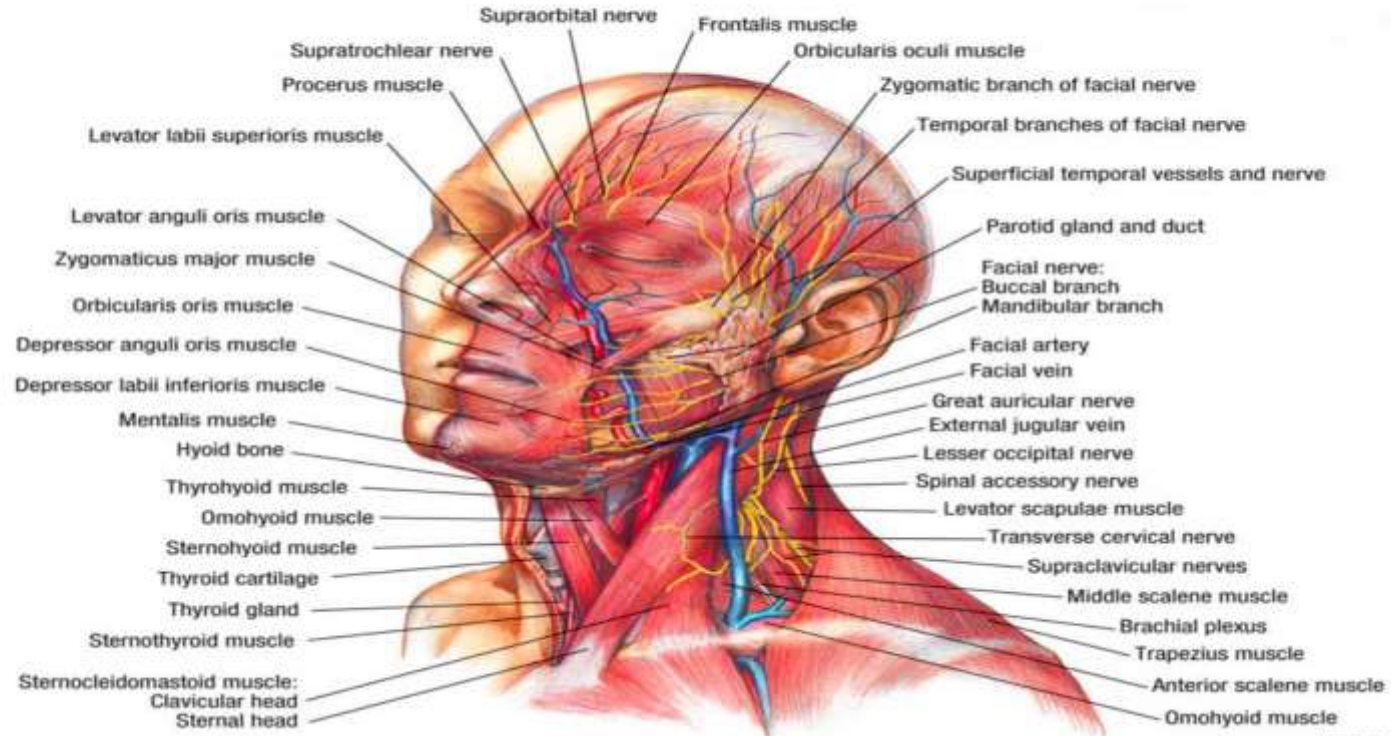


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HEAD – FASCIAL MUSCLES



- **Frontalis.**
- The frontalis, which covers the frontal bone, runs from the cranial aponeurosis to the skin of the eyebrows, where it inserts; this muscle allows to raise eyebrows and wrinkle forehead; at the posterior end of the cranial aponeurosis is the small occipitalis muscle.
- **Orbicularis oculi.**
- The orbicularis oculi has fibers that run in circles around the eyes; it allows to close eyes, squint, blink, and wink.



HEAD – FASCIAL MUSCLES

- **Orbicularis oris.** The orbicularis oris is the circular muscle of the lips; because it closes the mouth and protrudes the lips, it is often called the “kissing” muscle.
- **Buccinator.** The fleshy buccinator muscle runs horizontally across the cheek and inserts into the orbicularis oris.
- **Zygomaticus.** The zygomaticus extends from the corner of the mouth to the cheekbone; it is often referred to as the “smiling” muscle because it raises the corners of the mouth upward.



HEAD – CHEWING MUSCLES

- **The Buccinator muscle** - which is a member of this group, is described with the facial muscles.
- **Masseter.** It runs from the zygomatic process of the temporal bone to the mandible, the masseter covers the angle of the lower jaw; this muscle closes the jaw by elevating the mandible.
- **Temporalis.** The temporalis is a fan-shaped muscle overlying the temporal bone; it inserts into the mandible and acts as a synergist of the masseter in closing the jaw.



NECK MUSCLES



- **Platysma.**
- The platysma is a single, sheet like muscle that covers the anterolateral neck; its action is to pull the corners of the mouth inferiorly, producing a downward sag of the mouth.
- **Sterno-cleidomastoid.**
- The paired sternocleidomastoid muscles are two-headed muscles, one found on each side of the neck; when both sternocleidomastoid contract together, they flex neck.

