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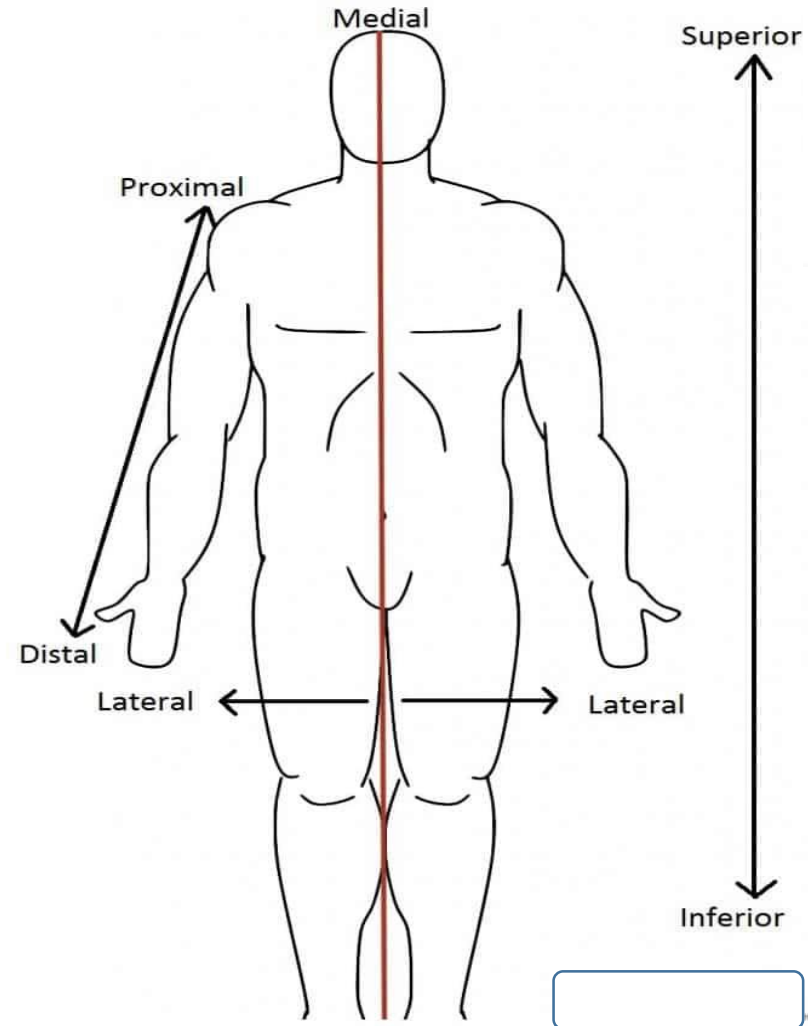
College of Pharmacy / First Stage



ANATOMY

(L3) Muscular System

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MUSCULAR SYSTEM

Muscle Function:

- Stabilizing joints
- Maintaining posture
- Producing movement
- Moving substances within the body
- Stabilizing body position and regulating organ volume
- Producing heat— muscle contraction generates 85% of the body's heat

Characteristics of Muscle Tissue

- Excitability- receive and respond to stimuli
- Contractility- ability to shorten and thicken
- Extensibility- ability to stretch
- Elasticity- ability to return to its original shape after contraction or extension

Types of Muscle

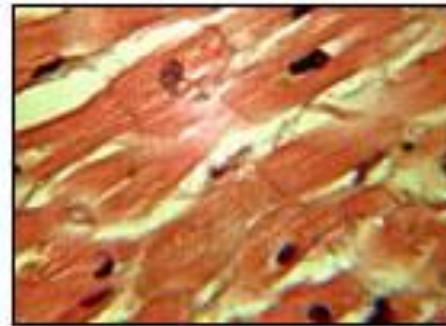
	Skeletal Muscle	Smooth Muscle	Cardiac Muscle
Location	Attached to bone	On hollow organs, glands and blood vessels	Heart



Skeletal muscle

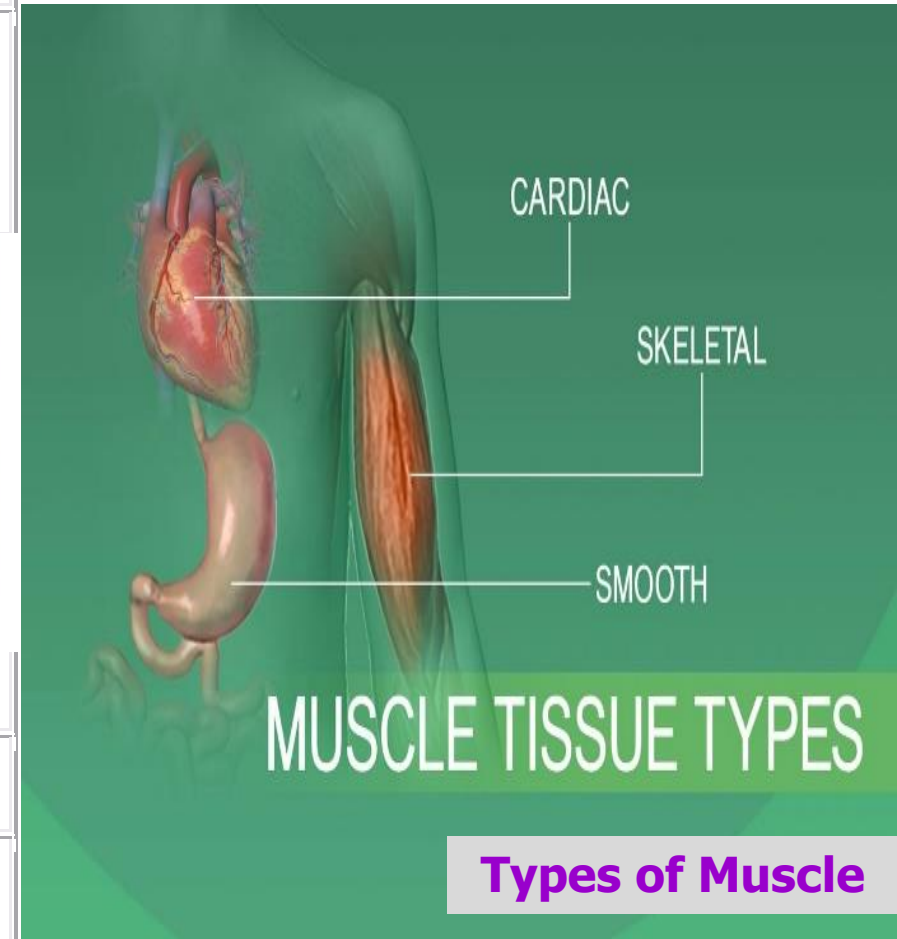


Smooth muscle



Cardiac muscle

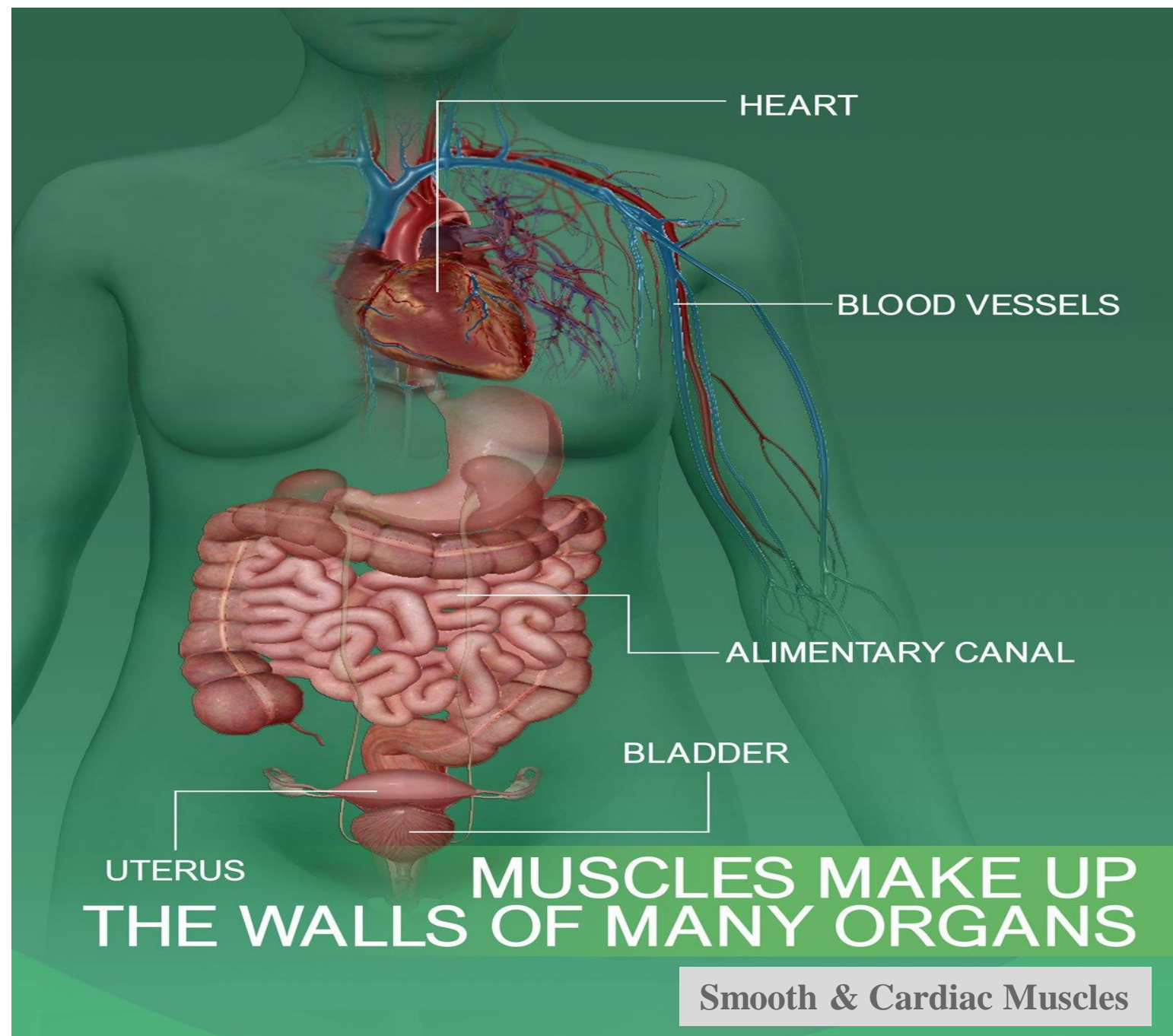
Control	voluntary	involuntary	involuntary
Striations	yes	no	yes
Cell Shape	Cylindrical	Spindle-shaped	Branched



Not all muscle tissue is **skeletal muscle**.

Smooth muscle tissue is in the walls of many human body organs and helps those organs move to facilitate body functions. The alimentary canal (esophagus, stomach, and intestines) includes muscle tissue that contracts and relaxes to move nutrients through the digestion process. The urinary bladder also includes muscle tissue that contracts and relaxes to hold and release urine. Smooth muscles in the walls of arteries help move blood through the body.

Heartbeats are the result of the contraction and relaxation of **cardiac muscle**.



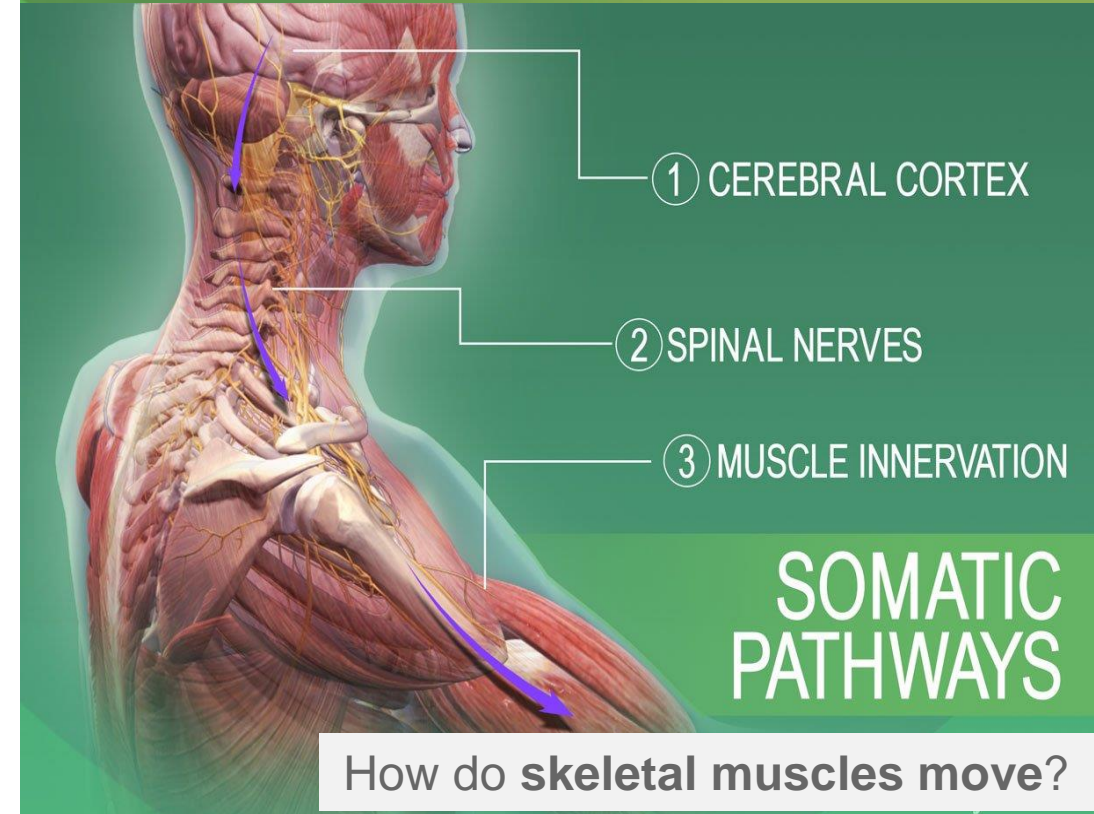
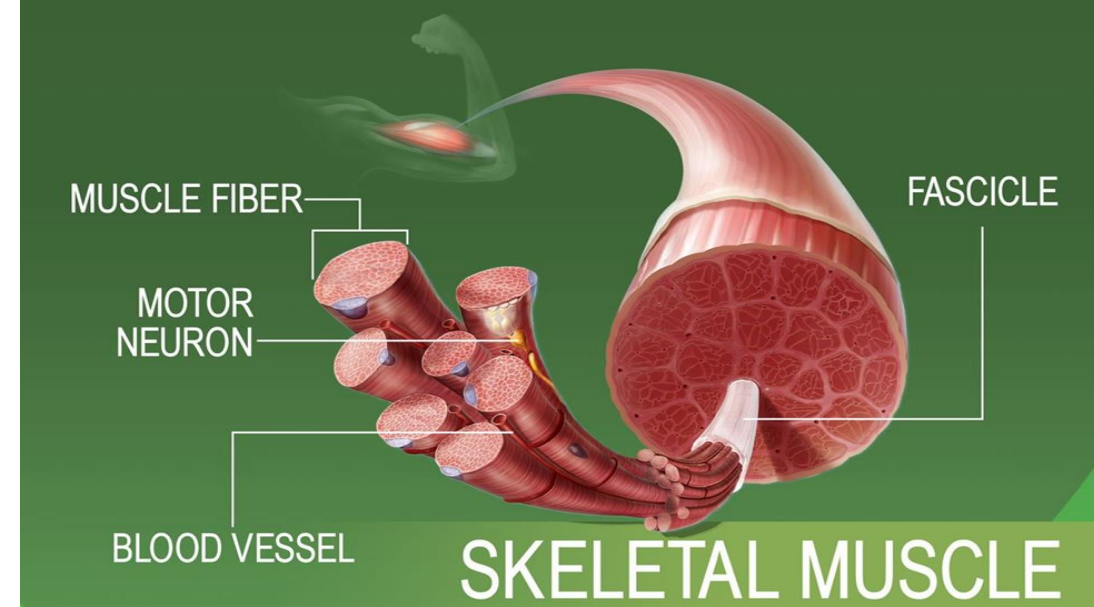
An Introduction to the Muscular System

- The muscular system
 - Consists only of skeletal muscles
 - Muscle organization dramatically affects power, range, and speed of movement.
- Skeletal muscle fibers form bundles called *fascicles*
- How do **skeletal muscles move**?

It happens when the **muscular system** and the **nervous system** work together:

Somatic signals are sent from the cerebral cortex to nerves associated with specific skeletal muscles.

Most signals travel through spinal nerves that connect with nerves that innervate skeletal muscles throughout the body.



Nearly 650 muscles are attached to the skeleton.

Skeletal muscles- work in pairs: one muscle moves the bone in one direction and the other moves it back again.

Most muscles- extend from one bone across a joint to another bone with one bone being more stationary than another in a given movement.

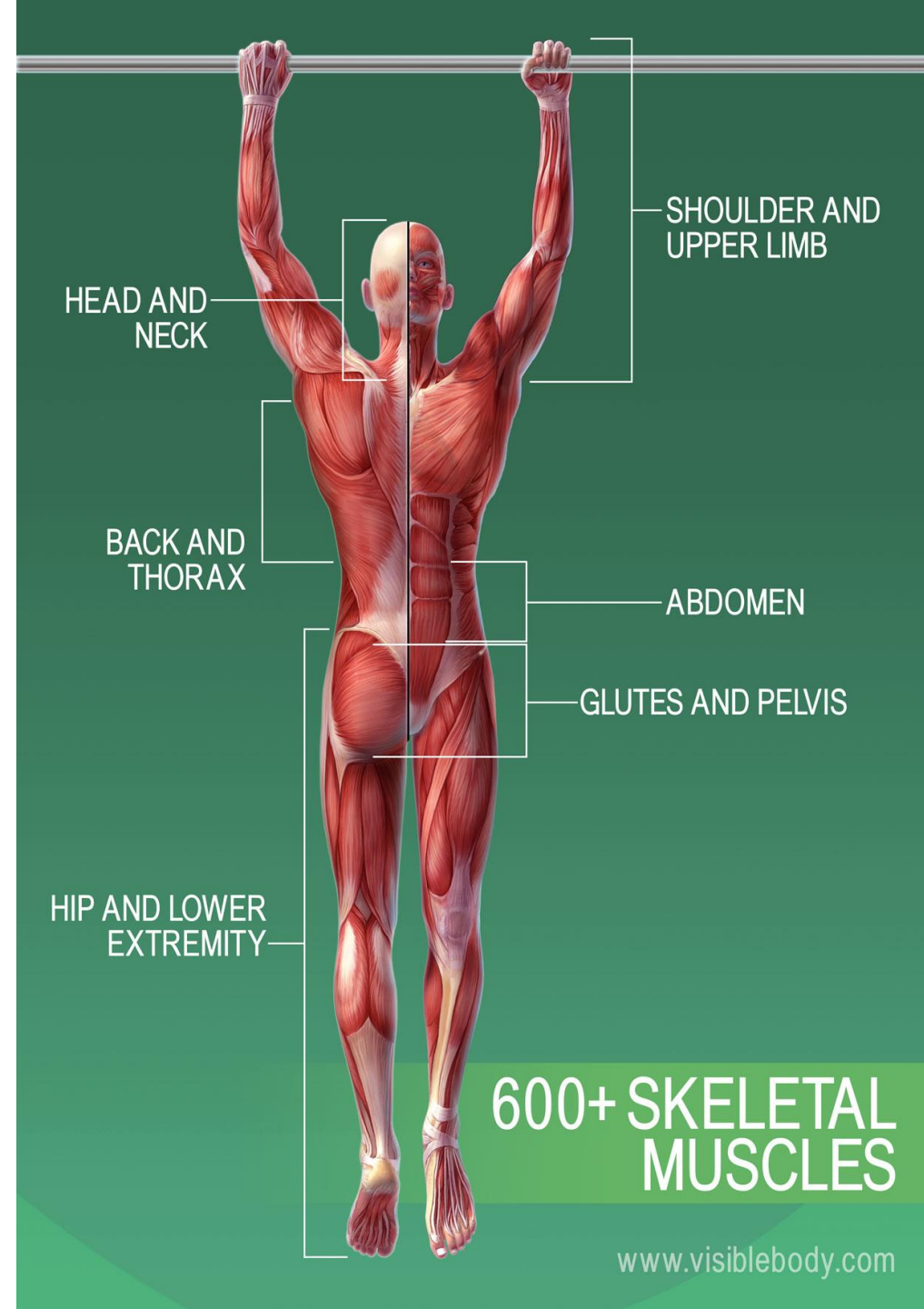
Muscle movement- bends the skeleton at moveable joints.

Tendons: made of dense fibrous connective tissue shaped like heavy cords anchor muscles firmly to bone.

Origin: attachment to the more stationary bone by tendon closest to the body (proximal).

Insertion: attachment to the more moveable bone by tendon at the distal end.

The force producing the bending is always a pull of contraction. Reversing the direction is produced by the contraction of a different set of muscles.



Head and Neck Muscles

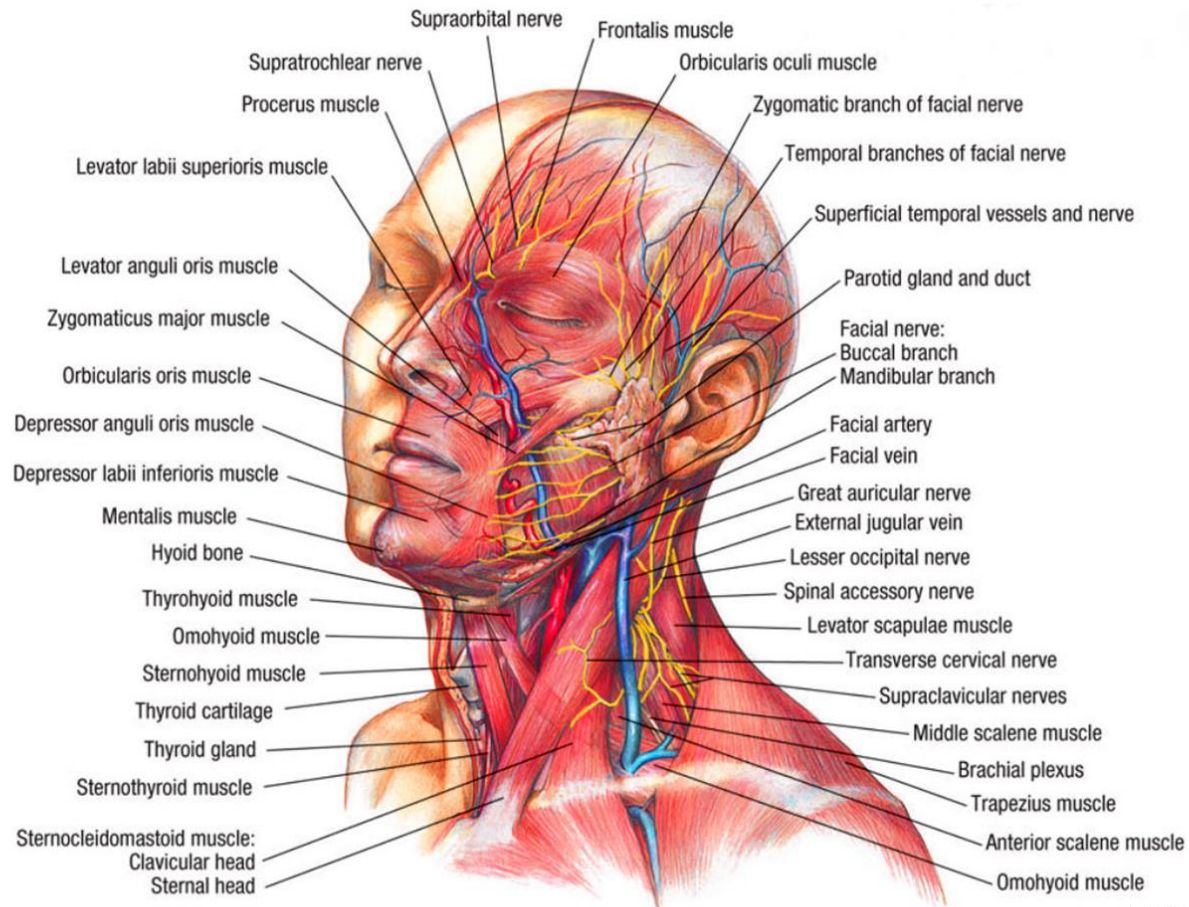


image via: pinterest.com

Trunk Muscles

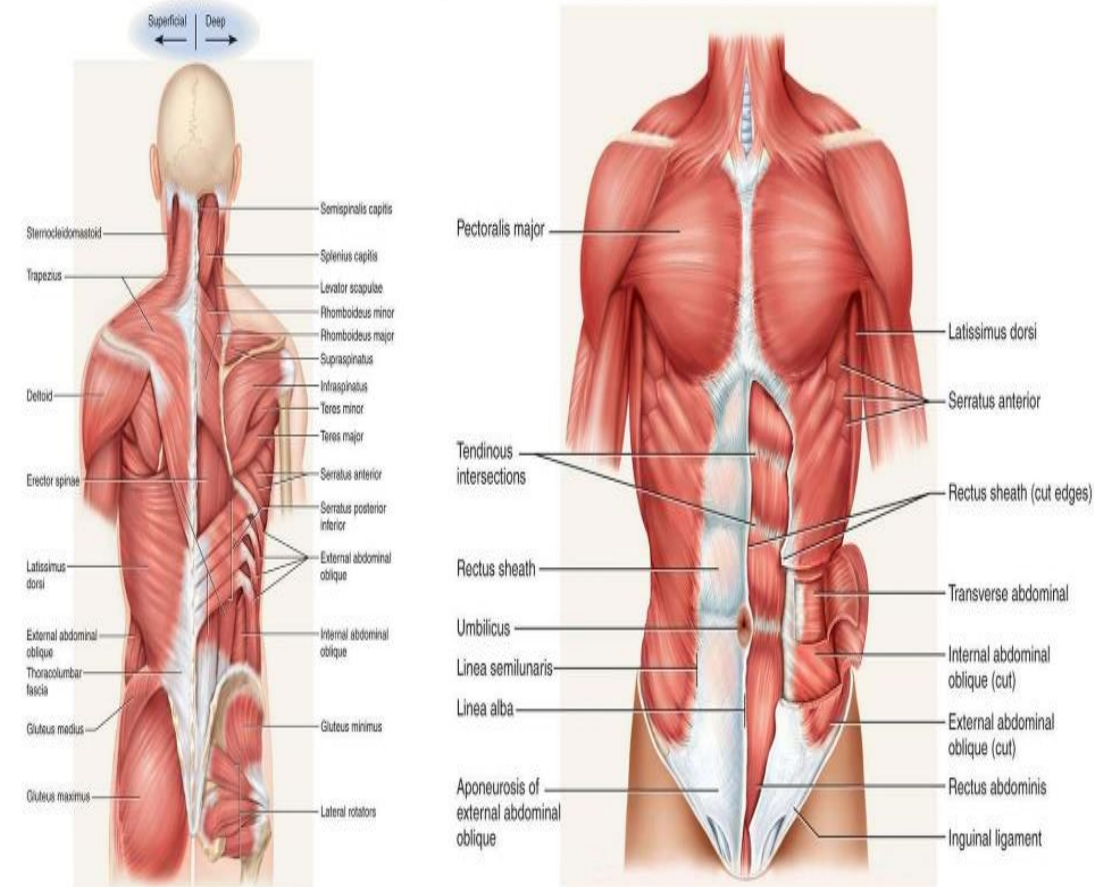


Image: anatomy.com

Action of the muscle. Sometimes muscles are named for their actions, such as flexor, extensor, and adductor appear in their names.

Muscles of the Upper Limb

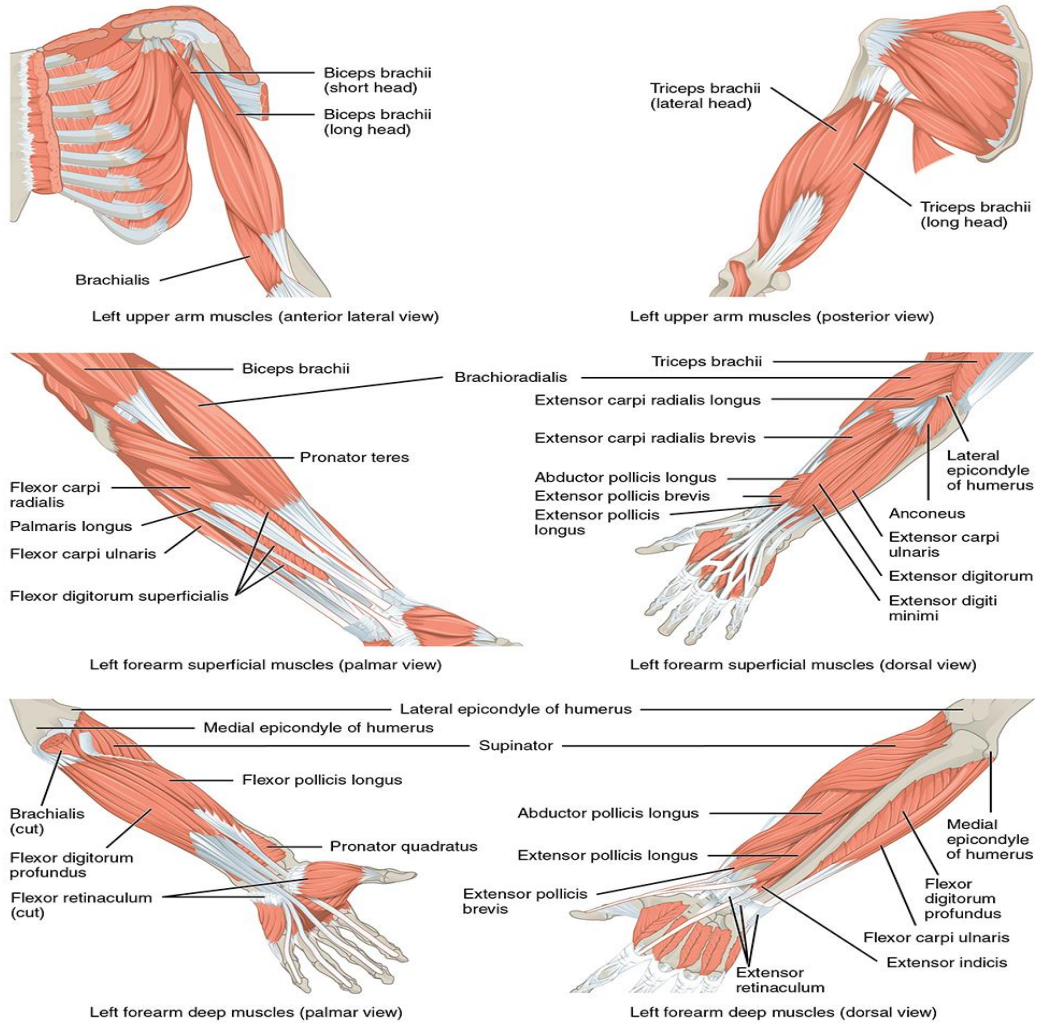


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Leg Muscles

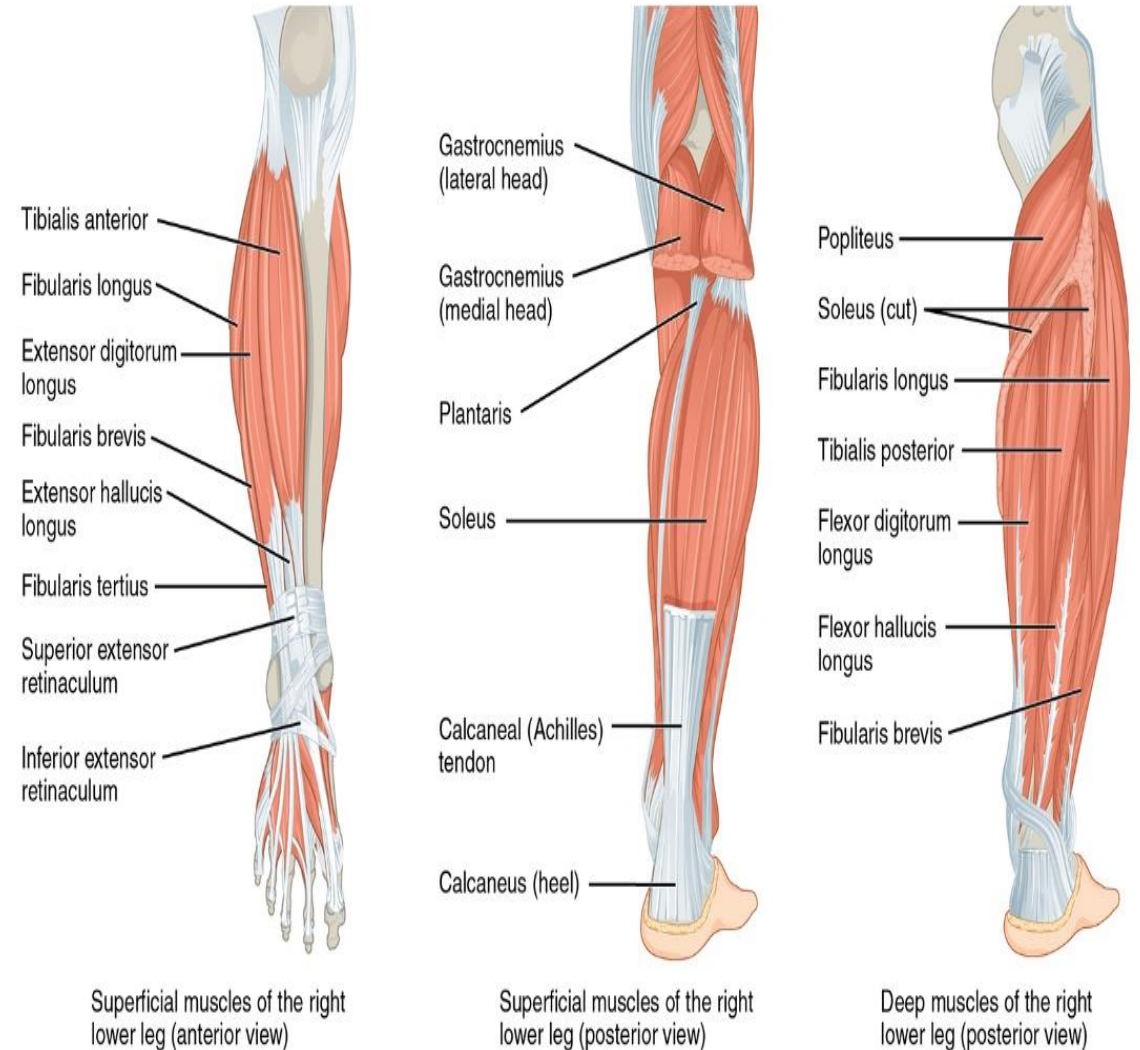
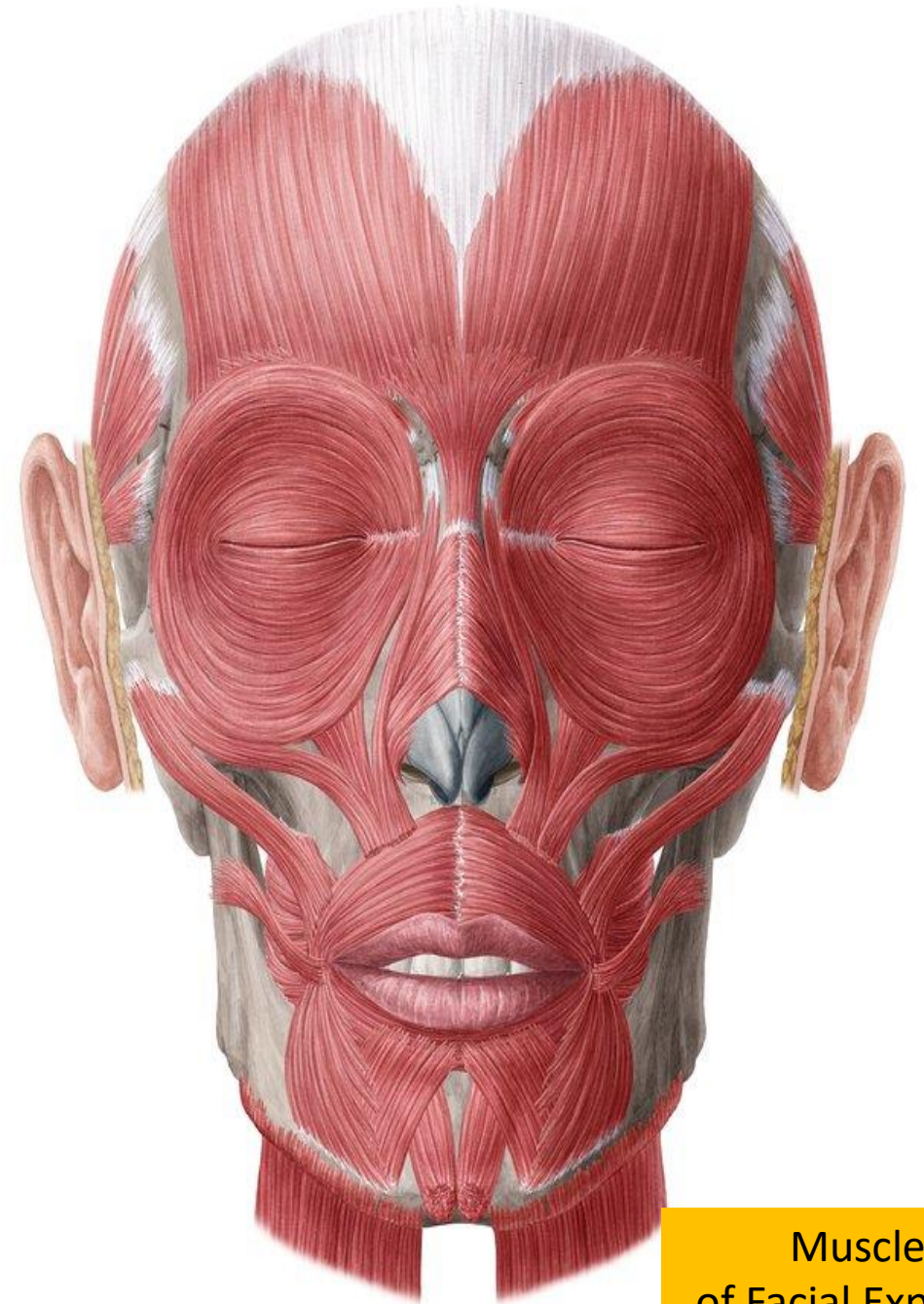


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The **facial muscles**, also called craniofacial muscles, are a group of about 20 flat [skeletal muscles](#) lying underneath the skin of the [face](#) and scalp. Most of them originate from the [bones](#) or fibrous structures of the [skull](#) and radiate to insert on the **skin**.

Contrary to the other skeletal muscles they are not surrounded by a **fascia**, with the exception of the **buccinator** muscle.

The specific location and attachments of the facial muscles enable them to produce movements of the face, such as smiling, grinning and frowning. Thus, these muscles are commonly called **muscles of facial expression**. All of the facial muscles are innervated by the **facial nerve (CN VII)** and vascularized by the **facial artery**.



Muscles
of Facial Expression

Key facts about the muscles of mastication

Definition and function

The muscles of mastication are muscles that attach to the mandible and thereby produce movements of the lower jaw(temporomandibular joint). .

Muscles

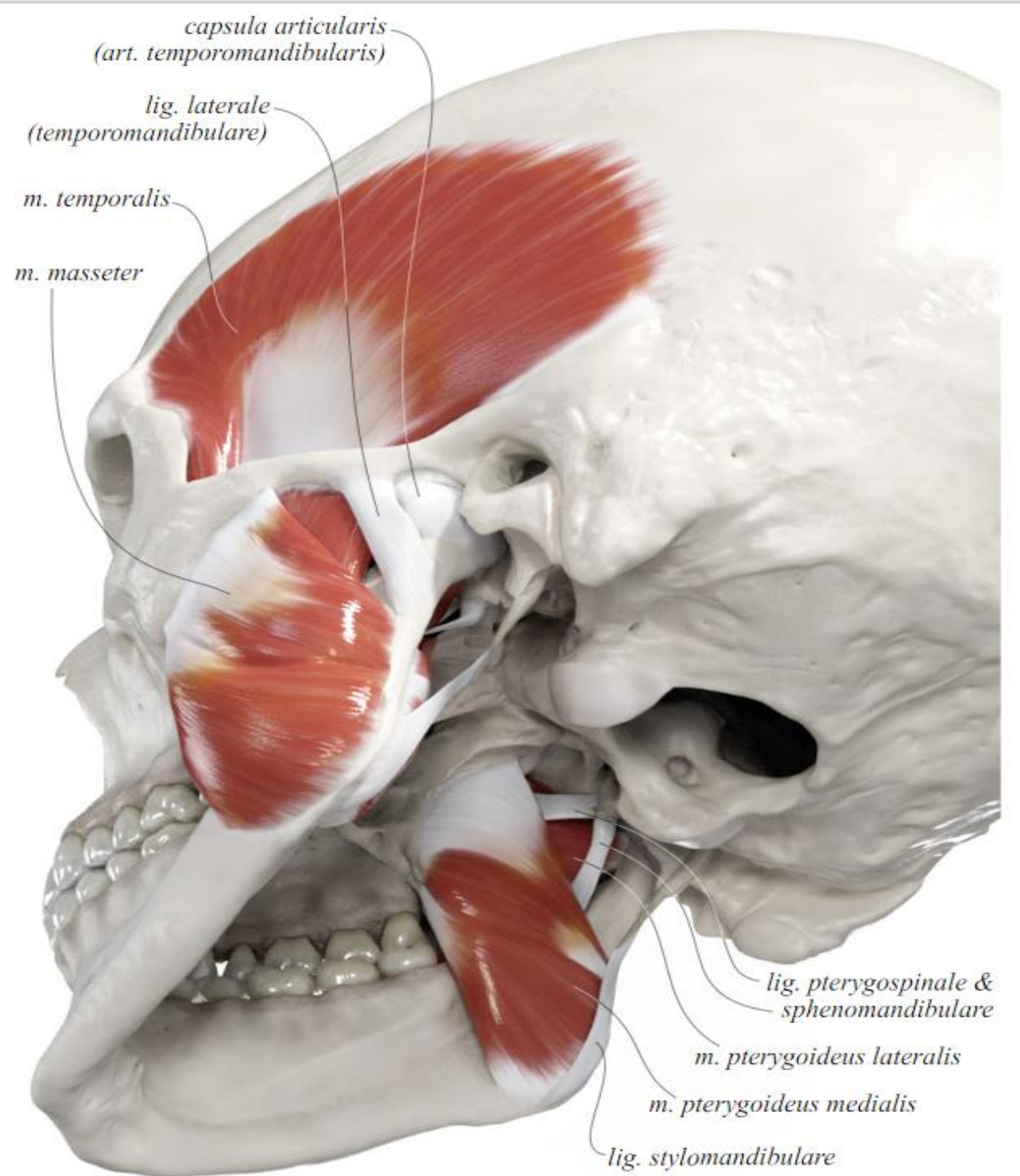
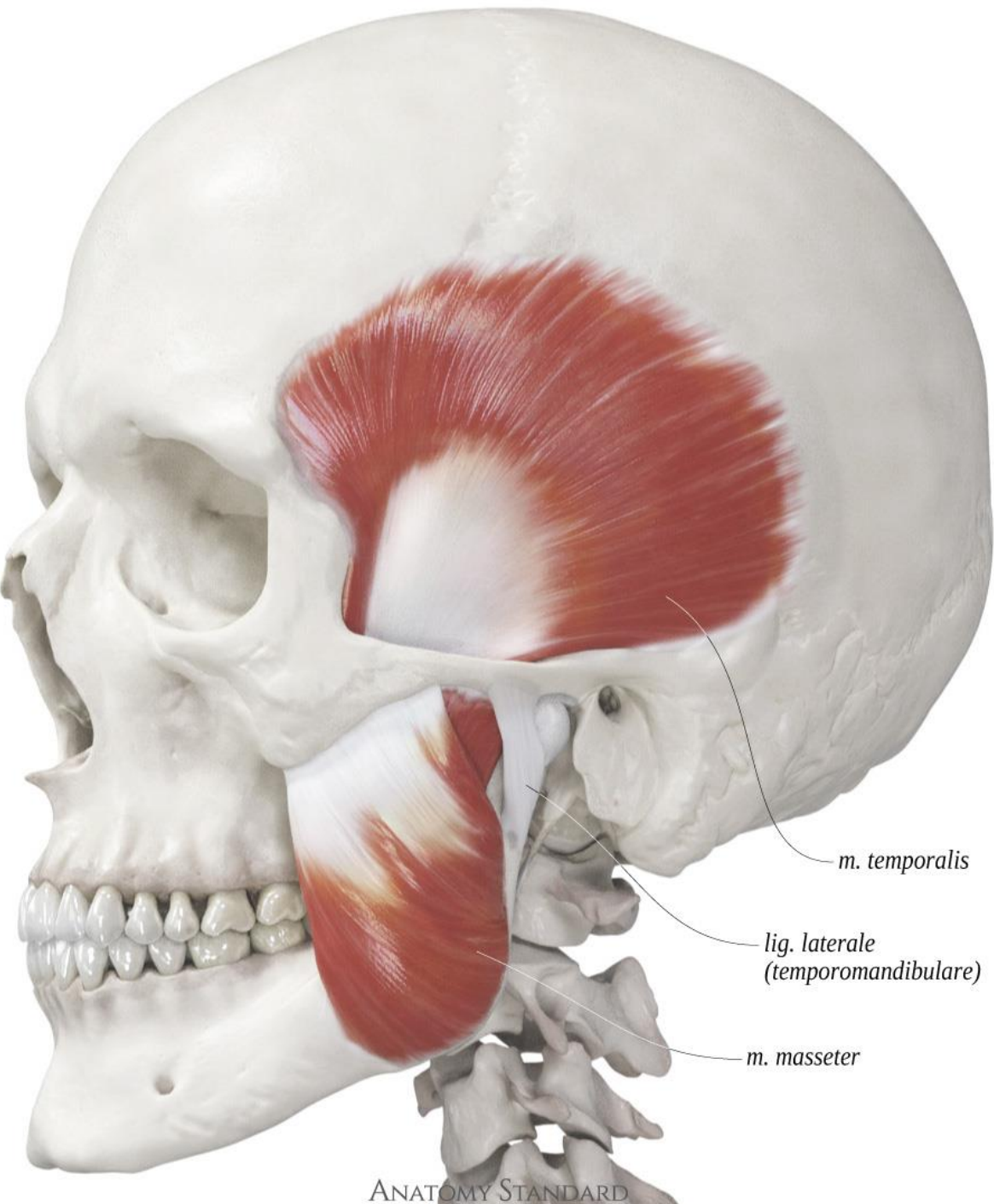
Temporalis, masseter, medial pterygoid and lateral pterygoid

Innervation

Mandibular nerve (CN V3)

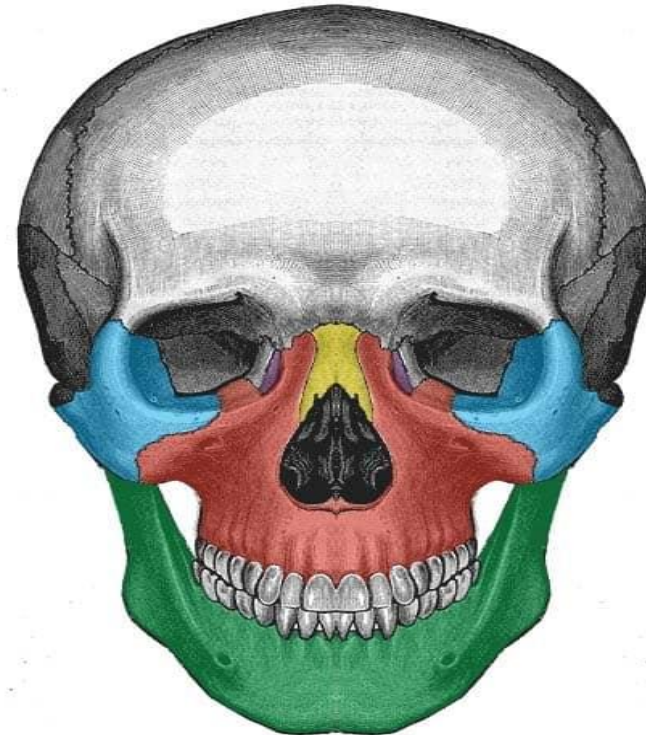
Blood supply

Maxillary artery





THANK YOU!



-  Zygomatic
-  Maxilla
-  Nasal
-  Lacrimal
-  Mandible