

Head and Neck Anatomy

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Learning Objectives

Learning Objectives:

1. Identify the major muscles involved in facial expression.
2. List the extrinsic muscles of the eye, and describe how each affects eye movement.
3. Name the muscles of mastication, and outline how each affects mandibular movement.
4. Describe the movements of the tongue, and compare its extrinsic and intrinsic muscles.
5. Identify the muscles of the pharynx, and explain their function in swallowing.
6. Explain the organization and distribution of the muscles of the anterior neck.
7. Detail the muscles involved in the major movements of the head and neck.

Study Tip :

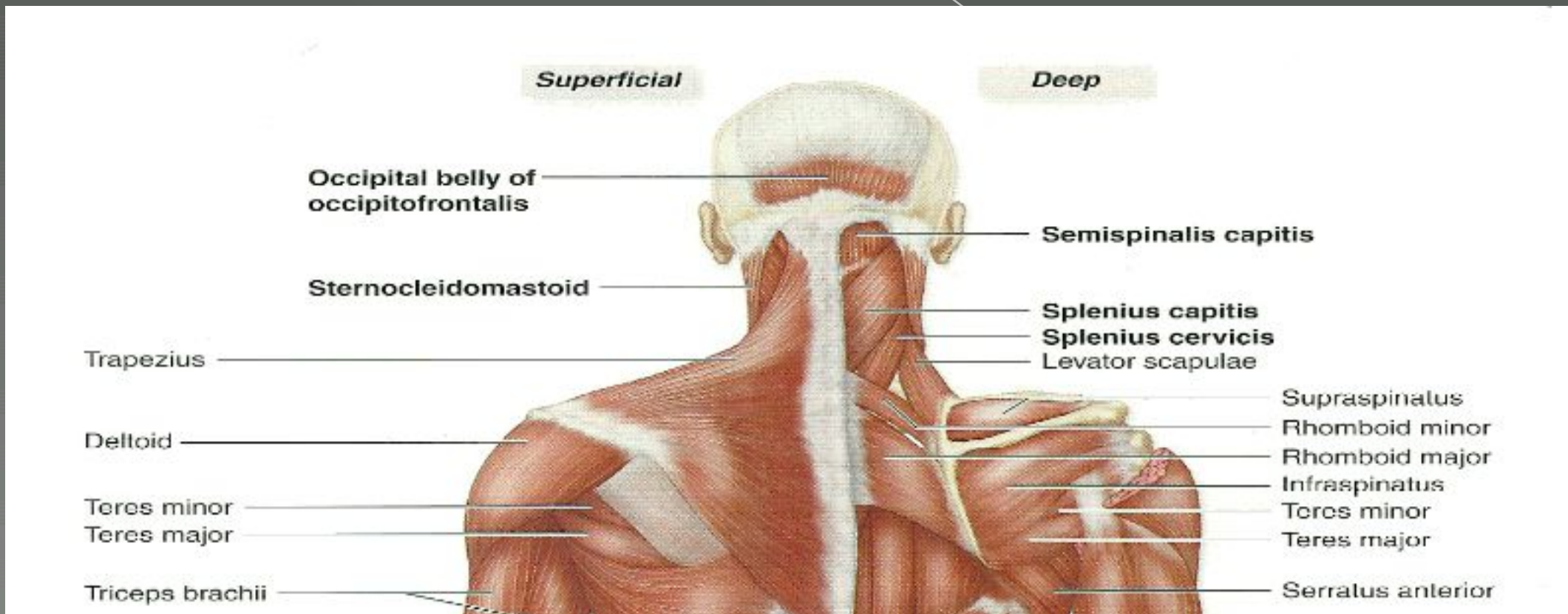
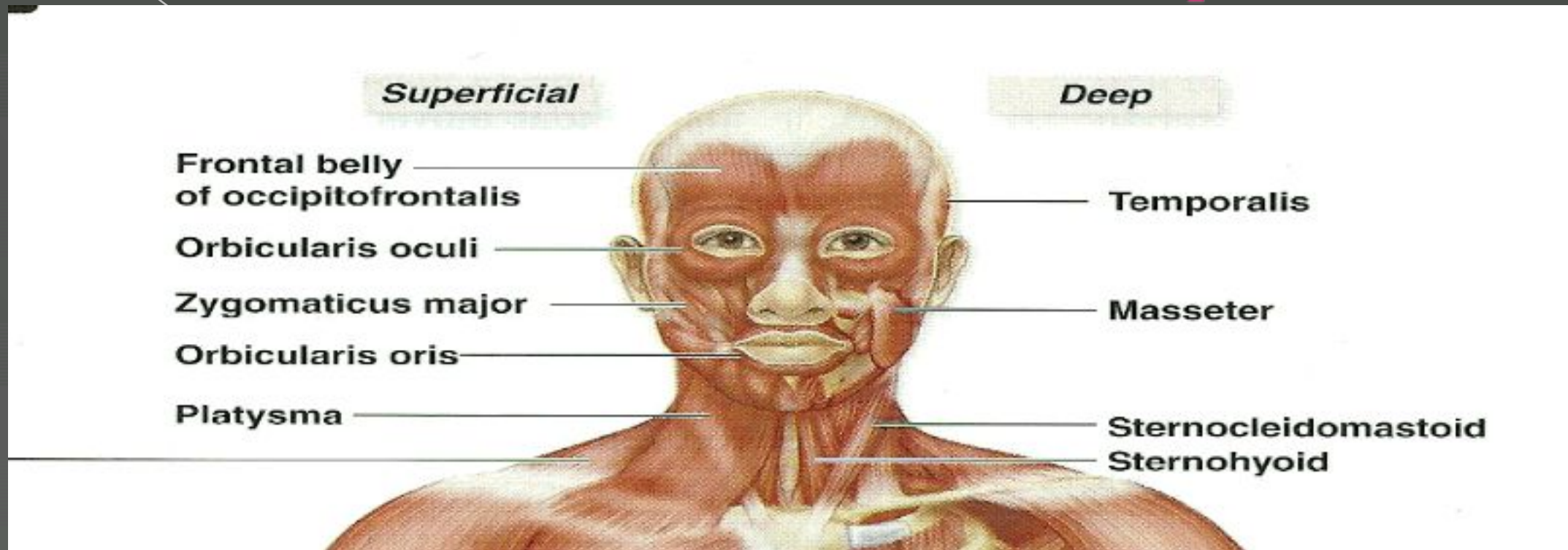
Study Tip!

The following suggestions may help you learn the muscles, whether axial or appendicular:

- The axial muscles may be organized into groups based on their location or function. Learning the muscles in groups is easiest.
- When studying a particular muscle, try to palpate it on yourself. Contract the muscle to sense its action and identify its regional location.
- Repeat the name of a muscle aloud to become familiar with its name. It is easier to remember and spell terms that you can pronounce.
- Associate visual images from models, cadavers, a photographic atlas, or dissected animals with muscle names. Connecting a muscle name with direct observation will help you remember it.
- Locate the origins and insertions of muscles on an articulated skeleton. This helps you visualize the locations of muscles and understand how they produce particular actions.
- Learn the derivation of each muscle name because it usually describes the muscle's action, location, number of heads, orientation of muscle fibers, shape, or size.

Refer to figure 10.14 for examples of how some muscles are named.

Muscles of Facial Expression



Superficial

Deep

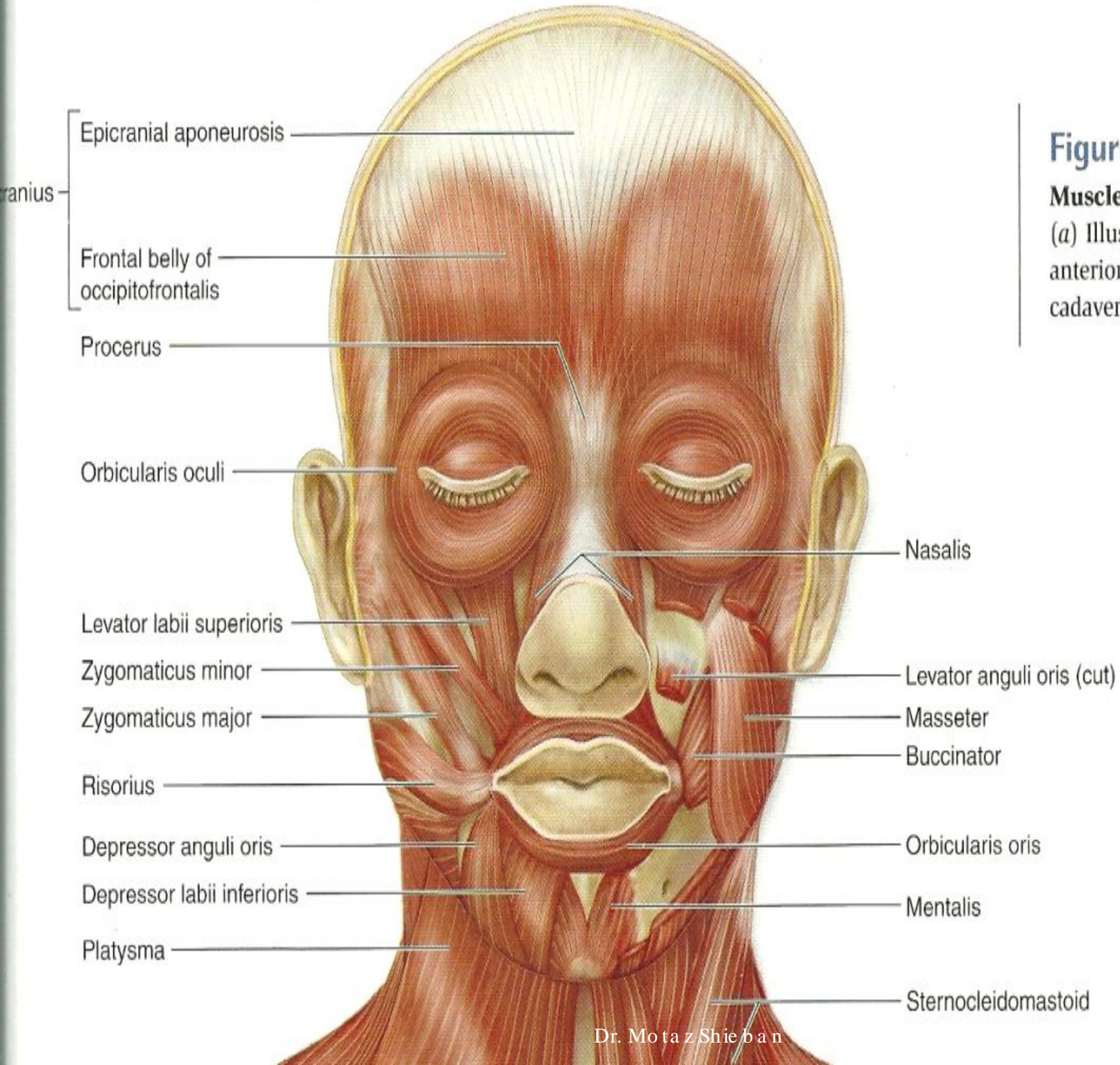
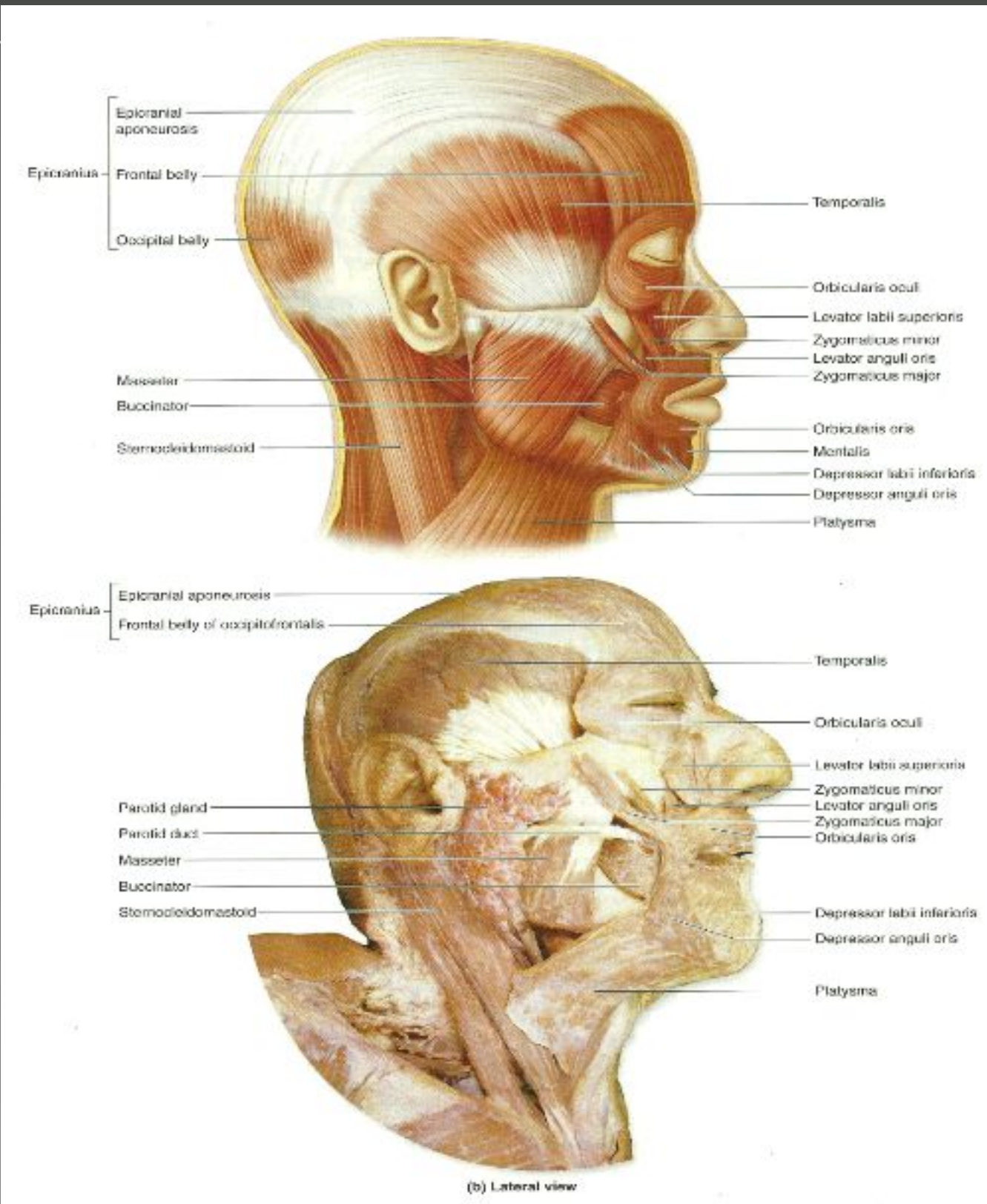


Figure 11.2

Muscles of Facial Expression.

(a) Illustration and cadaver photo, anterior view. (b) Illustration and cadaver photo, lateral view. **AP|R**

Muscles of Facial Expression



Bell's Paralysis



Facial nerve (CN VII) paralysis on the left side of the face. Note the drooping left side of the mouth (arrow) and the lack of contraction by the left orbicularis oculi when the woman tries to smile.

Be ll's Pa lsy:

› Inhibition of facial nerve (cranial nerve VII) inability to control facial muscles (resultant flaccidity)

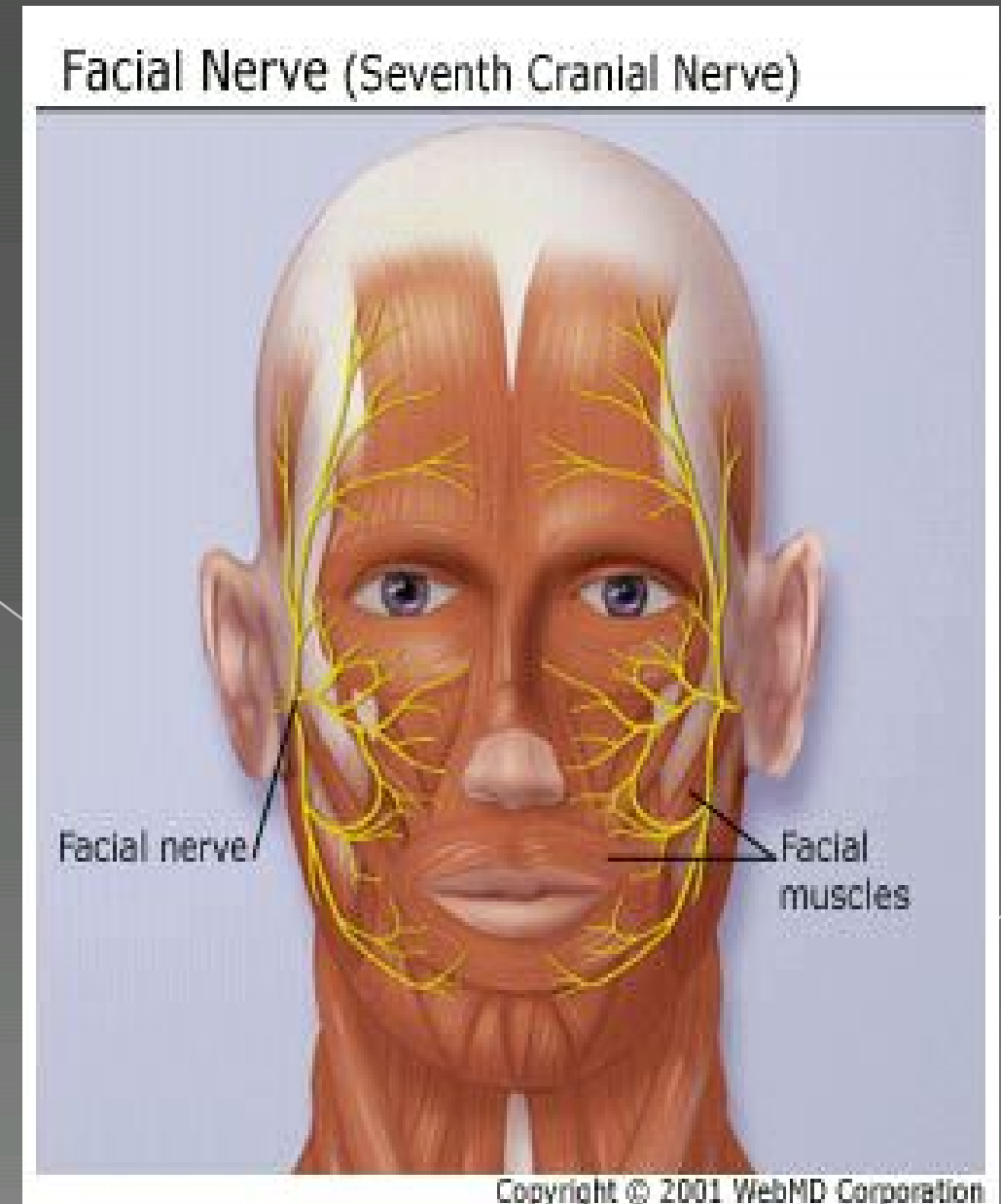
— Most common cause of Acute Facial Nerve Paralysis

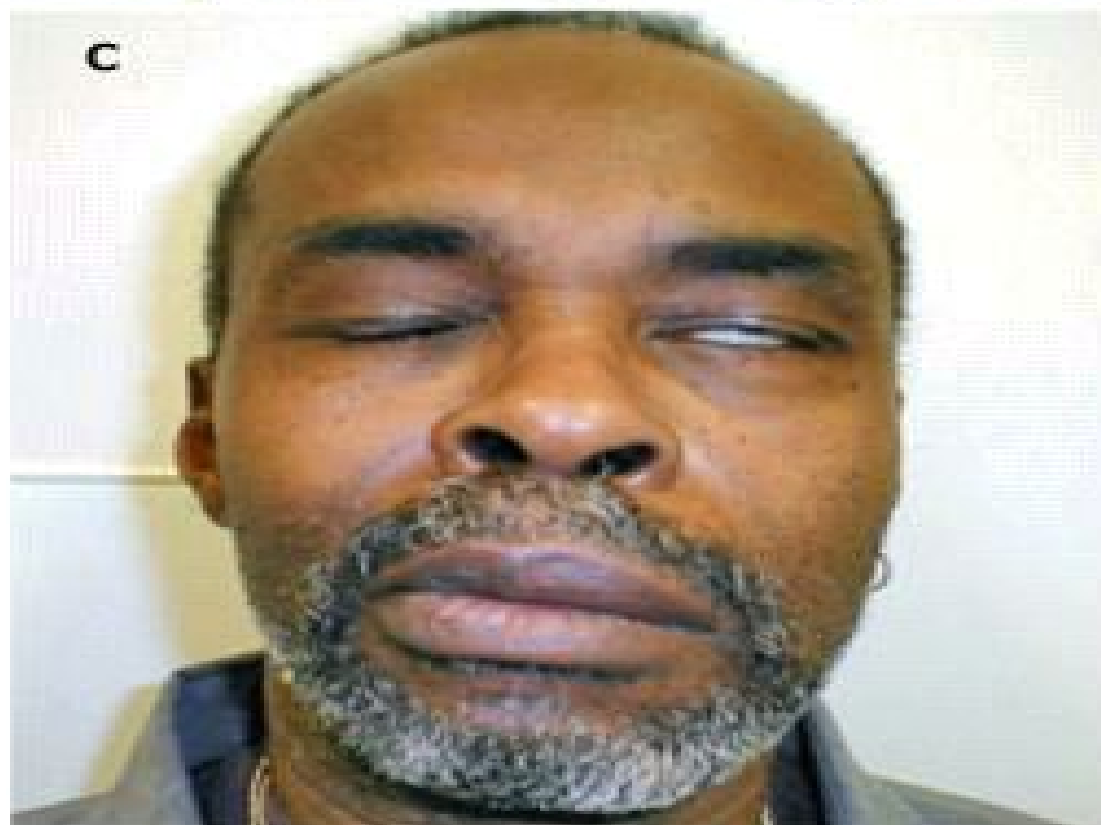
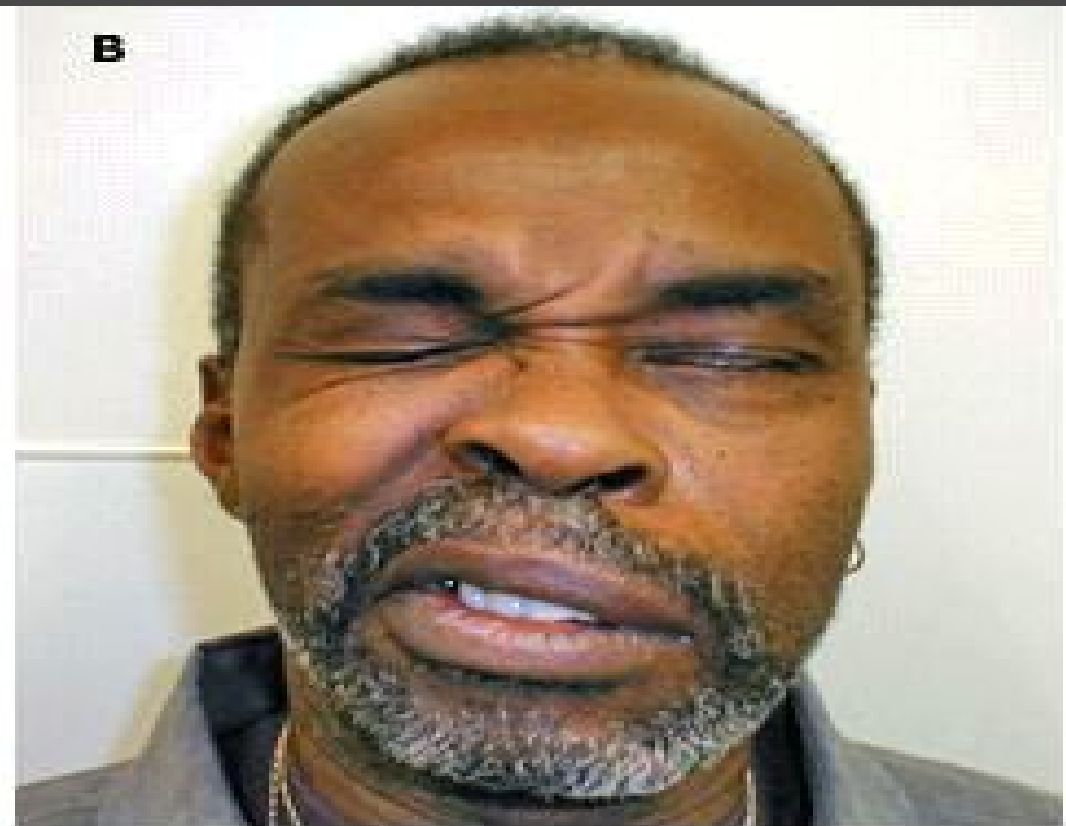
— Symptoms: weakness on one side of face, facial droop, pain on affected side, headache, loss of taste

— Cause: Inflammation of facial nerve (resultant pinching)

— Infection or Virus

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Muscles of Facial Expression

Table 11.1

Muscles of Facial Expression

Region/Muscle	Action	Origin/Insertion	Innervation
SCALP			
Epicraniius (ep'i-krā'nō-us) <i>epi</i> = over <i>cran</i> = skull		Composed of an epicranial aponeurosis and the occipitofrontalis muscle	
Frontal belly of occipitofrontalis (ok sīp'i tō-fron tā'lis) <i>front</i> = forehead	Moves scalp, eyebrows; wrinkles skin of forehead	O: Frontal bone I: Epicranial aponeurosis	CN VII (facial nerve)
Occipital belly of occipitofrontalis <i>occipito</i> = base of skull	Retracts scalp	O: Superior nuchal line I: Epicranial aponeurosis	CN VII (facial nerve)
NOSE			
Nasalis (nā'zā-lis) <i>nasus</i> = nose	Compresses bridge and depresses tip of nose; elevates corners of nostrils	O: Maxillae and alar cartilage of nose I: Dorsum of nose	CN VII (facial nerve)
Procerus (pro-se'r-us) <i>procerus</i> = long	Moves and wrinkles nose	O: Nasal bone and lateral nasal cartilage I: Aponeurosis at bridge of nose and skin of forehead	CN VII (facial nerve)
MOUTH			
Buccinator (buk'sī nā'tōr) <i>bucca</i> = cheek	Compresses cheek; holds food between teeth during chewing	O: Alveolar processes of mandible and maxillae I: Orbicularis oris	CN VII (facial nerve)
Depressor anguli oris (dē pres'ōr ang'ū ll ōr'ūs) <i>depressor</i> = depresses <i>angul</i> = angle <i>or</i> = mouth	Draws corners of mouth inferiorly and laterally ("frown" muscle)	O: Body of mandible I: Skin at inferior corner (angle) of mouth	CN VII (facial nerve)
Depressor labii inferioris (dē pres'ōr lā'be i m fer'e ōr is) <i>labii</i> = lip <i>infer</i> = below	Draws lower lip inferiorly	O: Body of mandible lateral to midline I: Skin at inferior lip	CN VII (facial nerve)
Levator anguli oris (le-va'tor, le-va'ter ang'ū-lī ōr'ūs) <i>leva</i> = raise	Draws corners of mouth superiorly and laterally ("smile" muscle)	O: Lateral maxilla I: Skin at superior corner of mouth	CN VII (facial nerve)
Levator labii superioris (le-va'tor, le-va'ter lā'be i sū pēr'ē ōr is) <i>leva</i> = raise	Opens lips; raises and furrows the upper lip ("Elvis" lip snarl)	O: Zygomatic bone, maxilla I: Skin and muscle of superior lip	CN VII (facial nerve)
Mentalis (men-tā'lis) <i>ment</i> = chin	Protrudes lower lip ("pout"); wrinkles chin	O: Central mandible I: Skin of chin	CN VII (facial nerve)
Orbicularis oris (ōr bik'ū lā'ris ōr'is) <i>orb</i> = circular <i>or</i> = mouth	Compresses and purses lips ("kiss" muscle)	O: Maxilla and mandible; blend with fibers from other facial muscles I: Encircling mouth; skin and muscles at angles to mouth	CN VII (facial nerve)
Risorius (ri-sōr'ū-us) <i>risor</i> = laughter	Draws corner of lip laterally; tenses lips; synergist of zygomaticus	O: Deep fascia associated with masseter muscle I: Skin at angle of mouth	CN VII (facial nerve)
Zygomaticus major (zī'gō-mat'i-kūs) <i>zygomatic</i> = cheekbone <i>major</i> = greater	Elevates corner of the mouth ("smile" muscle)	O: Zygomatic bone I: Skin at superolateral edge of mouth	CN VII (facial nerve)
Zygomaticus minor (zī'gō-mat'i-kūs) <i>minor</i> = lesser	Elevates corner of the mouth ("smile" muscle)	O: Zygomatic bone I: Skin of superior lip	CN VII (facial nerve)

Muscles of Facial Expression

Table 11.1

Muscles of Facial Expression

Region/Muscle

Action

Origin/Insertion

Innervation

SCALP

Epicranius (ep'ī-kra'nē-us)

epi = over

cran = skull

Composed of an epicranial aponeurosis and the occipitofrontalis muscle

Frontal belly of occipitofrontalis
(ok-sip'i-tō-fron-tā'lis)

front = forehead

Moves scalp, eyebrows; wrinkles skin of forehead

O: Frontal bone
I: Epicranial aponeurosis

CN VII (facial nerve)

Occipital belly of occipitofrontalis

occipito = base of skull

Retracts scalp

O: Superior nuchal line
I: Epicranial aponeurosis

CN VII (facial nerve)

NOSE

Nasalis (nā'zā-lis)

nasus = nose

Compresses bridge and depresses tip of nose; elevates corners of nostrils

O: Maxillae and alar cartilage of nose
I: Dorsum of nose

CN VII (facial nerve)

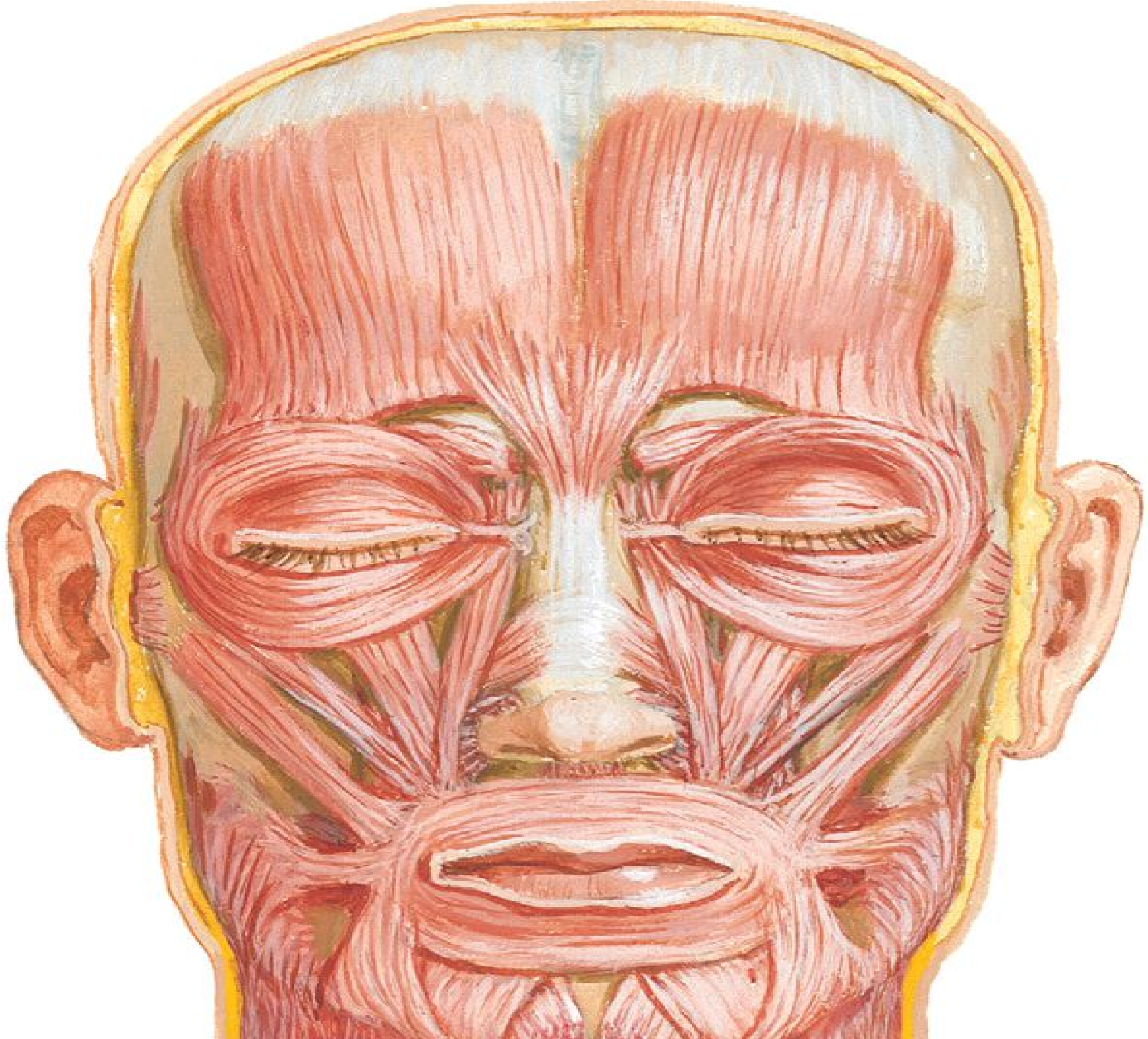
Procerus (prō-sē'rūs)

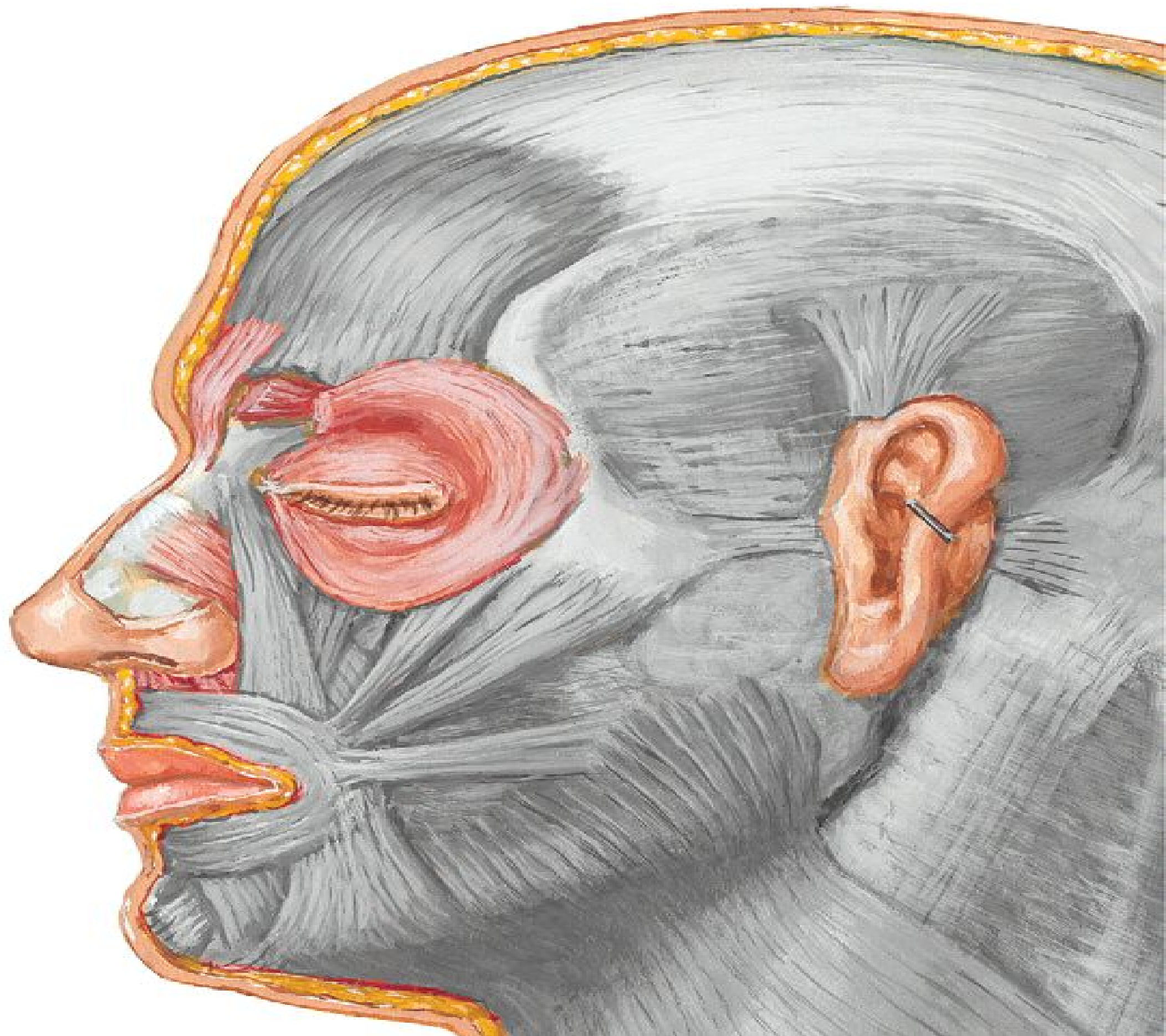
procerus = long

Moves and wrinkles nose

O: Nasal bone and lateral nasal cartilage
I: Aponeurosis at bridge of nose and skin of forehead

CN VII (facial nerve)



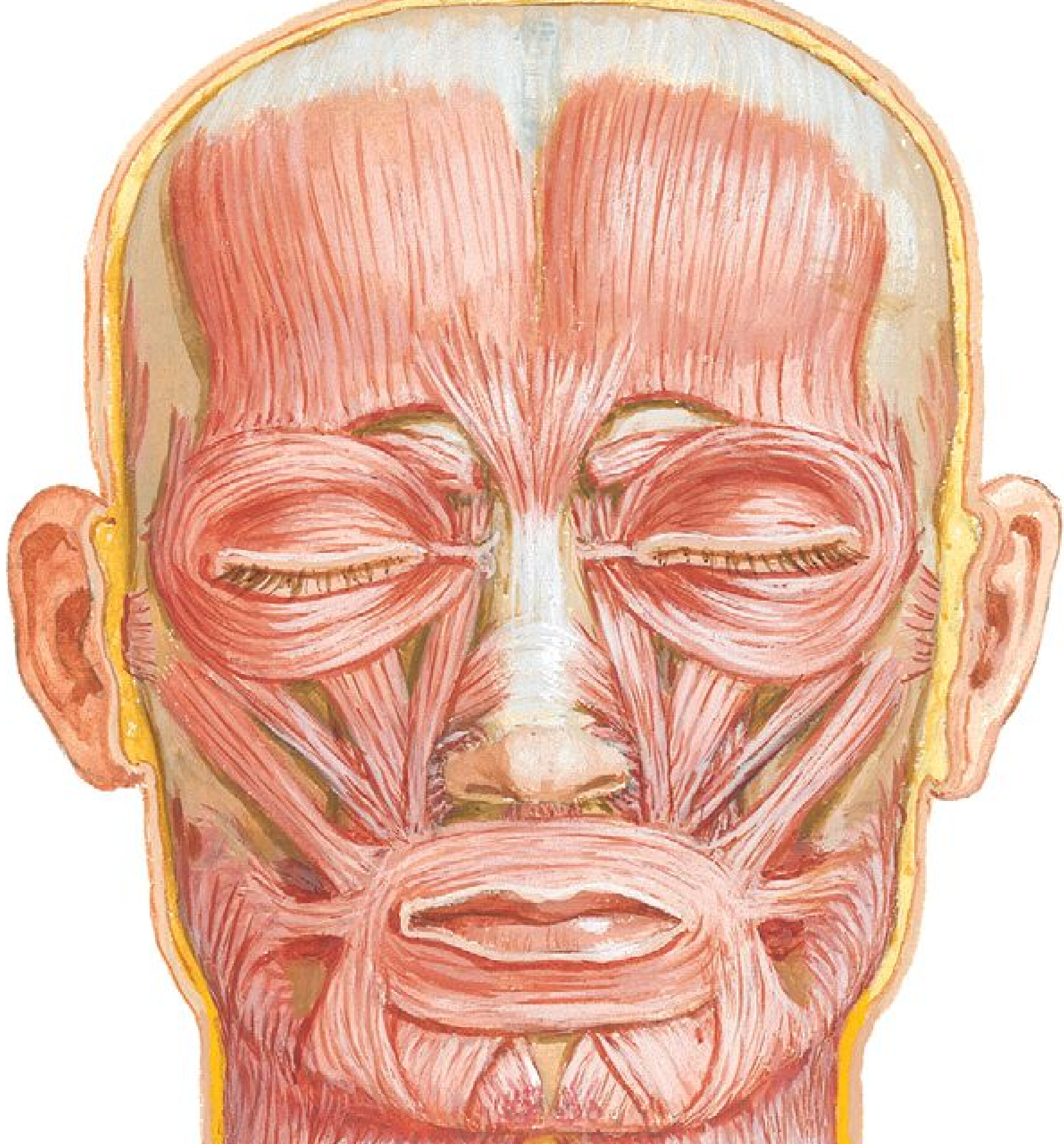


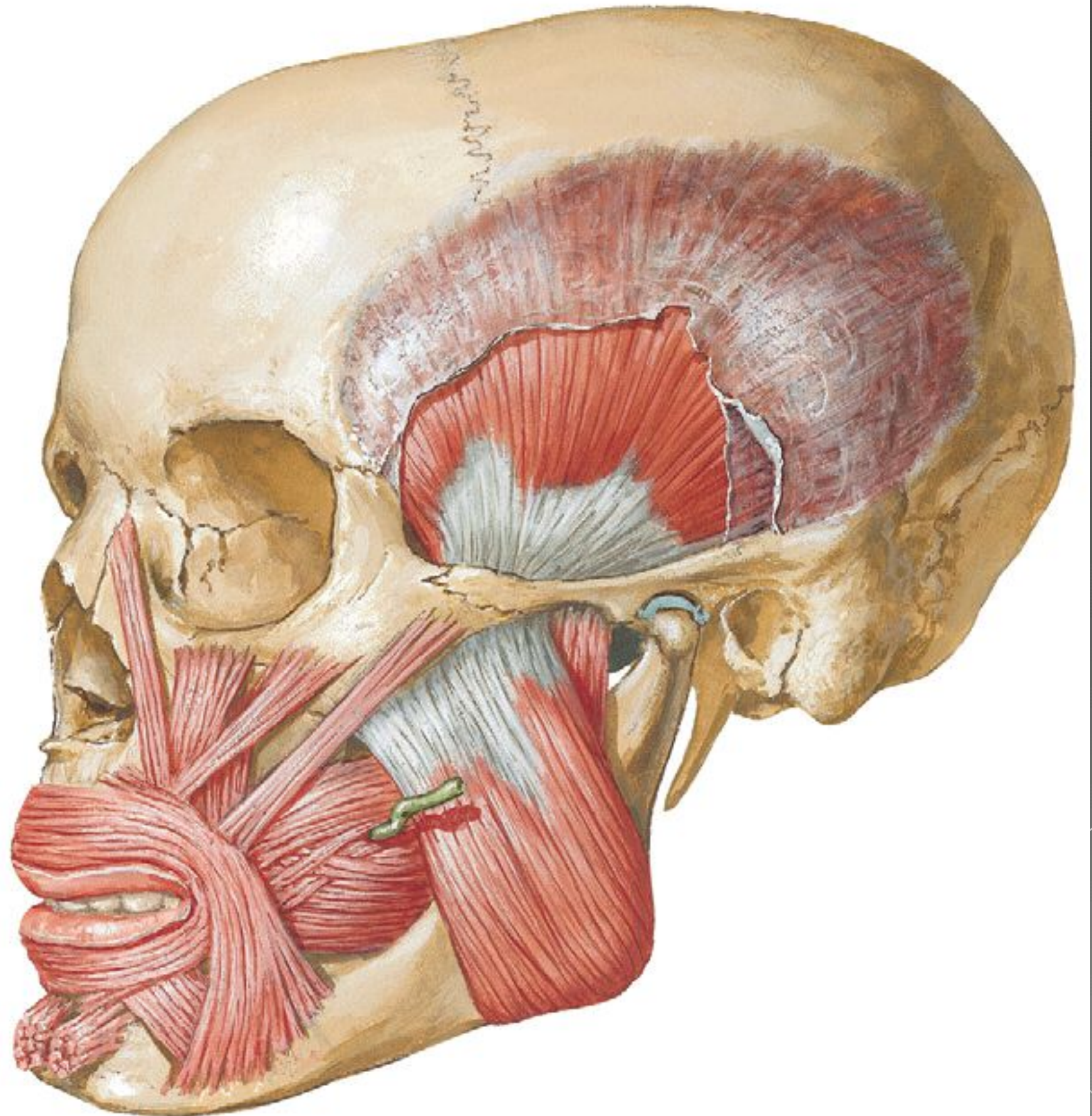
Muscle	Action	Origin	Insertion	Innervation
Buccinator	Depresses the cheeks	Alveolar process of maxilla and mandible	Angle of mouth	Facial
Depressor Anguli Oris	Draws angle of mouth downward	Oblique line of mandible	Angle of mouth	Facial
Depressor Labii Inferioris	Lowers the mouth	Oblique line of mandible	Lower lip	Facial
Digastric	Opens mouth	Inferior border of mandible	Superior aspect of hyoid bone	Trigeminal
Geniohyoid	Opens mouth	Median ridge of mandible	Body of hyoid bone	Ansa Cervicalis
Levator Anguli Oris	Raises each side of mouth	Just superior to canine teeth	Angle of mouth	Facial

Muscle	Action	Origin	Insertion	Innervation
Mentalis	Elevates the skin of the chin	Incisive fossa of the mandible	Point of the mandible	Facial
Mylohyoid	Opens the mouth	Inferior border of the mandible	Superior aspect of hyoid bone	Trigeminal
Orbicularis Oris	Puckers the lips	Originates off of the muscles surrounding the mouth	Skin surrounding the lips	Facial
Procerus	Wrinkles the nose	Lower portion of the nasal bone; Lateral nasal cartilage	Lower portion of the forehead between the eyebrow	Facial
Temporalis	Aids in biting	Temporal fossa	Coronoid process and ramus of mandible	Trigeminal
Zygomaticus Major	Smiling	Zygomatic bone	Angle of mouth	Facial

MOUTH

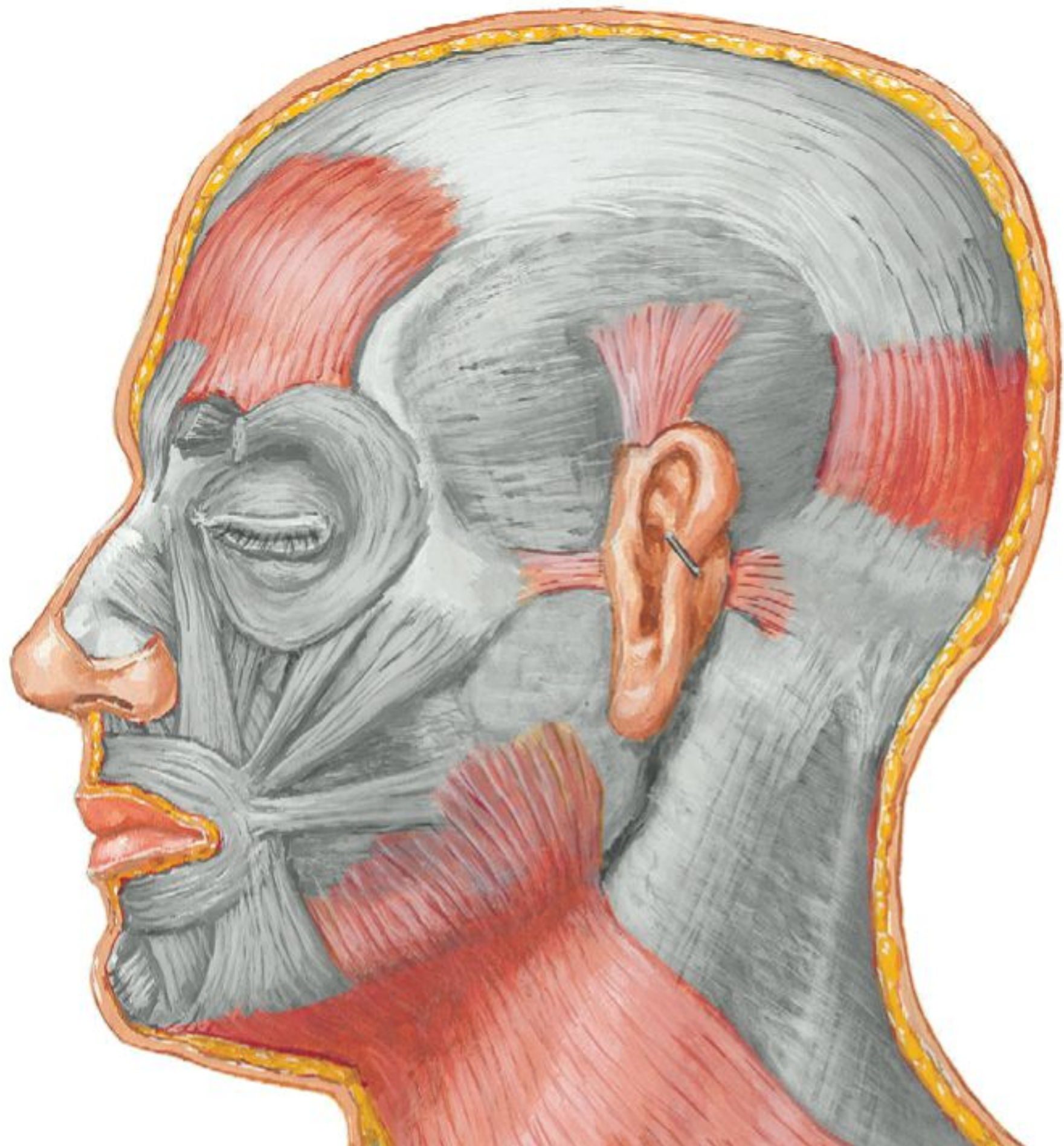
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Depressor labii inferioris (dē-pres'ōr lā'bē-ī in-fēr'ē-ōr-is) <i>labi</i> = lip <i>infer</i> = below	Draws lower lip inferiorly	O: Body of mandible lateral to midline I: Skin at inferior lip	CN VII (facial nerve)
Levator anguli oris (lē-vā'tor, le-vā'ter ang'ū-lī ōr'ūs) <i>leva</i> = raise	Draws corners of mouth superiorly and laterally ("smile" muscle)	O: Lateral maxilla I: Skin at superior corner of mouth	CN VII (facial nerve)
Levator labii superioris (lē-vā'tor, le-vā'ter lā'bē-ī sū-pēr'ē-ōr-is)	Opens lips; raises and furrows the upper lip ("Elvis" lip snarl)	O: Zygomatic bone; maxilla I: Skin and muscle of superior lip	CN VII (facial nerve)
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Orbicularis oris (ōr-bik'ū-lā'ris ōr'is) <i>orb</i> = circular <i>or</i> = mouth	Compresses and purses lips ("kiss" muscle)	O: Maxilla and mandible; blend with fibers from other facial muscles I: Encircling mouth; skin and muscles at angles to mouth	CN VII (facial nerve)
Risorius (ri-sōr'ē-ūs) <i>risor</i> = laughter	Draws corner of lip laterally; tenses lips; synergist of zygomaticus	O: Deep fascia associated with masseter muscle I: Skin at angle of mouth	CN VII (facial nerve)
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Zygomaticus minor (zī'gō-mat'i-kūs) <i>minor</i> = lesser	Elevates corner of the mouth ("smile" muscle)	O: Zygomatic bone I: Skin of superior lip	CN VII (facial nerve)





Muscles of Facial Expression

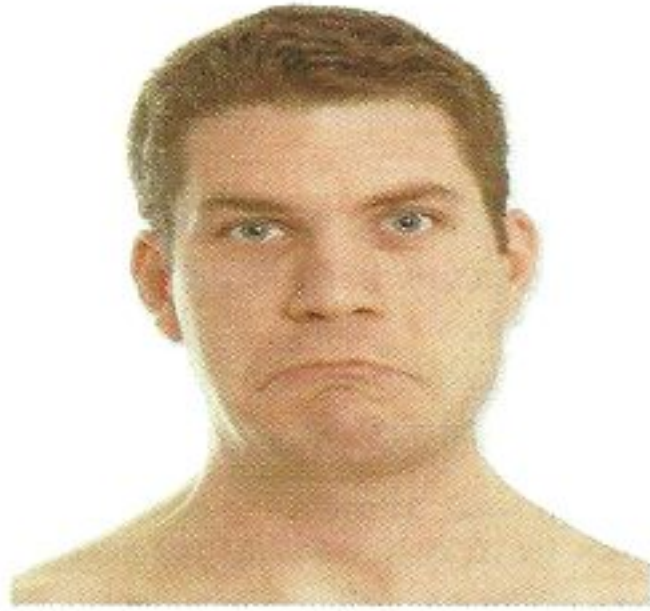
Table 11.1		Muscles of Facial Expression (continued)	
Region/Muscle	Action	Origin/Insertion	Innervation
EYE			
Corrugator supercilii (kōr'ū-gā-ter soo'per-sil'ē-ī) <i>corrugo</i> = to wrinkle <i>cilium</i> = eyelid	Pulls eyebrows inferiorly and medially; creates vertical wrinkles above nose	O: Medial end of superciliary arch I: Skin superior to supraorbital margin and superciliary arch	CN VII (facial nerve)
Levator palpebrae superioris (see figure 19.10) (le-vā'ter pal-pē'brā soo-pēr'ē-ōr-īs) <i>levo</i> = to lift <i>palpebra</i> = eyelid	Elevates superior eyelid	O: Lesser wing of sphenoid bone I: Superior tarsal plate and skin of superior eyelid	CN III (oculomotor nerve)
Orbicularis oculi (ōr-bik'ū-lā'ris ok'ū-ī) <i>orb</i> = circular <i>ocul</i> = eye	Closes eye; produces winking, blinking, squinting ("blink" muscle)	O: Medial wall or margin of orbit I: Skin surrounding eyelids	CN VII (facial nerve)
NECK			
Platysma (plā-tiz'mā) <i>platy</i> = flat	Pulls lower lip inferiorly; tenses skin of neck	O: Fascia of deltoid and pectoralis major muscles and acromion of scapula I: Skin of cheek and mandible	CN VII (facial nerve)



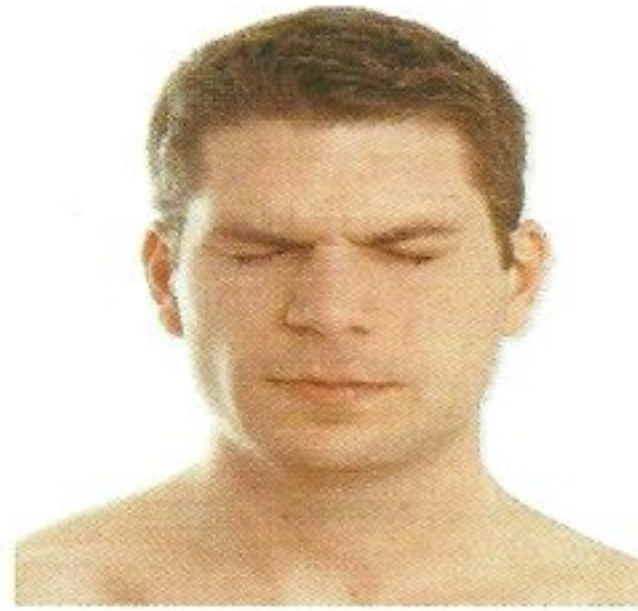
Characteristics of the facial muscles

1. The primary function is expression of the emotions.
2. The facial muscles are capable of performing 7000 expressions according to Coleman.
3. They are also responsible for the maintenance of the posture of the facial structures.
4. The facial muscle also contributes to stabilization of the mandible during the infantile swallowing and chewing and swallowing in the occlusally compromised adults.
5. It is also important for the visual and the spoken communications.

Muscles of Facial Expression



Depressor anguli oris
(frown)



Orbicularis oculi
(blink/close eyes)



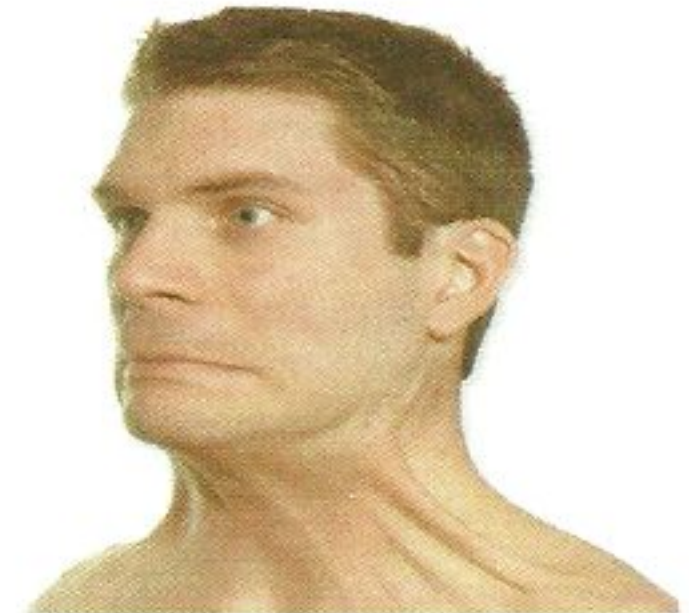
Zygomaticus major
(smile)



Orbicularis oris
(close mouth/kiss)

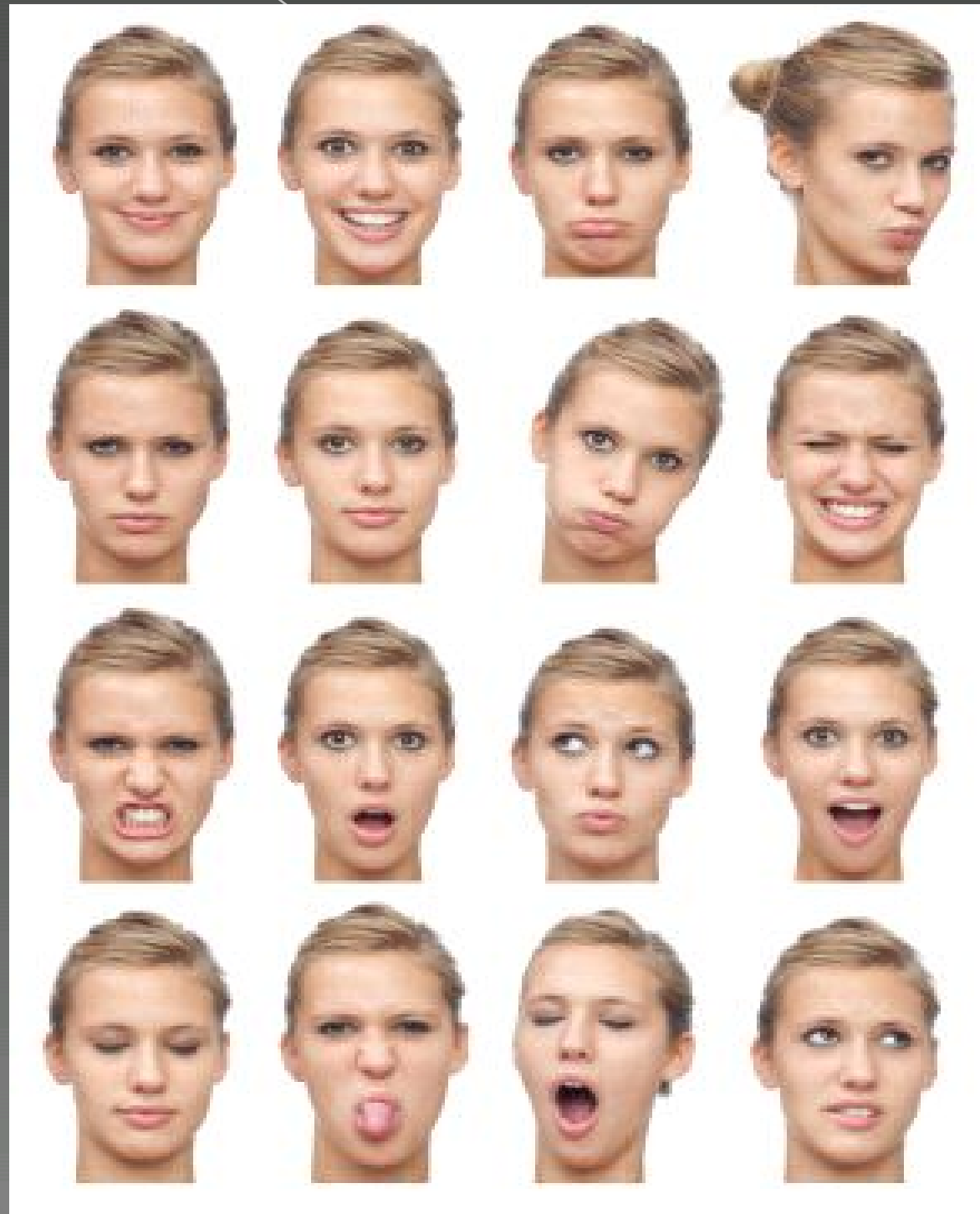


Frontal belly of occipitofrontalis
(wrinkle forehead, raise eyebrows)



Platysma
(tense skin of neck)

Muscles of Facial Expression

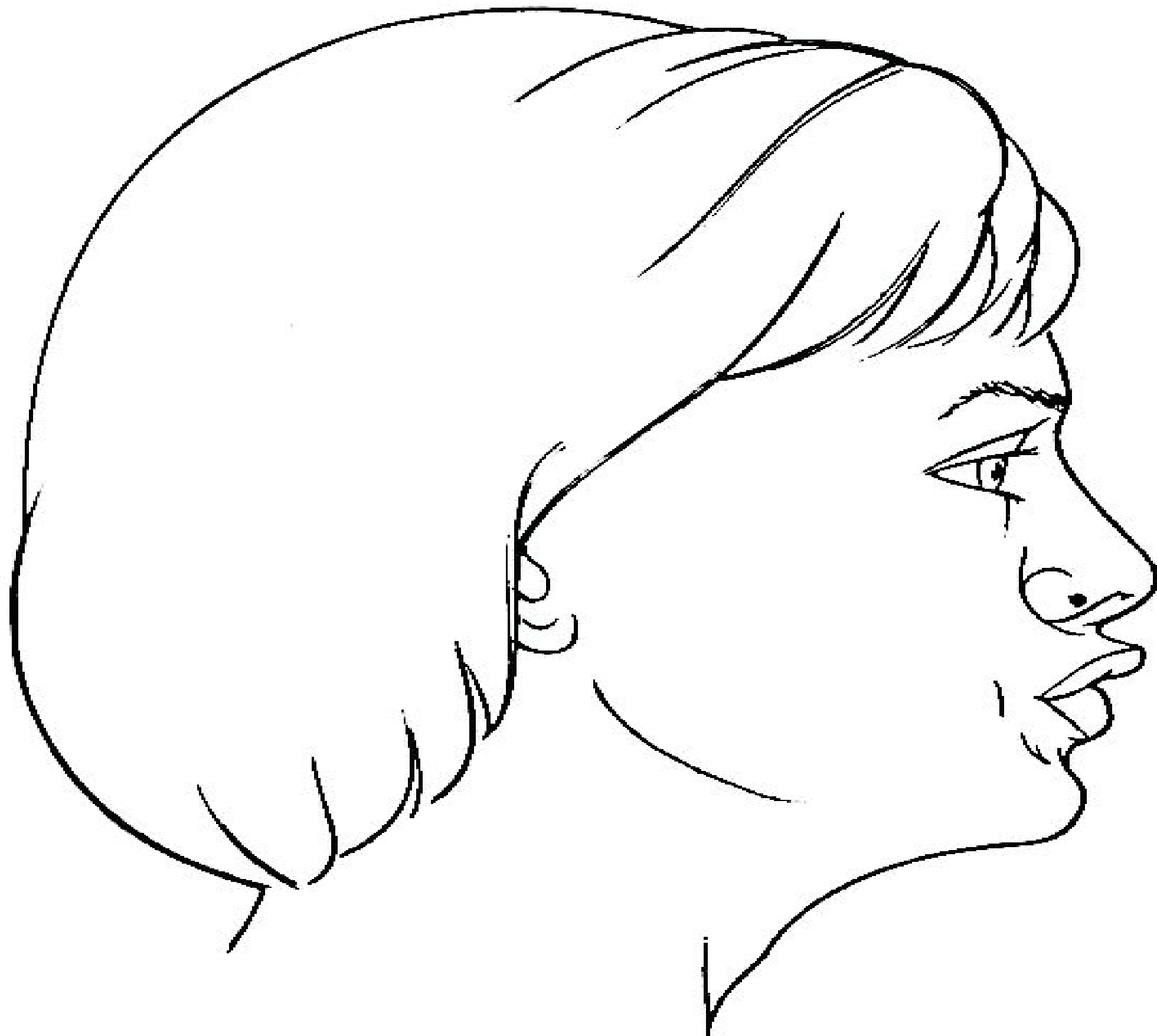










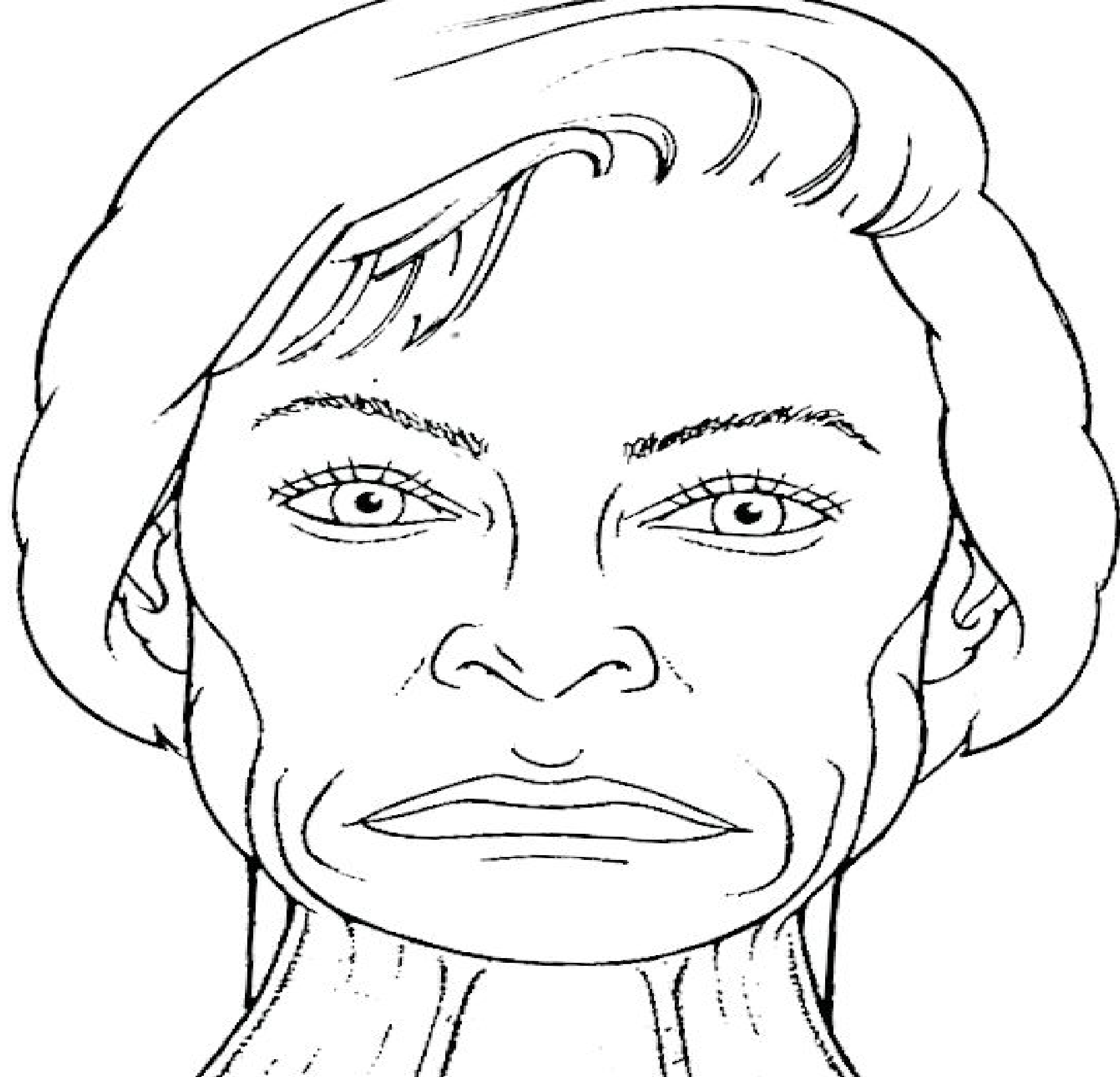
















Muscles of Facial Expression: Lateral View

