ULDIS ZARINS

ANATOMY OF FACIAL EXPRESSION

ANATOMY NEXT

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Foreword Anatomy of Facial Expression

Whether you are a beginner or a pro, every artist, past, present, and into the future, has and will benefit from anatomical knowledge. This in depth, beautifully designed work by Uldis Zarins epitomizes this type of timeless knowledge and is clearly an essential book on any artist's bookshelf. It continues the tradition of passing on anatomical knowledge, adding to the tradition that we have inherited that goes back as far as ancient Egypt, through the Golden Age of Greece, the Renaissance, and through the centuries thereafter onto us from our teachers and to our students, the new generation of artists.

As with the past work by Uldis, this newest labor of love, Anatomy of Facial Expression, is an epic work never before seen to this degree. The combination of art, science, and technology, makes this body of work possible, through the use of so many new tools available to us. Uldis is at the cutting edge of that technology taking full advantage of its vast applications. In this book lies many of the secrets of how we as humans communicate non-verbally.

Being at the top of the evolutionary ladder means, that with our great brain power, we have also evolved to have the most sophisticated facial muscles on this planet. We need many muscles to create the minute nuances that drive you to ask your best friend "What's wrong, what happened?" In fact, we virtually have to be experts to hide our emotions; having a "poker face" requires practice because our faces are constantly speaking for us. To hide this requires that we work against nature, our nature, human nature. So fellow artists, fellow students, as we should be all of our lives, in this great book not only can you learn to draw or paint the face better, or add to your animation toolbox, you will also certainly be reminded of how wondrous our faces are. The face is, after all, our humanity. As an educator and artist, I only wish I had this when I was a student but will certainly learn from it now. I cannot think of my bookshelf or classroom complete without this work.

By **Rey Bustos**

Assistant Professor at the Art Center College of Design
I also teach at the Los Angeles Academy of Figurative Art
New Masters Academy
and CGMA (Computer Graphics Masters Academy)
and have taught at Disney Feature Animation

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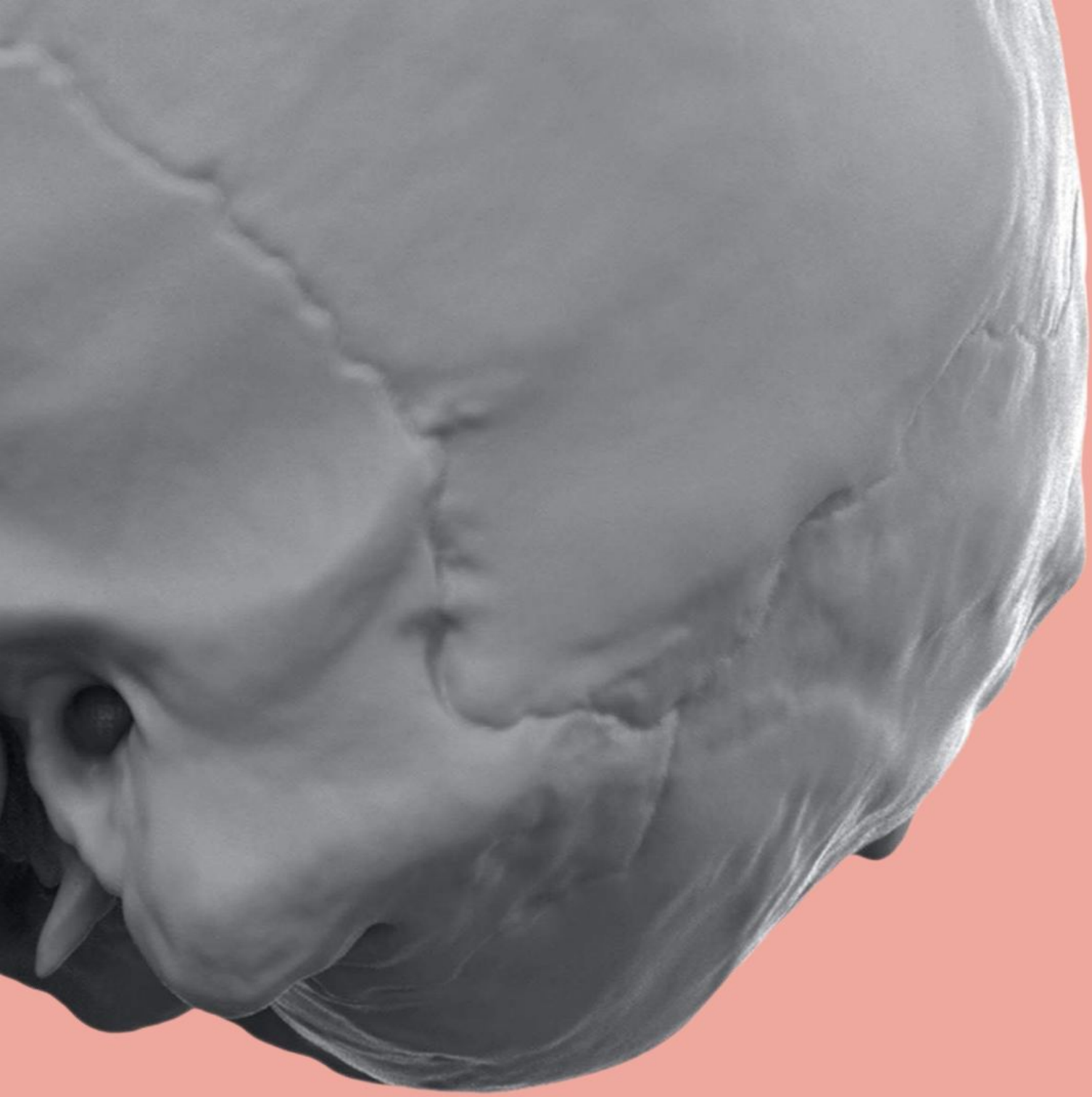
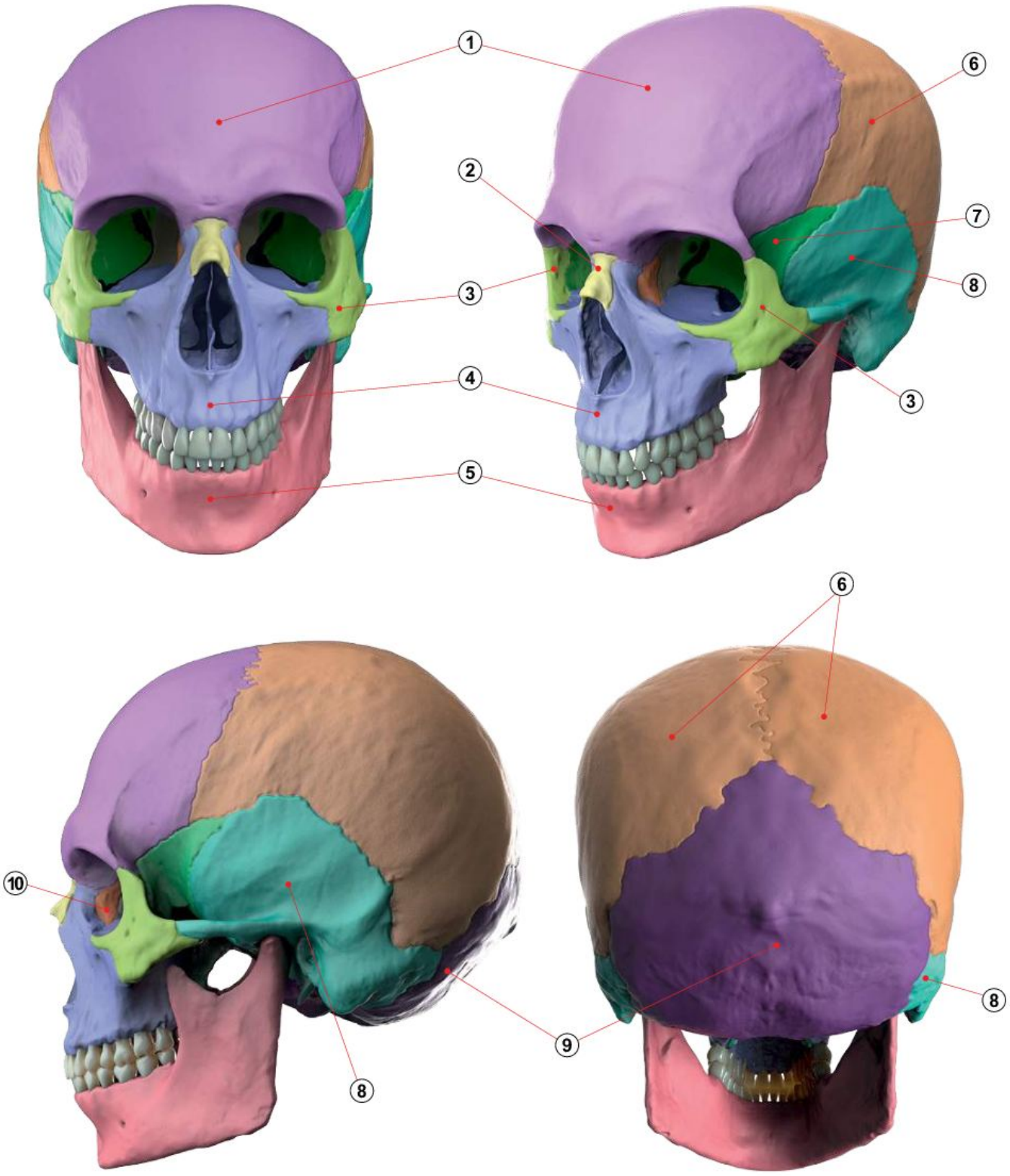


SKELETON

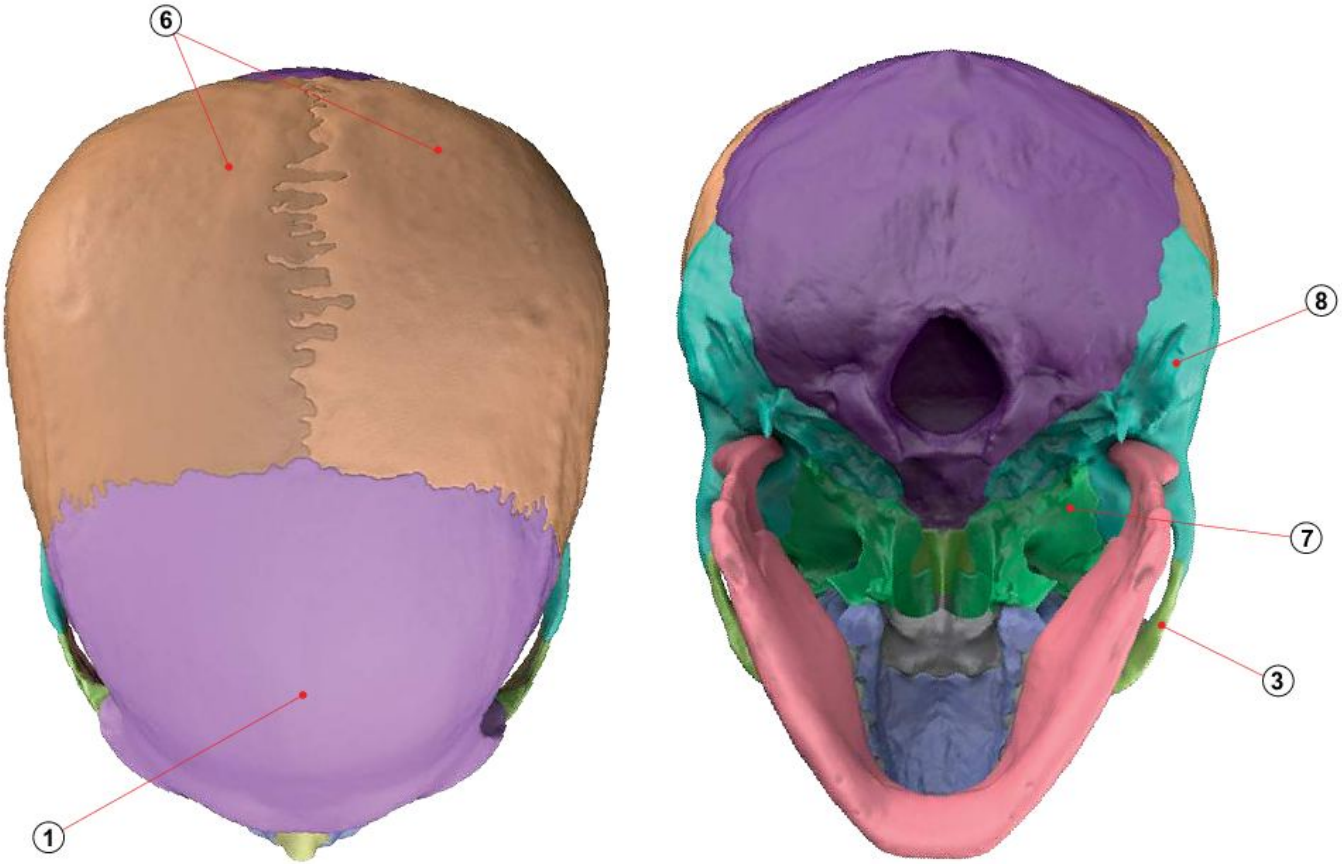
MAJOR BONES OF THE SKULL

MAJOR BONES OF THE SKULL

MAJOR BONES OF THE SKULL

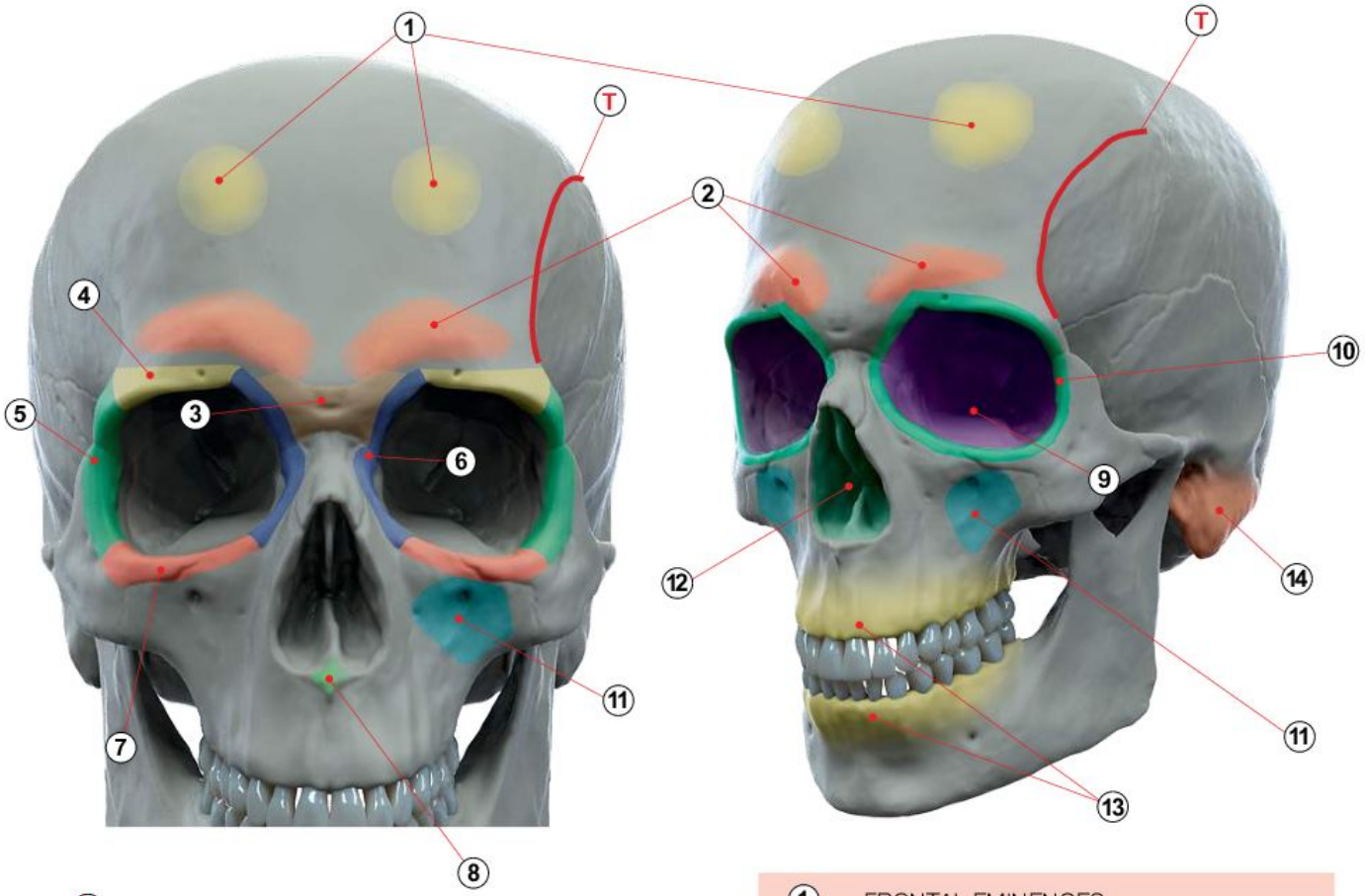


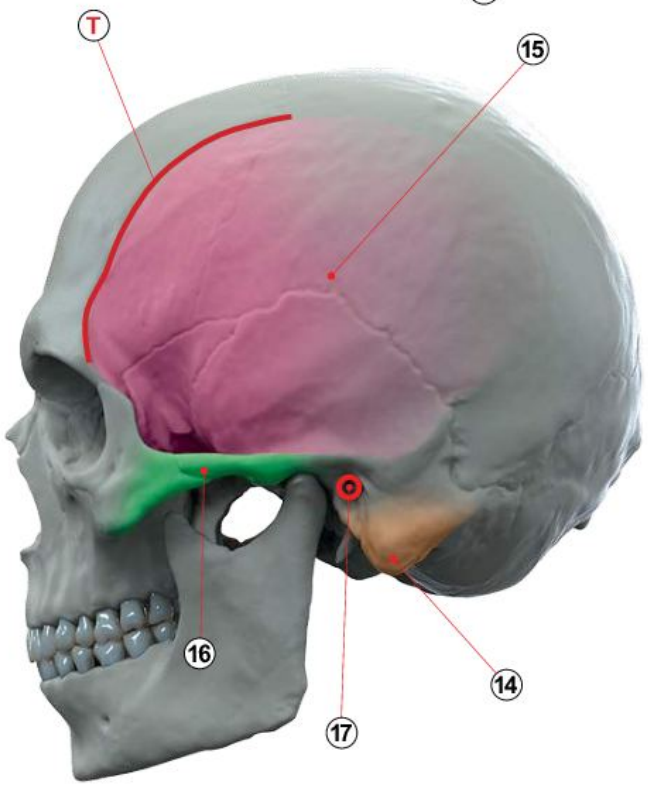
MAJOR BONES OF THE SKULL



1	FRONTAL BONE	6	PARIETAL BONE
2	NASAL BONE	7	SPHENOID BONE
3	ZYGOMATIC BONE	8	TEMPORAL BONE
4	MAXILLA	9	OCCIPITAL BONE
5	MANDIBLE	10	LACRIMAL BONE

TOPOGRAPHY OF THE SKULL





1	FRONTAL EMINENCES
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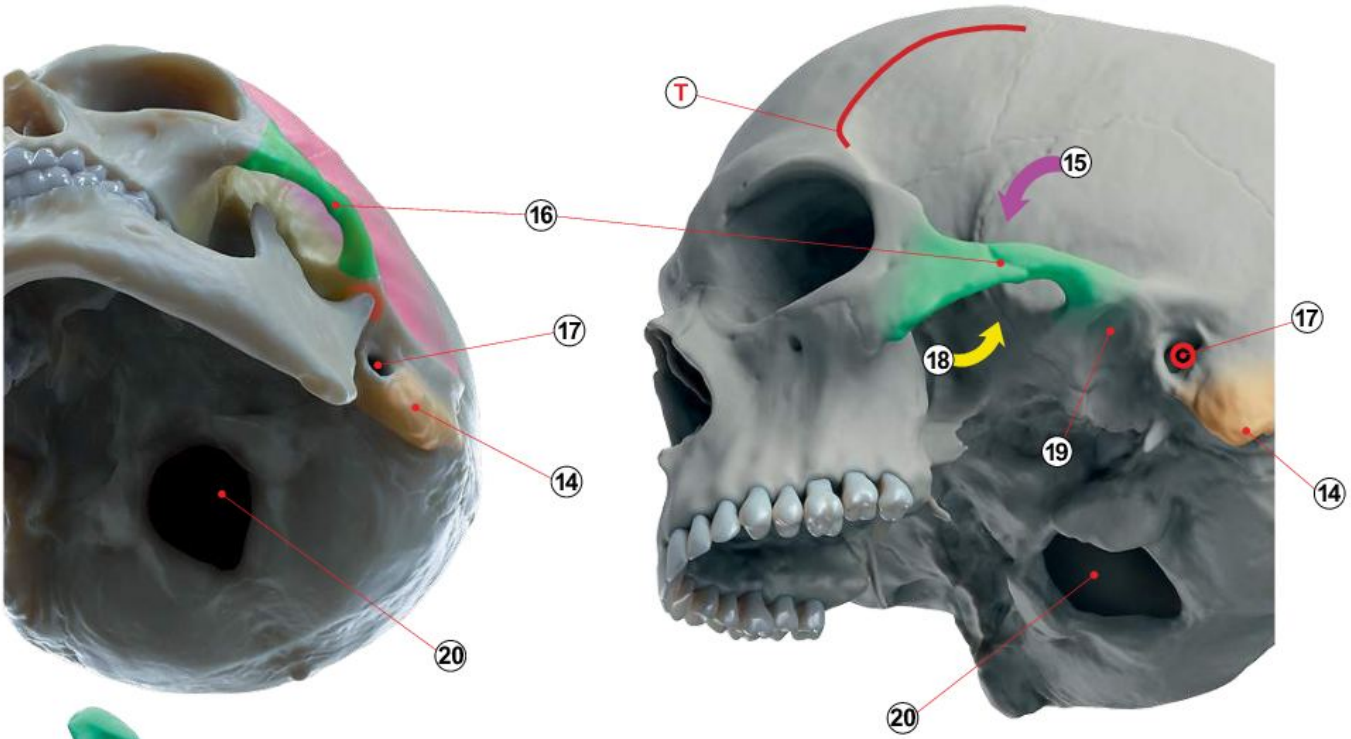
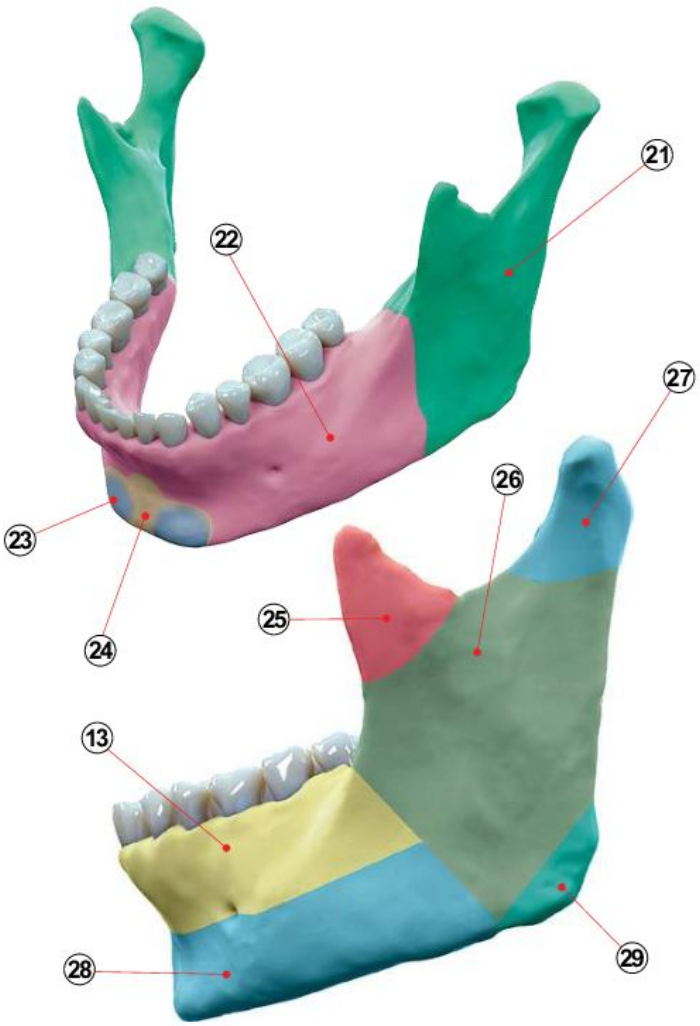
3	GLABELLA
4	SUPERIOR ORBITAL MARGIN
5	LATERAL ORBITAL MARGIN
6	MEDIAL ORBITAL MARGIN
7	INFERIOR ORBITAL MARGIN
8	ANTERIOR NASAL SPINE
9	ORBITAL CAVITY
10	ORBITAL MARGIN
11	INFRAORBITAL FOSSA
12	NASAL CAVITY
13	ALVEOLAR PROCESSES
14	MASTOID PROCESS
15	TEMPORAL FOSSA

TOPOGRAPHY OF THE SKULL





16	ZYGOMATIC ARCH
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T	TEMPORAL LINE

TOPOGRAPHY OF THE SKULL

1	INCISIVE FOSSA (maxilla)
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3	CANINE FOSSA (maxilla)
4	ANTERIOR BORDER OF THE RAMUS
5	OBLIQUE LINE OF THE MANDIBLE
6	FRONTAL PROCESS (maxilla)
7	ZYGOMATIC PROCESS (frontal)
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9	BODY (zygomatic bone)
10	MAXILLARY BORDER (zygomatic)
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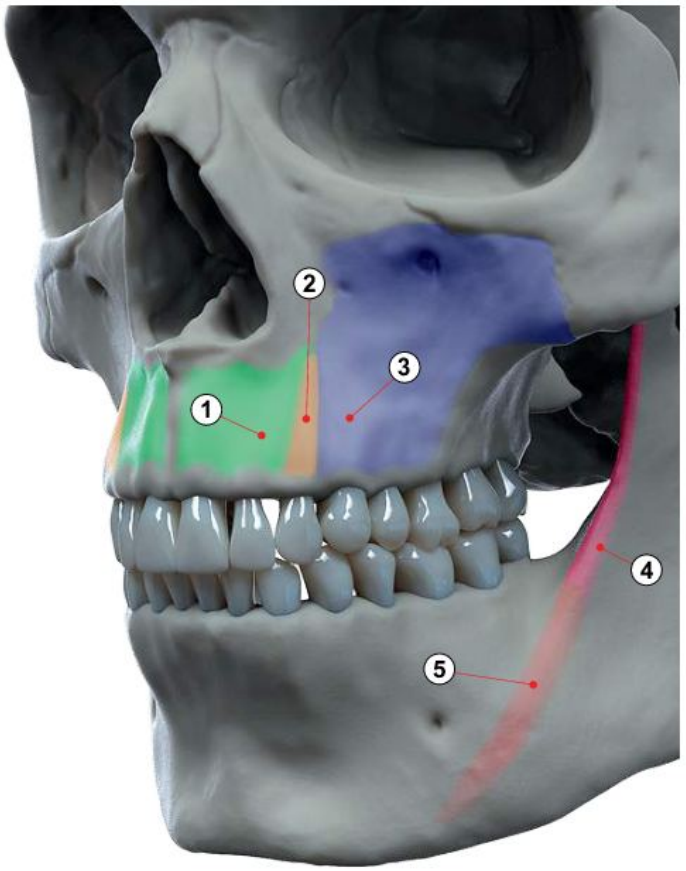
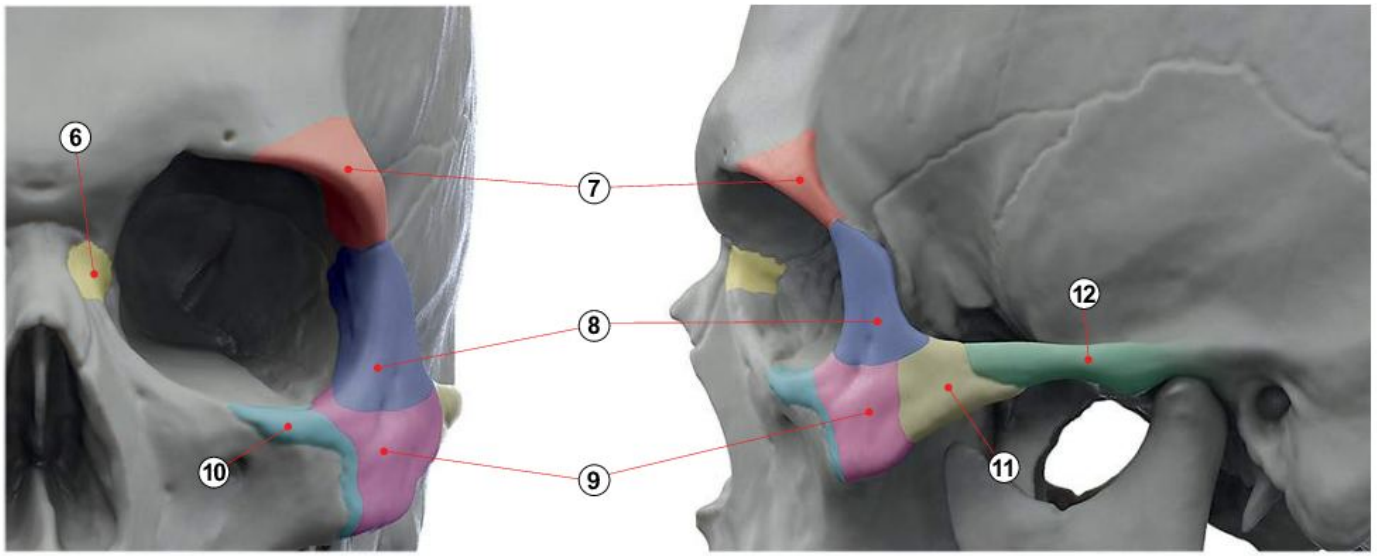
12	ZYGOMATIC PROCESS (temporal)





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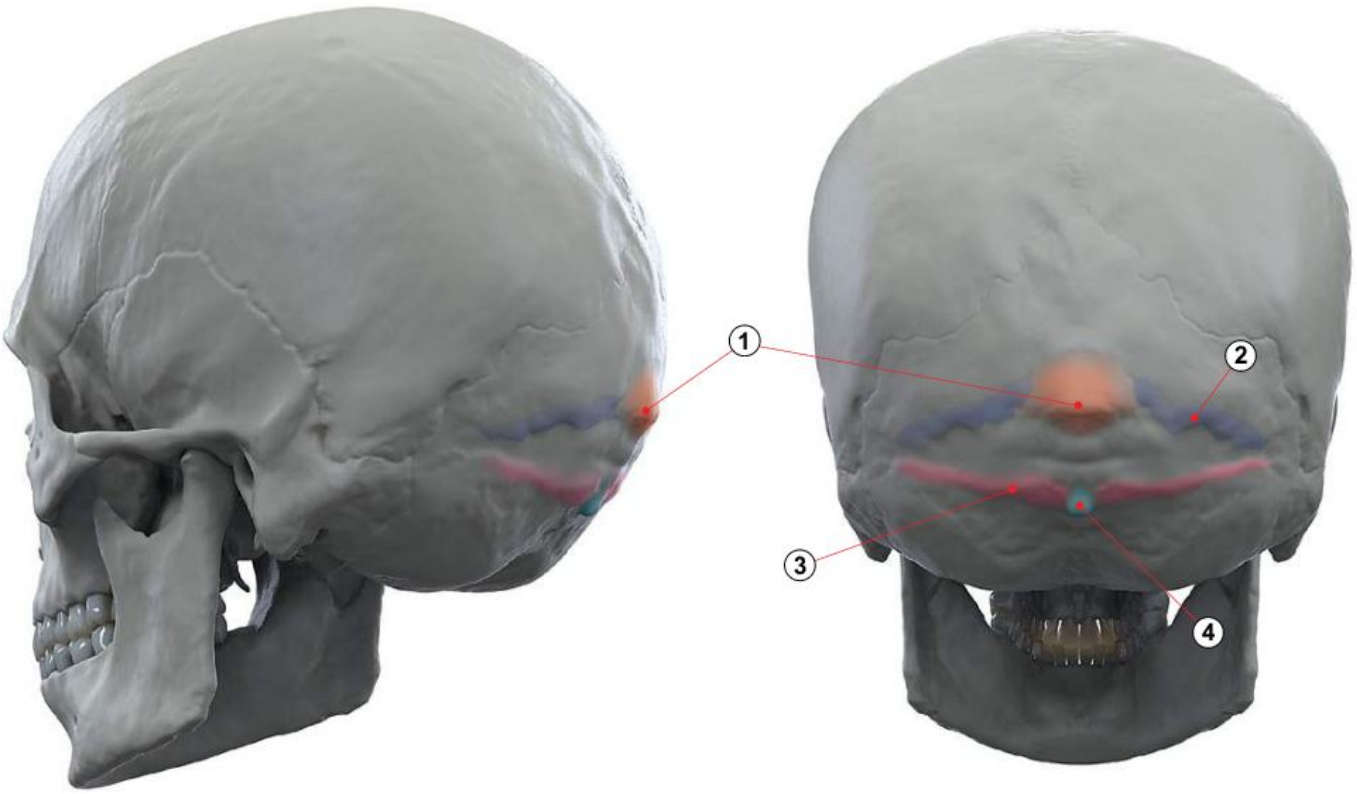
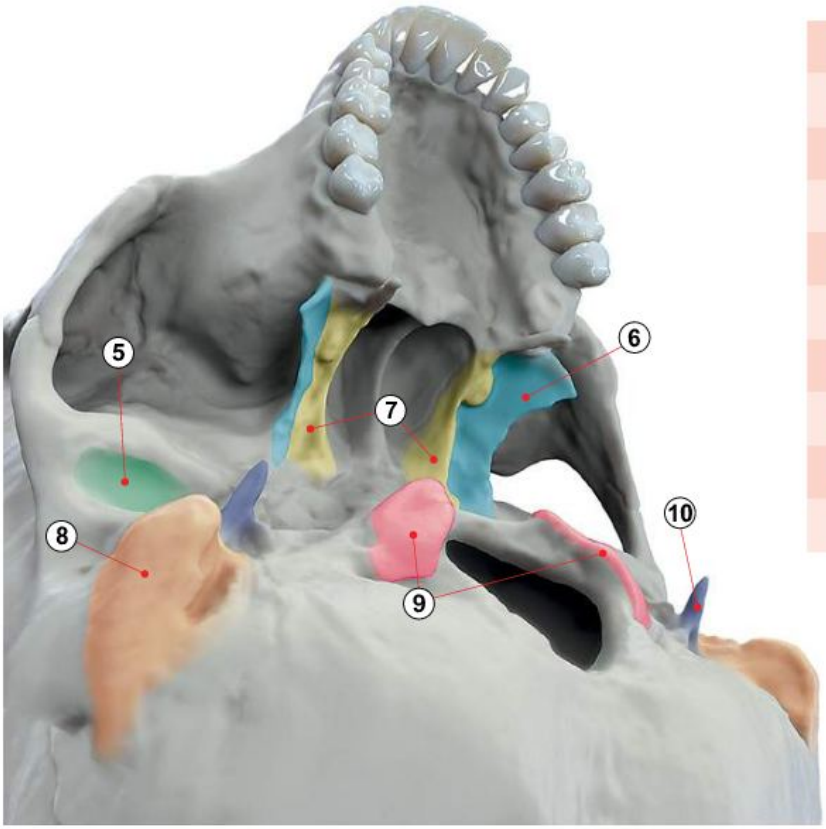


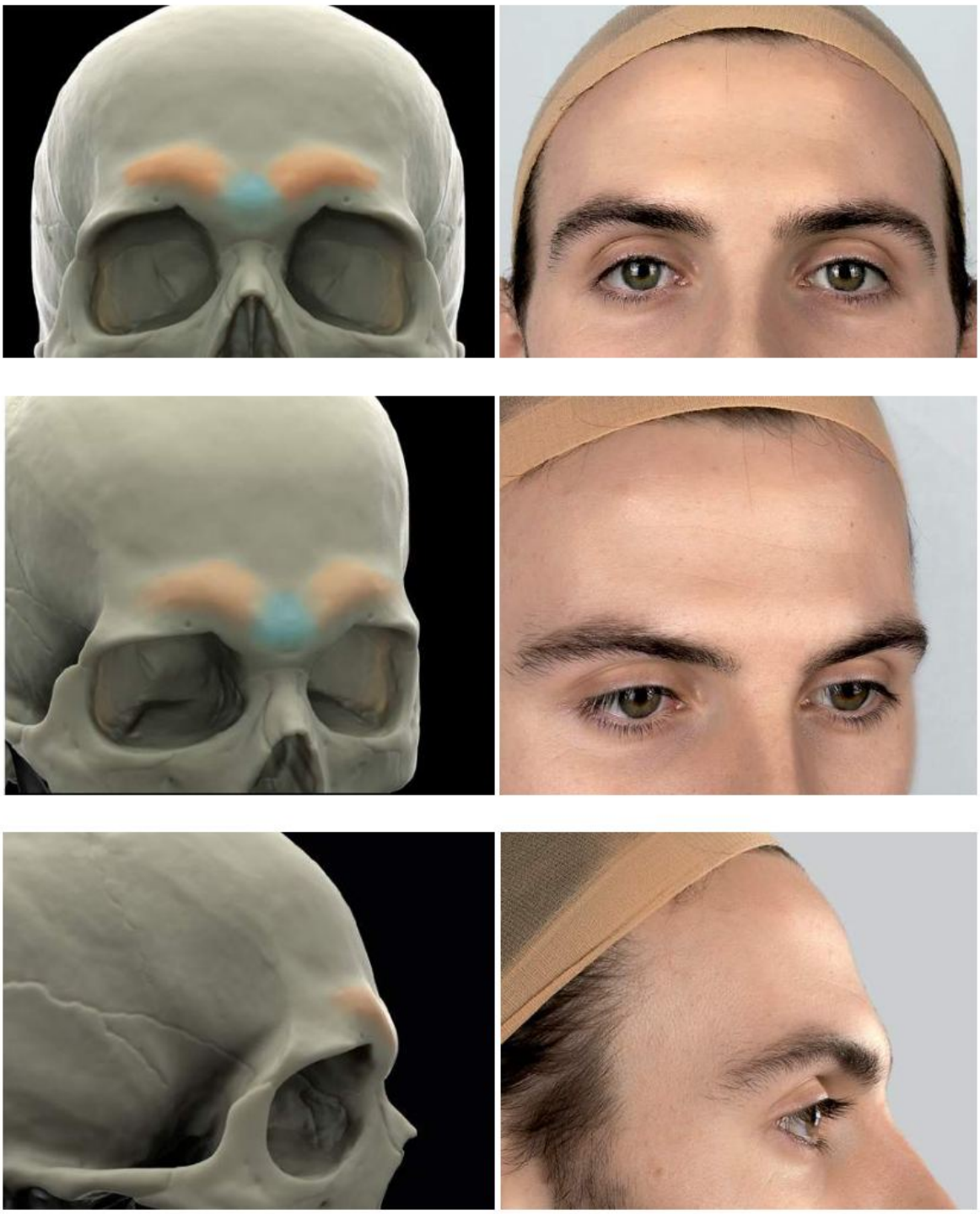


1	EXT. OCCIPITAL PROTUBERENCE
2	SUPERIOR NUCHAL LINE (occipital b.)
3	INFERIOR NUCHAL LINE (occipital b.)
4	OCCIPITAL CREST
5	MANDIBULAR FOSSA (sphenoid b.)
6	LAT. PTERYGOID PLATE (sphenoid b.)
7	MED. PTERYGOID PLATE (sphenoid b.)
8	MASTOID PROCESS (sphenoid b.)
9	OCCIPITAL CONDYLES
10	STYLOID PROCESS (sphenoid b.)

BONY LANDMARKS OF THE SKULL

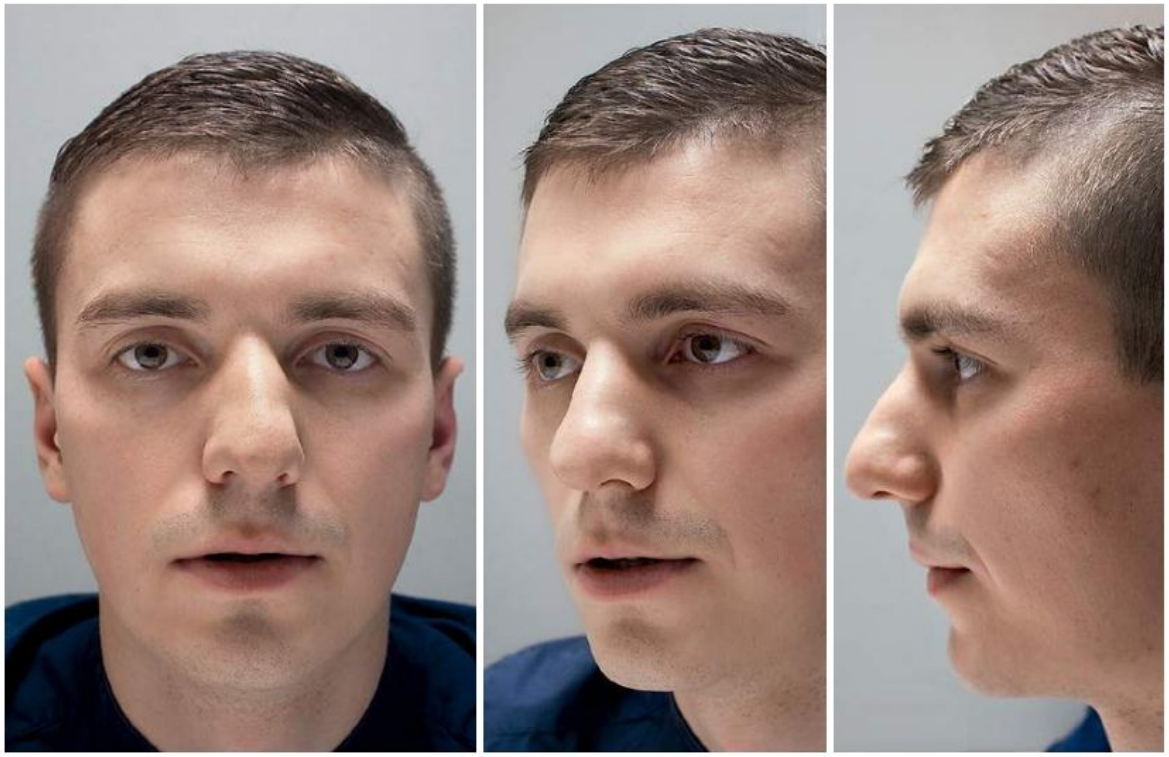
BROW RIDGE (or supraorbital ridge, superciliary arch)

A CREST OF BONE SITUATED ON THE FRONTAL BONE FORMING THE SEPARATION BETWEEN THE FOREHEAD AND THE ROOF OF THE SOCKETS, THERE ARE RIDGE ARCHES OVER EACH EYE AND ARE JOINED TO ONE ANOTHER BY A SMOOTH ELEVATION CALLED THE **GLABELLA**; THE ARCHES WITH PROMINENT **GLABELLA** CAN FORM A SINGLE RIDGE RUNNING ABOVE THE EYES. MASCULINE PEOPLE TEND TO HAVE THICKER AND MORE OBVIOUS BROWS, WITH A FOREHEAD THAT ANGLES BACK SLIGHTLY, WHILE WOMEN HAVE FLATTER BROWS AND MORE STRAIGHT-UP-AND-DOWN FOREHEADS.



BONY LANDMARKS OF THE SKULL

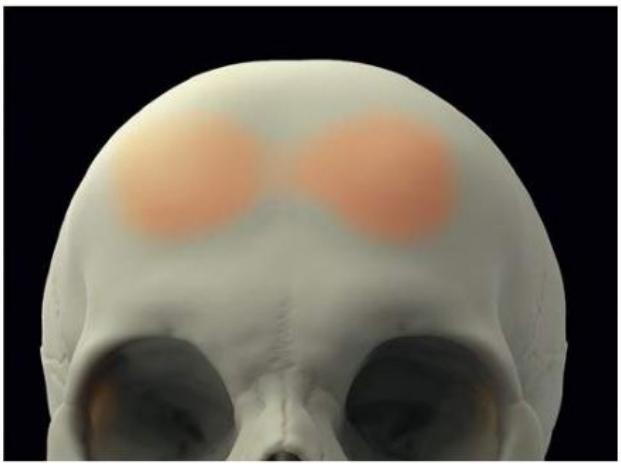
BROW RIDGE (or supraorbital ridge, superciliary arch)



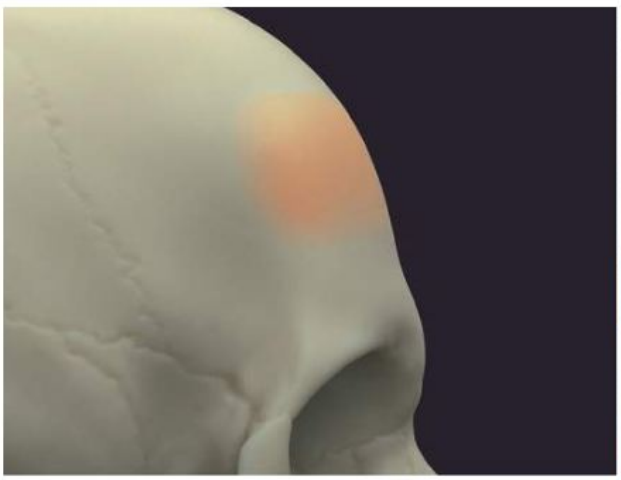
BONY LANDMARKS OF THE SKULL

FRONTAL EMINENCE

A FRONTAL EMINENCE (or tuber frontale) REFERS TO ONE OR TWO ROUNDED ELEVATIONS ON THE FRONTAL BONE ABOVE THE SUPERCILIARY ARCH. FRONTAL EMINENCES VARY IN SIZE IN DIFFERENT INDIVIDUALS AND ARE ESPECIALLY PROMINENT IN YOUNG AND FEMALE SKULLS.

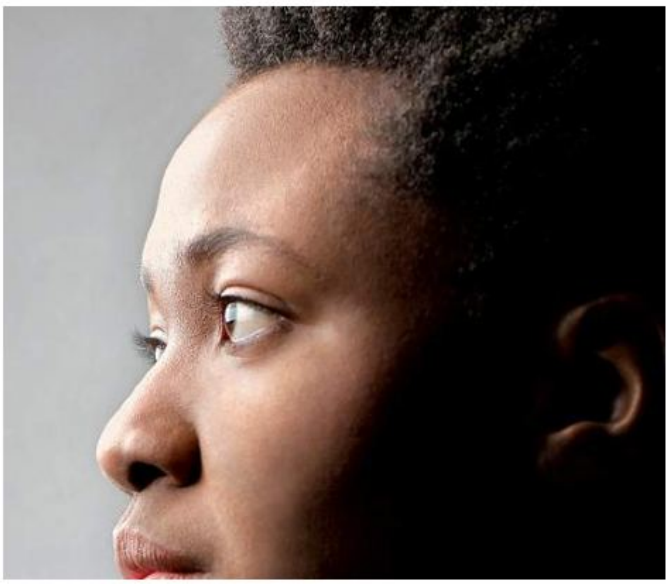
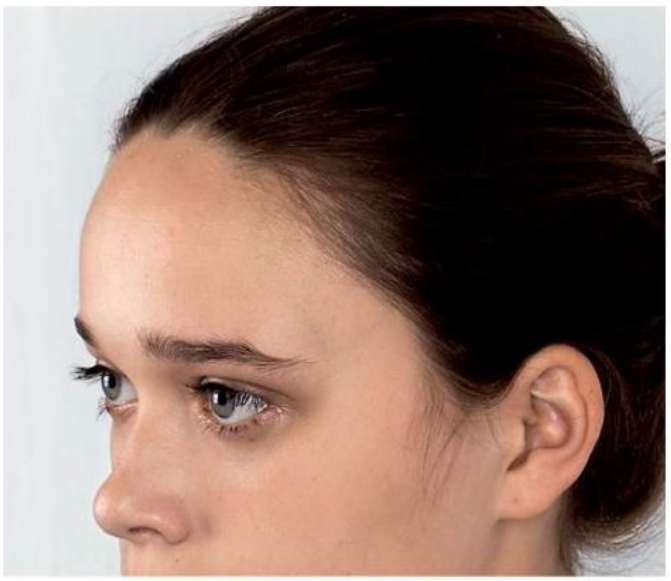







BONY LANDMARKS OF THE SKULL

FRONTAL EMINENCE

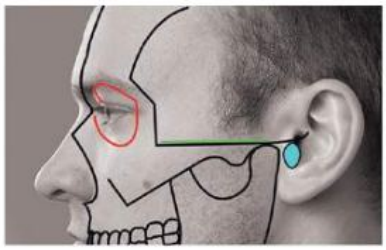


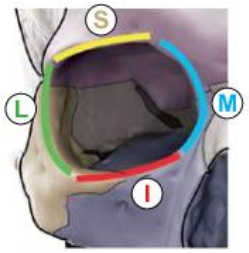
BONY LANDMARKS OF THE SKULL

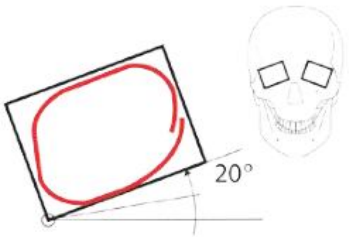
ORBITAL MARGINS

THE BONY MARGINS OF THE ORBIT DO NOT DERIVE FROM A SINGLE BONE, BUT ARE RATHER A MOSAIC OF THE MULTIPLE EMBRYOLOGICALLY DISTINCT STRUCTURES.

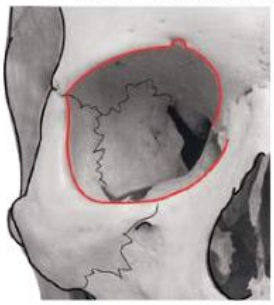
SUPERIOR MARGIN (S): IS FORMED BY THE FRONTAL BONE;
INFERIOR MARGIN (I): BY THE MAXILLARY AND ZYGOMATIC BONES;
MEDIAL MARGIN (M): LACRIMAL, FRONTAL, AND MAXILLA; **LATERAL MARGIN** (L): ZYGOMATIC AND FRONTAL BONES.



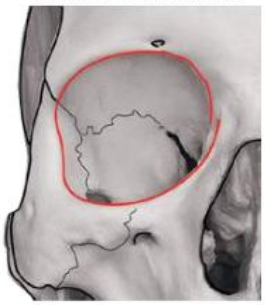




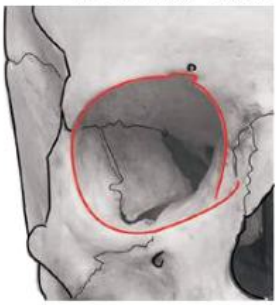
EUROPEAN MALE



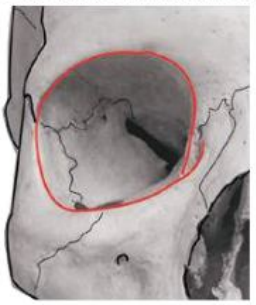
EUROPEAN FEMALE



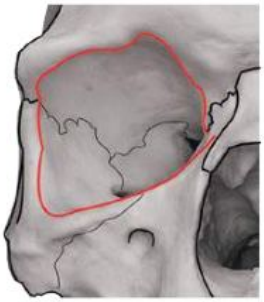
EUROPEAN CHILD



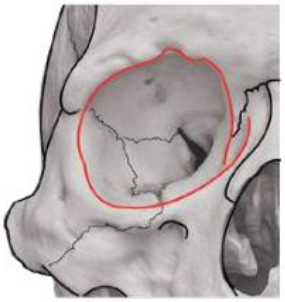
EUROPEAN ELDERLY MALE



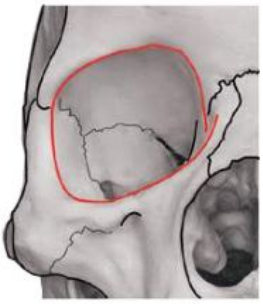
AUSTRALIAN MALE



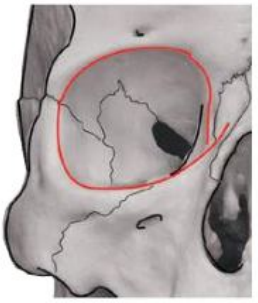
ROBUST ASIAN MALE



AFRICAN MALE



ASIAN MALE

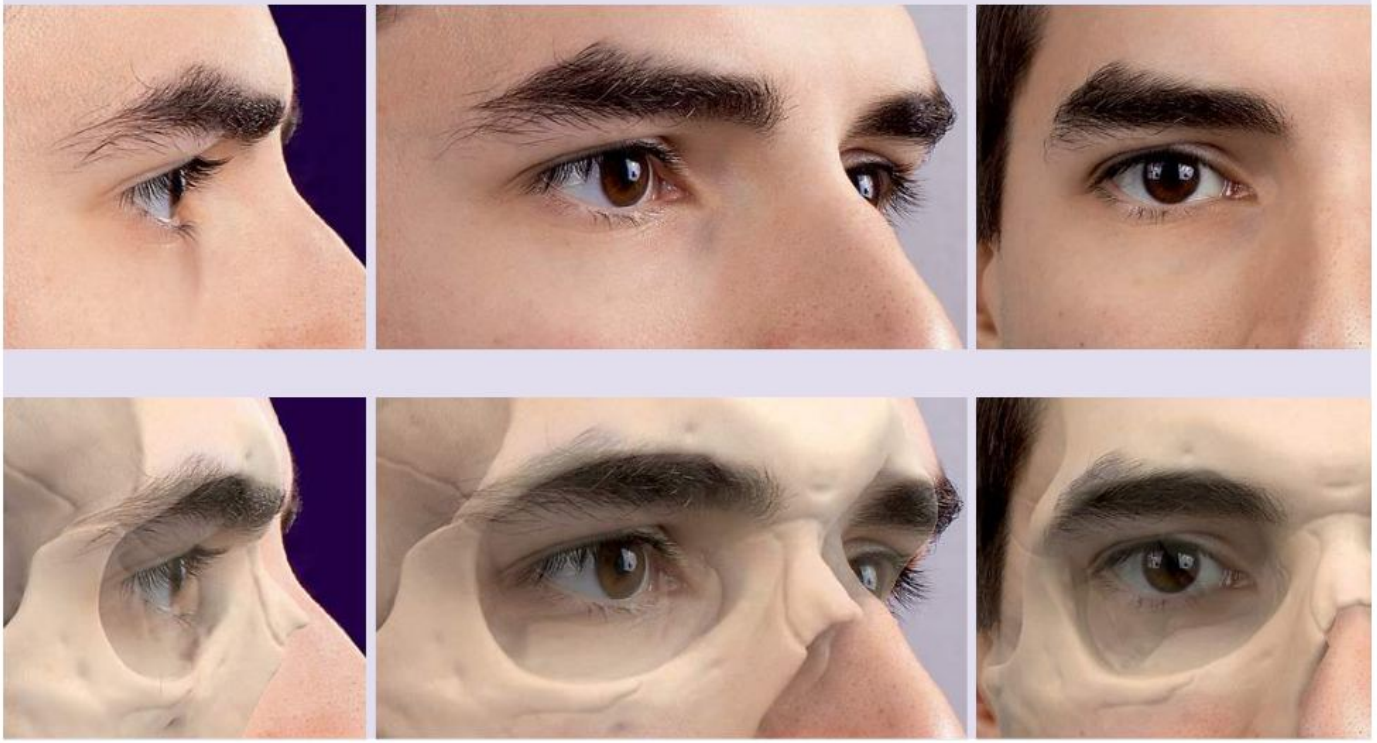


BONY LANDMARKS OF THE SKULL

ORBITAL MARGINS

FEMALE

MALE



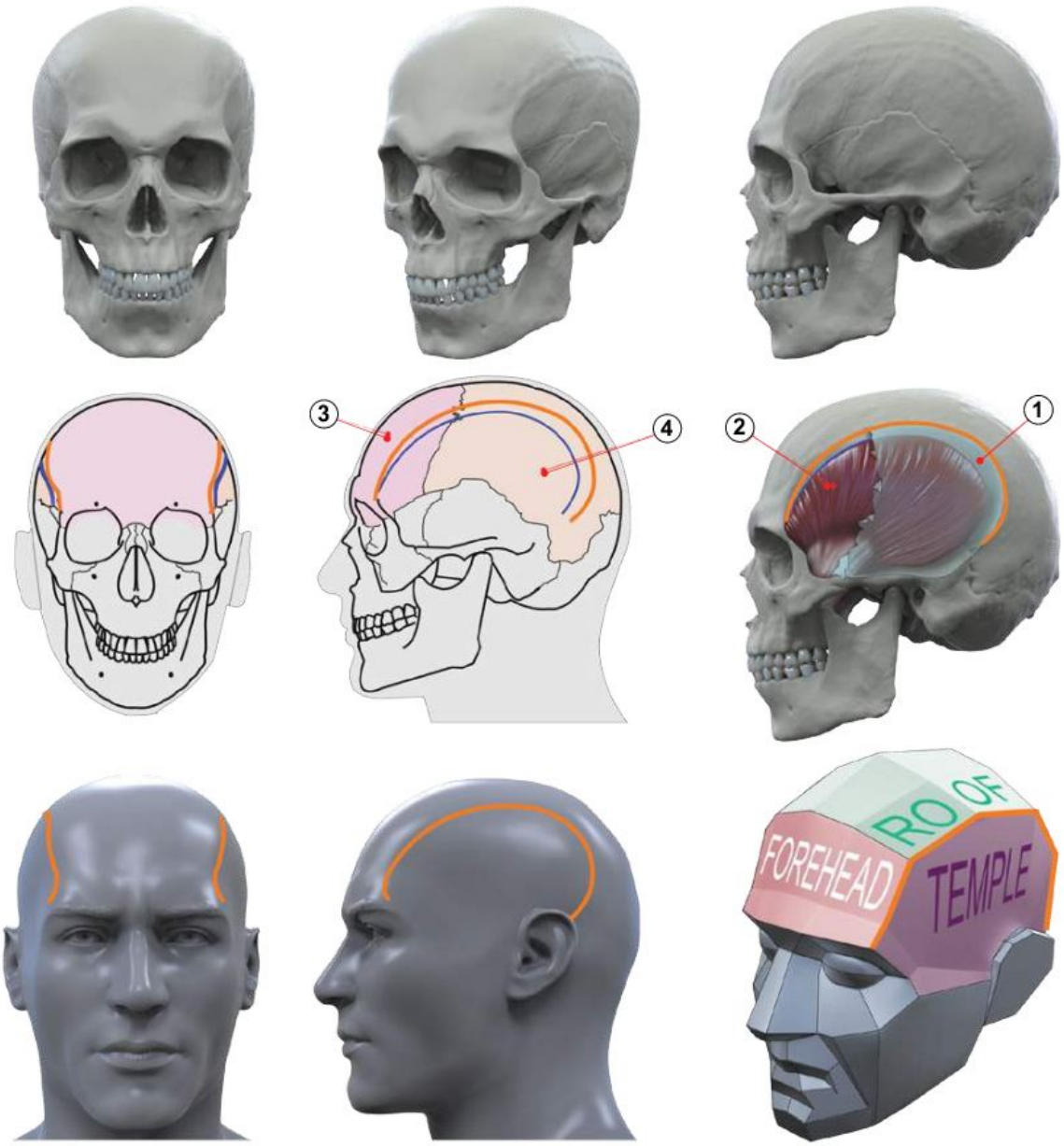
BONY LANDMARKS OF THE SKULL

TEMPORAL LINE

TEMPORAL LINES ARE CURVED RIDGES THAT ARE FOUND ON BOTH SIDES OF THE SKULL. ON REAL LIVE MODELS THIS LINE LOOKS LIKE A SINGLE RIDGE ON EACH SIDE, BUT, ACTUALLY, ON THE SKULL THERE ARE TWO LINES WITH ONE SITTING ABOVE THE OTHER, ALMOST PARALLEL. THE TOP LINE IS CALLED THE **SUPERIOR TEMPORAL LINE BUT, ACTUALLY**, IT IS WHERE THE TEMPORAL FASCIA (**1**) (a tough fan-shaped aponeurosis overlying the **temporalis muscle**) ATTACHES. AND THE LOWER ONE – THE **INFERIOR TEMPORAL LINE** – MARKS A PLACE OF ATTACHMENT FOR THE **TEMPORALIS MUSCLE** (**2**) ATTACHES AND BEGINS.

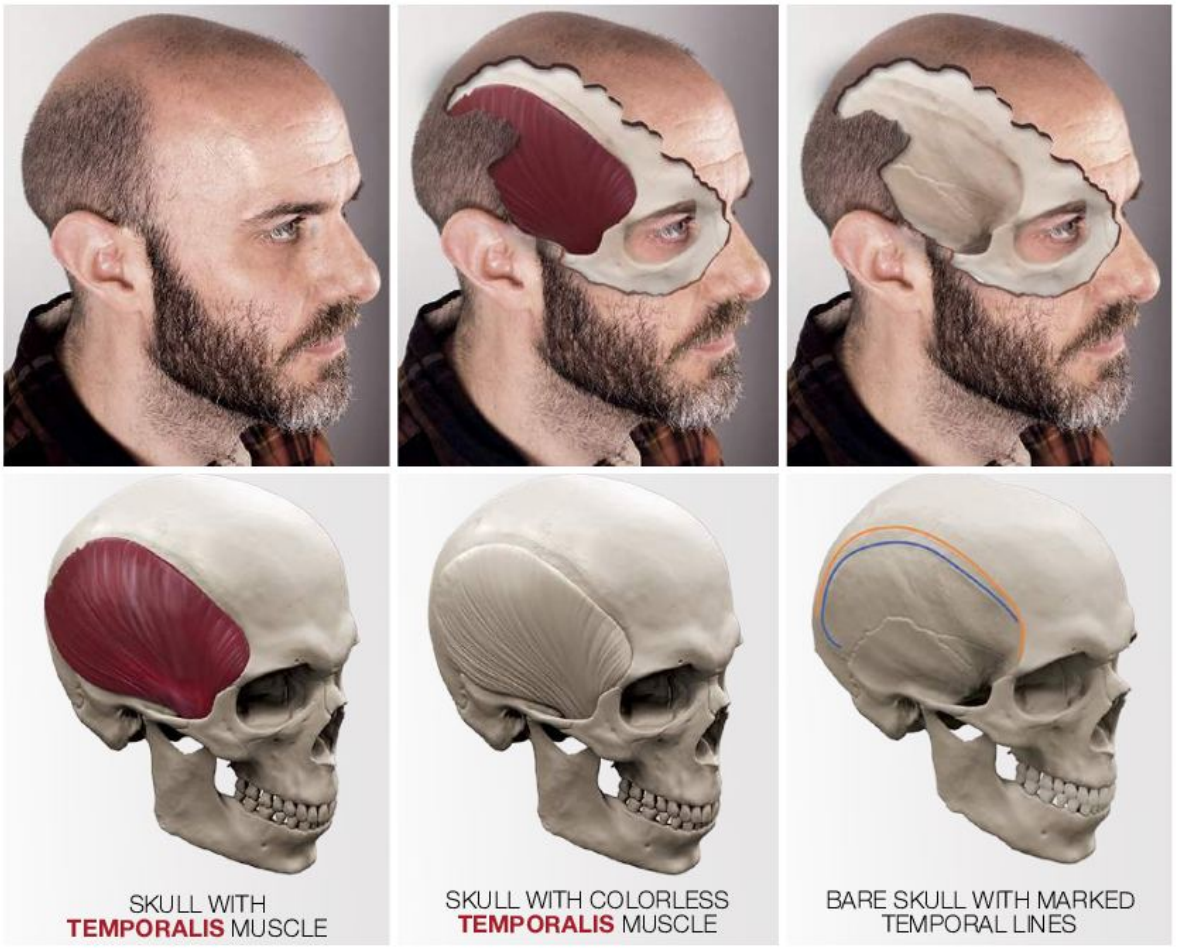
IN REALISTIC FIGURATIVE ART TERMS, THE TEMPORAL LINE IS USUALLY USED FOR THE **SUPERIOR TEMPORAL LINE**. THE TEMPORAL LINE RUNS ALONG THE SIDE OF THE HEAD ACROSS TWO SEPARATE **FRONTAL BONES** (**3**), WHICH FORM THE FOREHEAD, AND THE **PARIETAL BONES** (**4**) THAT FORM THE "ROOF" OF THE HEAD.

MOST OF THE **TEMPORAL LINE** IS OBSCURED BY HAIR (unless, of course, the individual in question is losing their hair) **TEMPORAL LINES** ARE LANDMARKS THAT CAN APPEAR PROMINENT ON OLDER MALES.



BONY LANDMARKS OF THE SKULL

TEMPORAL LINE



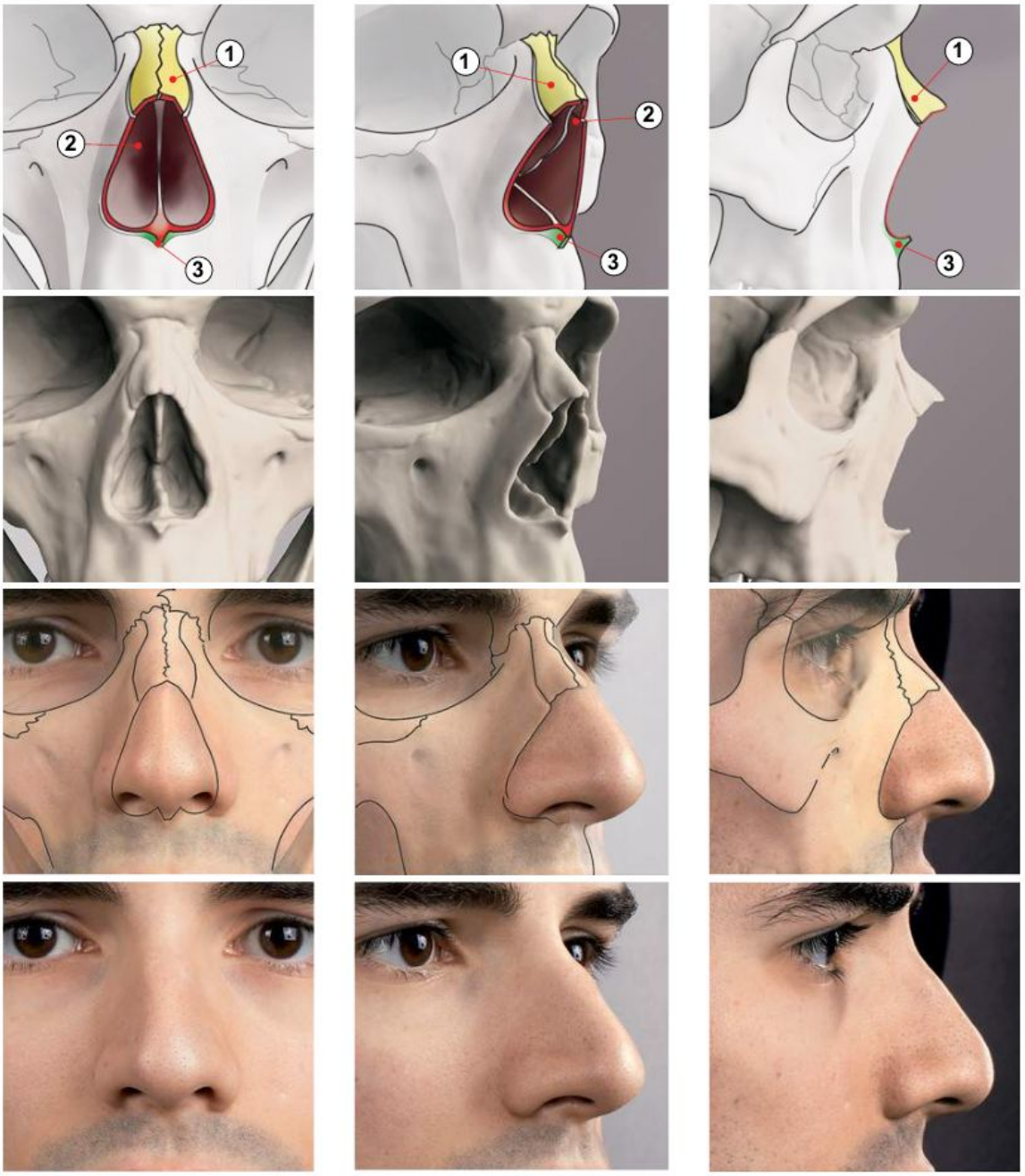
BONY LANDMARKS OF THE SKULL

NASAL BONES, NASAL APERTURE AND ANTERIOR NASAL SPINE

(**1**) **NASAL BONES** ARE TWO SMALL, OBLONG BONES THAT VARY IN SIZE AND FORM IN DIFFERENT INDIVIDUALS. THESE BONES ARE MOSTLY RESPONSIBLE FOR THE SHAPE OF THE NOSE.

(**2**) **ANTERIOR NASAL APERTURE (Pyriform aperture)** IS USUALLY A PEAR-SHAPED, BONY INLET OF THE NOSE, WHICH IS FORMED BY THE **NASAL** (**1**) AND MAXILLARY BONES.

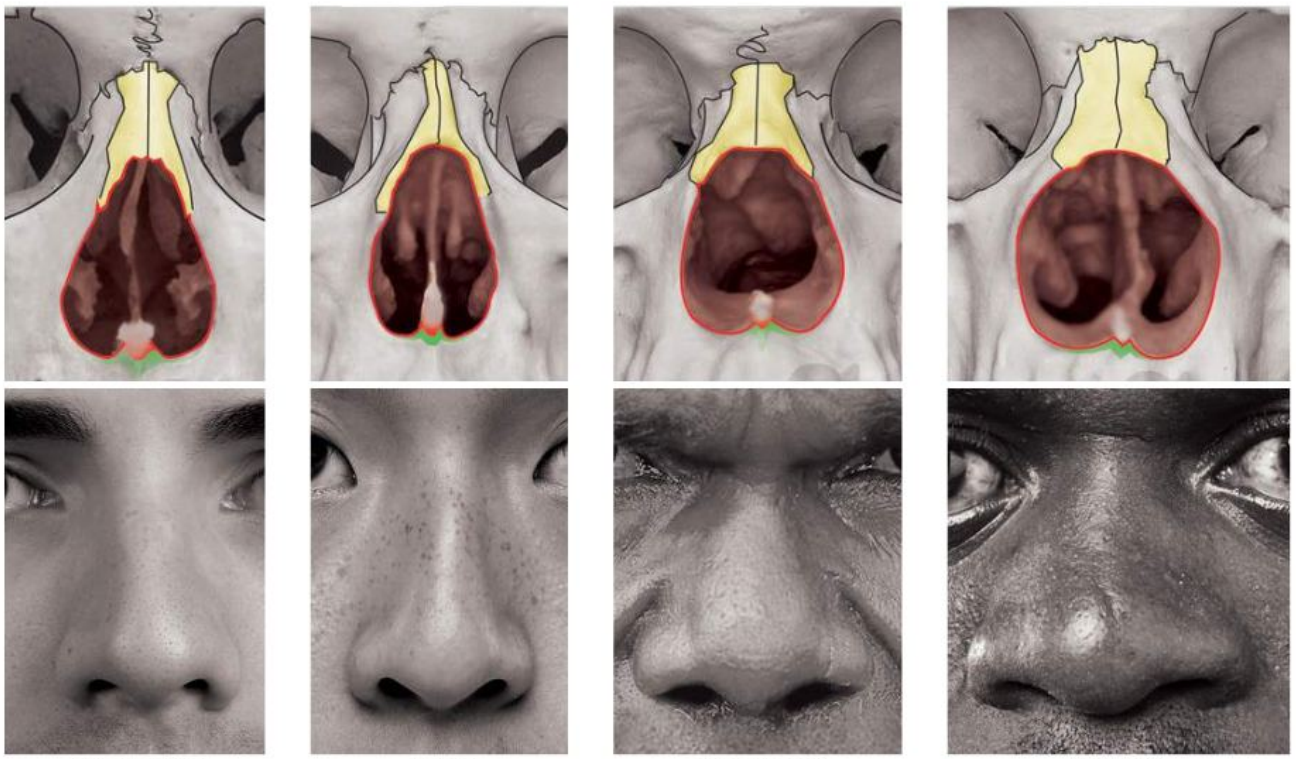
(**3**) **ANTERIOR NASAL SPINE** IS A SHARP, BONY PROCESS OF THE MAXILLA AT THE LOWER MARGIN OF THE **NASAL APERTURE** (**2**). IT AFFECTS THE **COLUMELLA-LABIAL ANGLE** (**4**) NOT THE SIZE OF THE NOSE.



BONY LANDMARKS OF THE SKULL

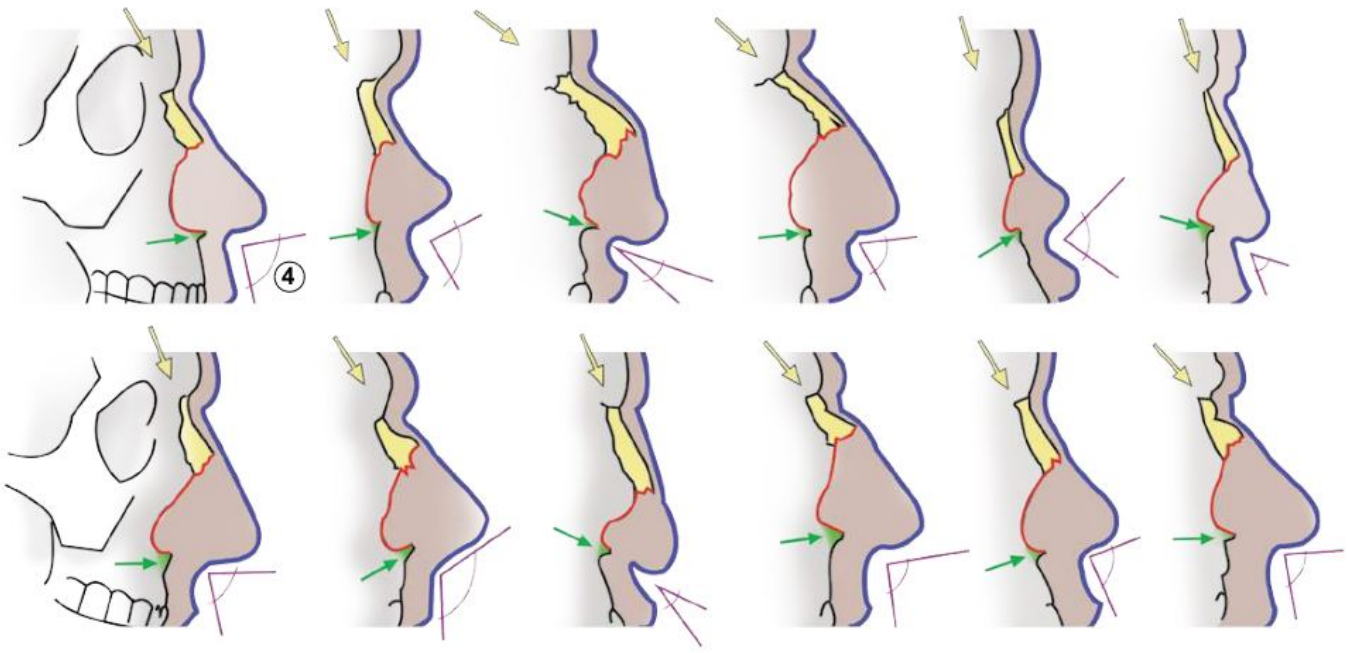
NASAL BONES, NASAL APERTURE AND ANTERIOR NASAL SPINE

GENERALIZED DIFFERENCES IN SHAPES OF **NASAL APERTURES** (2) BETWEEN INDIVIDUALS OF DIFFERENT REGIONAL ANCESTRIES.



EUROPEAN | ASIAN | AUSTRALIAN | AFRICAN

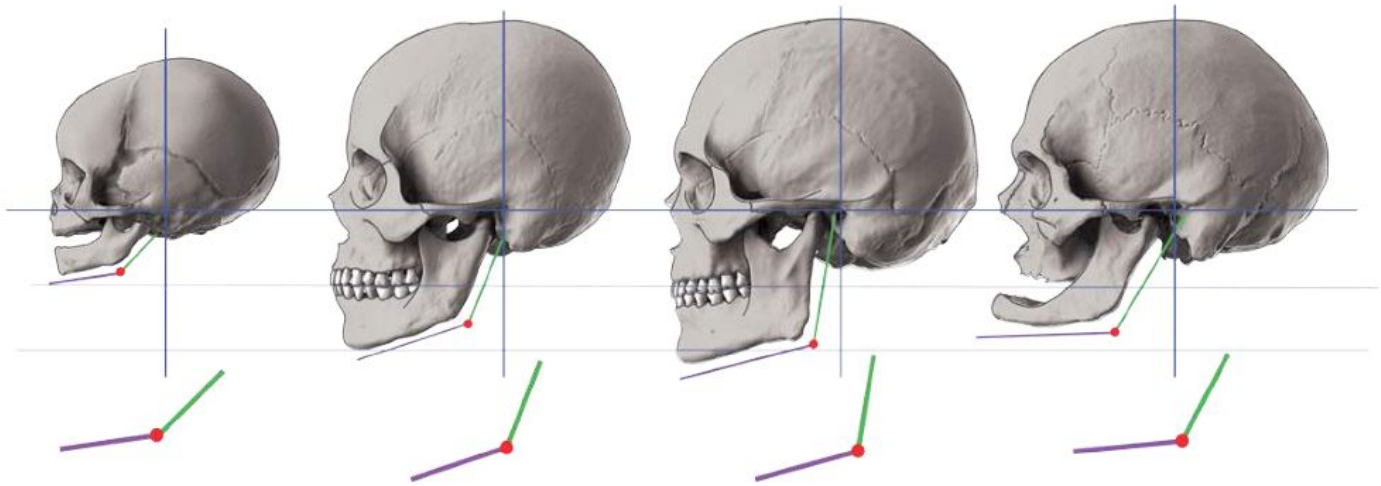
RELATIONS BETWEEN BONY STRUCTURE AND SOFT TISSUE WITHIN INDIVIDUAL MORPHOLOGICAL VARIABILITIES



BONY LANDMARKS OF THE SKULL

GONIAL ANGLE OF THE MANDIBLE

GONIAL ANGLE IS THE ANGLE FORMED BY THE JUNCTION OF THE **POSTERIOR** AND **LOWER BORDERS** OF THE MANDIBLE



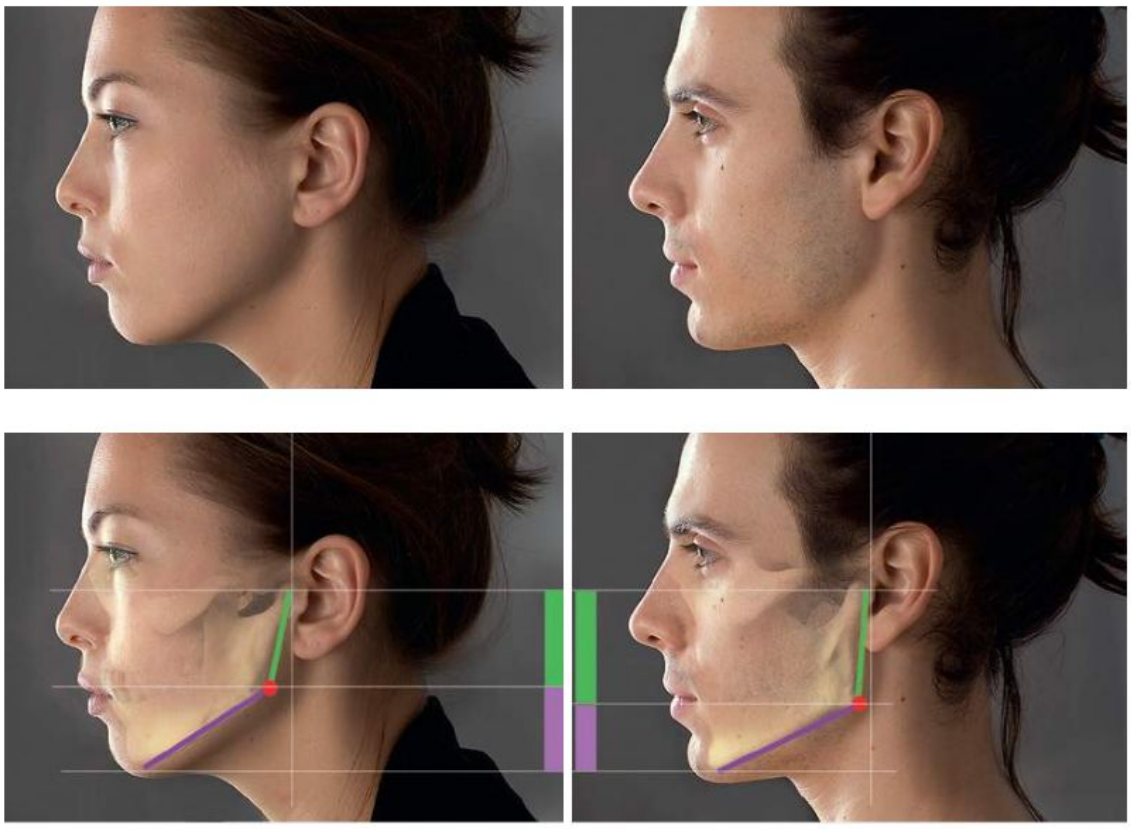
GONIAL ANGLE
OF NEWBORN
135°–150°

FEMININE **GONIAL ANGLE**
OF MANDIBLE
120°–140°

MASCULINE **GONIAL ANGLE**
OF MANDIBLE
100°–120°

ELDER **GONIAL ANGLE**
OF EDENTATE MANDIBLE
125°–145°

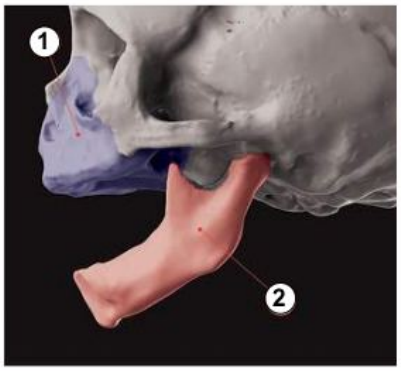
FEMININE AND MASCULINE **GONIAL ANGLE**



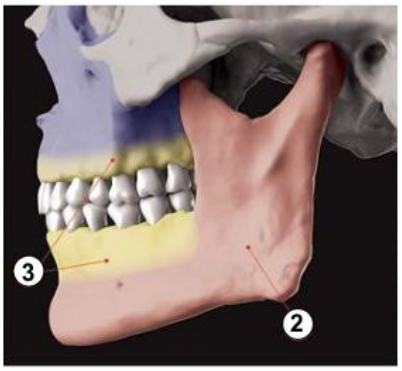
BONY LANDMARKS OF THE SKULL

GONIAL ANGLE OF THE MANDIBLE

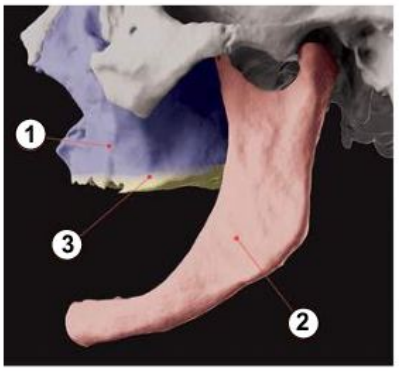
NEWBORN



ADULT



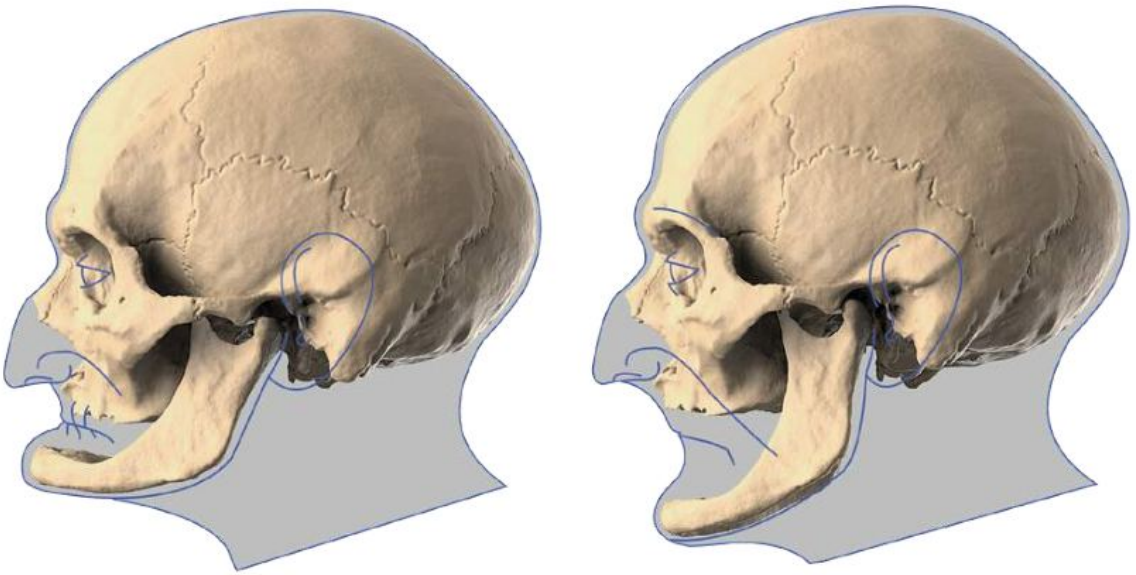
EDENTATED ELDERLY



① **MAXILLA** ② **MANDIBLE** ③ **ALVEOLAR PROCESSES**

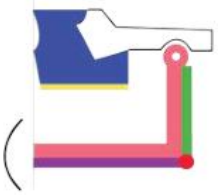
WHY DO ELDERLY TOOTHLESS PEOPLE HAVE PROTRUDING CHINS?

WHEN TEETH ARE LOST, THE LACK OF STIMULATION CAUSES LOSS (melting) OF ALVEOLAR PROCESSES AND AN INCREASE IN **GONIAL ANGLE**. THIS IS A WELL-RECOGNIZED FEATURE OF MANDIBULAR AGING IN THE EDENTATE PERSON. HOWEVER, THE HEIGHT OF THE **POSTERIOR BORDER (Ramus)** AND LENGTH OF **LOWER BORDERS (Body of Mandible)** REMAINS THE SAME.

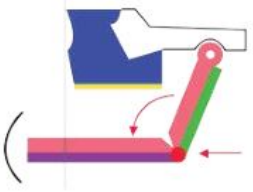


NO TOOTH LOSS

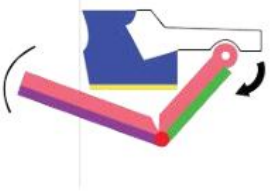
TOOTH AND BONE VOLUME LOSS



INCREASE IN THE GONIAL ANGLE

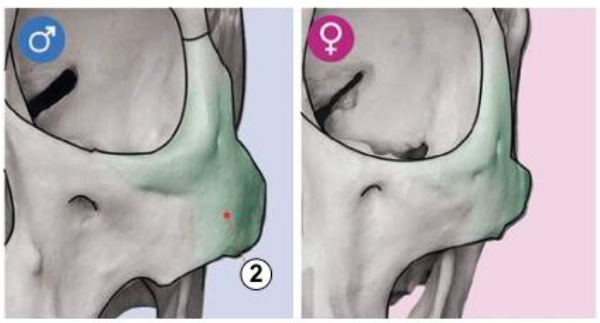


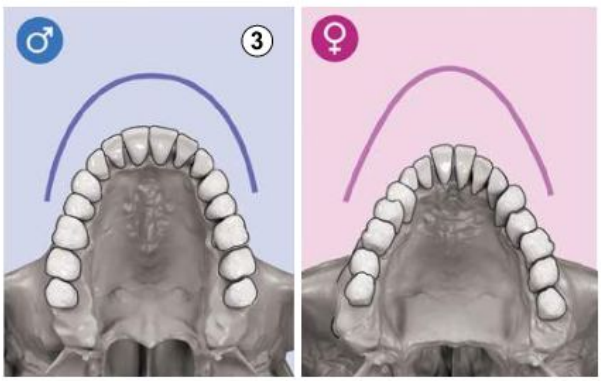
PROTRUDING CHIN

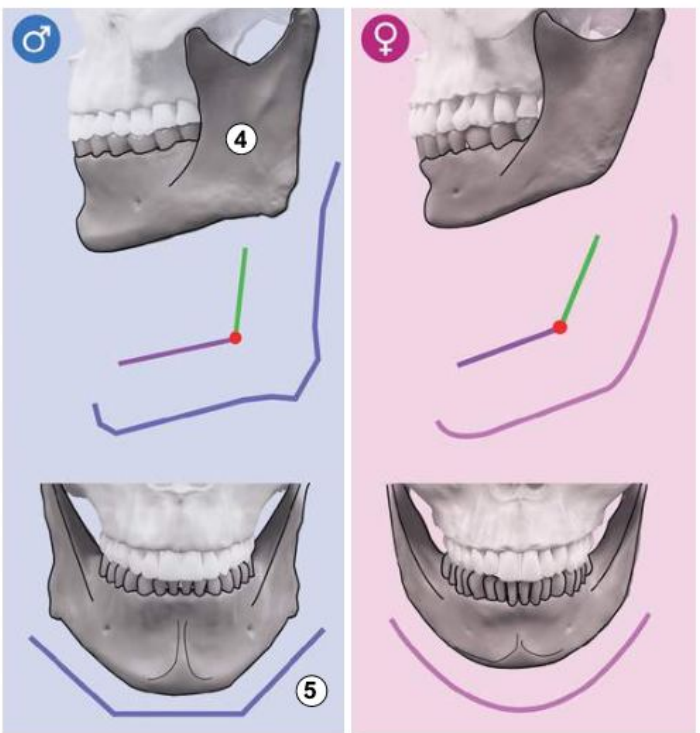


THE SKULL

MAIN DIFFERENCES BETWEEN MALE AND FEMALE SKULLS

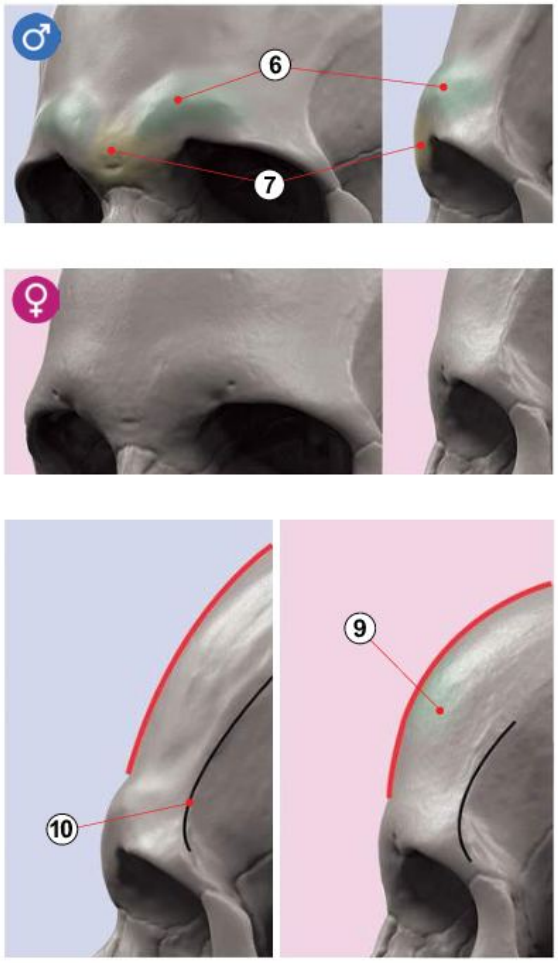


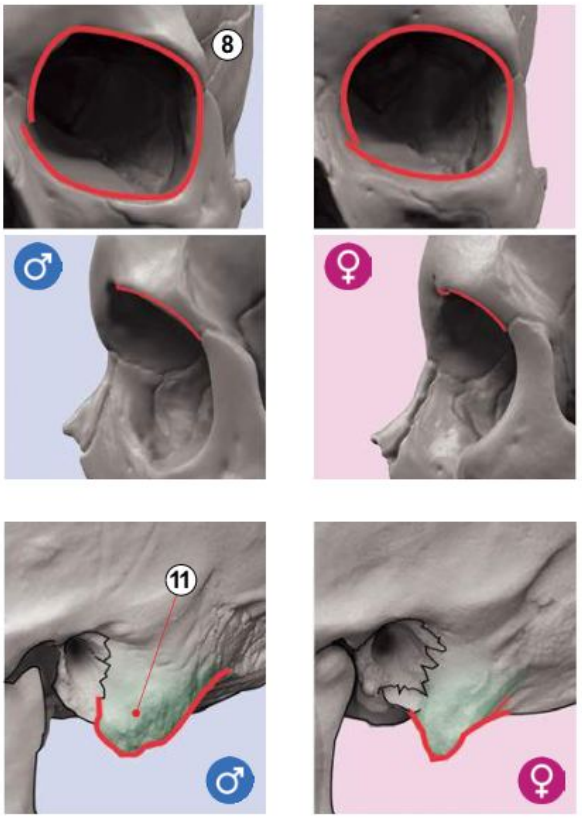




THE SKULL

MAIN DIFFERENCES BETWEEN MALE AND FEMALE SKULLS

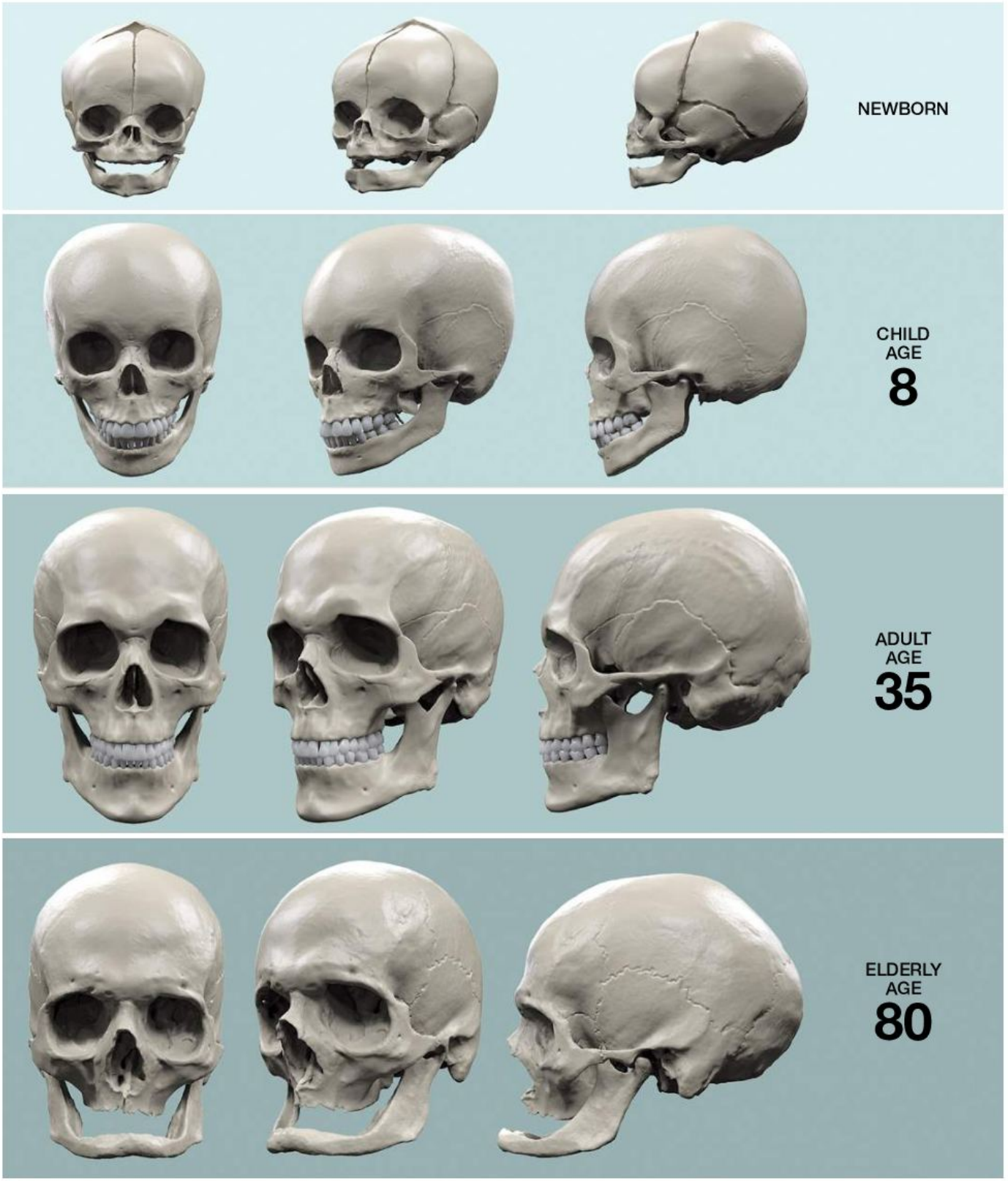




	MALE	FEMALE
① SKULL IN GENERAL	LARGER, MORE RUGGED	SMALLER, SMOOTHER, MORE GRACILE
② ZYGOMATIC PROCESS	LARGER	SMALLER
③ PALATE	LARGER, BROADER, TENDS TO BE U-SHAPED	SMALL, TENDS TO BE PARABOLIC OR MORE V-SHAPED
④ RAMUS OF THE MANDIBLE	MORE VERTICAL, ANGLE CLOSE TO RIGHT ANGLE	OBTUSE ANGLE
⑤ MANDIBLE	TENDS TO HAVE A SQUARE SHAPE	TENDS TO HAVE POINTED CHIN SHAPE
⑥ SUPERCILIARY ARCHES	WELL-DEMARCATED	ABSENT / SLIGHT
⑦ GLABELLA	MORE PROMINENT	LESS PROMINENT
⑧ ORBITS	SQUARED, LOWER, BLUNT MARGINS	ROUNDED, HIGHER, SHARP MARGINS
⑨ FRONTAL EMINENCES	MORE PROMINENT	LESS PROMINENT
⑩ TEMPORAL LINES	WELL DEMARCATED	POORLY DEFINED
⑪ MASTOID PROCESS	LARGE	SMALL

THE SKULL

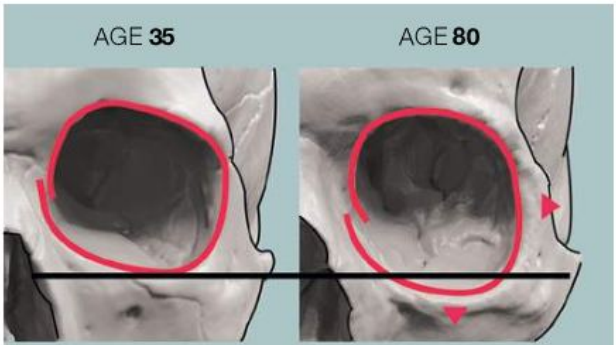
AGE-RELATED MORPHOLOGICAL CHANGES OF THE SKULL



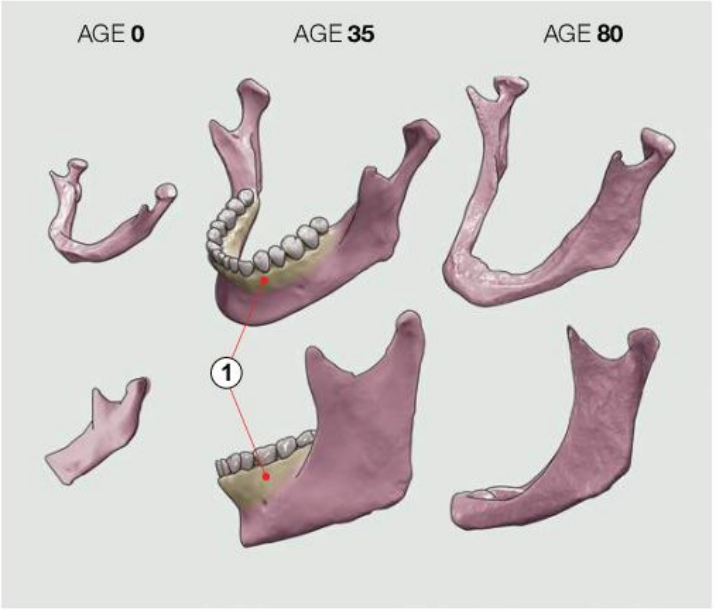
THE SKULL

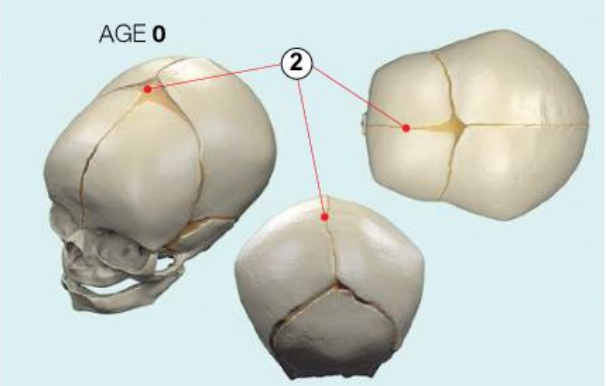
AGE-RELATED MORPHOLOGICAL CHANGES OF THE SKULL

THE SKULL OF THE NEWBORN BABY HAS A DISPROPORTIONATELY LARGE **CRANIUM** RELATIVE TO THE **FACIAL SKELETON**, AS COMPARED TO AN ADULT SKULL. IN CHILDHOOD, THE GROWTH OF THE MANDIBLE AND THE ALVEOLAR PROCESSES OF THE MANDIBLE (**1**) AND MAXILLA, RESULTS IN A GREAT INCREASE IN THE LENGTH OF THE **FACE**.

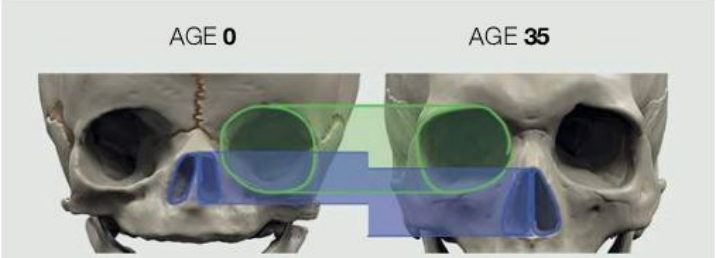


IN OLD AGE, ONE PROMINENT CHANGE IS THAT THE **EYE SOCKETS** BECOME WIDER AND LONGER.





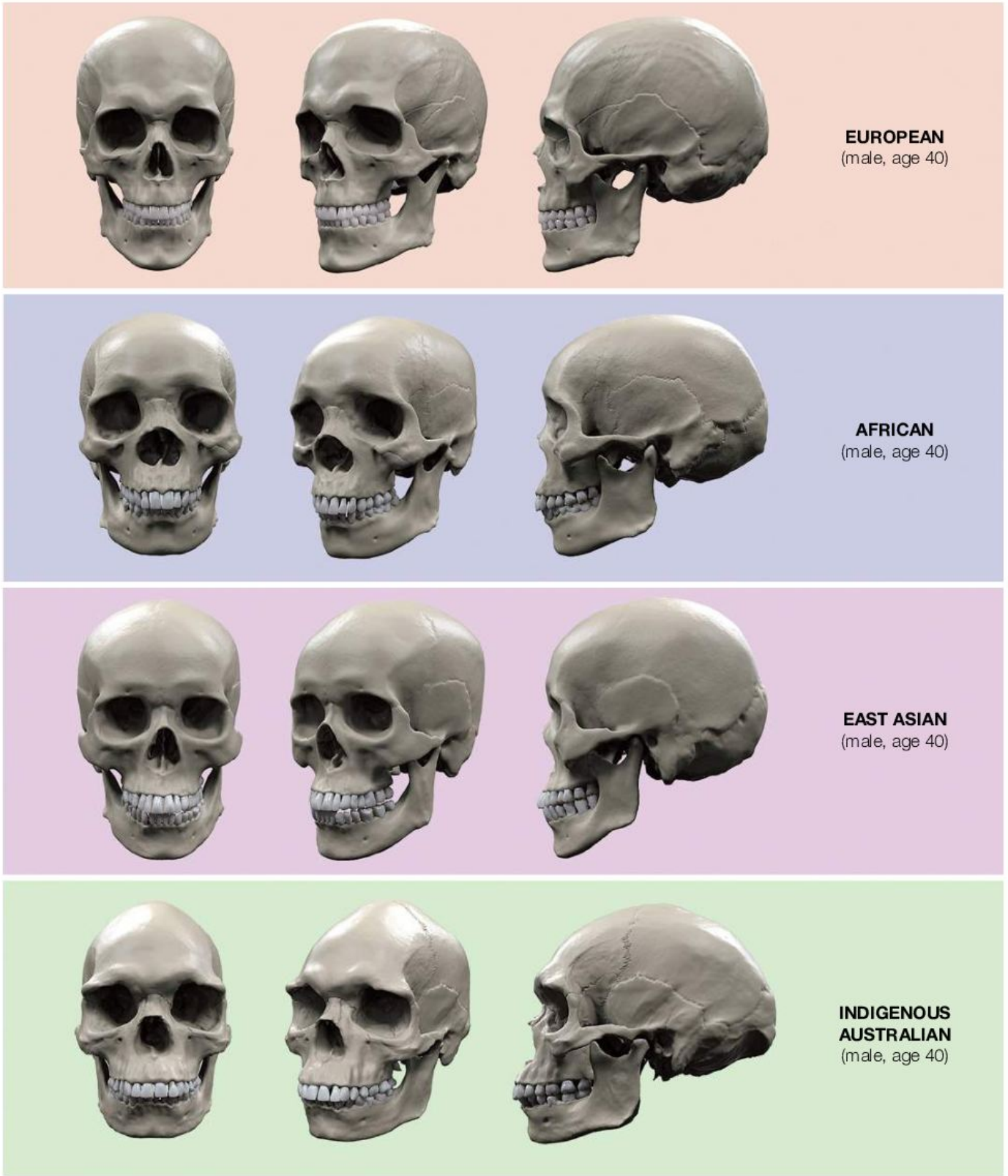
IN THE SKULL OF THE NEWBORN, THE BONES OF THE VAULT ARE NOT YET FUSED AT ITS SUTURE LINES, BUT ARE SEPARATED BY UNOSSIFIED MEMBRANOUS INTERVALS CALLED **FONTANELLES** (**2**).



AT BIRTH **THE NASAL** CAVITIES LIE ALMOST ENTIRELY BETWEEN THE **ORBITS**.

THE SKULL

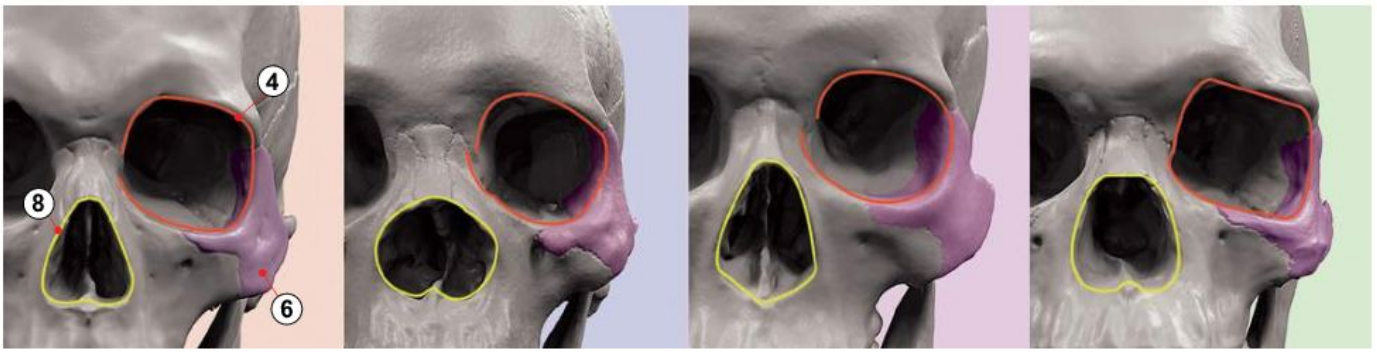
SOME MORPHOLOGICAL TRAITS OF THE SKULL OF MAJOR GROUPS OF REGIONAL ANCESTRY



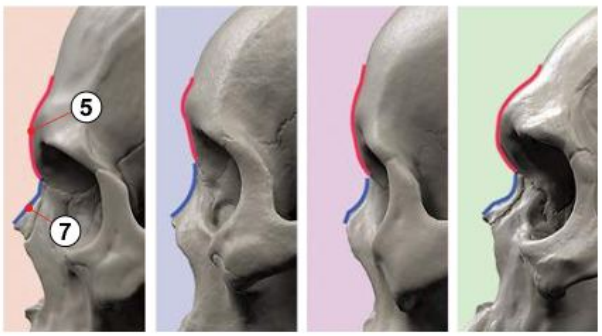
THE MORPHOLOGY OF THE SKULLS VARIES MORE WITHIN MAJOR RACIAL GROUPS THAN AMONG THE GROUPS THEMSELVES

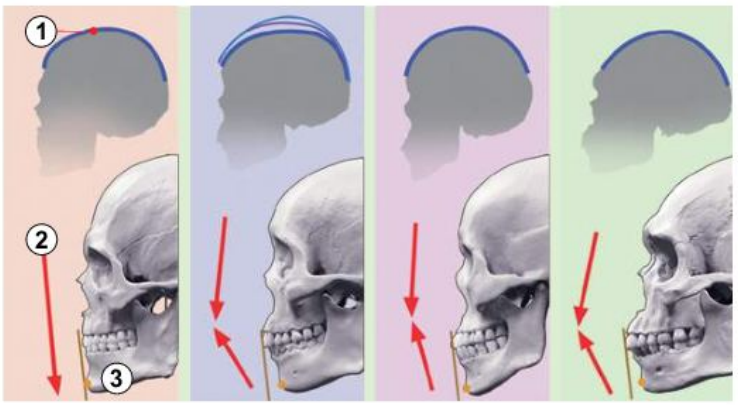
THE SKULL

SOME MORPHOLOGICAL TRAITS OF THE SKULL OF MAJOR GROUPS OF REGIONAL ANCESTRY



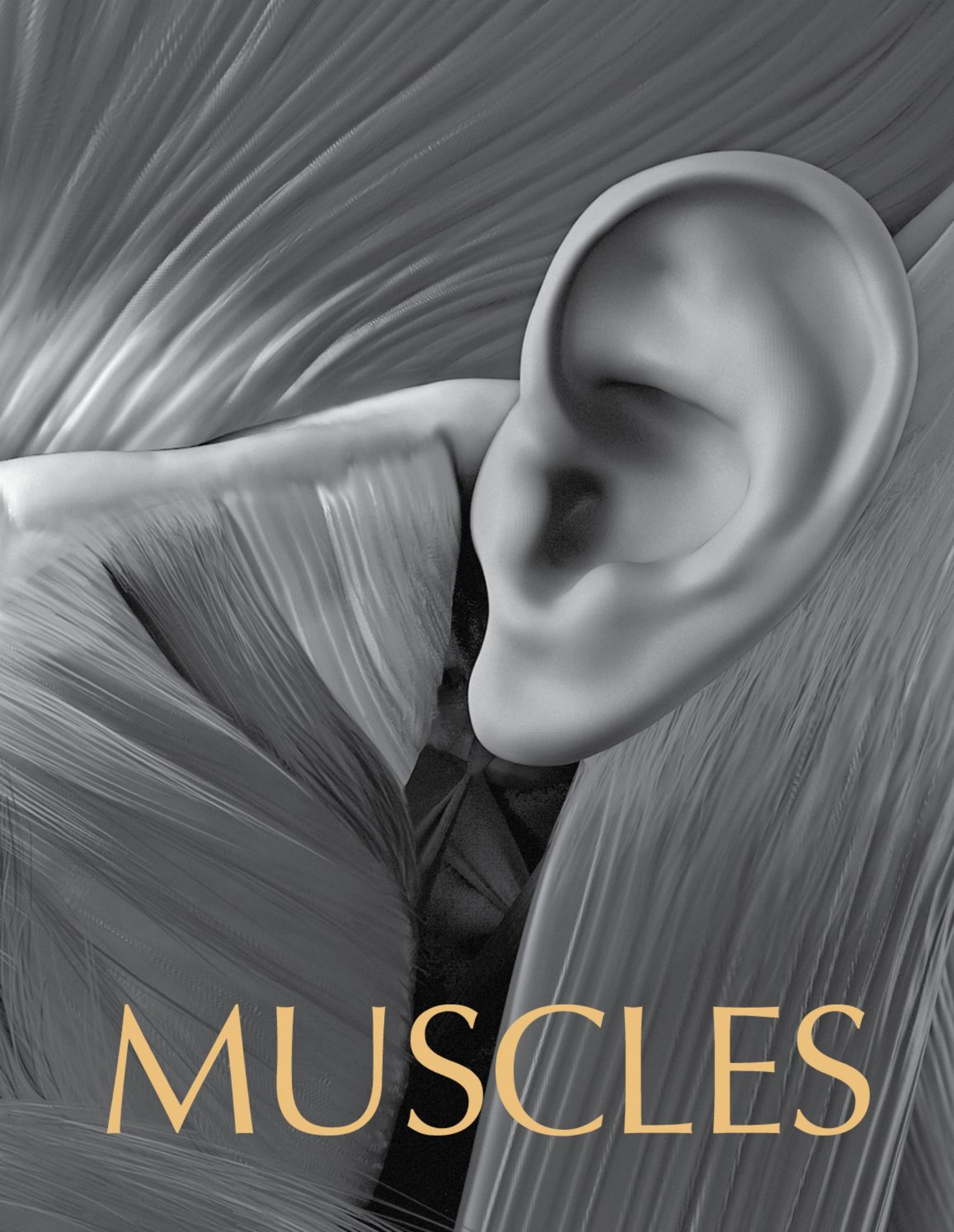
EUROPEAN | AFRICAN | EAST ASIAN | INDIGENOUS AUSTRALIAN





	EUROPEAN	AFRICAN	EAST ASIAN	INDIGENOUS AUSTRALIAN
① SAGITTAL CONTOUR	HIGH ROUNDED	HIGHLY VARIABLE	ARCHED	PARABOLIC
② FACIAL PROFILE	ORTHOGNATIC	PROGNATHIC	MEDIUM TO FLAT	PROGNATHIC
③ CHIN PROJECTION	PROMINENT	REDUCED	MODERATE	REDUCED
④ ORBITAL FORM	ROUND TO ANGULAR	RECTANGULAR	ROUND	ANGULAR
⑤ BROW RIDGES	PROMINENT	MODERATE	REDUCED TO ABSENT	VERY PROMINENT
⑥ FORM OF THE CHEEK BONE	REDUCED	REDUCED	PROJECTING	PROJECTING
⑦ NASAL PROFILE	STRAIGHT	STRAIGHT TO CONCAVE	CONCAVE	CONCAVE
⑧ NASAL OPENING	NARROW TO MEDIUM	WIDE, ROUNDED	NARROW TO WIDE	WIDE

THE MORPHOLOGY OF THE SKULLS VARIES MORE WITHIN MAJOR RACIAL GROUPS THAN AMONG THE GROUPS THEMSELVES


MUSCLES

MUSCLES OF THE HEAD

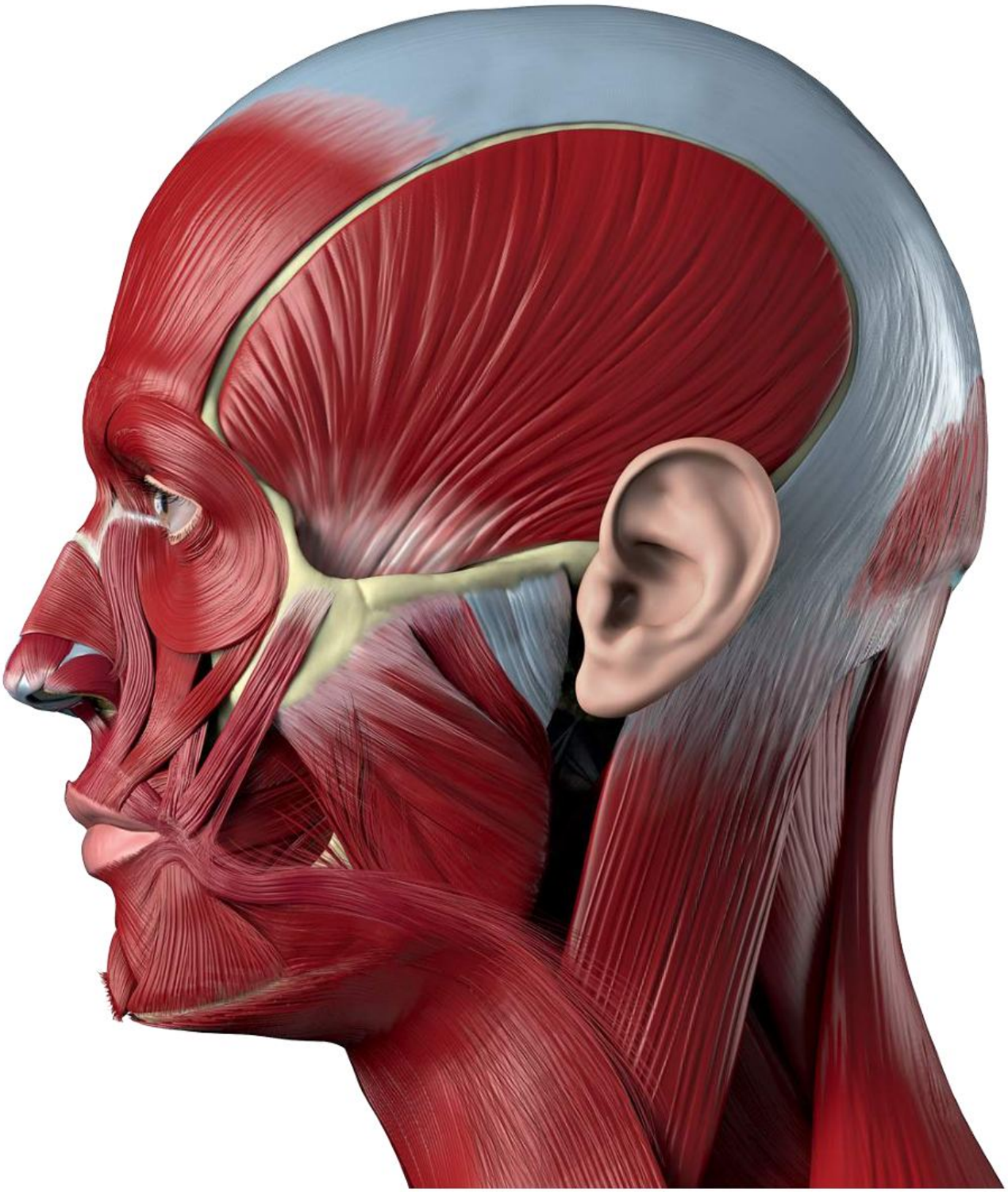
FRONTAL VIEW

MUSCLES OF THE HEAD

3/4 FRONTAL VIEW

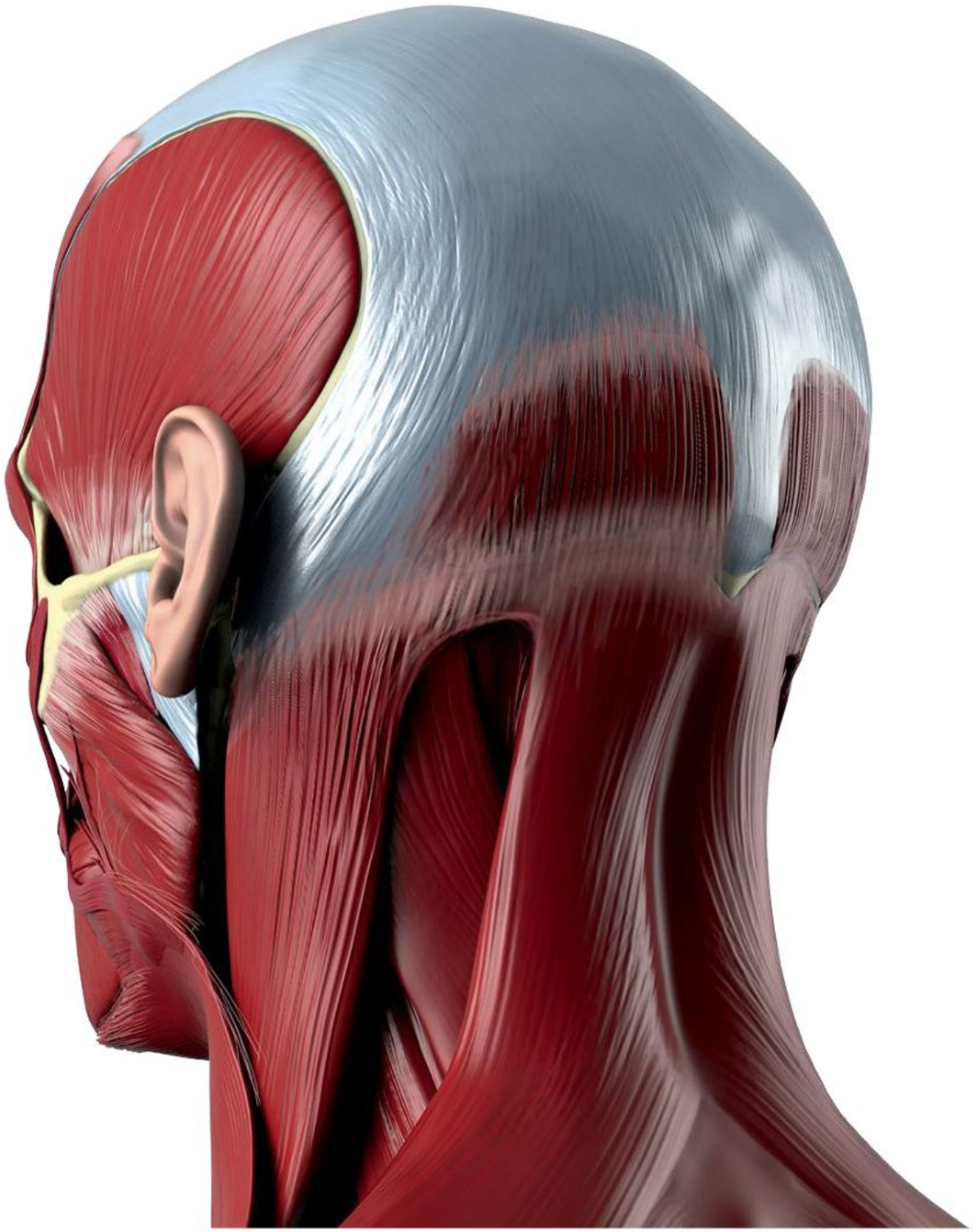
MUSCLES OF THE HEAD

PROFILE VIEW



MUSCLES OF THE HEAD

3/4 BACK VIEW



MUSCLES OF THE HEAD

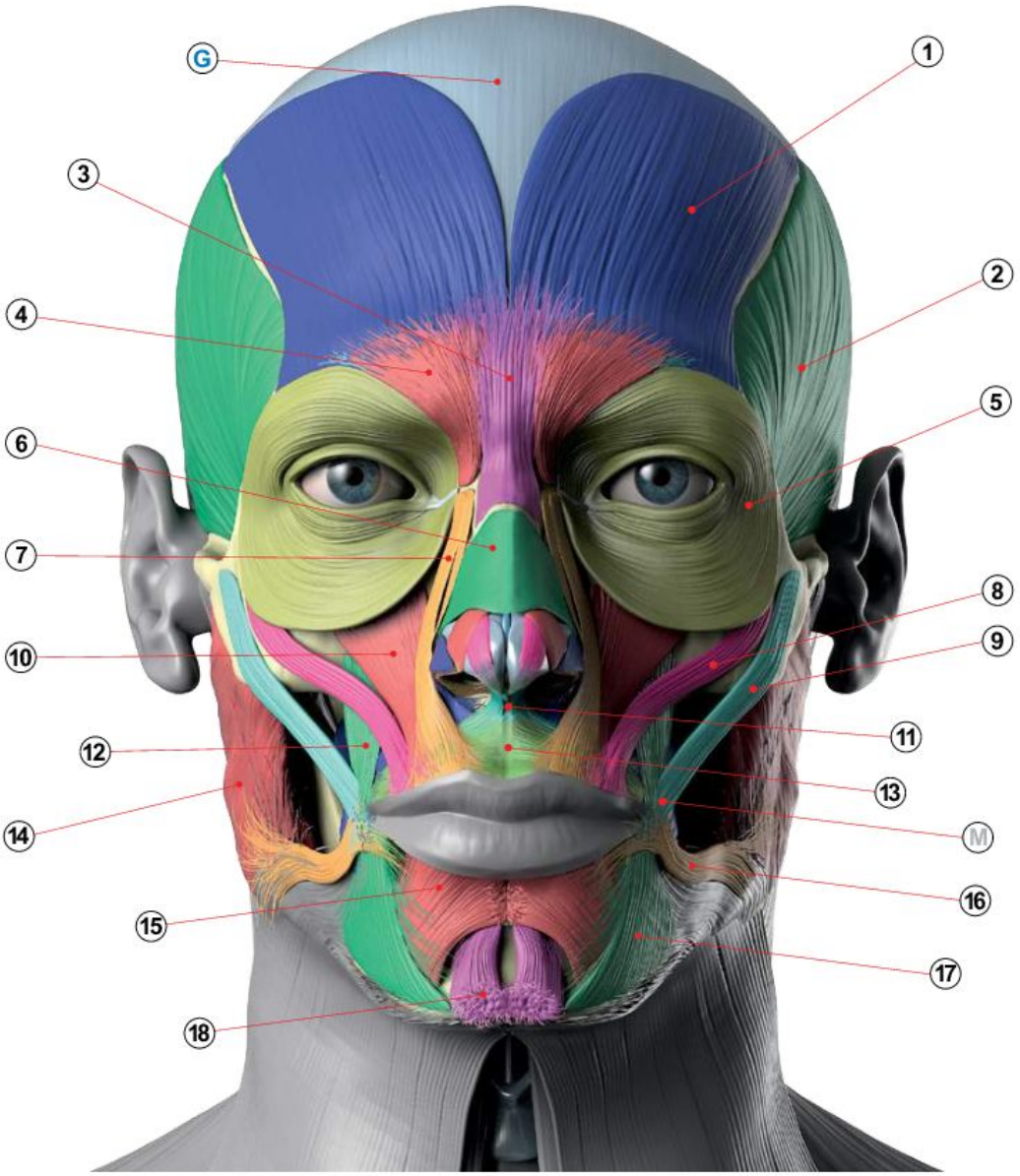
BACK VIEW

MUSCLES OF THE HEAD

TOP VIEW

MUSCLES OF THE HEAD

FRONTAL VIEW

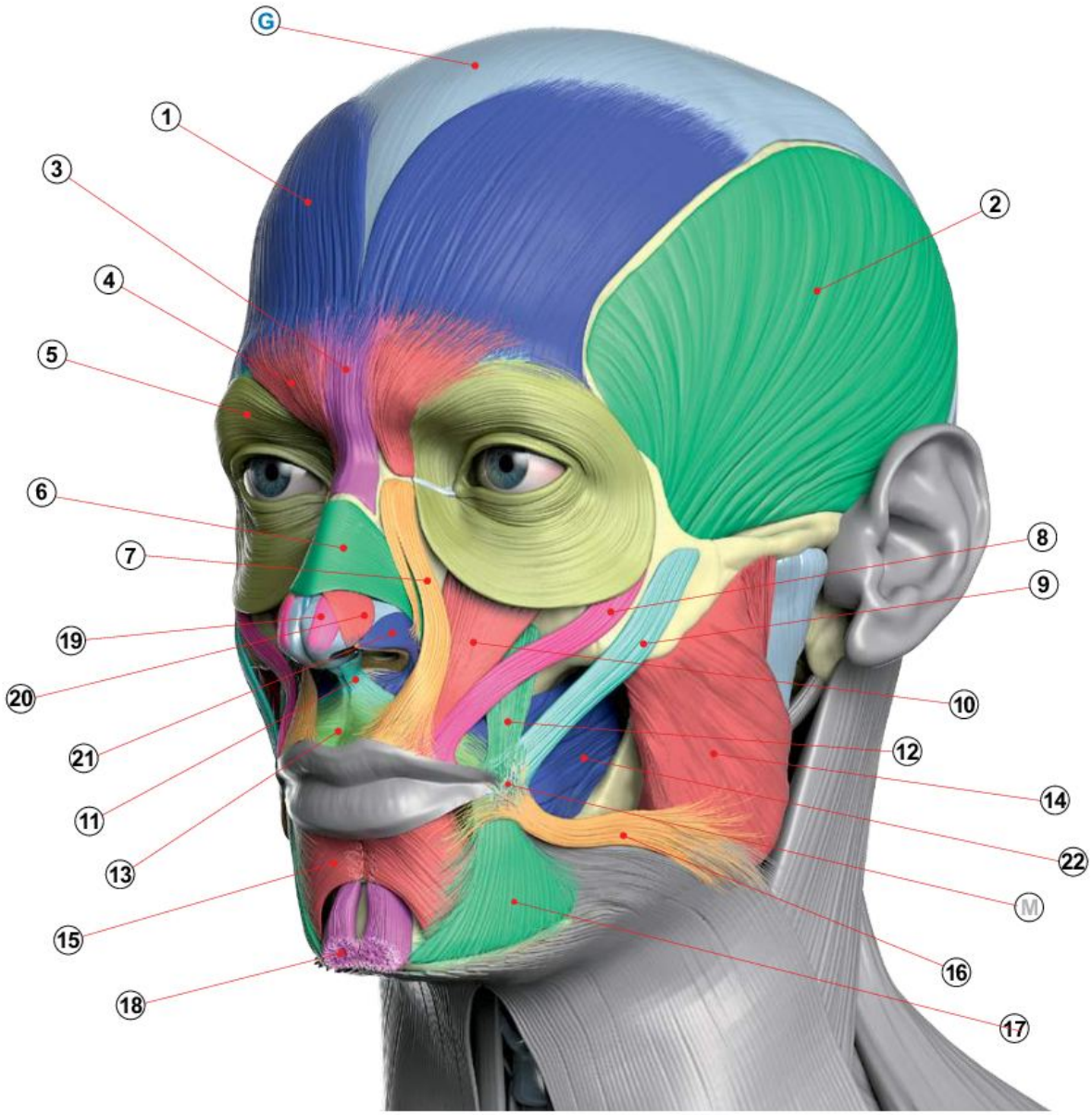


G	GALEA APONEUROTICA	6	NASALIS (transverse portion)
1	FRONTALIS	7	L.L.S.A.N*
2	TEMPORALIS	8	ZYGOMATICUS MINOR
3	PROCERUS	9	ZYGOMATICUS MAJOR
4	DEPRESSOR SUPERCILII	10	LEVATOR LABII SUPERIORIS
5	ORBICULARIS OCULI	11	DEPRESSOR SEPTI NASI

* Levator labii superioris alaeque nasi muscle

MUSCLES OF THE HEAD

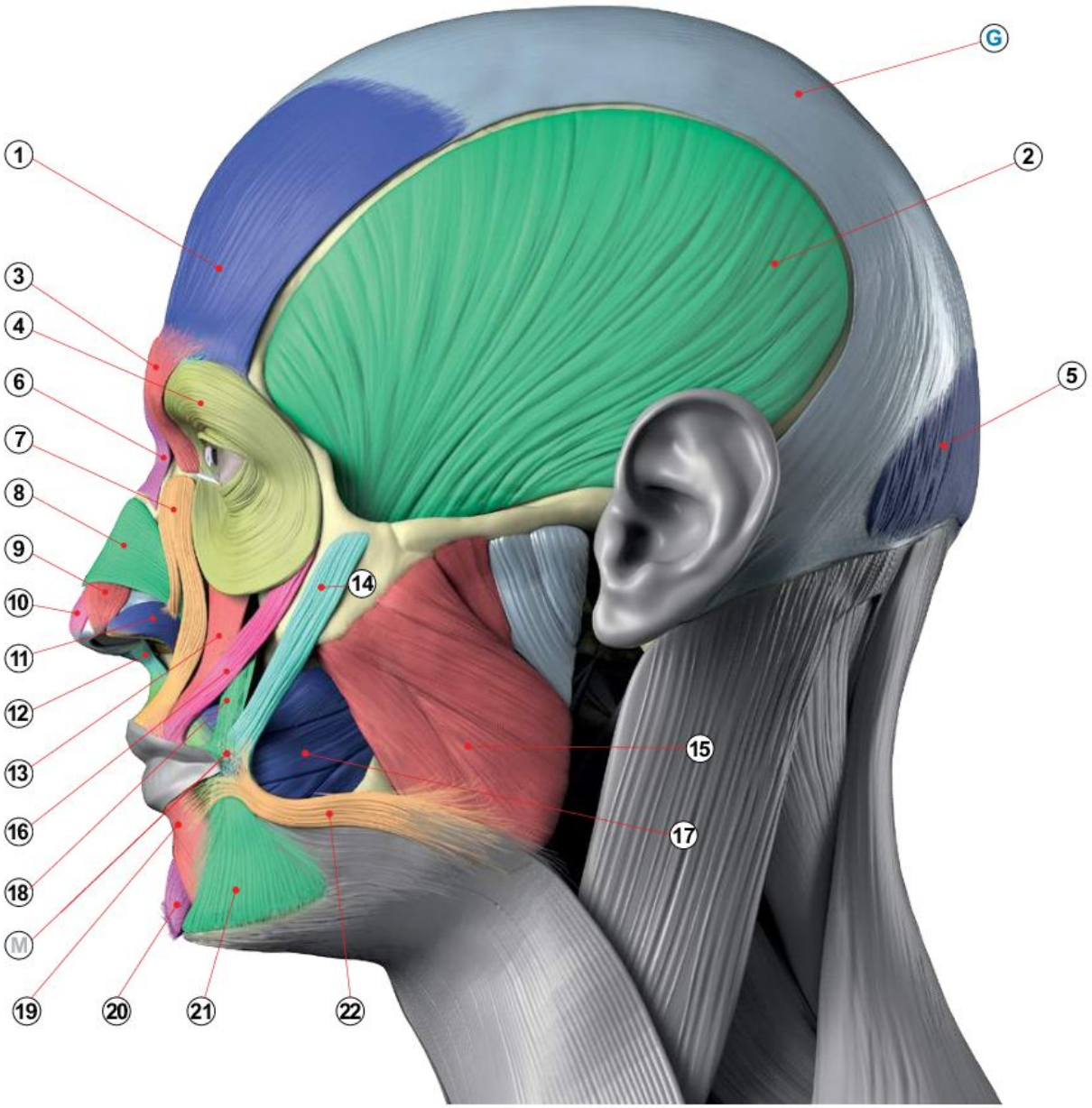
3/4 FRONTAL VIEW



12	LEVATOR ANGULI ORIS	17	DEPRESSOR ANGULI ORIS
13	ORBICULARIS ORIS	18	MENTALIS
M	MODIOLUS	19	COMPRESSOR NARIUM MINOR
14	MASSETER	20	DILATOR NARIS ANTERIOR
15	DEPRESSOR LABII INFERIORIS	21	NASALIS (alar portion)
16	RISORIUS	22	BUCCINATOR

MUSCLES OF THE HEAD

PROFILE VIEW

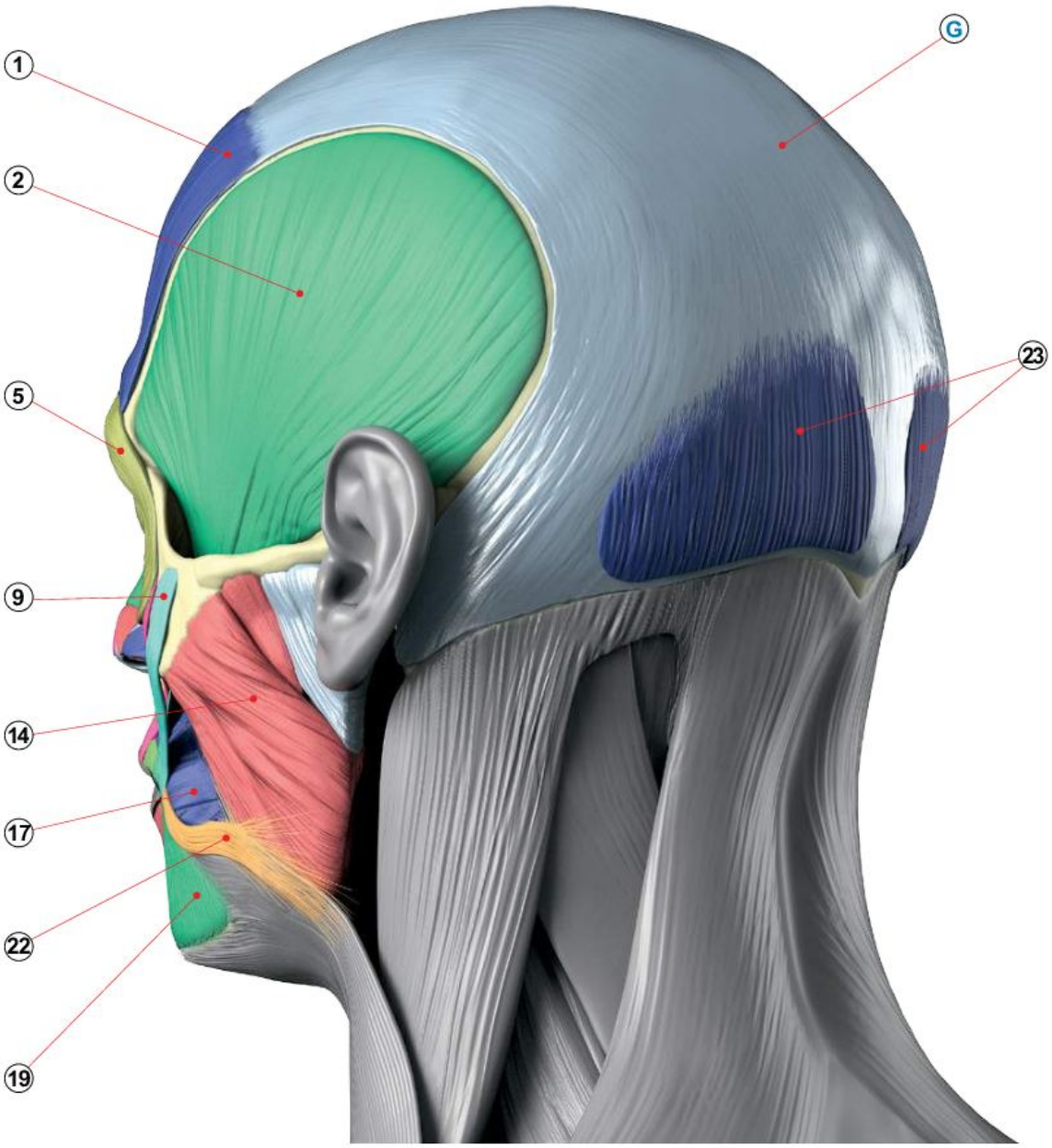


G	GALEA APONEUROTICA	6	PROCERUS
1	FRONTALIS	7	L.L.S.A.N*
2	TEMPORALIS	8	NASALIS
3	DEPRESSOR SUPERCILII	9	DILATOR NARIS ANTERIOR
4	ORBICULARIS OCULI	10	COMPRESSOR NARIUM MINOR
5	OCCIPITALIS	11	NASALIS (alar portion)

* Levator labii superioris alaeque nasi muscle

MUSCLES OF THE HEAD

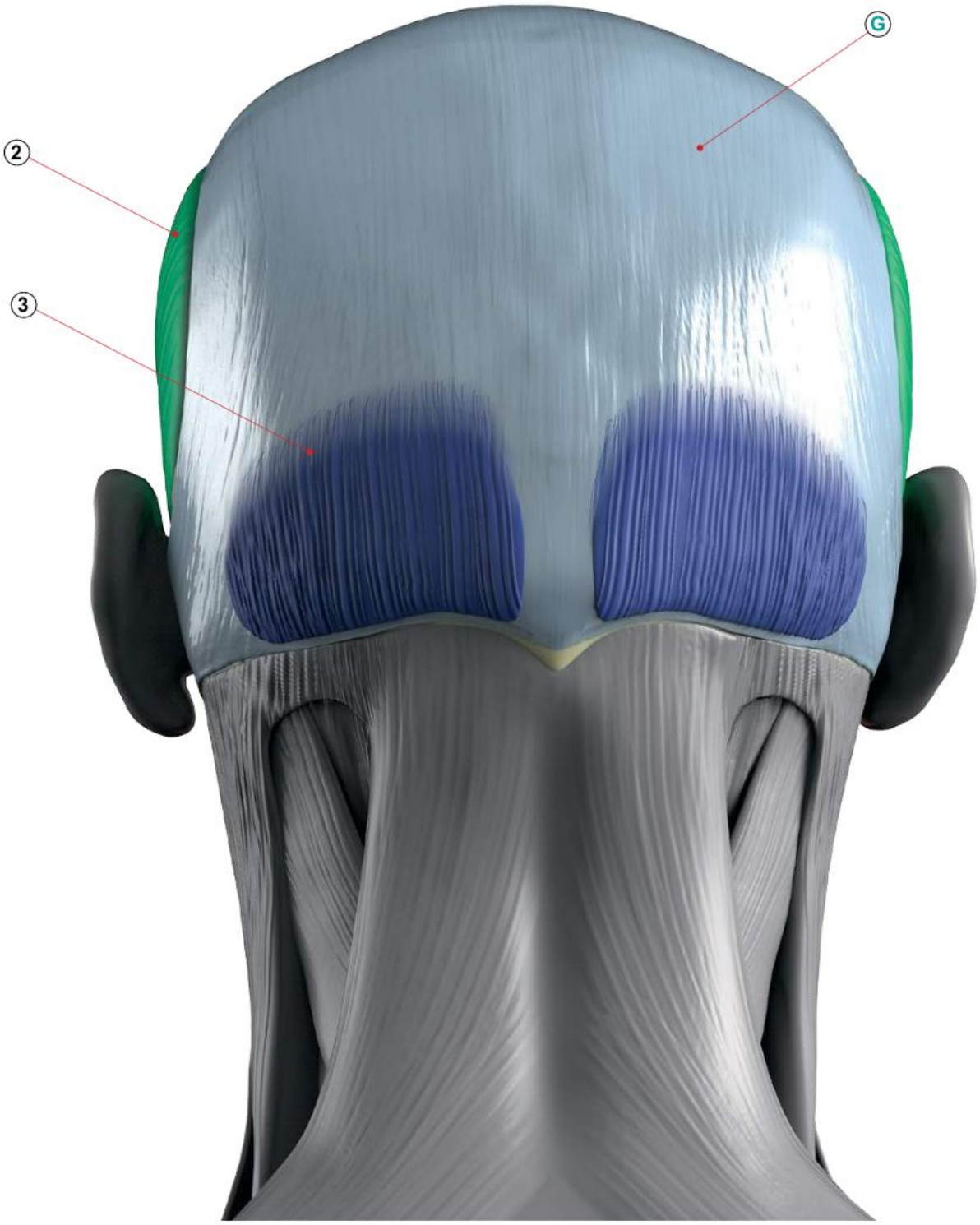
3/4 BACK VIEW



12	DEPRESSOR SEPTI NASI	17	BUCCINATOR
13	LEVATOR LABII SUPERIORIS	18	LEVATOR ANGULI ORIS
M	MODIOLUS	19	DEPRESSOR LABII INFERIORIS
14	ZYGOMATICUS MAJOR	20	MENTALIS
15	MASSETER	21	DEPRESSOR ANGULI ORIS
16	ZYGOMATICUS MINOR	22	RISORIUS

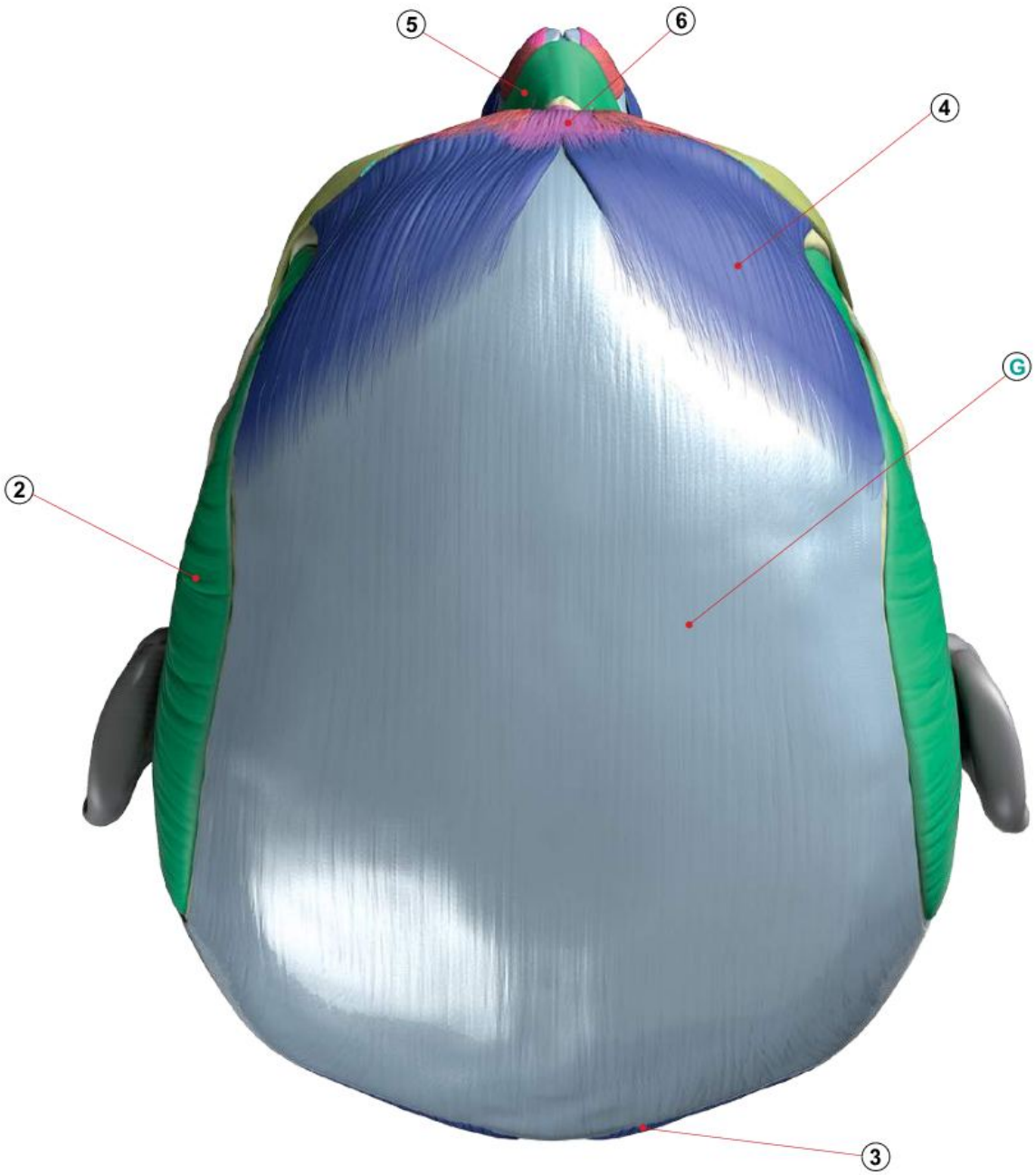
MUSCLES OF THE HEAD

BACK VIEW



MUSCLES OF THE HEAD

TOP VIEW

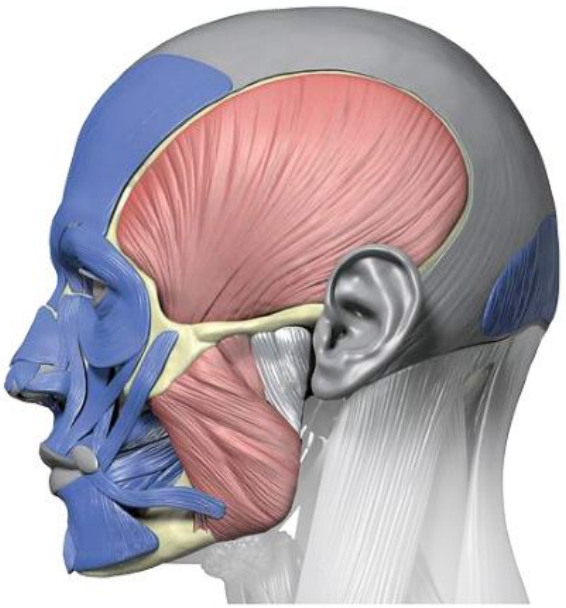


G	GALEA APONEUROTICA	4	FRONTALIS
2	TEMPORALIS	5	NASALIS
3	OCCIPITALIS	6	PROCERUS

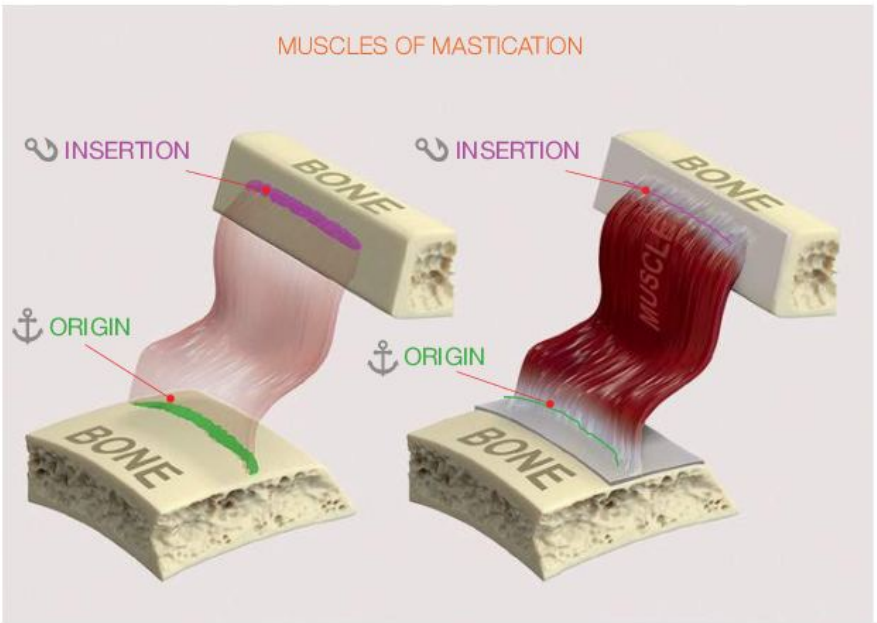
MUSCLES OF THE HEAD

MUSCLES OF MASTICATION AND FACIAL MUSCLES

THE MUSCLES OF THE HEAD CAN BE DIVIDED INTO MANY DIFFERENT MUSCLE GROUPS DIFFERING IN FUNCTIONS AND ACTIONS. WE WILL BE EXAMINING ONLY THOSE MUSCLES THAT SOMEHOW AFFECT THE FORM OF THE HEAD. THEY CAN BE DIVIDED INTO TWO MAIN GROUPS: MUSCLES OF THE FACE, WHICH ARE PRIMARILY RESPONSIBLE FOR **FACIAL EXPRESSIONS** AND THE **MUSCLES OF MASTICATION**, WHICH ARE RESPONSIBLE FOR CHEWING.



MUSCLES OF FACIAL EXPRESSION OR FACIAL MUSCLES ARE EXTREMELY IMPORTANT MUSCLES AS THEY ARE CHIEFLY RESPONSIBLE FOR NONVERBAL COMMUNICATION BETWEEN HUMANS. THESE MUSCLES ARE UNIQUE AS THEY GENERALLY ORIGINATE FROM THE SKULL, HOWEVER, UNLIKE MOST SKELETAL MUSCLES WHICH INSERT TO ANOTHER BONE, **FACIAL MUSCLES** INSERT INTO THE SUPERFICIAL FASCIA, DERMIS OF THE SKIN OR EVEN OTHER MUSCLES. AND AS A RESULT, WHEN THEY CONTRACT, THE SKIN MOVES.



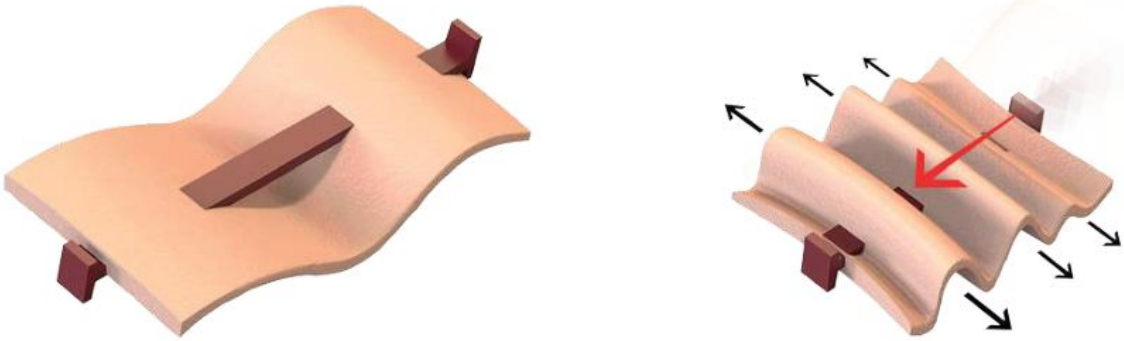
THE **ORIGIN** OF THE MUSCLE IS THE MOST STATIONARY ATTACHMENT SITE OF A MUSCLE TO A BONE, THE OPPOSITE END OF ITS **INSERTION**

MUSCLES OF THE HEAD

MUSCLES OF MASTICATION AND FACIAL MUSCLES

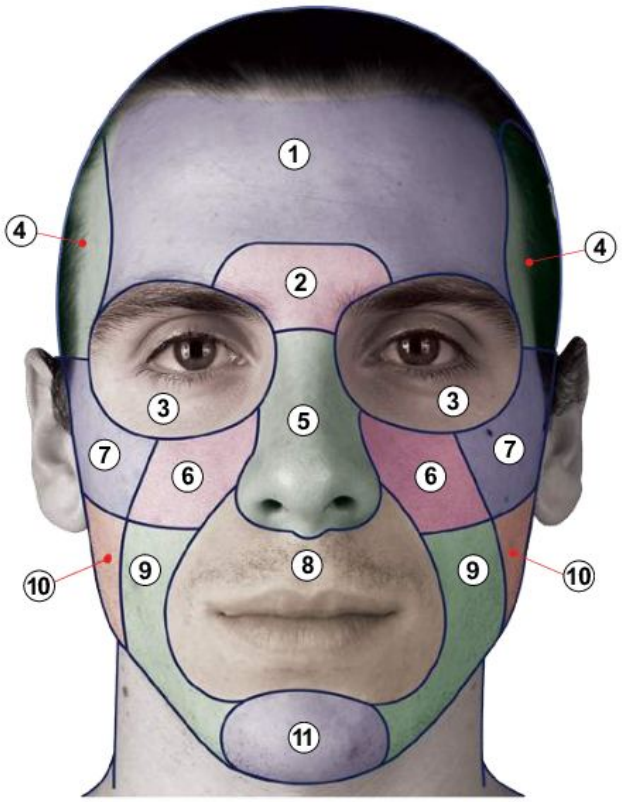
FACIAL MUSCLES MOVE THE SKIN RATHER THAN A JOINT WHEN THEY CONTRACT.

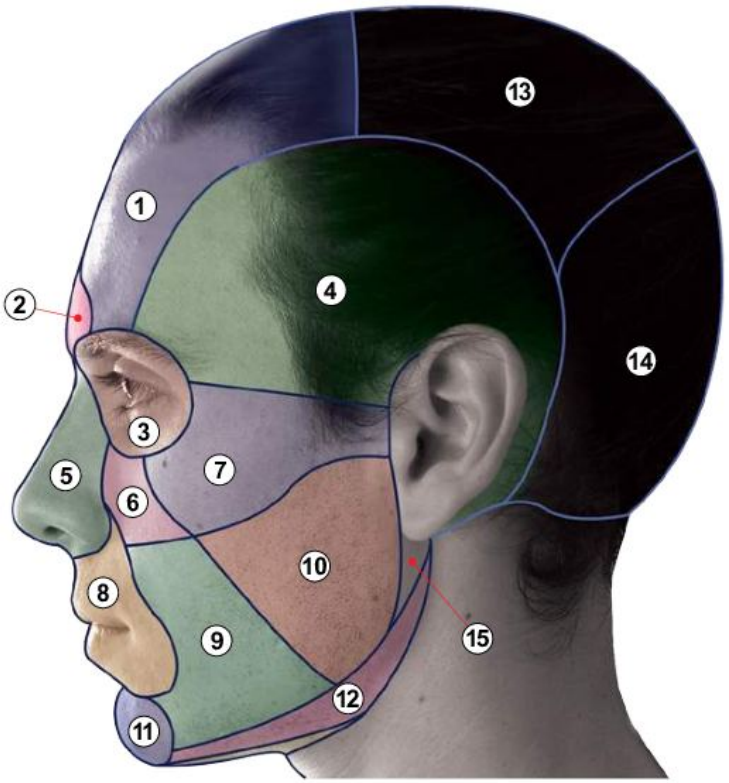
DYNAMIC WRINKLES APPEAR AS LINES IN THE **SKIN** OVERLYING THE CONTRACTED **MUSCLE**. THESE **WRINKLES** ARE ALWAYS ORIENTED IN A **PERPENDICULAR DIRECTION** RELATIVE TO THE **MUSCLE** FIBERS.

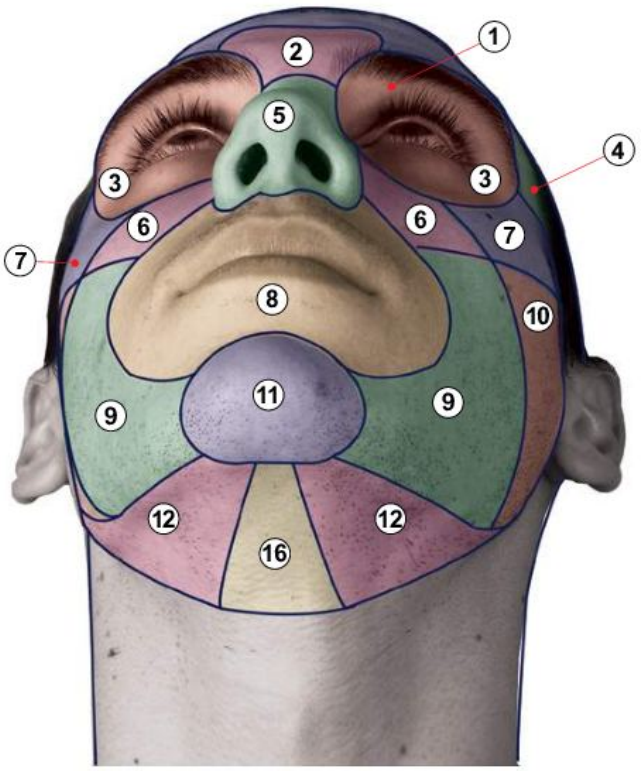


FACIAL MUSCLES, EXCEPT IF THE PERSON IS VERY LEAN, **DO NOT CREATE SURFACE DEFORMATIONS** AS EXTENSIVELY AS **SKELETAL MUSCLES**, LIKE THE **MUSCLES OF MASTICATION**. **FACIAL MUSCLES** ARE USUALLY THIN, VERY DELICATE, AND CONCEALED BY FAT. WHEN THE **FACIAL MUSCLES** CONTRACT, THEY CAN MOVE AND DISPLACE SURFACE SKIN, FAT PADS, AND EVEN OTHER **FACIAL MUSCLES**. **FACIAL MUSCLE** CONTRACTIONS CAUSE WRINKLES, FURROWS, RIDGES AND BULGES. COMBINATION OF THESE CHANGES IS WHAT WE CALL FACIAL EXPRESSIONS.

REGIONS OF THE HEAD

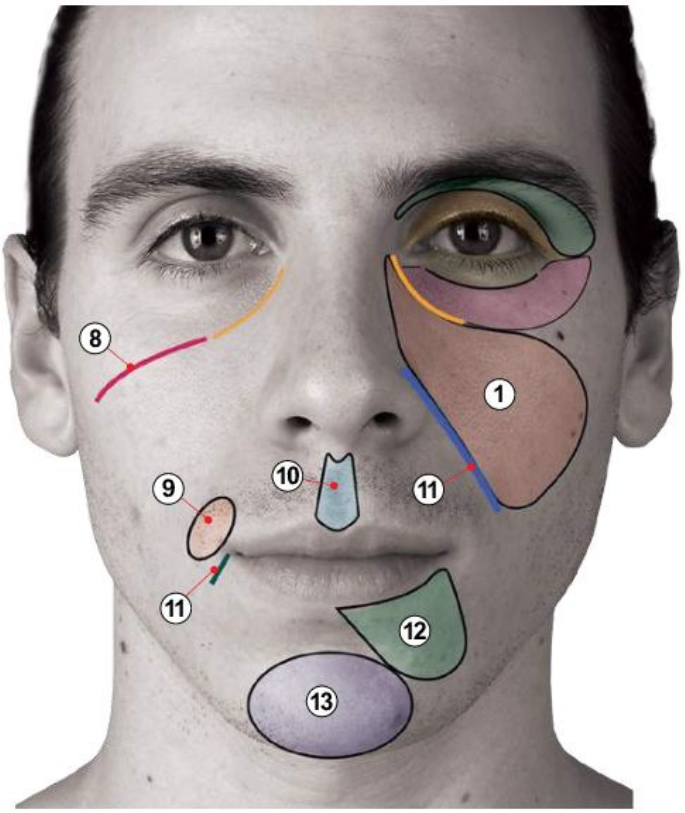


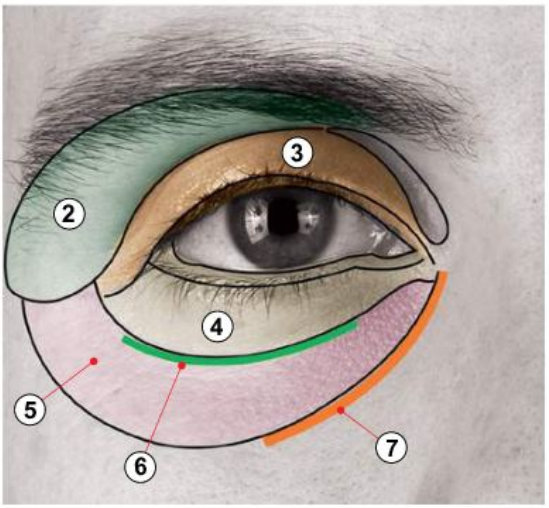


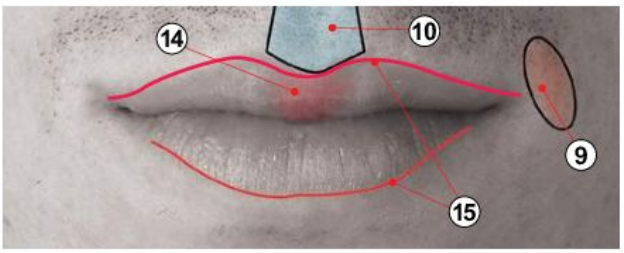


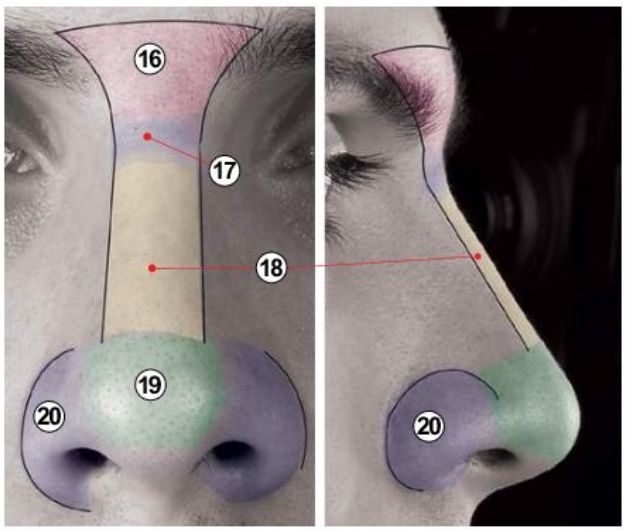
1	FRONTAL REGION
2	GLABELLAR REGION
3	ORBITAL REGION
4	TEMPORAL REGION
5	NASAL REGION
6	INFRAORBITAL REGION
7	ZYGOMATIC REGION
8	ORAL REGION
9	BUCCAL REGION
10	PAROTID-MASSETER REGION
11	MENTAL REGION
12	SUBMANDIBULAR TRIANGLE
13	PARIETAL REGION
14	OCCIPITAL REGION
15	RETROMANDIBULAR FOSSA
16	SUBMENTAL REGION

REGIONS OF THE HEAD









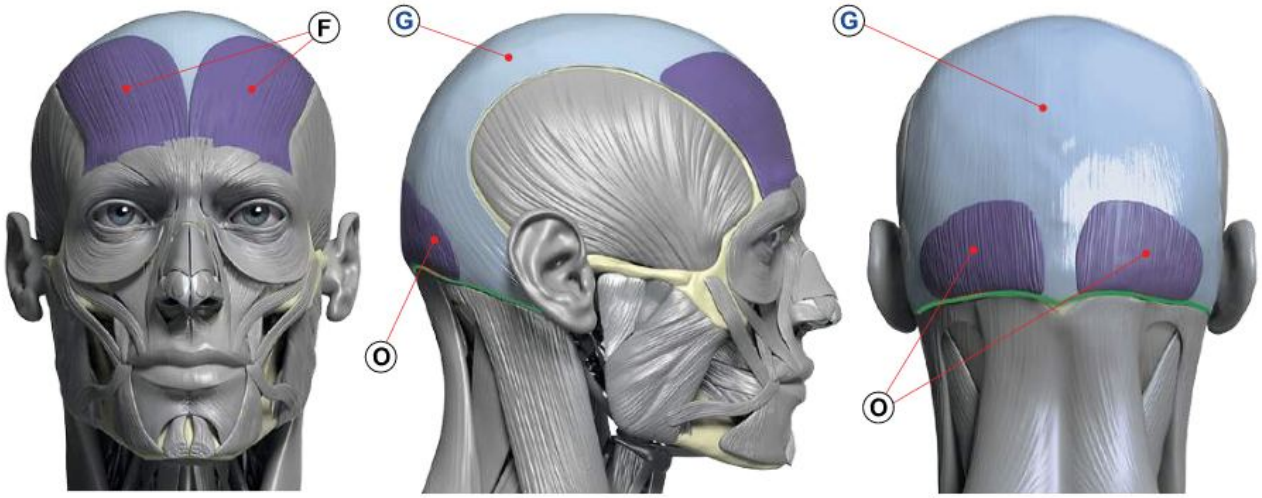
1	INFRAORBITAL TRIANGLE
2	SUPRAORBITAL AREA
3	UPPER EYELID
4	LOWER EYELID
5	INFRAORBITAL AREA
6	INFRAORBITAL SULCUS
7	TEAR TROUGH
8	INFRAORBITAL FURROW
9	MODIOLUS
10	PHILTRUM
11	LABIAL FISSURE
12	SUBMANDIBULAR REGION*
13	CHIN
14	TUBERCLE
15	VERMILION BORDER
16	GLABELLA
17	ROOT OF THE NOSE
18	BRIDGE OF THE NOSE
19	TIP OF THE NOSE
20	ALA (wing of the nose)

* Goldfinger, E. (1991). Human anatomy for artists. page 69. 1st ed. New York: Oxford University Press.

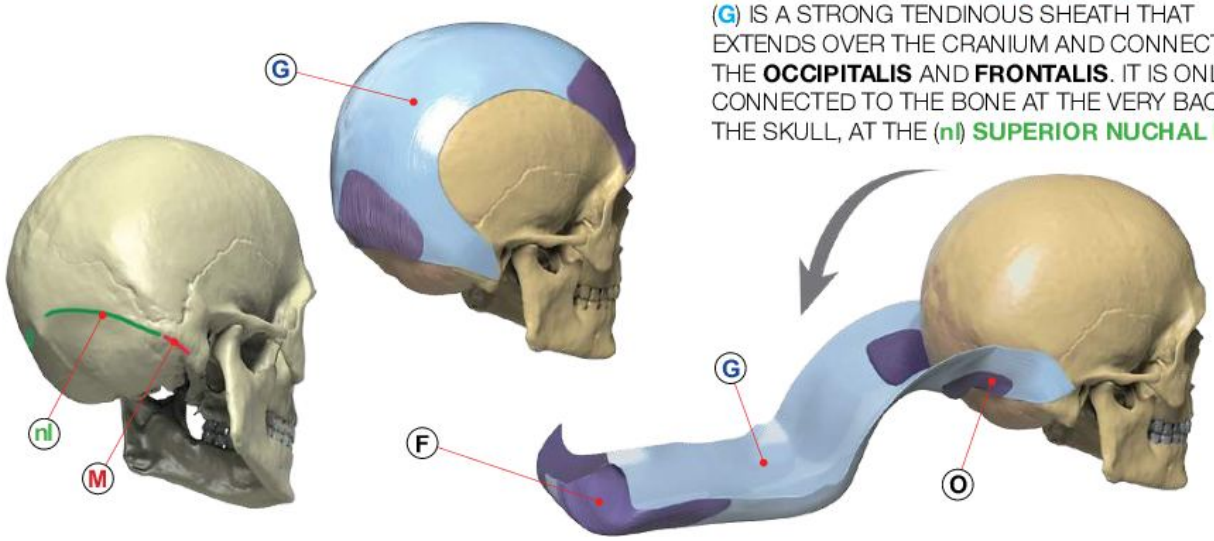
MUSCLES OF THE FRONTAL AND PARIETAL REGIONS

OCCIPITOFRONTALIS MUSCLE

THE **OCCIPITOFRONTALIS MUSCLE** CONSISTS OF 2 **OCCIPITAL BELLIES** (occipitalis) (**O**), AND 2 **FRONTAL BELLIES** (frontalis) (**F**). THE (**O**) **OCCIPITAL BELLY** TAKES ITS ORIGIN FROM THE **SUPERIOR NUCHAL LINE** (**nl**) AND THE **MASTOID PROCESS** (**M**), AND INSERTS INTO THE **GALEA APONEUROTICA** (**G**). THE FUNCTION OF THE **OCCIPITAL BELLY** IS TO PULL THE SCALP BACKWARDS. THE (**F**) **FRONTAL BELLY** ORIGINATES FROM THE **GALEA APONEUROTICA** AND INSERTS INTO THE SKIN AT THE EYEBROW AND THE ROOT OF THE NOSE, BLENDING WITH THE FIBERS OF THE **PROCERUS**, **ORBICULARIS OCULI**, AND **CORRUGATOR SUPERCILII**. THE **FRONTAL BELLY** DRAWS BACK THE SCALP WHICH AIDS IN RAISING THE EYEBROWS AND FORMING FURROWS AND WRINKLES IN THE FOREHEAD.



GALEA APONEUROTICA (epicranial aponeurosis) (**G**) IS A STRONG TENDINOUS SHEATH THAT EXTENDS OVER THE CRANIUM AND CONNECTS THE **OCCIPITALIS** AND **FRONTALIS**. IT IS ONLY CONNECTED TO THE BONE AT THE VERY BACK OF THE SKULL, AT THE (**nl**) **SUPERIOR NUCHAL LINE.**

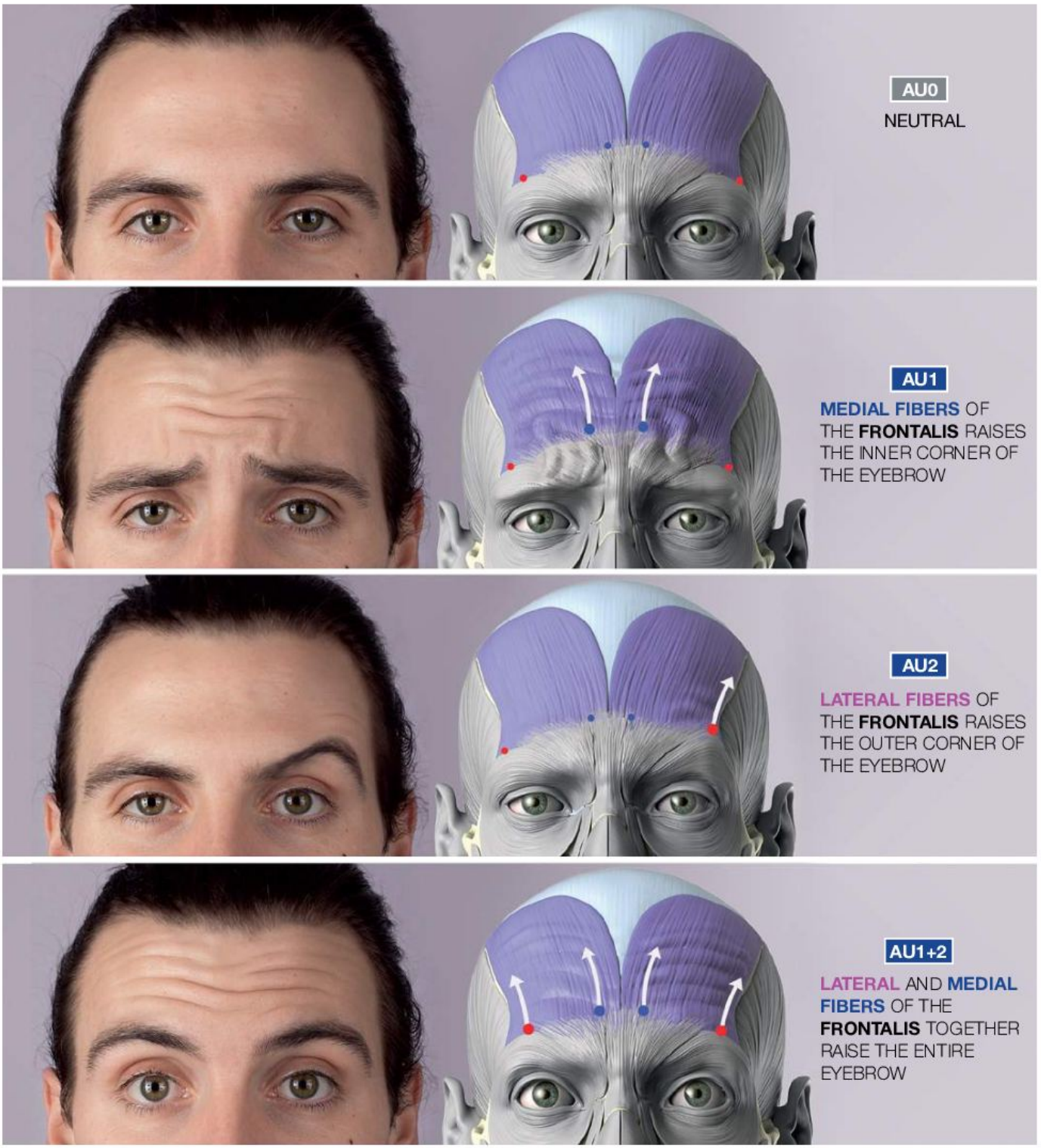


	NAME:	OCCIPITAL BELLY (occipitalis) (O)
⚓	ORIGIN:	SUPERIOR NUCHAL LINE (nl), MASTOID PROCESS (M)
	INSERTION:	GALEA APONEUROTICA (G)
	ACTION:	MOVES THE SCALP BACK

	NAME:	FRONTAL BELLY (frontalis) (F)
⚓	ORIGIN:	GALEA APONEUROTICA (G)
	INSERTION:	ORBICULARIS OCULI M., PROCERUS M., SKIN OF EYEBROW REGION
	ACTION:	RAISES EYEBROWS AND WRINKLES FOREHEAD

MUSCLES OF THE FRONTAL AND PARIETAL REGIONS

OCCIPITOFRONTALIS MUSCLE

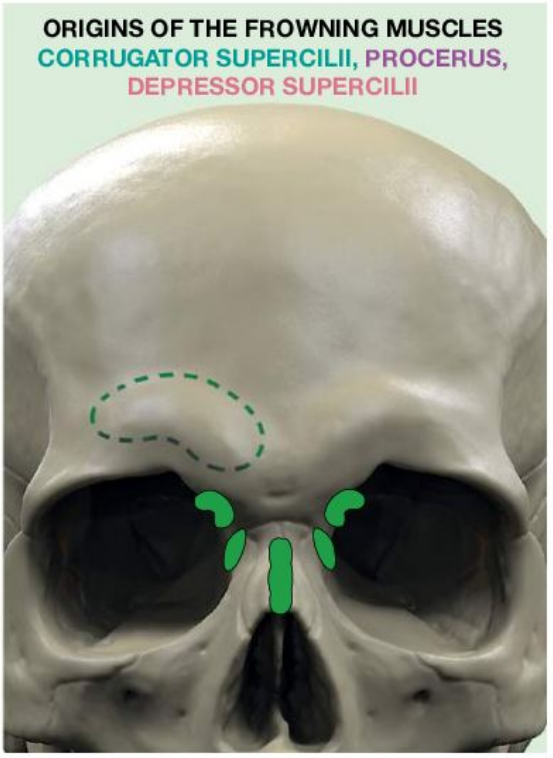


* **Action Units (AUs)** are the fundamental actions of individual muscles or groups of muscles.

** **Facial Action Coding System (FACS)** is a system to taxonomize human facial movements by their appearance on the face, based on a system originally developed by a Swedish anatomist named Carl-Herman Hjortst. It was later adopted by Paul Ekman and Wallace V. Friesen, and published in 1978.

MUSCLES OF THE GLABELLAR REGION

ACTION UNIT **4** (Brow Lowerer): **CORRUGATOR SUPERCILII**, **PROCERUS**, **DEPRESSOR SUPERCILII**



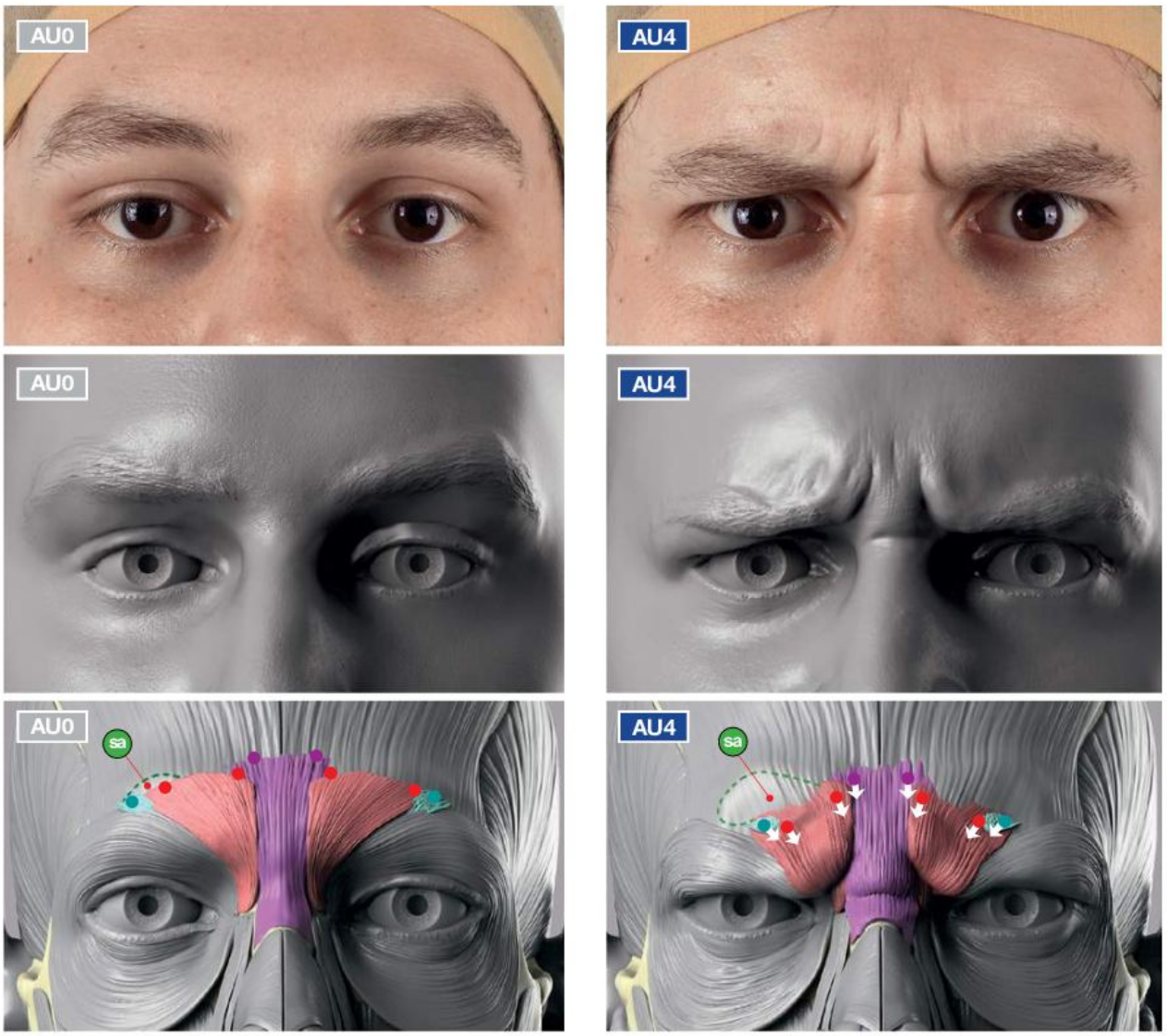
NAME:	**DEPRESSOR SUPERCILII** (D)
ORIGIN:	**LATERALS OF THE NASAL BRIDGE**
INSERTION:	**FLARES OUT ACROSS THE INTERCANTAL REGION, FRONTALIS MUSCLE, AND UNDER THE SKIN ABOUT LEVEL WITH THE EYEBROWS**
ACTION:	DRAWS DOWN THE EYEBROWS, ALONG WITH THE **PROCERUS**, THE HORIZONTAL WRINKLE AT THE BRIDGE OF THE NOSE

NAME:	**PROCERUS** (P)
ORIGIN:	**MIDLINE OF THE NASAL BONE AND NASAL CARTILAGE**
INSERTION:	**THE SKIN OF THE LOWER TO MID FOREHEAD BETWEEN THE EYEBROWS, MERGING WITH FIBERS OF THE FRONTALIS MUSCLE**
ACTION:	THE PROCERUS HELPS DRAW DOWN THE SKIN BETWEEN THE EYEBROWS, AND ASSISTS IN FLARING THE NOSTRILS. IT ALSO CONTRIBUTES TO AN EXPRESSION OF ANGER OR INTENSITY

NAME:	**CORRUGATOR SUPERCILII** (C)
ORIGIN:	**MEDIAL SUPERCILIARY ARCH**
INSERTION:	**FOREHEAD SKIN NEAR THE EYEBROWS**
ACTION:	PULLS THE EYEBROWS DOWNWARD AND TOWARD THE MIDLINE OF THE NOSE

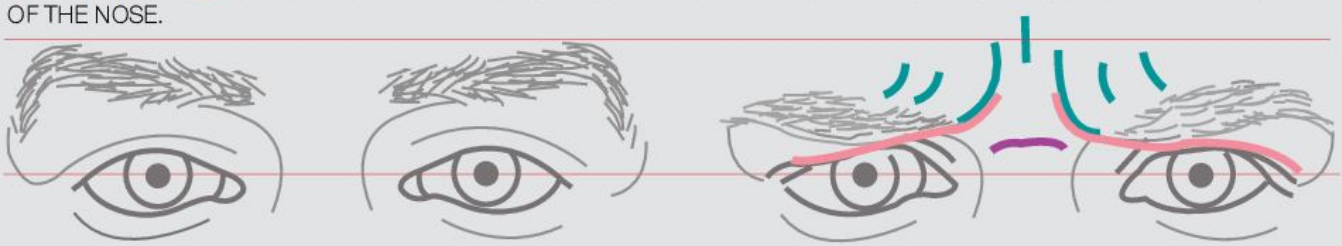
MUSCLES OF THE GLABELLAR REGION

ACTION UNIT **4** (Brow Lowerer): **CORRUGATOR SUPERCILII**, **PROCERUS**, **DEPRESSOR SUPERCILII**



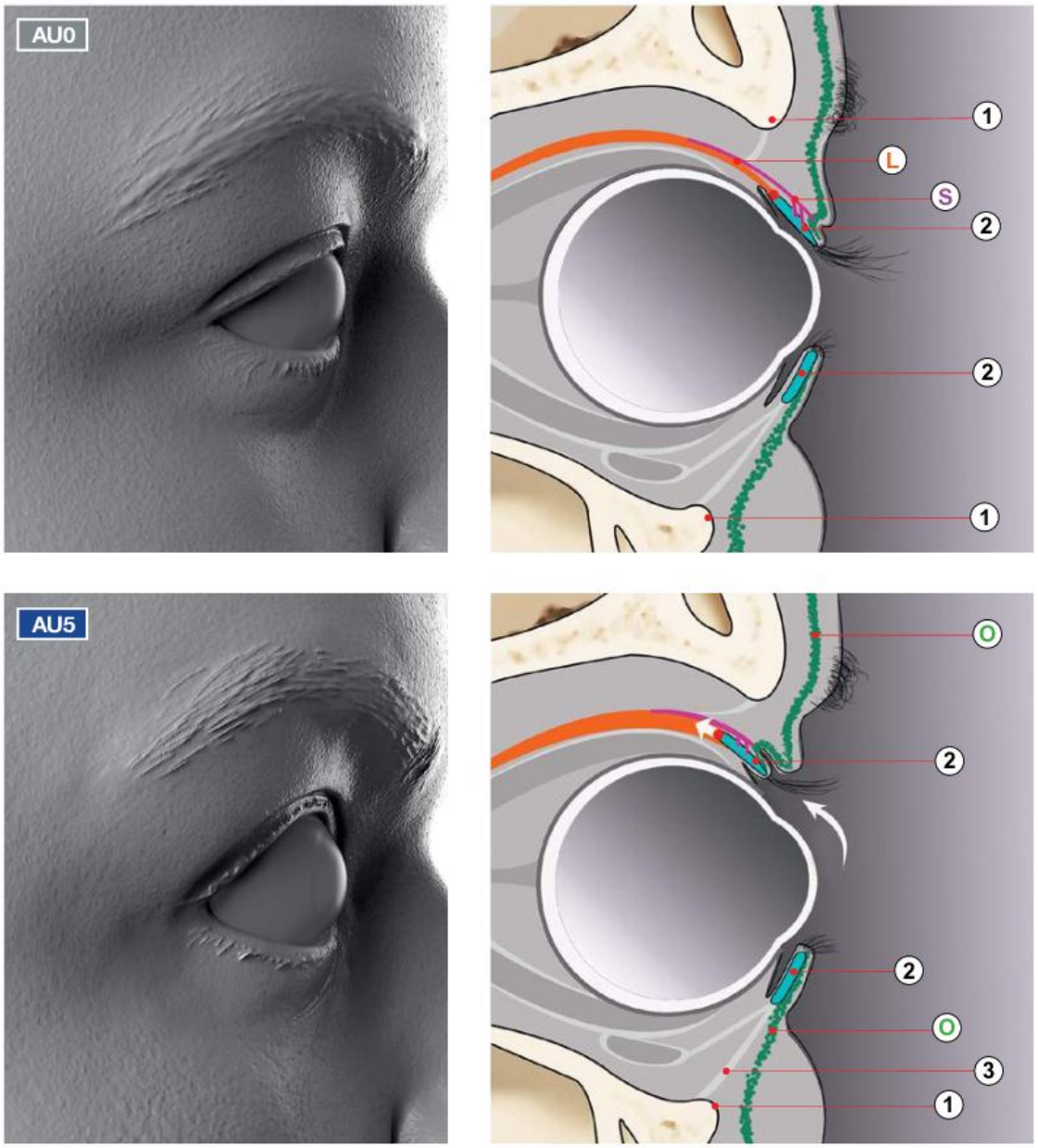
● THE **CORRUGATOR** AND **DEPRESSOR SUPERCILII** PULLS THE EYEBROWS TOGETHER AND DOWNWARDS, PARTLY COVERING THE UPPER EYELID, CREATING VERTICAL WRINKLES BETWEEN THE EYEBROWS AND BECAUSE THE EYEBROW MOVES DOWN, IT MAKES SUPERCILIARY ARCHES MORE VISIBLE (**sa**).

● THE **PROCERUS** PULLS THE SKIN OF THE GLABELLAR REGION DOWN AND CREATES A LINE ACROSS THE BRIDGE OF THE NOSE.



FACIAL MUSCLES

ACTION UNIT **5** (Upper Lid Raiser): **LEVATOR PALPEBRAE SUPERIORIS AND SUPERIOR TARSAL MUSCLES.**



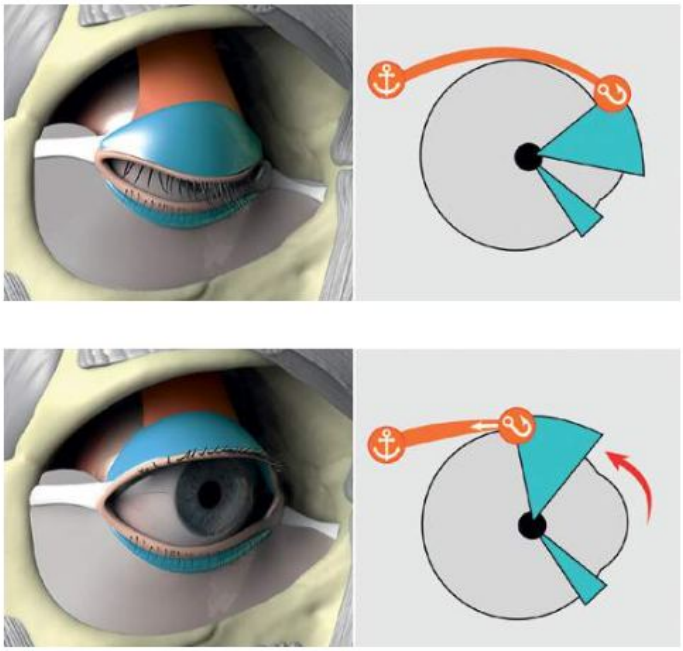
1	ORBITAL MARGIN	6	SOOF (Suborbicularis Oculi Fat)
2	TARSAL PLATE	7	MALAR FAT (infraorbital area)
3	ORBITAL SEPTUM	S	**SUPERIOR TARSAL MUSCLE**
4	ROOF (retro-orbicularis oculi fat)	O	**ORBICULARIS OCULI MUSCLE**
5	LATERAL PALPEBRAL LIGAMENT	L	**LEVATOR PALPEBRAE SUPERIORIS**

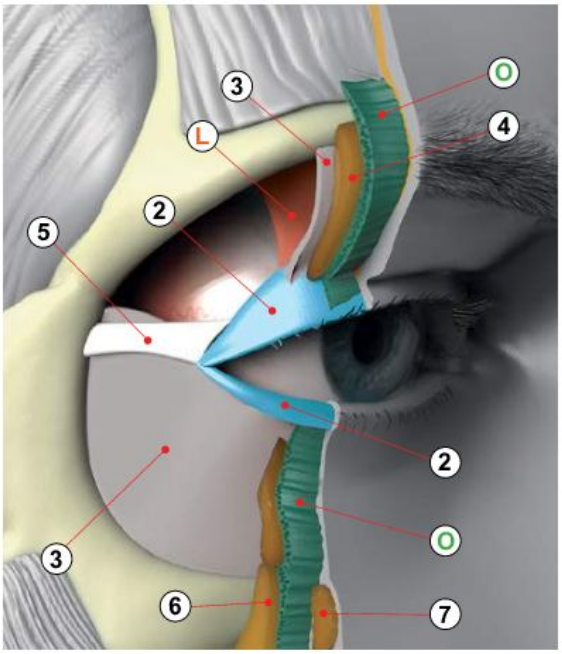
FACIAL MUSCLES

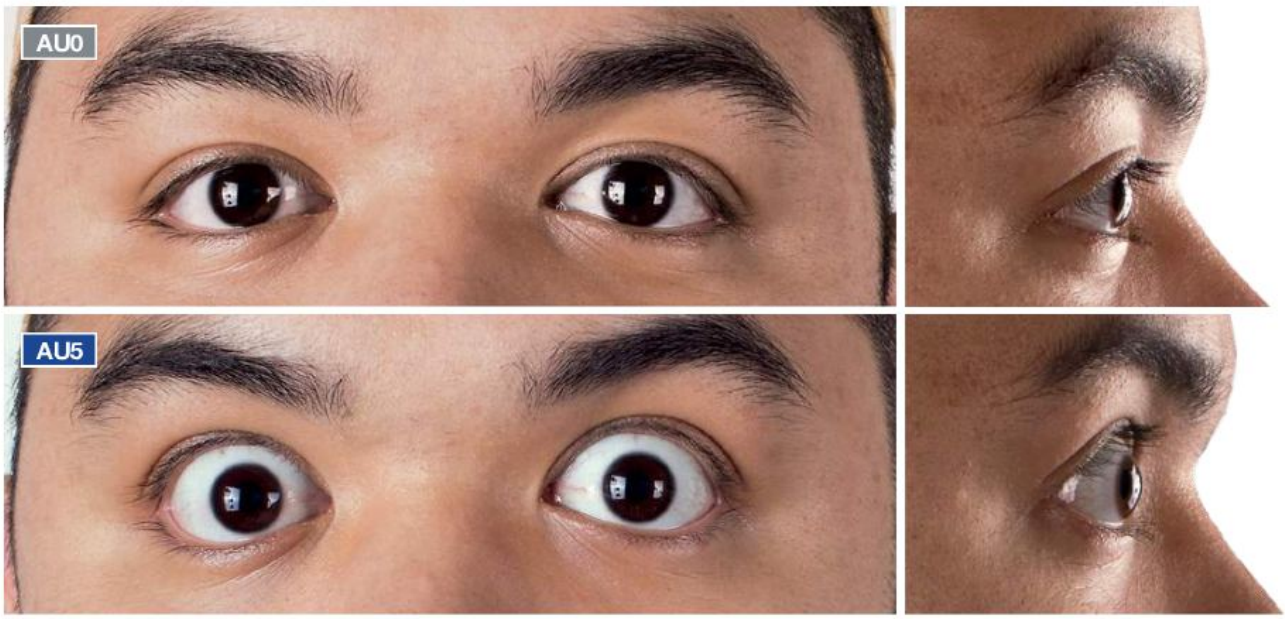
ACTION UNIT **5** (Upper Lid Raiser): **LEVATOR PALPEBRAE SUPERIORIS AND SUPERIOR TARSAL MUSCLES.**

NAME:	LEVATOR PALPEBRAE SUPERIORIS
ORIGIN:	SPHENOID BONE
INSERTION:	TARSAL PLATE
ACTION:	RETRACTS / ELEVATES UPPER EYELID

NAME:	SUPERIOR TARSAL MUSCLE
ORIGIN:	LEVATOR PALPEBRAE SUPERIORIS
INSERTION:	TARSAL PLATE
ACTION:	RETRACTS / ELEVATES UPPER EYELID



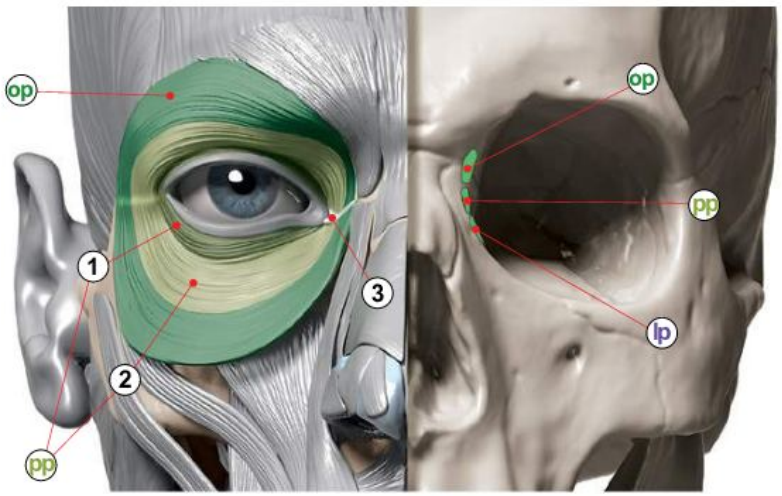


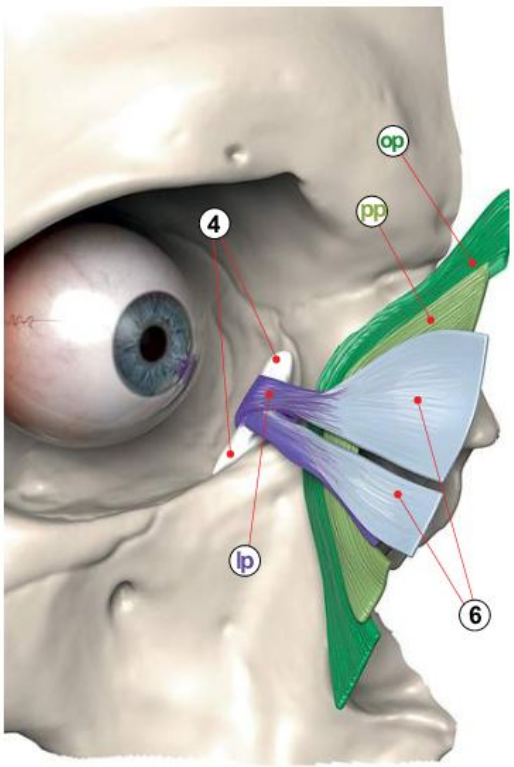


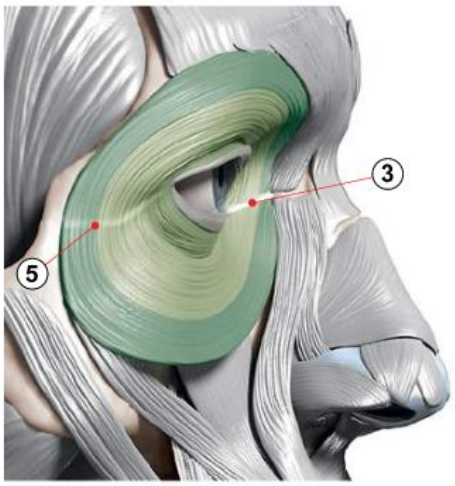
FACIAL MUSCLES

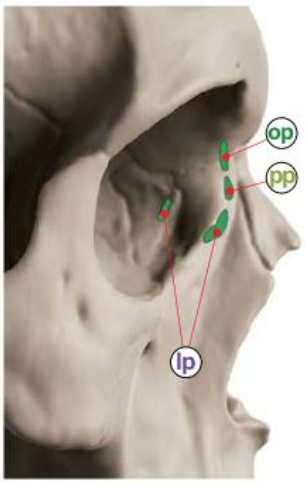
ORBICULARIS OCULI MUSCLE (O.O.)

THE **ORBICULARIS OCULI MUSCLE** IS DIVIDED INTO THREE PARTS:
1) THE **ORBITAL PART** (**op**) ENCIRCLES THE ENTIRE EYE ABOVE AND BELOW. THE **op** FIBERS FORM A COMPLETE ELLIPSE AROUND THE ORBIT WITH THE UPPER FIBERS BLENDING WITH THE **FRONTALIS** AND **CORRUGATOR** MUSCLES.
2) THE **PALPEBRAL PART** (**pp**), WITH PRETARSAL AND PRESEPTAL PORTIONS IS A THIN LAYER WHICH IS ESSENTIALLY PART OF THE EYELID. THE PALPEBRAL PART IS ALSO KNOWN AS THE TENSOR TARSI. IT IS A SMALL THIN MUSCLE SITUATED BEHIND THE MEDIAL **PALPEBRAL LIGAMENT** AND **LACRIMAL SAC**.
3) THE **LACRIMAL PART** PULLS **THE EYELIDS**, THE TARSUS OR TARSAL PLATES MEDIALLY, REGULATES THE LACRIMAL FLUID ON THE EYE, AND RESHAPES THE EYEBALL POSITION.
THE **OCULI MUSCLE** IS PRIMARILY RESPONSIBLE FOR CLOSING THE EYELIDS AND BLINKING, AND ALLOWS HUMANS TO SQUINT OR WINK THEIR EYES.







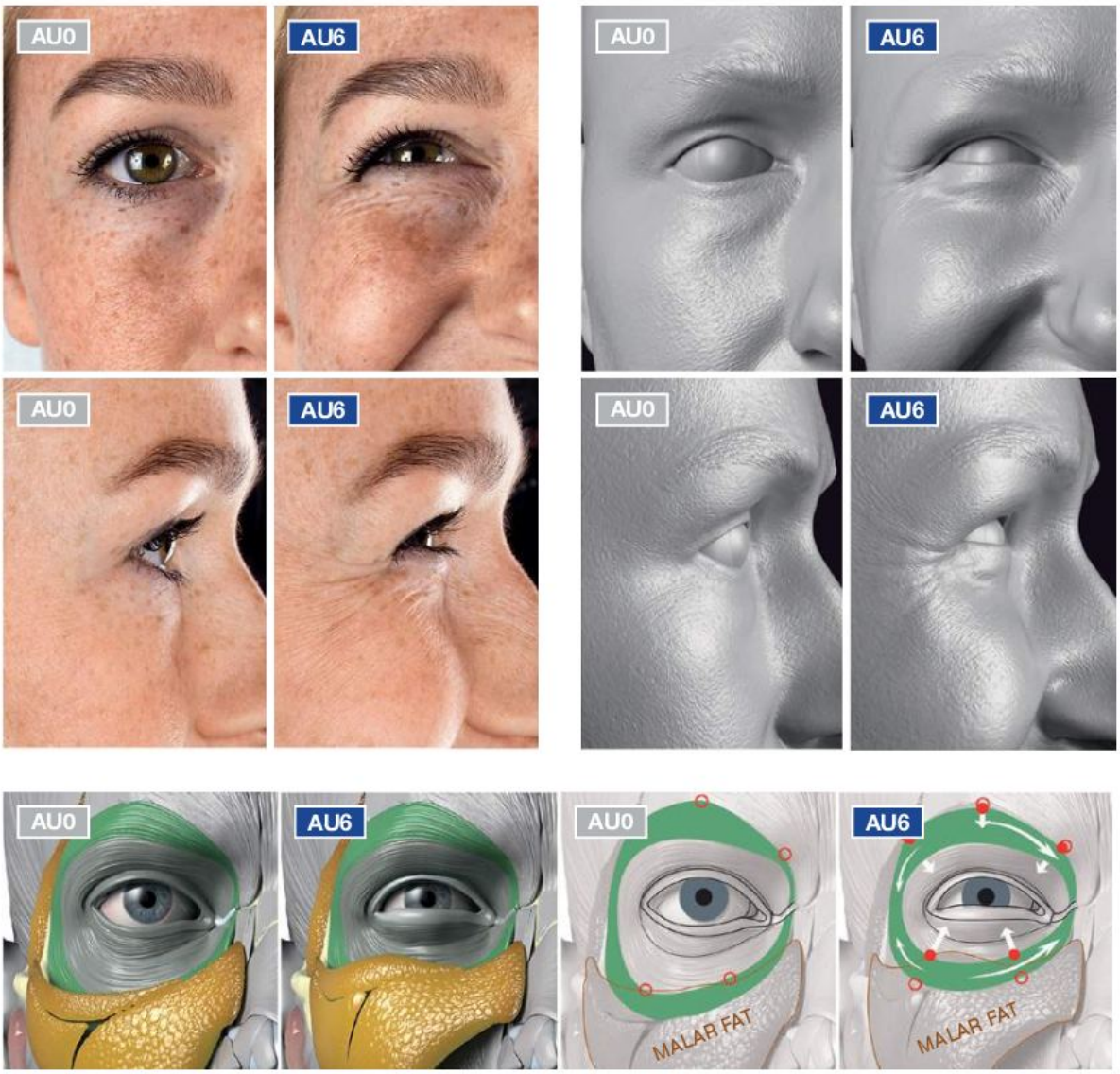


NAME:	**ORBICULARIS OCULI**
ORIGIN:	**FRONTAL, LACRIMAL, MAXILLA BONE, MEDIAL PALPEBRAL LIGAMENT**
INSERTION:	**LATERAL PALPEBRAL RAPHE**
ACTION:	**CLOSES EYELIDS**

op	**ORBITAL PART**
pp	**PALPEBRAL PART**
lp	**LACRIMAL PART**
1	PRETARSAL PORTION
2	PRESEPTAL PORTION
3	MEDIAL PALPEBRAL LIGAMENT
4	LACRIMAL SAC
5	LATERAL PALPEBRAL RAPHE
6	TARSAL PLATES

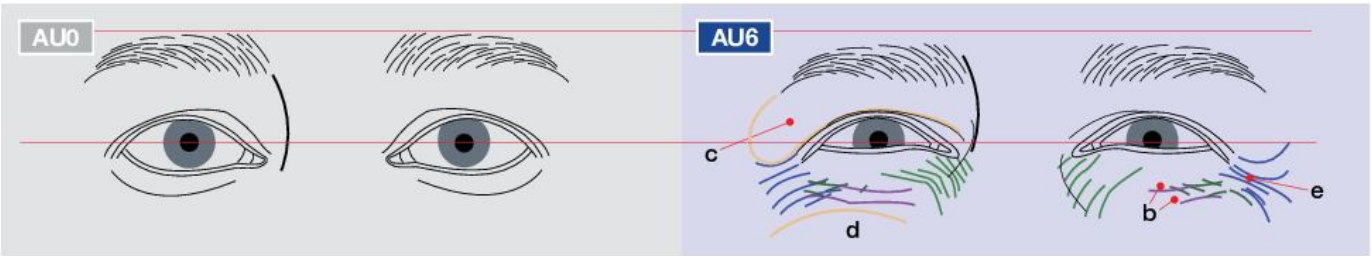
FACIAL MUSCLES

ACTION UNIT **6** (Upper Lid Raiser): **CHEEK RAISER AND LID COMPRESSOR**
ORBICULARIS OCULI (orbital part)



AU6 DRAWS SKIN TOWARDS THE EYE FROM THE TEMPLE AND CHEEKS. AS THE **ORBITAL PORTION** OF THE **O.O.** MUSCLE CONSTRICTS IT:

a - NARROWS THE EYE APERTURE
b - BAGS OR WRINKLES THE SKIN BELOW THE EYE
c - PUSHES THE EYE COVER FOLD DOWN
d - RAISES THE CHEEK UPWARDS
e - POTENTIALLY CAUSES CROW'S FEET "LAUGH LINES" OR WRINKLES



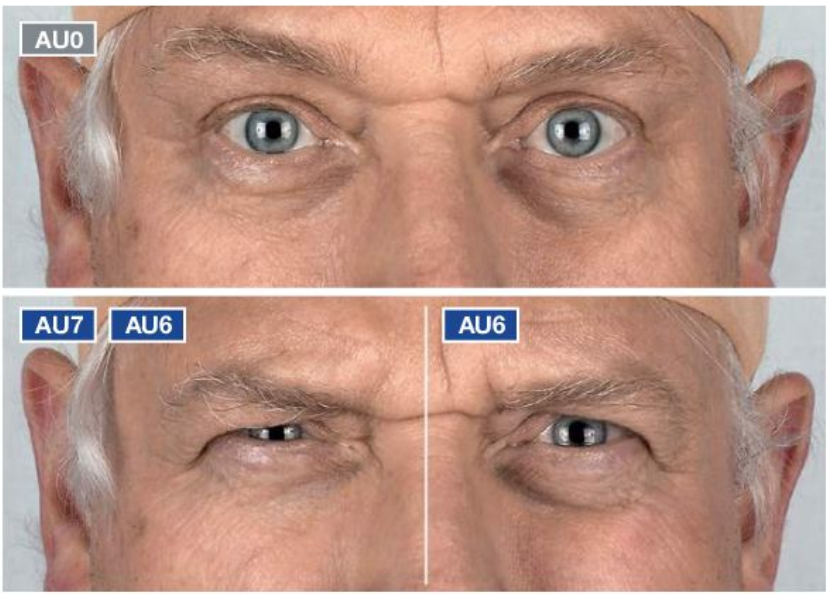
MUSCLES OF THE ORBITAL REGION

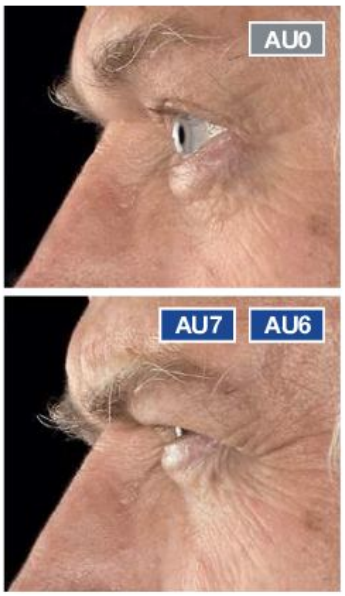
ACTION UNIT **7** (Lid Tightener): **ORBICULARIS OCULI** (palpebral part)

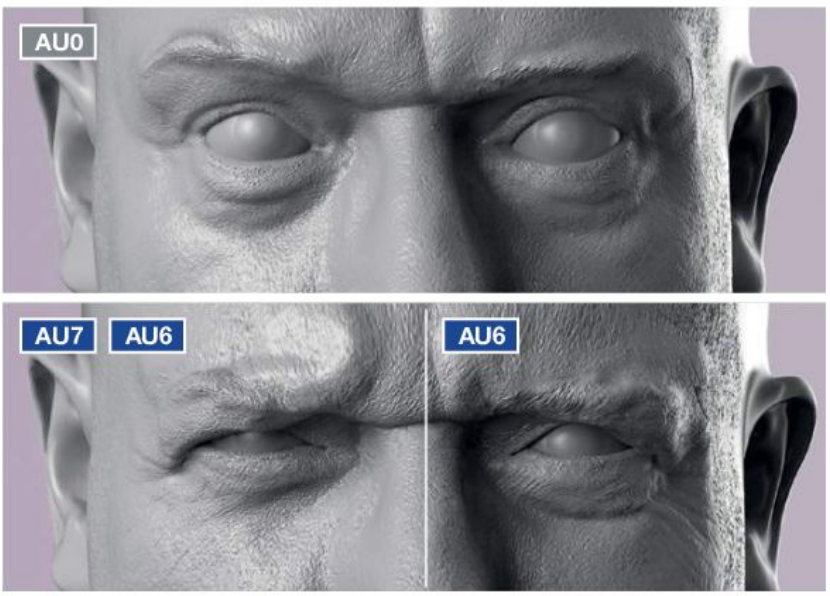
AU7 IS WHEN THE O.O. (palpebral part runs around and in the eyelids) CONTRACTS; AU7 PULLS BOTH THE UPPER AND LOWER EYELIDS AND SOME OF THE ADJACENT SKIN BELOW THE EYE TOGETHER AND TOWARDS THE INNER (medial) CORNER OF THE EYE.

THE APPEARANCE CHANGES DUE TO THE ACTION UNIT OF **AU7**:

- TIGHTENS EYELIDS
- NARROWS THE EYE APERTURE
- RAISES THE LOWER EYELID
- LOWER LID BECOME MORE STRAIGHT AND BULGING
- WHEN **AU7** IS MAXIMUM, THE APPEARANCE OF SQUINTING RESULTS





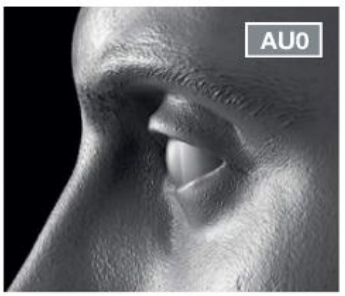


MUSCLES OF THE ORBITAL REGION

ACTION UNITS 7E, 6, 43E, and 9: ORBICULARIS OCULI, L. L. S. A. N.*

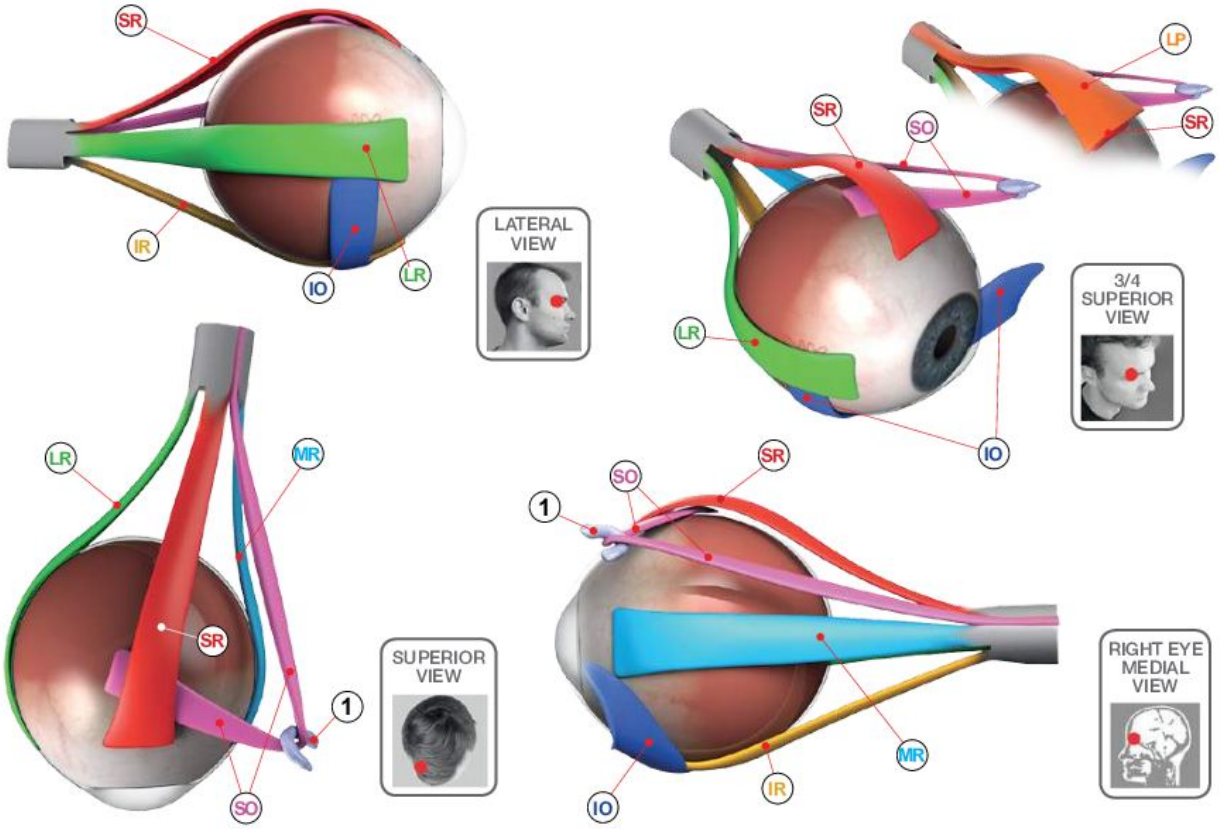
AU7E (Eyelid Tightener) (**ORBICULARIS OCULI** (palpebral part))
AU6 (Cheek Raiser) (**ORBICULARIS OCULI** (orbital part))
AU9 (Nose Wrinkler) (**L. L. S. A. N.***)
AU43E (Eyes Closed). LETTER **E** STANDS FOR MAXIMUM STRENGTH OF ACTION

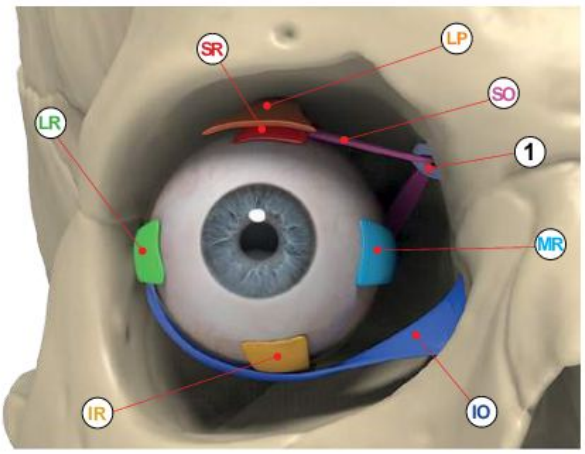
- SKIN AROUND A LARGER CIRCUMFERENCE IS PULLED TOWARDS THE EYE.
- SKIN BELOW THE LOWER EYELID IS PULLED TOWARDS THE ROOT OF THE NOSE.
- THE INFRAORBITAL TRIANGLE BECOMES RAISED, CROW'S FEET WRINKLES APPEAR, AND THE INFRAORBITAL FURROWS DEEPEN, ALONG WITH FURROWING, OR WRINKLING BELOW THE LOWER EYELID
- THE EYEBROWS ARE LOWERED TO A LIMITED EXTENT

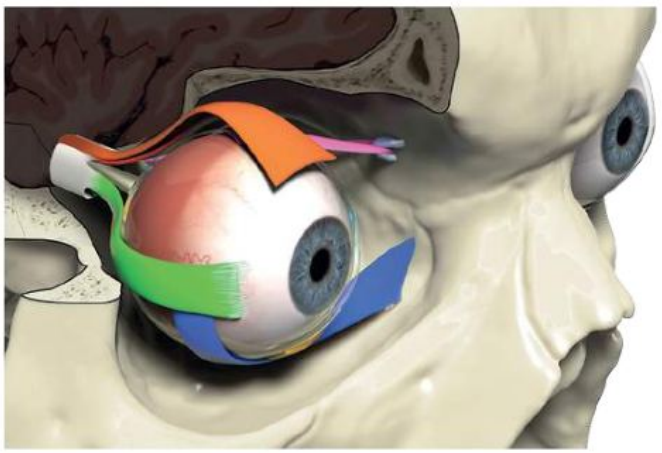


EXTRAOCULAR MUSCLES

SUPERIOR RECTUS, LATERAL RECTUS, MEDIAL RECTUS, INFERIOR RECTUS, SUPERIOR OBLIQUE, INFERIOR OBLIQUE, AND LEVATOR PALPEBRAE SUPERIORIS





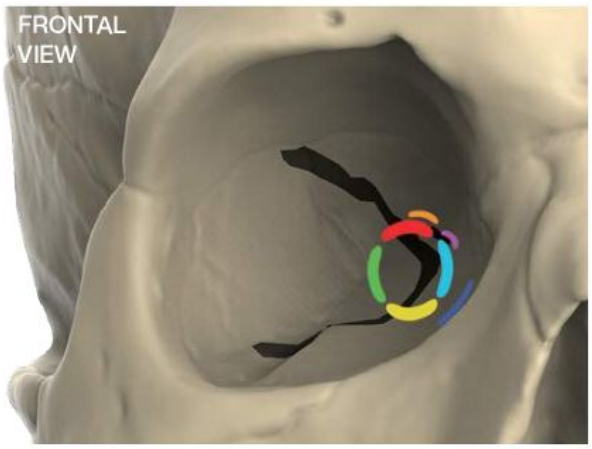


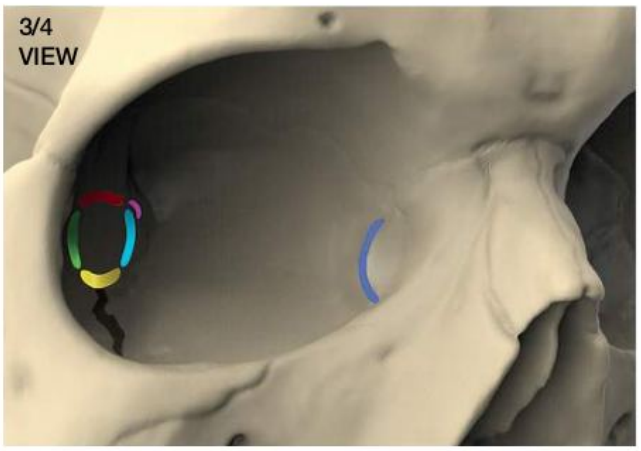
LP	LEVATOR PALPEBRAE SUPERIORIS	IR	INFERIOR RECTUS
SR	SUPERIOR RECTUS	SO	SUPERIOR OBLIQUE
LR	LATERAL RECTUS	IO	INFERIOR OBLIQUE
MR	MEDIAL RECTUS	1	TROCHLEA (pulley)

EXTRAOCULAR MUSCLES

SUPERIOR RECTUS, LATERAL RECTUS, MEDIAL RECTUS, INFERIOR RECTUS, SUPERIOR OBLIQUE, INFERIOR OBLIQUE, AND LEVATOR PALPEBRAE SUPERIORIS

THE **EXTRAOCULAR MUSCLES** (**EOM**) ARE THE SIX MUSCLES THAT CONTROL MOVEMENT OF THE EYE, AND ONE THAT ELEVATES THE EYELID, CALLED **LEVATOR PALPEBRAE SUPERIORIS**, THAT SITS RIGHT ON TOP OF (**SR**). THE ACTIONS OF THE SIX MUSCLES DEPEND ON THE POSITION OF THE EYE AT THE TIME OF MUSCLE CONTRACTION.





THE FOUR **RECTUS MUSCLES** (**SR**), (**LR**), (**MR**), (**IR**) ORIGINATE FROM THE **COMMON TENDINOUS RING** (**CTR**), WHICH SURROUNDS THE OPTIC CANAL.

TWO OBLIQUE MUSCLES – THE (**SO**) AND (**IO**) UNLIKE THE **RECTI GROUP** OF MUSCLES, DO NOT ORIGINATE FROM THE COMMON TENDINOUS RING. FROM THEIR ORIGIN, THE **OBLIQUE MUSCLES** TAKE AN ANGULAR APPROACH OF THE RECTI MUSCLES. (**SO**) ORIGINATES FROM THE BODY OF THE **SPHENOID BONE**. ITS TENDON PASSES THROUGH A **TROCHLEA**, AND THEN INSERTS INTO SCLERA.

NAME:	SUPERIOR RECTUS
ORIGIN:	COMMON TENDINOUS RING
INSERTION:	SCLERA
ACTION:	ELEVATION AND MEDIAL ROTATION OF THE EYEBALL

NAME:	LATERAL RECTUS
ORIGIN:	COMMON TENDINOUS RING
INSERTION:	SCLERA
ACTION:	ABDUCTS THE EYEBALL

NAME:	MEDIAL RECTUS
ORIGIN:	COMMON TENDINOUS RING
INSERTION:	SCLERA
ACTION:	ABDUCTS THE EYEBALL

NAME:	INFERIOR RECTUS
ORIGIN:	COMMON TENDINOUS RING
INSERTION:	SCLERA
ACTION:	DEPRESSION, ADDUCTION AND LATERAL ROTATION OF THE EYEBALL

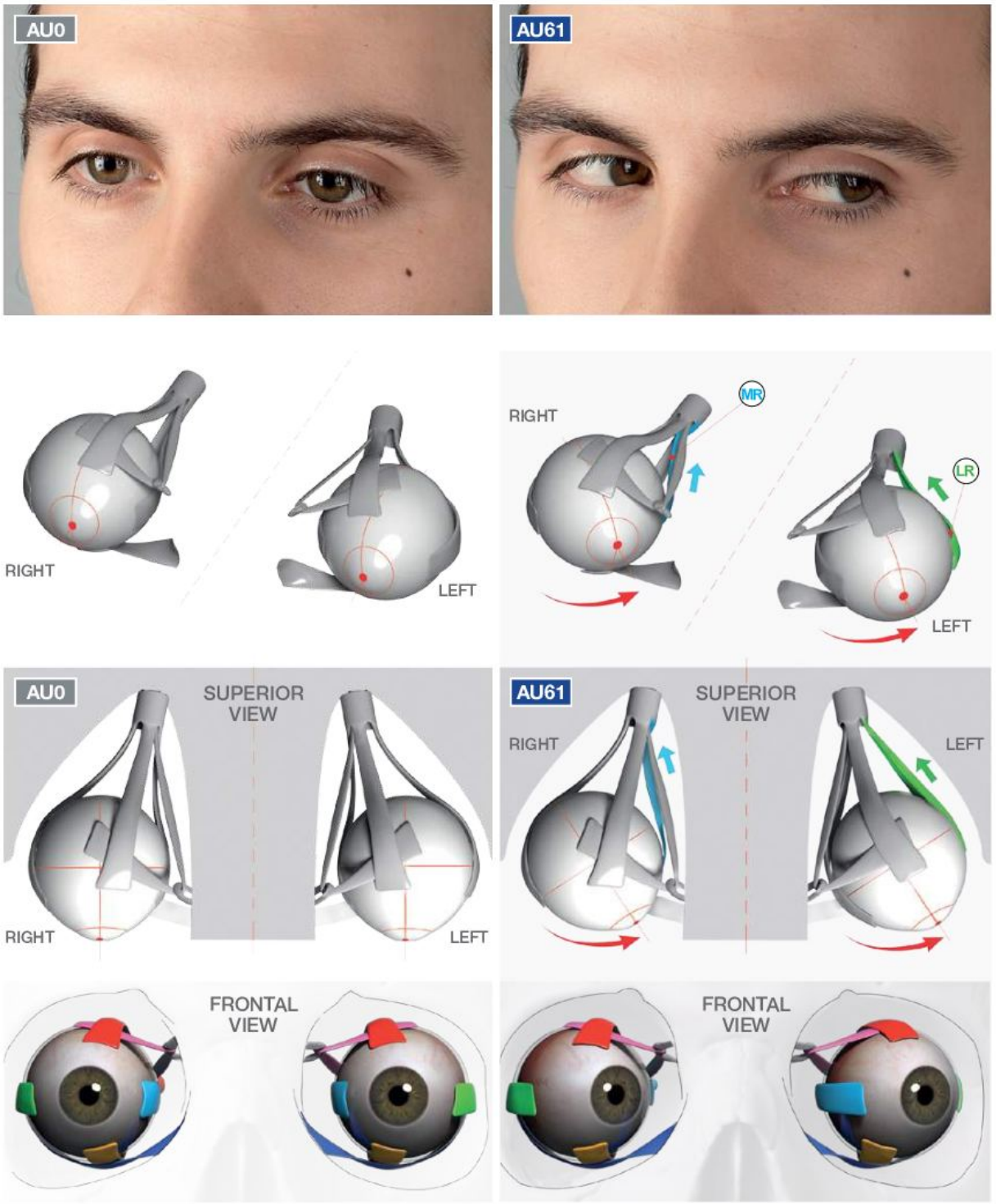
NAME:	SUPERIOR OBLIQUE
ORIGIN:	SPHENOID BONE
INSERTION:	PASSES THROUGH A TROCHLEAAND THEN ATTACHES TO THE SCLERA
ACTION:	DEPRESSES, ABDUCTS AND MEDIALLY ROTATES THE EYEBALL

NAME:	INFERIOR OBLIQUE
ORIGIN:	ORBITAL FLOOR OF MAXILLA (2)
INSERTION:	SCLERA
ACTION:	ELEVATES, ABDUCTS AND LATERALLY ROTATES THE EYEBALL

EXTRAOCULAR MUSCLES

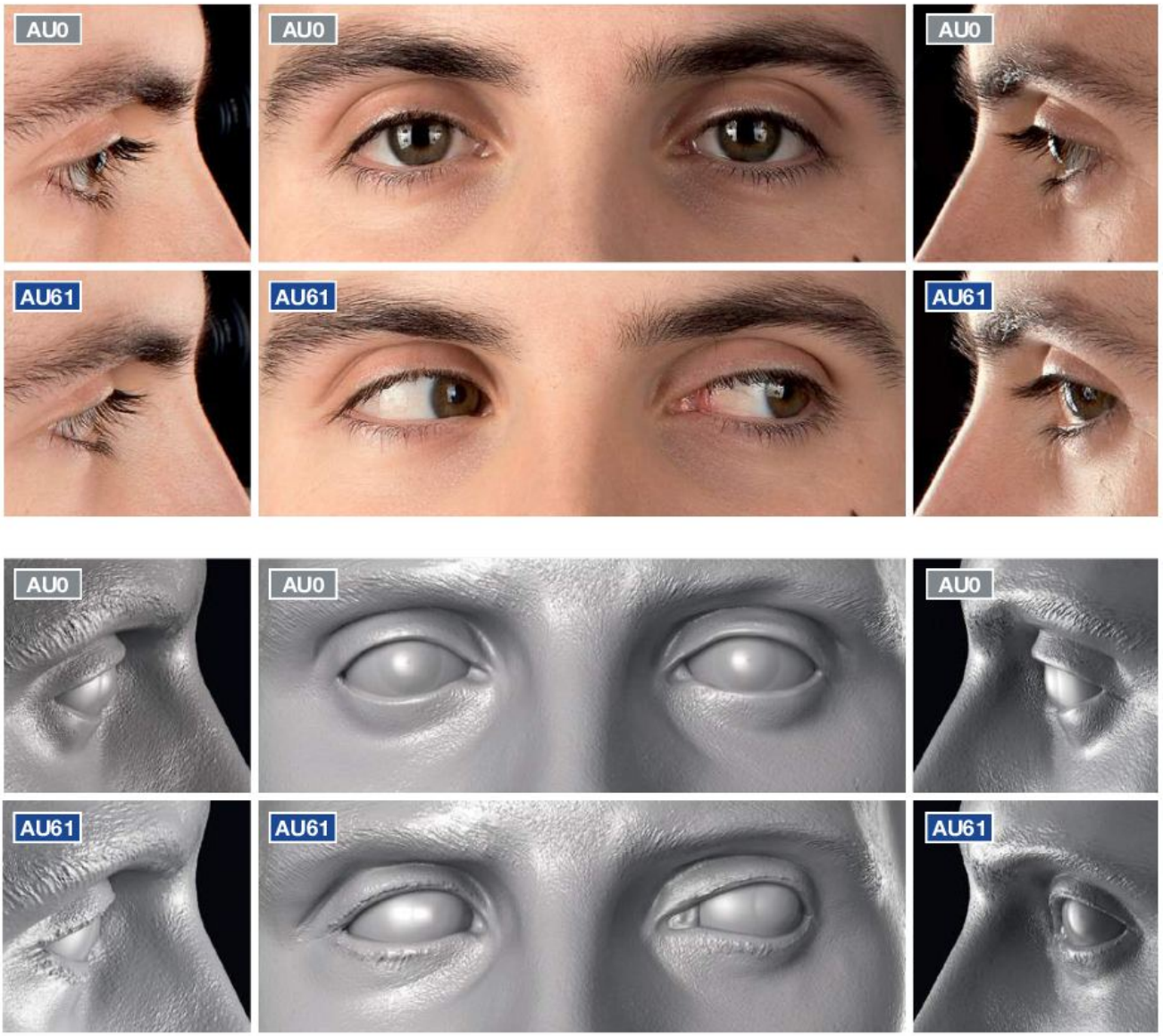
ACTION UNIT **61** (Eyes looking left): **LATERAL RECTUS**, **MEDIAL RECTUS** **MUSCLES**

THE CONTROL OF EYE MOVEMENTS IS ANALOGOUS TO A HORSE OR OXEN IN A YOKE, HARNESS AND REIGNS. THE YOKE MUSCLES ARE PRIMARY MUSCLES IN EACH EYE THAT ACCOMPLISH A GIVEN ACTION. FOR EXAMPLE, IN ACTION UNIT **AU61** ***(Eyes Turn Left)***, THE **LATERAL RECTUS** (**LR**) AND THE RIGHT **MEDIAL RECTUS** (**MR**) MUSCLES WORK IN CONCERT. EACH EOM HAS A YOKE MUSCLE IN THE OPPOSITE EYE BALANCING EACH GAZE POSITION.



EXTRAOCULAR MUSCLES

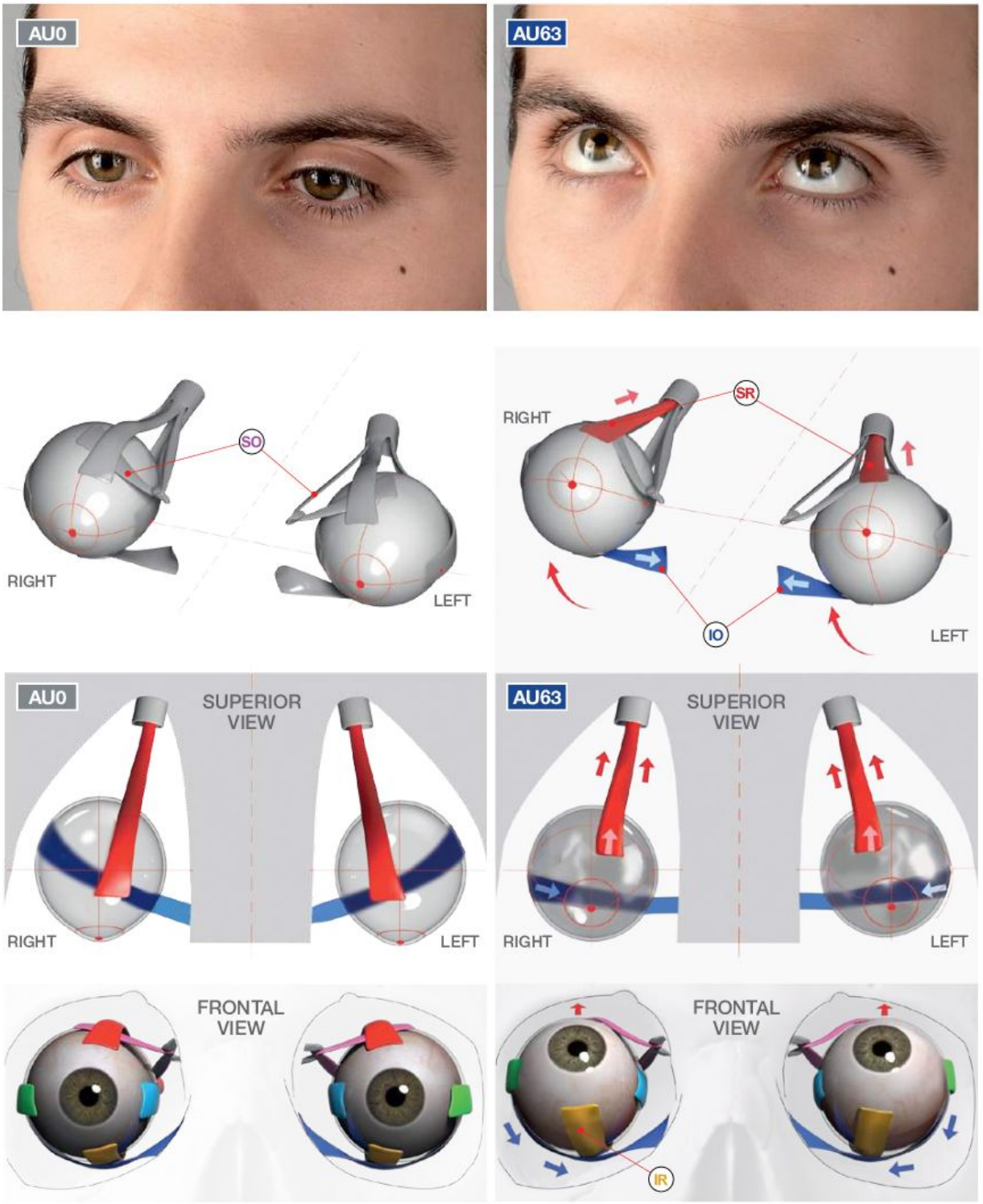
ACTION UNIT **61** (Eyes looking left): **LATERAL RECTUS**, **MEDIAL RECTUS** **MUSCLES**



EXTRAOCULAR MUSCLES

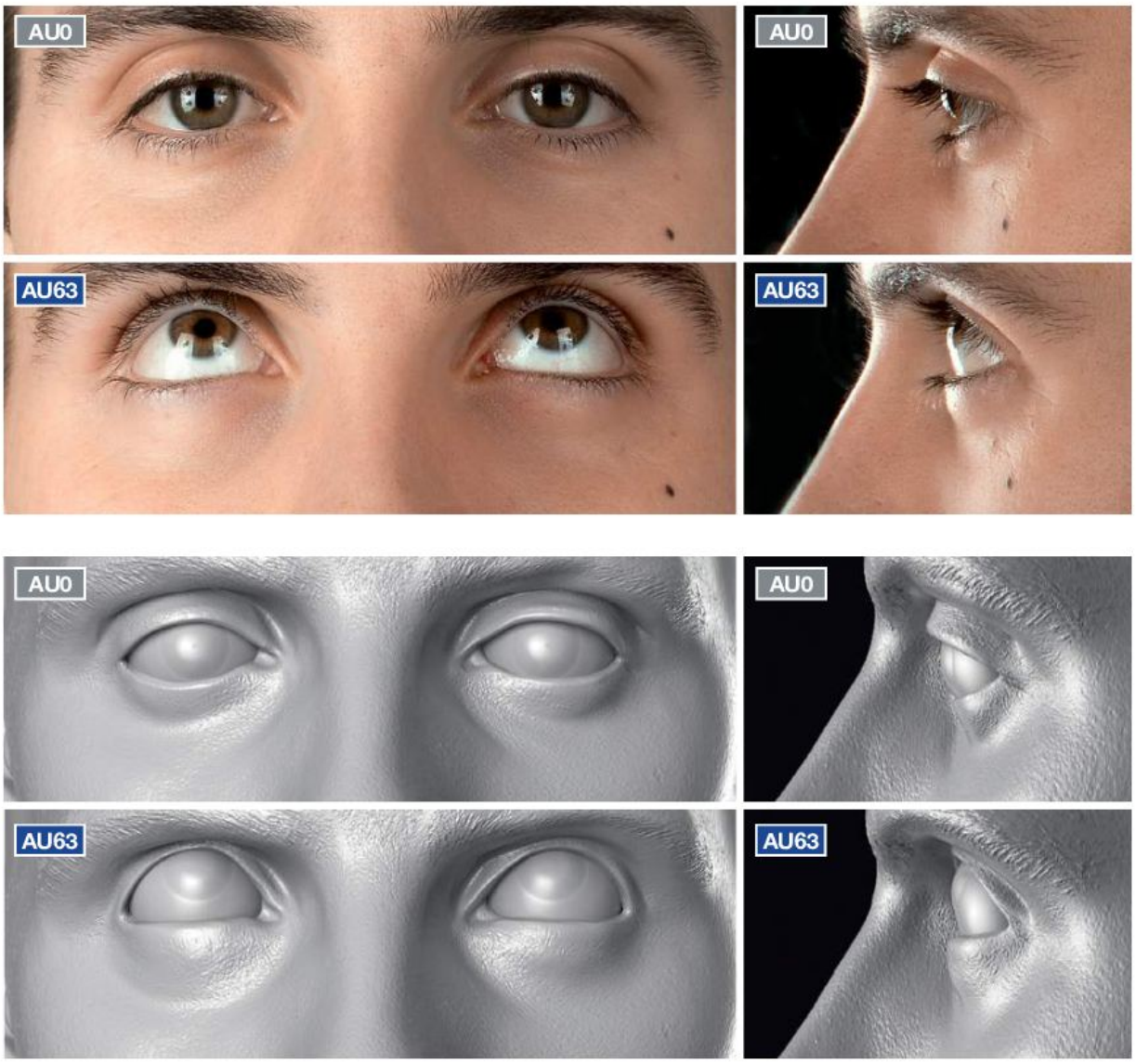
ACTION UNIT **63** (Eyes Up): **SUPERIOR RECTUS, INFERIOR OBLIQUE MUSCLES**

ELEVATION IS AN UPWARD ROTATION OF THE EYE, CAUSED BY THE CONTRACTION OF THE **SUPERIOR RECTUS** (**SR**) AND **INFERIOR OBLIQUE** (**IO**) MUSCLES, WITH AN EQUAL RELAXATION OF THE **INFERIOR RECTUS** (**IR**) AND **SUPERIOR OBLIQUE** (**SO**) MUSCLES.



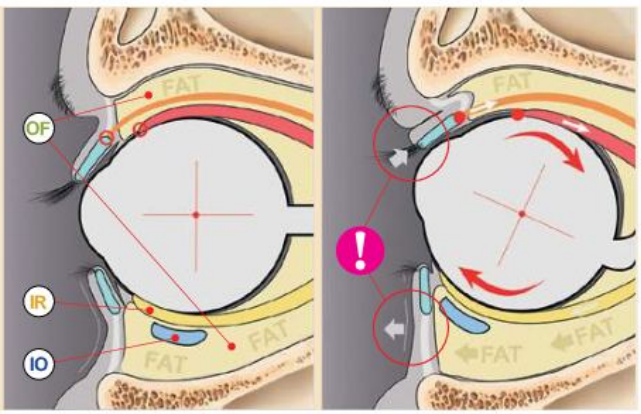
EXTRAOCULAR MUSCLES

ACTION UNIT **63** (Eyes Up): **SUPERIOR RECTUS, INFERIOR OBLIQUE MUSCLES**



WHEN THE EYEBALL ELEVATES, THE **INFERIOR RECTUS** (IR) AND **INFERIOR OBLIQUE** (IO) MUSCLES MOVE FORWARD ALONG WITH THE EYEBALL AND ASSOCIATED **ORBITAL FAT** (OF) , RESULTING IN A FULLNESS UNDER THE EYE.

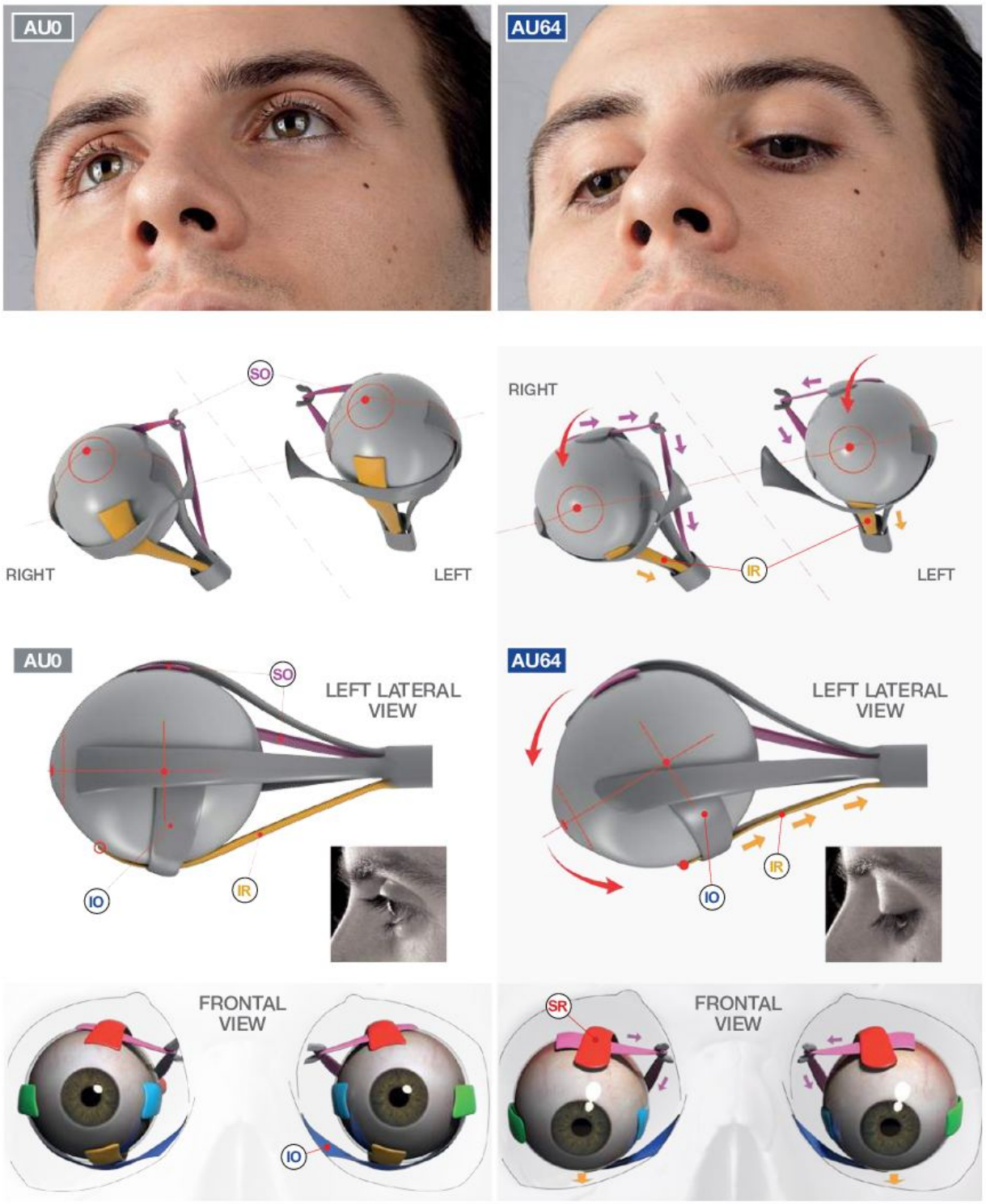
IT IS ALSO IMPORTANT TO REMEMBER THAT THE ELEVATION OF THE EYE SIMULTANEOUSLY CAUSES ELEVATION OF THE **UPPER EYELID**.



EXTRAOCULAR MUSCLES

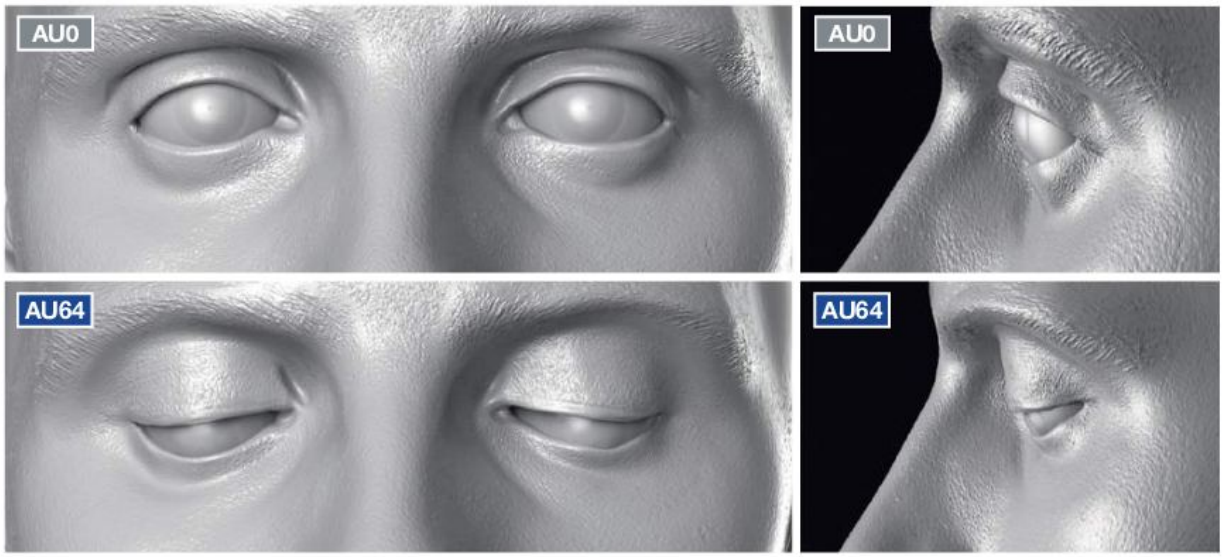
ACTION UNIT **64** (Eyes Down): **INFERIOR RECTUS, SUPERIOR OBLIQUE MUSCLES**

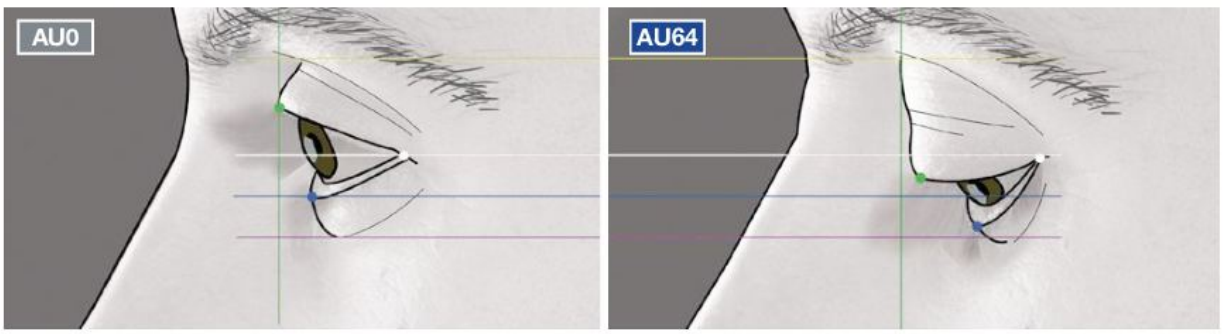
DEPRESSION IS A VERTICAL MOVEMENT DOWNWARD, CAUSED BY THE CONTRACTION OF THE **INFERIOR RECTUS** (**IR**) AND **SUPERIOR OBLIQUE** (**SO**) MUSCLES, WITH AN EQUAL RELAXATION OF THE **SUPERIOR RECTUS** (**SR**) AND **INFERIOR OBLIQUE** (**IO**) MUSCLES.



EXTRAOCULAR MUSCLES

ACTION UNIT **64** (Eyes Down): **INFERIOR RECTUS, SUPERIOR OBLIQUE MUSCLES**

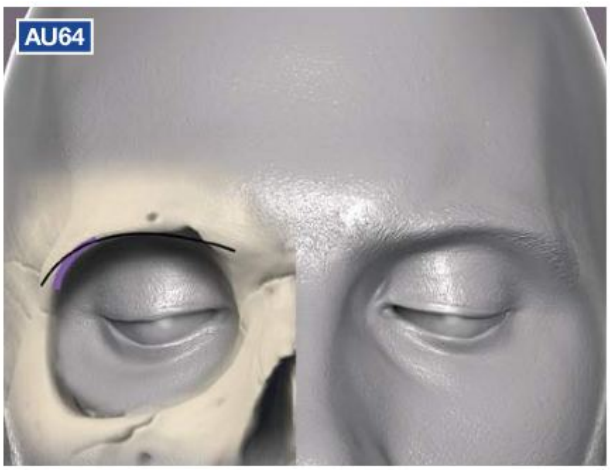


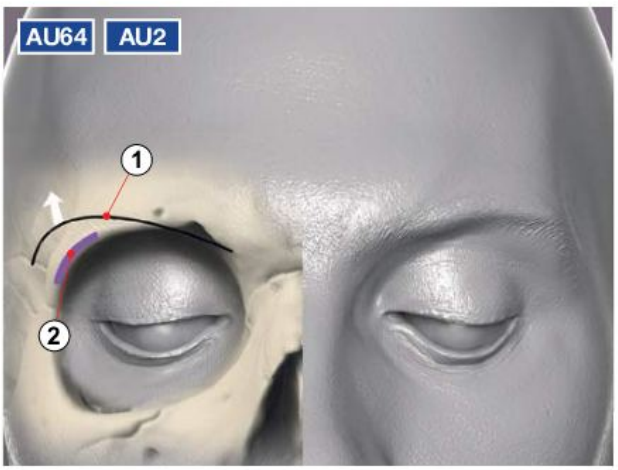


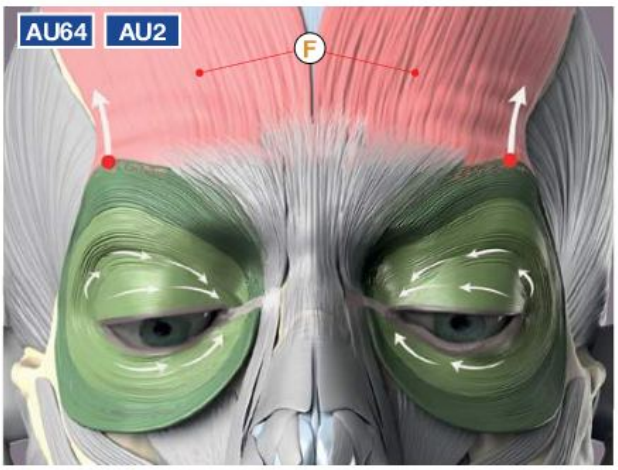
COMBINED MUSCLE ACTIONS OF THE ORBITAL REGION

ACTION UNIT **64** (Eyes Down) **AND** COMBINATION **AU64+2**

AU64 WITH ADDITIONAL **AU2**, INVOLVES THE EXTRAOCULAR MUSCLES (**INFERIOR RECTUS**, **SUPERIOR OBLIQUE**) AND RELAXATION OF THE **LEVATOR PALPEBRAE SUPERIORIS** (**L**) AND CONTRACTION OF THE **ORBICULARIS OCULI PALPEBRAL PART** (**pp**). AU64 + AU2 ALSO INVOLVES CONTRACTION OF THE LATERAL FIBERS OF THE **FRONTALIS** (**F**) THAT RAISES THE OUTER CORNERS OF **THE BROW** (**1**) AND MAKES THE **ORBITAL RIM** (**2**) MORE VISIBLE.



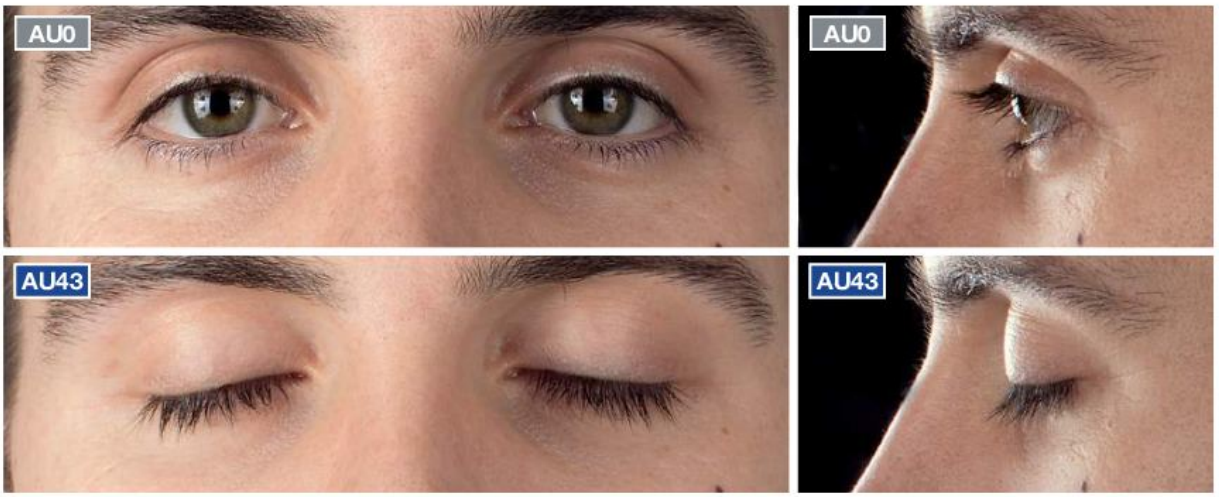


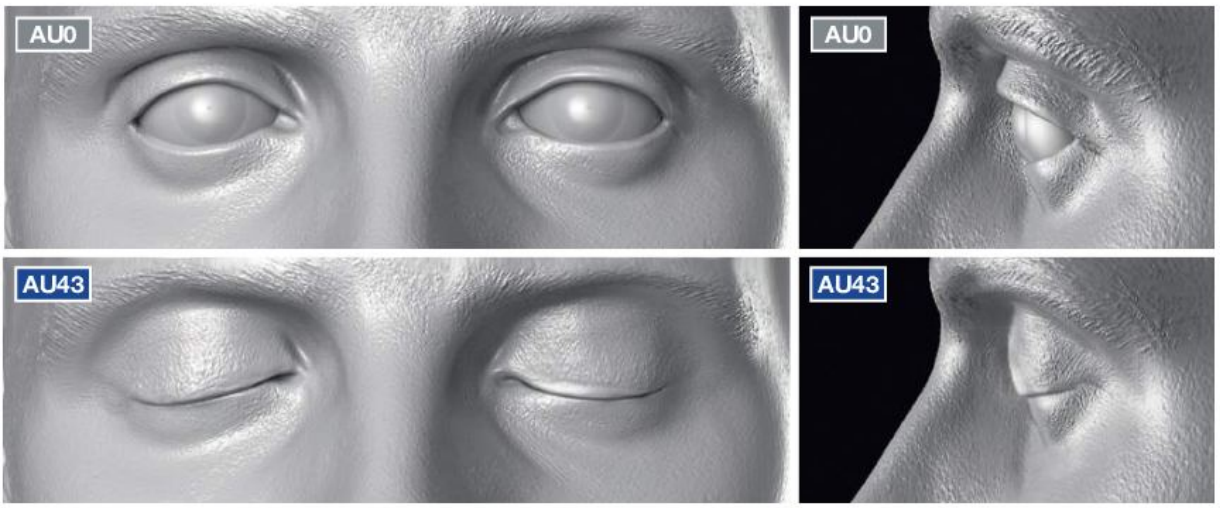


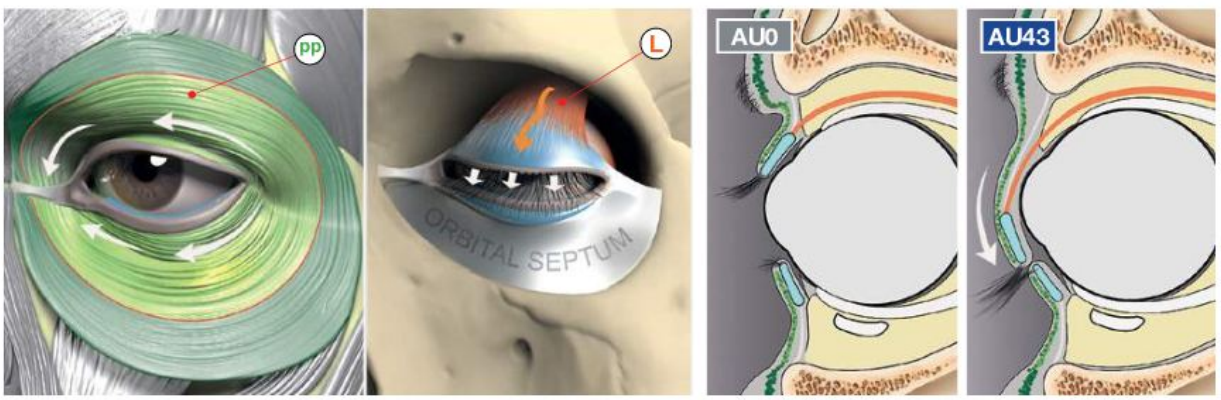
MUSCLES OF THE ORBITAL REGION

ACTION UNIT **43** (Eyes Closed): **LEVATOR PALPEBRAE SUPERIORIS** **ORBICULARIS OCULI** (palpebral part) **MUSCLES**

CLOSURE OF THE EYES IS BROUGHT ABOUT BY THE CONTRACTION OF THE **ORBICULARIS OCULI (palpebral part (PP))** IN BOTH EYELIDS AND RELAXATION OF THE **LEVATOR PALPEBRAE SUPERIORIS (L)** MUSCLES.

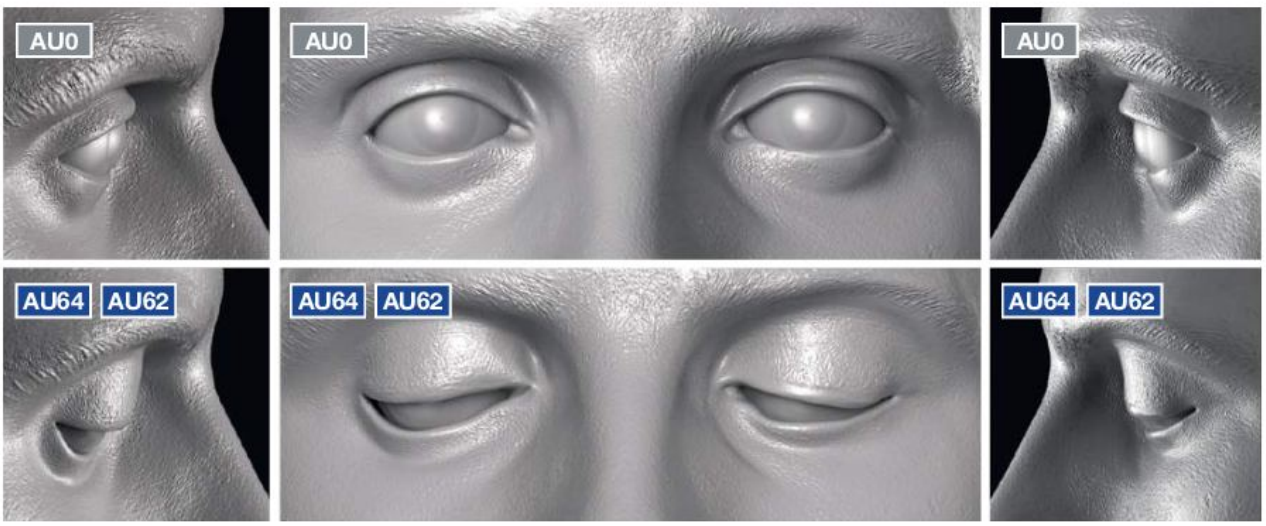


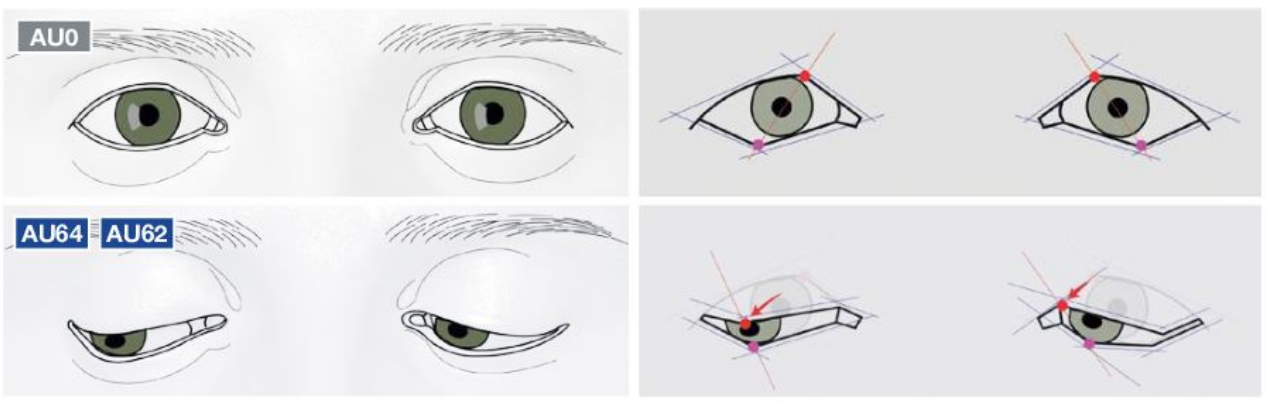




COMBINED EXTRAOCULAR MUSCLE MOVEMENTS

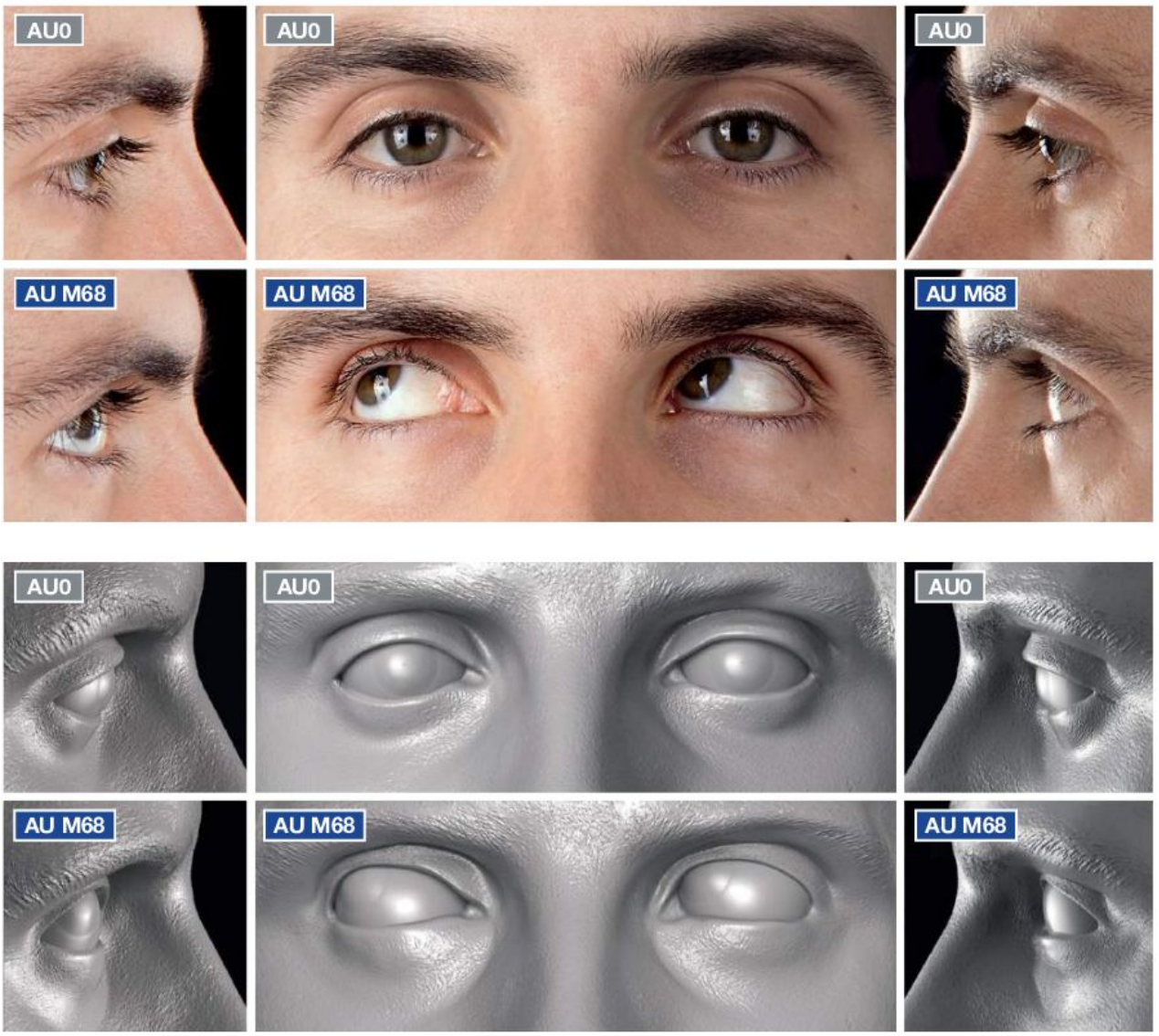
ACTION UNITS **64, 62** (Eyes turned down and to the right side):
INFERIOR RECTUS (right eye), SUPERIOR OBLIQUE (left eye)

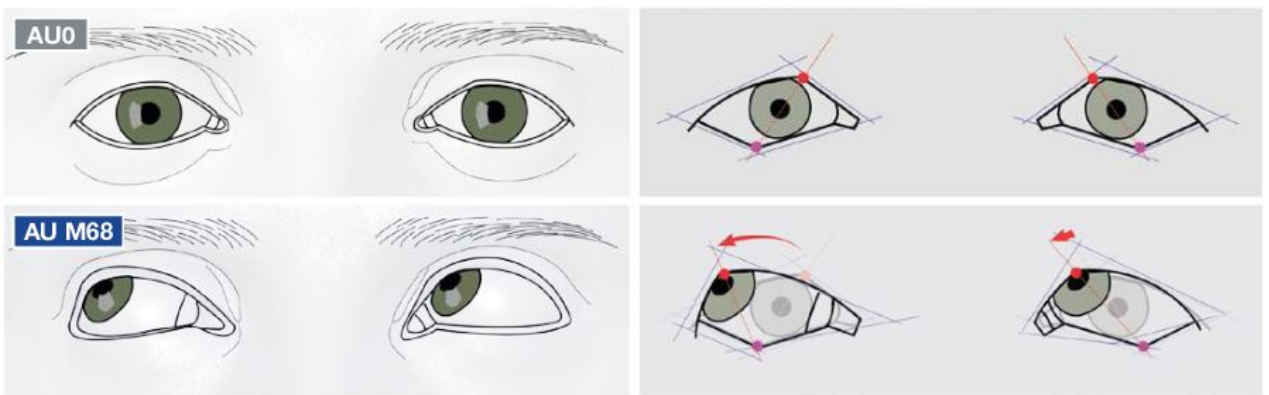




COMBINED EXTRAOCULAR MUSCLE MOVEMENTS

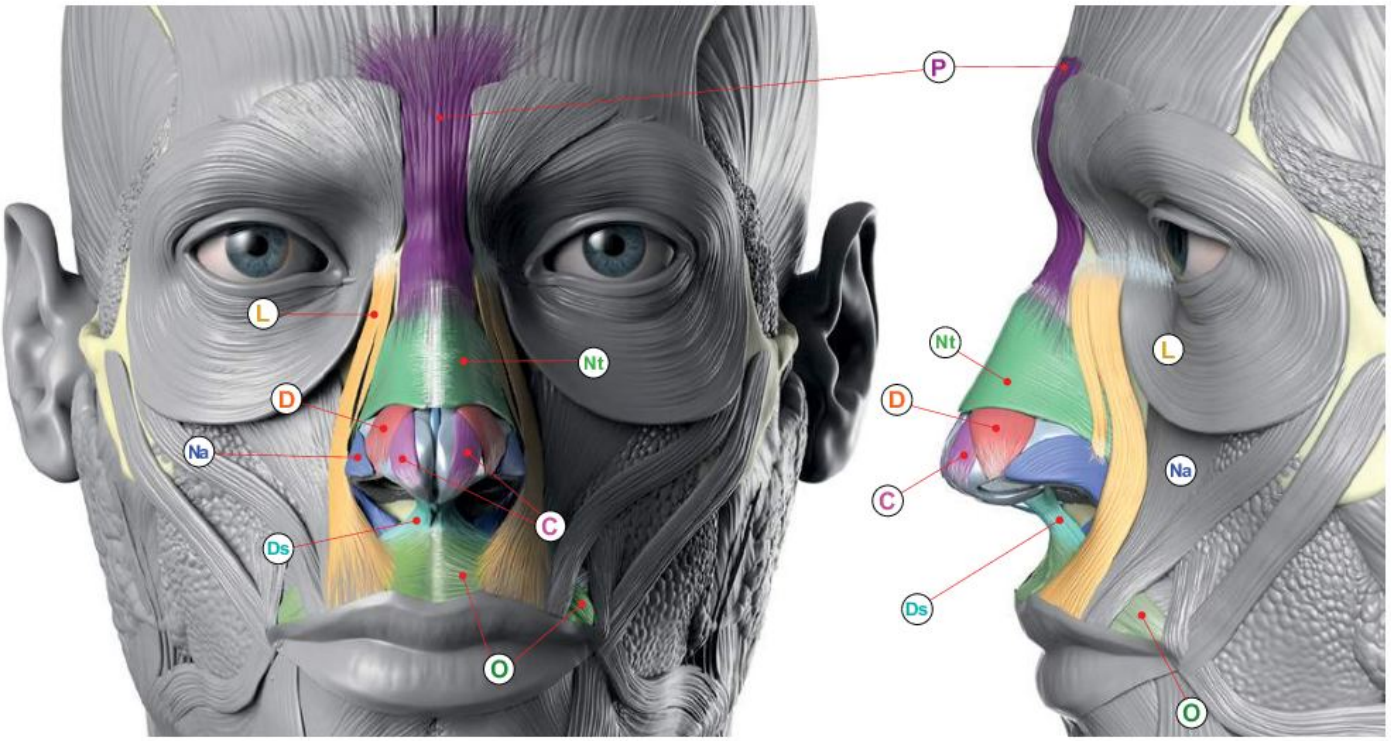
ACTION UNIT **M68** (Eyes turned upward to the right side):
SUPERIOR RECTUS (right eye), INFERIOR OBLIQUE (left eye)

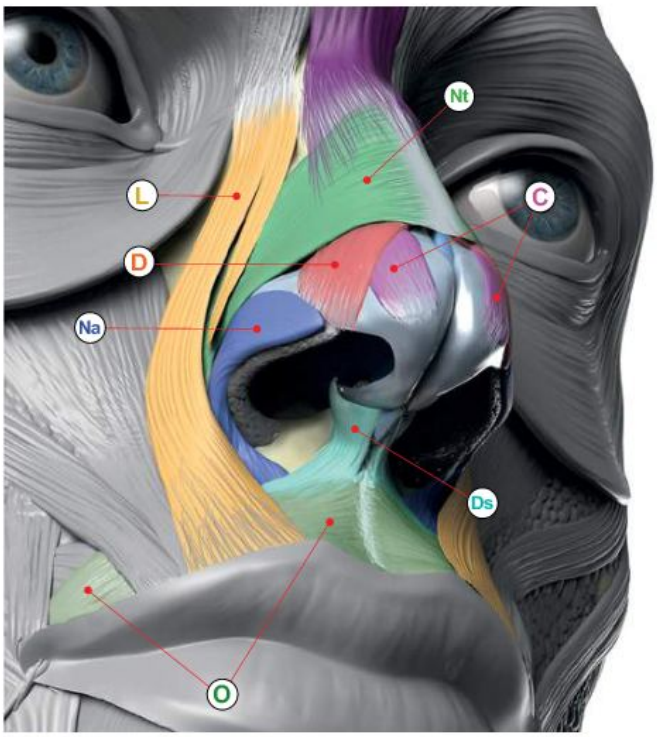




MUSCLES OF THE NASAL AND MIDFACIAL REGION

PROCERUS, L.L.S.A.N*, NASALIS (transverse portion), NASALIS (alar portion), DEPRESSOR SEPTI NASI, COMPRESSOR NARIUM MINOR, DILATOR NARIS ANTERIOR



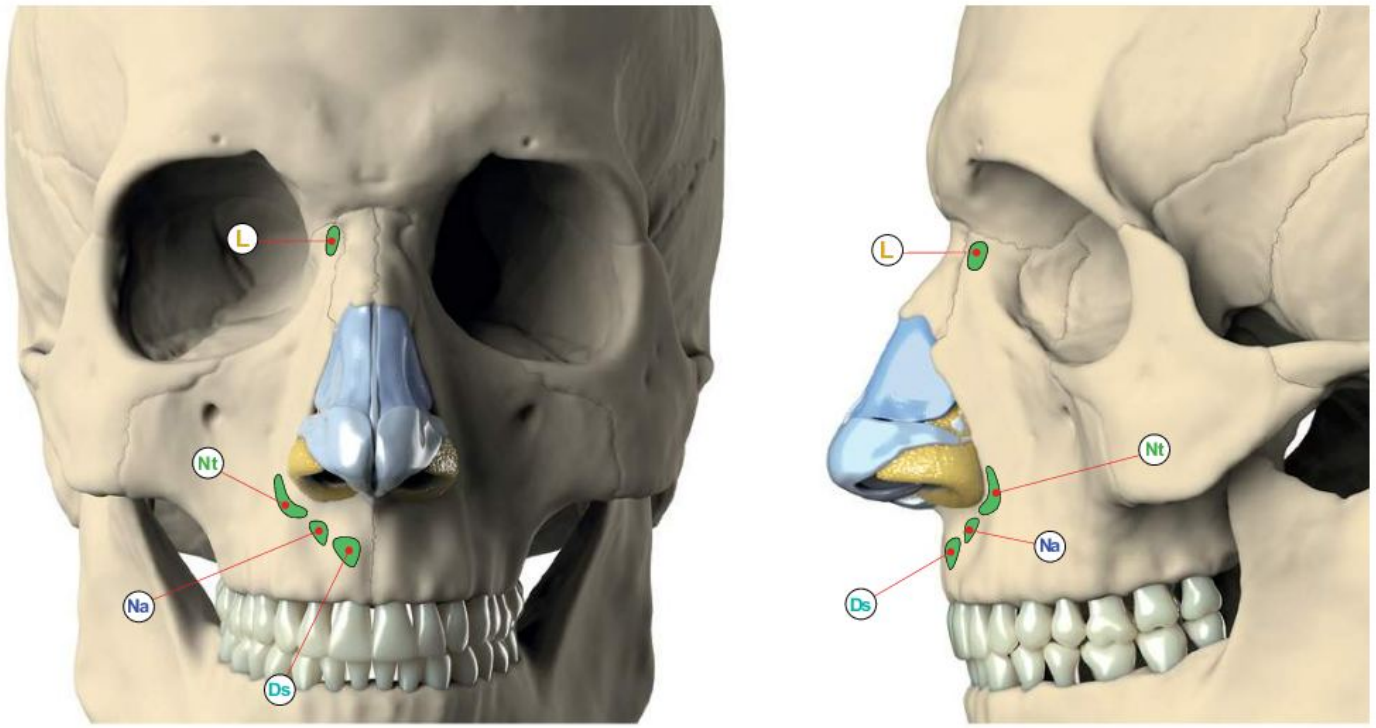


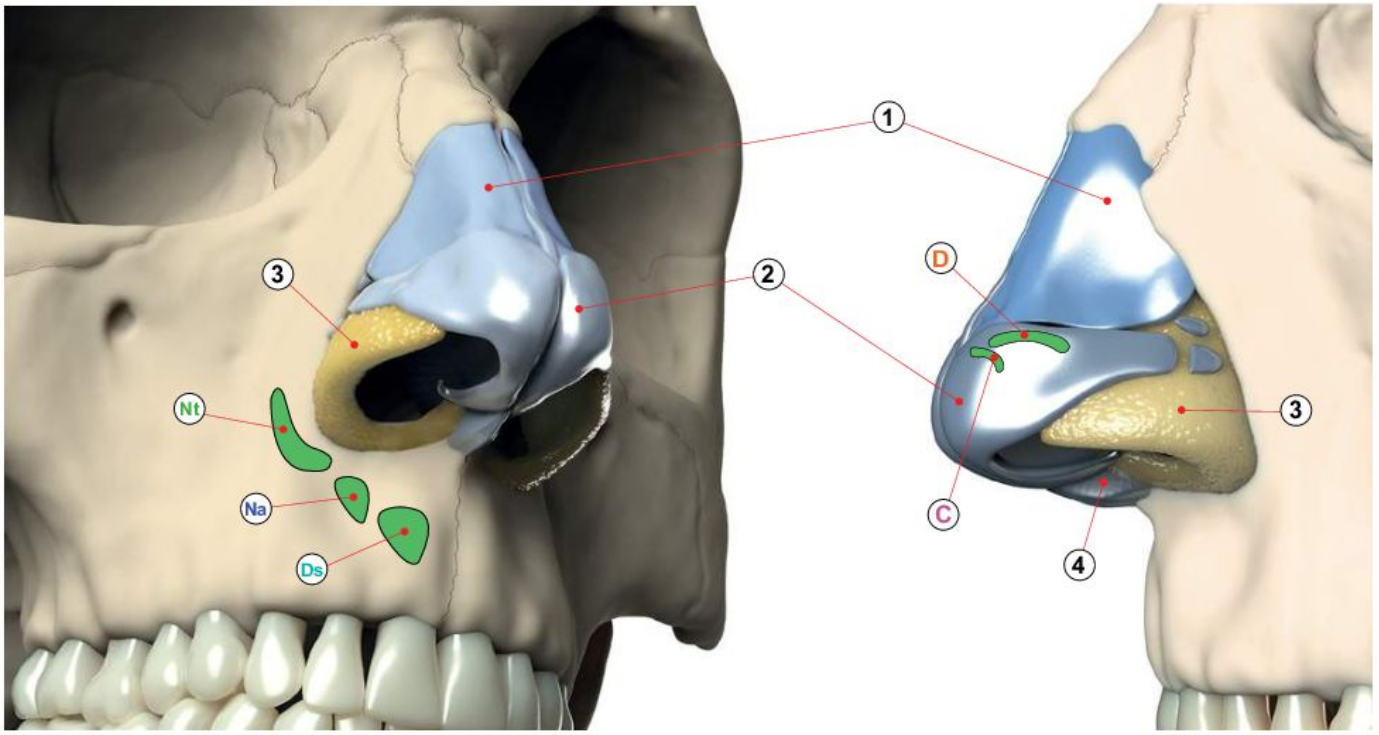
P	PROCERUS
L	L.L.S.A.N*
Nt	NASALIS (transverse portion)
Na	NASALIS (alar portion)
Ds	DEPRESSOR SEPTI NASI
C	COMPRESSOR NARIUM MINOR
D	DILATOR NARIS ANTERIOR
O	ORBICULARIS ORIS
1	UPPER LATERAL CARTILAGE
2	ALAR CARTILAGE
3	LOBULAR CONNECTIVE TISSUE
4	QUADRANGULAR CARTILAGE

***L.L.S.A.N** – Levator labii superioris alaeque nasi muscle

MUSCLES OF THE NASAL AND MIDFACIAL REGION

ORIGINS OF MUSCLES L.L.S.A.N*, NASALIS (transverse portion), NASALIS (alar portion), DEPRESSOR SEPTI NASI, COMPRESSOR NARIUM MINOR, DILATOR NARIS ANTERIOR





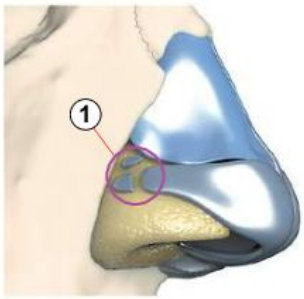
MUSCLES OF THE NASAL AND MIDFACIAL REGION

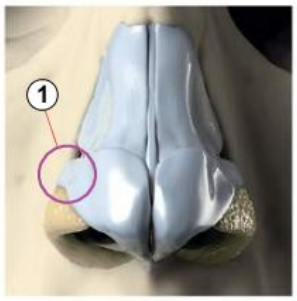
LEVATOR LABII SUPERIORIS ALAEQUE NASI (L.L.S.A.N)

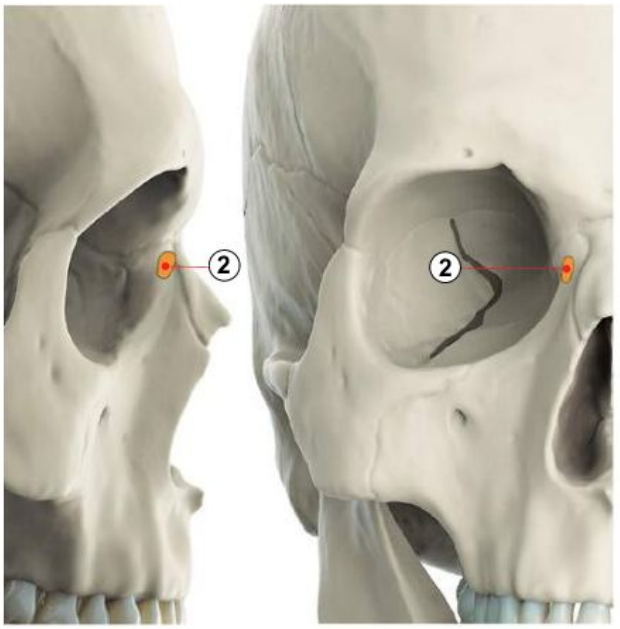
THE LEVATOR LABII SUPERIORIS ALAEQUE NASI (2) IS A MUSCLE THAT ORIGINATES FROM THE AREA NEAR THE ROOF OF THE NOSE. IT DIVIDES OR BIFURCATES INTO TWO PARTS: ONE PART INSERTING INTO THE NOSTRIL WINGS AND THE SECOND PART INSERTING AT THE UPPER LATERAL MARGIN OF THE UPPER LIP.
WHEN CONTRACTED, THIS MUSCLE PULLS SKIN FROM THE AREA BELOW THE NOSTRIL WINGS UPWARDS TOWARDS THE ROOT OF THE NOSE, DILATING THE NOSTRIL, AND THE SECOND PART RAISES THE UPPER LIP.
THIS ACTION ENABLES A **"SNARL"** FACIAL ACTION UNIT **AU9 (Nose Wrinkler).**
AU9 USUALLY ACTS TOGETHER WITH **AU4 (Brow Lowerer).**
AU9, (BY THE **L.L.S.A.N.**) WAS MADE FAMOUS BY ELVIS PRESLEY, EARNING IT THE NICKNAME **"THE ELVIS MUSCLE".**

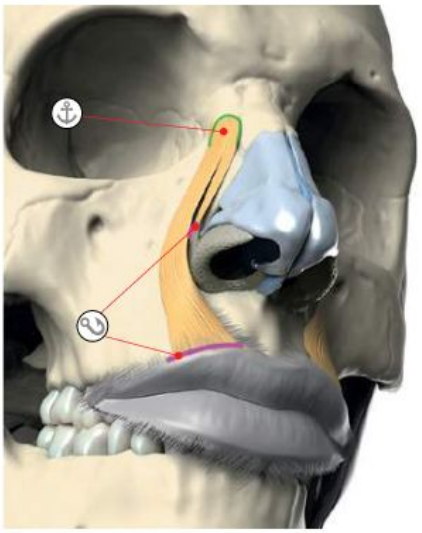
LEVATOR LABII SUPERIORIS ALAEQUE NASI (L.L.S.A.N) TRANSLATED FROM LATIN MEANS "LIFTER OF BOTH THE UPPER LIP AND OF THE WING OF THE NOSE". IT IS A THE LONGEST NAME GIVEN TO ANY MUSCLE IN THE HUMAN BODY. PROFESSIONALS OFTEN SHORTEN THE NAME TO **ALAEQUE NASI.**

NAME:	**LEVATOR LABII SUPERIORIS ALAEQUE NASI**
ORIGIN:	UPPER FRONTAL PROCESS OF MAXILLA (2)
INSERTION:	ALAR CARTILAGE (1), SKIN OF LATERAL NOSTRIL AND UPPER LIP
ACTION:	DILATES THE NOSTRIL AND ELEVATES THE LATERAL UPPER LIP AND WING OF THE NOSE



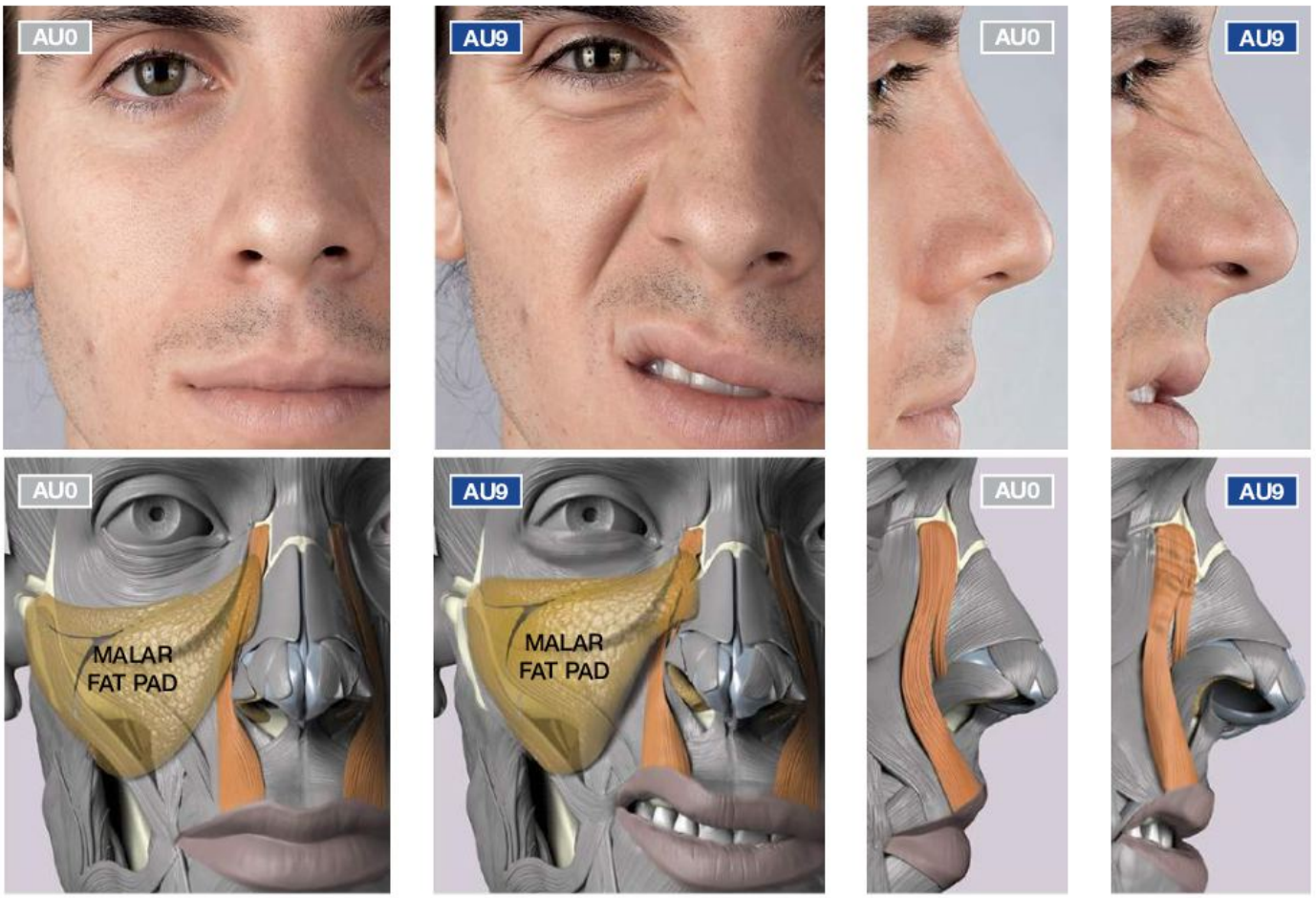






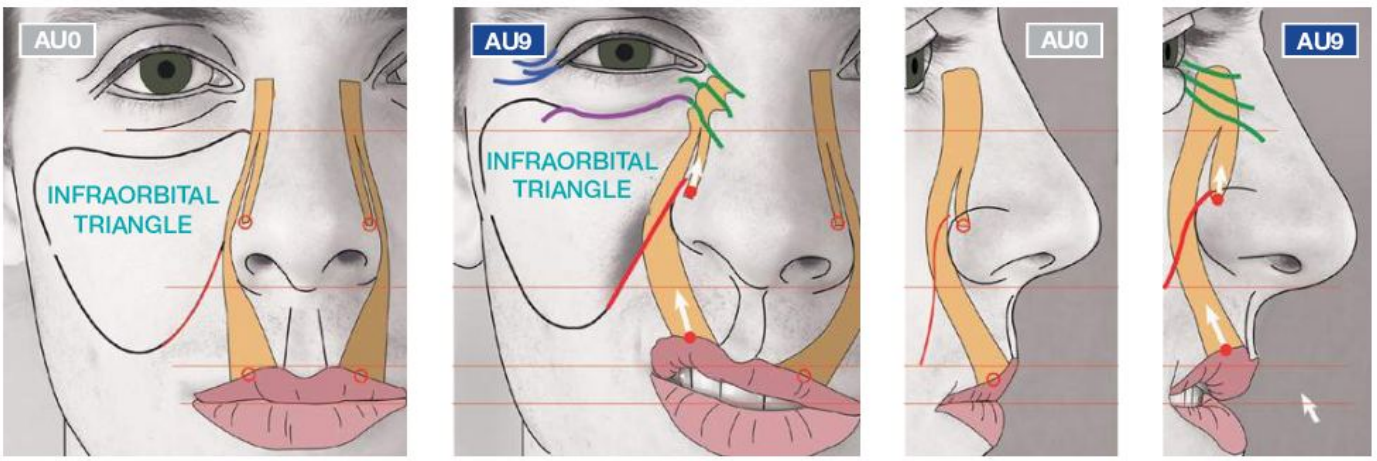
MUSCLES OF THE NASAL AND MIDFACIAL REGION

LEVATOR LABII SUPERIORIS ALAEQUE NASI (L.L.S.A.N)



APPEARANCE CHANGES DUE TO AU9

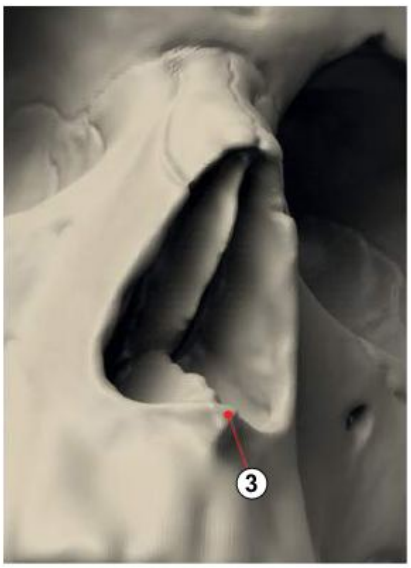
a – **TRANSVERSE WRINKLES** ALONG THE SIDES OF THE NOSE
b – MEDIAL PORTION OF THE EYEBROWS LOWERED
c – PULLS THE **INFRAORBITAL TRIANGLE** UPWARDS
d – EYE APERTURE NARROWED
e – CENTER OF THE UPPER LIP PULLED UP
f – MAY WIDEN AND RAISE THE NOSTRIL WINGS
g –MAY DEEPEN THE **NASOLABIAL FURROW**

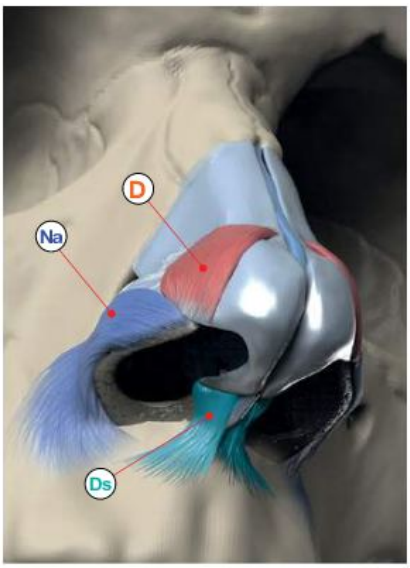


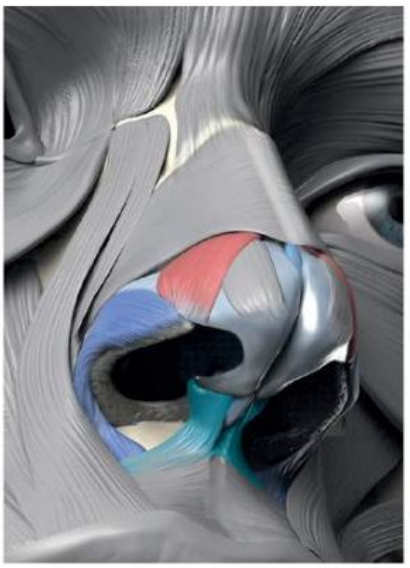
NASAL DILATOR MUSCLES

ACTION UNITS **38** (Nostril Dilator): **DILATOR NARIS ANTERIOR, NASALIS** (alar portion), **DEPRESSOR SEPTI NASI**

DYNAMIC DILATION AND FLARING OF THE NOSTRILS IS CAUSED BY CONTRACTION OF THE ALAR PART OF THE **NASALIS** (ALSO KNOWN AS **DILATOR NASALIS**) (**Na**) THAT ORIGINATES ON THE UPPER JAW (MAXILLA) AND INSERTS ON THE LOWER PART OF THE ALAR CARTILAGE (**1**), THE **DILATOR NARIS ANTERIOR** (**D**), AND THE **DEPRESSOR SEPTI NASI** (**Ds**), A SMALL MUSCLE LYING AT THE BASE OF THE NOSE THAT COUNTERACTS THE ACTION OF OTHER MUSCLES OF THE NOSE. THE **DEPRESSOR SEPTI NASI** DRAWS THE ALA OR NARES DOWNWARD, THEREBY CONSTRICTING THE APERTURE OF THE NOSTRILS.



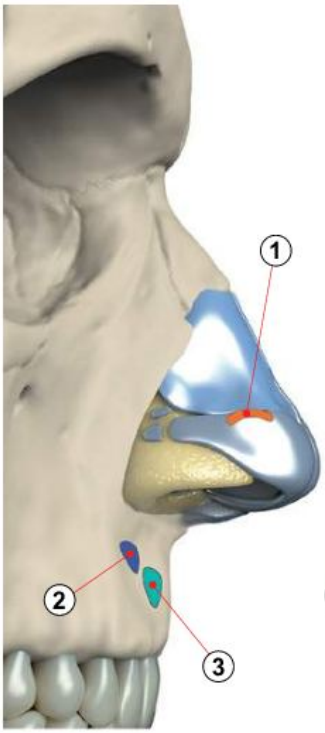


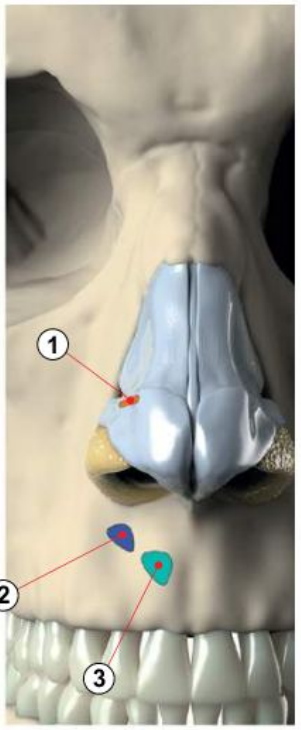


	NAME:	**NASALIS (alar portion)**
⚓	ORIGIN:	MAXILLA OVER THE LATERAL INCISOR (**2**)
🔗	INSERTION:	LATERAL CRUS OF THE GREATER ALAR CARTILAGE
✥	ACTION:	DILATENARIS AND PREVENT COLLAPSE DURING BREATHING

	NAME:	**DEPRESSOR SEPTI NASI**
⚓	ORIGIN:	ORBICULARIS ORIS MUSCLE AND/OR INCISIVE FOSSA OF THE MAXILLA (**3**)
🔗	INSERTION:	MEDIAL CRURAL CARTILAGE (**1**)
✥	ACTION:	DEPRESSION OF NASAL SEPTUM

	NAME:	**DILATOR NARIS ANTERIOR**
⚓	ORIGIN:	GREATER ALAR CARTILAGE
🔗	INSERTION:	INTEGUMENT NEAR THE MARGIN OF THE NOSTRIL
✥	ACTION:	DILATE THE NARIS.

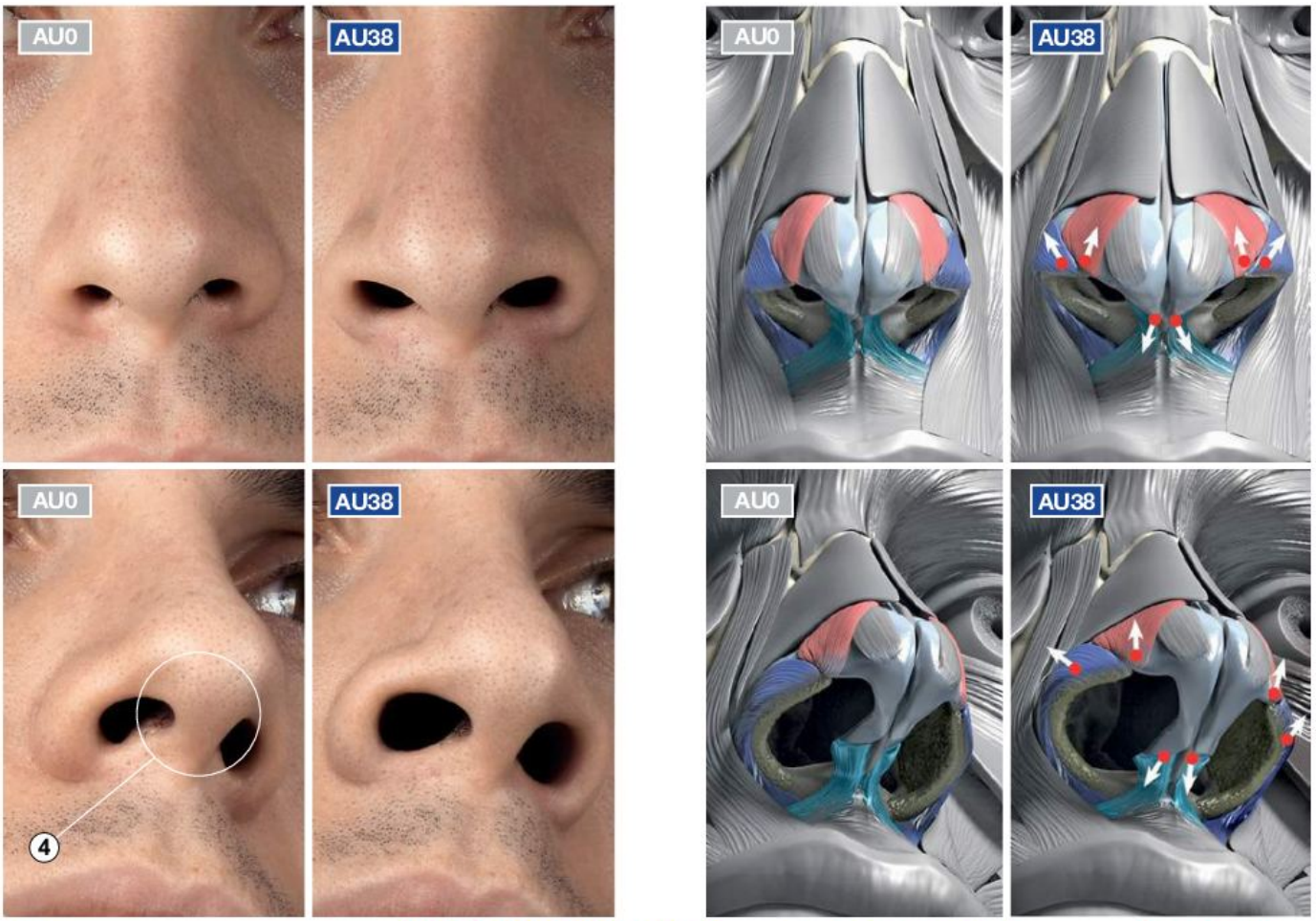




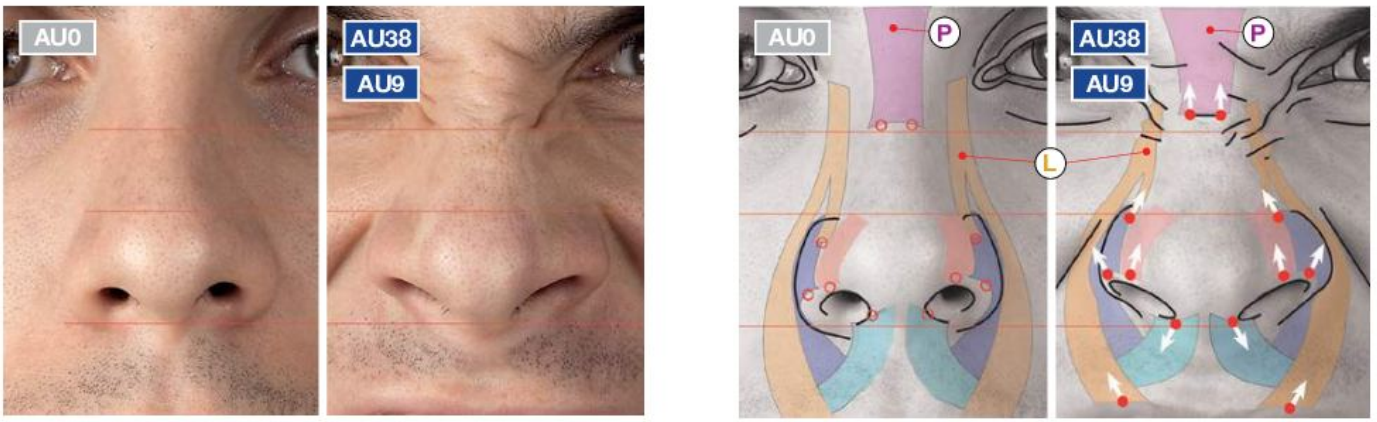
NASAL DILATOR MUSCLES

ACTION UNITS **38** (Nostril Dilator): **DILATOR NARIS ANTERIOR, NASALIS** (alar portion), **DEPRESSOR SEPTI NASI**

APPEARANCE CHANGES DUE TO AU38 (Nostril dilator):
a – FLARES OUT THE NOSTRIL WINGS
b – CHANGES THE SHAPE OF THE NOSTRIL OPENING
c – MAY BULGE THE NOSTRIL WING ITSELF



AU38 INVOLVES THE ACTION OF THE **DILATOR NARIS ANTERIOR** (**D**), THE **DILATOR NASALIS** (**Na**), AND THE **DEPRESSOR SEPTI NASI** (**Ds**).

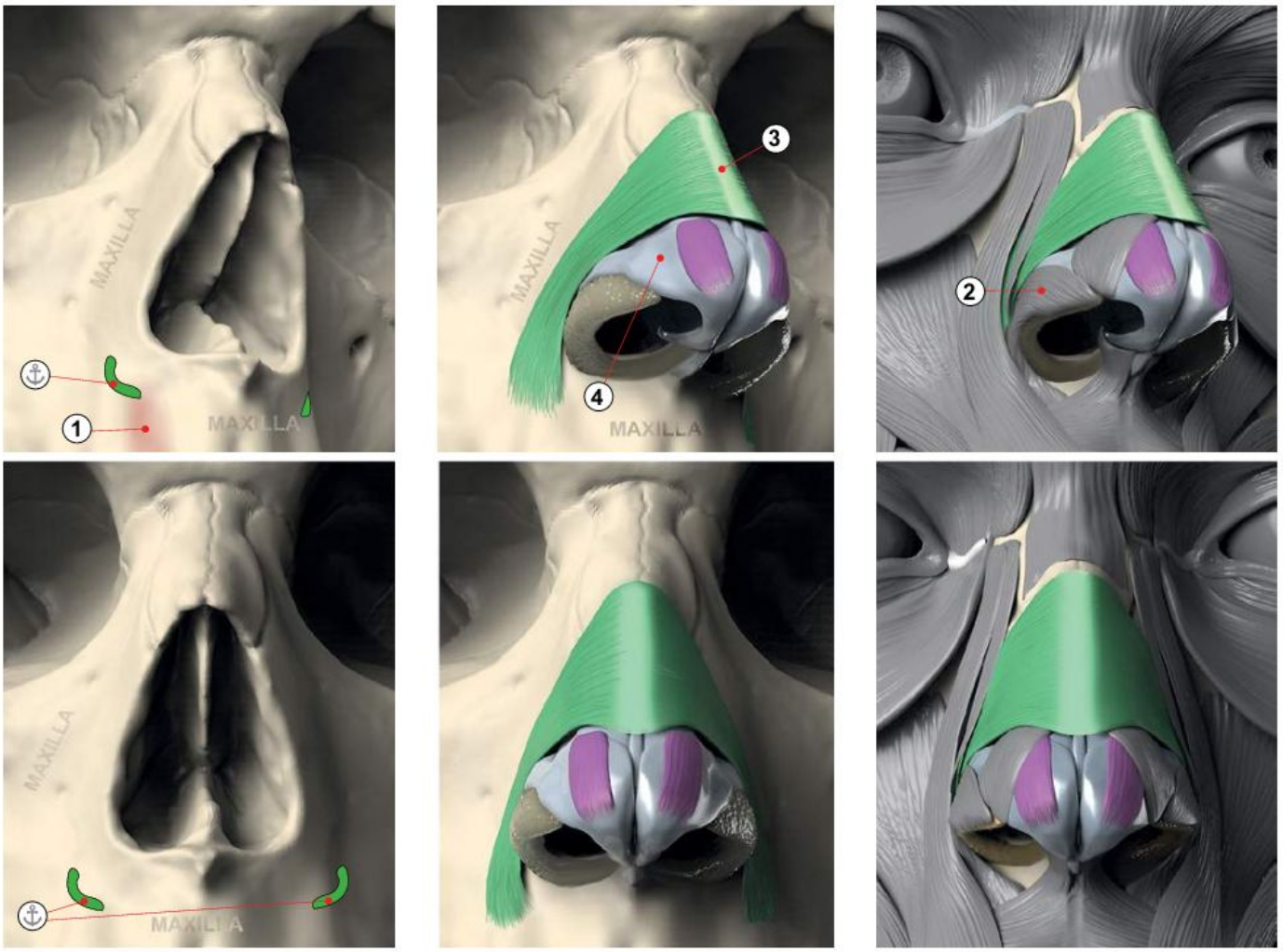


WHEN FLARING BECOMES MORE INTENSE, THE ELEVATOR MUSCLES, **PROCERUS** (**P**) AND **L.L.S.A.N.** (**L**), CONTRACT AND RESULT IN THE ADDITIONAL ACTION UNIT.

NASAL COMPRESSOR MUSCLES

ACTION UNITS **39** (Nostril Compressor): **NASALIS (transverse part)**, **COMPRESSOR NARIUM MINOR**

THE COMPRESSOR MUSCLES OF THE NOSE NARROW THE NOSTRILS. THESE MUSCLES INCLUDE THE TRANSVERSE PORTION OF **NASALIS** (also known as **compressor naris**). THE NASALIS IS A FLAT, TRIANGULAR MUSCLE THAT ORIGINATES FROM THE UPPER JAW AT A POINT SUPERIOR AND LATERAL TO THE **INCISIVE FOSSA** (**1**) AND LATERAL TO ITS **ALAR PART** (**2**). AS MUSCLE FIBERS REACH THE BRIDGE OF THE NOSE, THEY EXPAND INTO A THIN **APONEUROTIC SHEET** (**3**) THAT IS CONTINUOUS OVER THE BRIDGE OF THE NOSE WITH THE APONEUROSIS OF THE OPPOSITE MUSCLE.
THE SECOND COMPRESSOR MUSCLE IS THE **COMPRESSOR NARIUM MINOR.** IT IS A SMALL, NOT ALWAYS OBSERVED MUSCLE. IT ARISES FROM THE ANTERIOR PART OF THE **LOWER LATERAL CARTILAGE** (**4**) AND INSERTS INTO THE SKIN NEAR THE MARGINS OF THE NARES. IT IS PRESENT IN SLIGHTLY MORE THAN HALF OF ALL INDIVIDUALS AND SEEMS TO PLAY A ROLE IN DECREASING THE NASAL APERTURE.



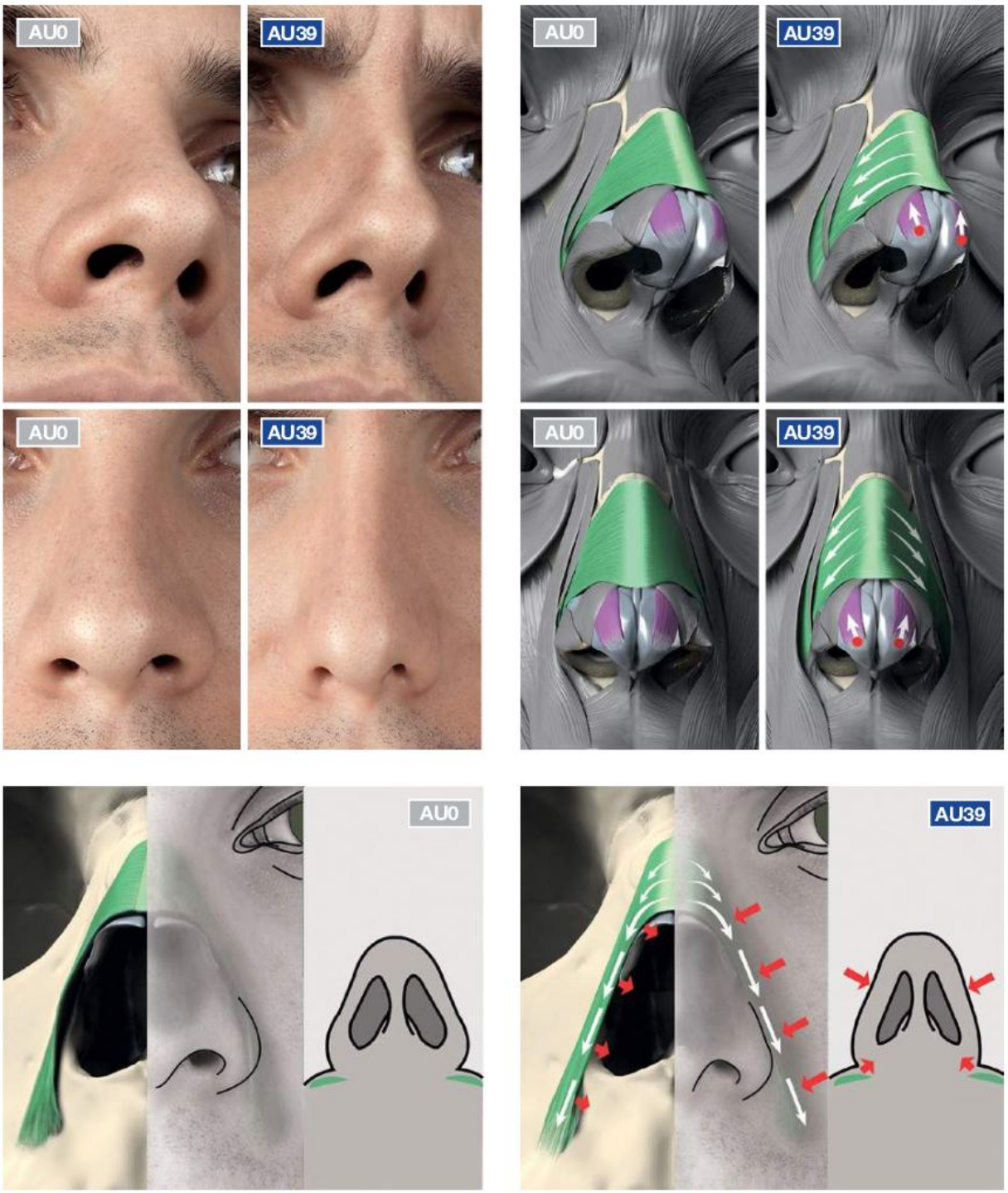
NAME:	**NASALIS (transverse part)**
ORIGIN:	MAXILLA, LATERAL TO INCESIVE FOSSA
INSERTION:	APONEUROSIS OF THE BRIDGE OF THE NOSE
ACTION:	COMPRESSES THE NOSTRILS AND MAY COMPLETELY CLOSE THEM

NAME:	**COMPRESSOR NARIUM MINOR**
ORIGIN:	ANTERIOR PART OF THE ALAR CARTILAGE (Lower lateral cartilage)
INSERTION:	SKIN NEAR THE MARGINS OF THE NARES
ACTION:	DECREASES NASAL APERTURE

NASAL COMPRESSOR MUSCLES

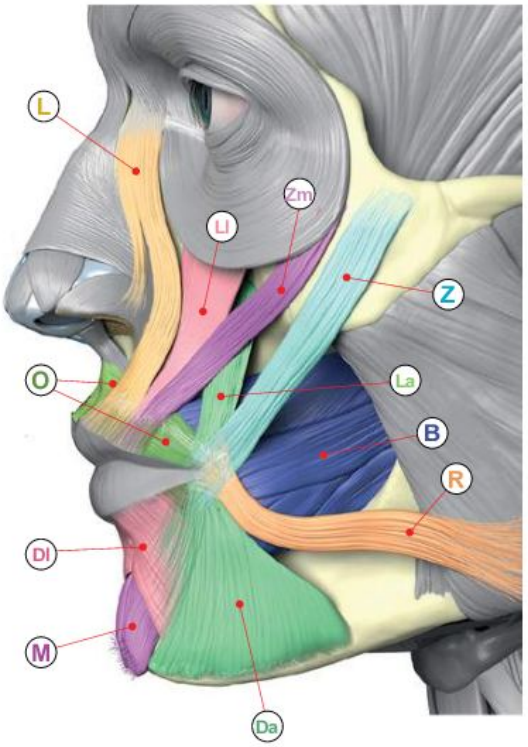
ACTION UNITS **39** (Nostril Compressor): **NASALIS (transverse part), COMPRESSOR NARIUM MINOR**

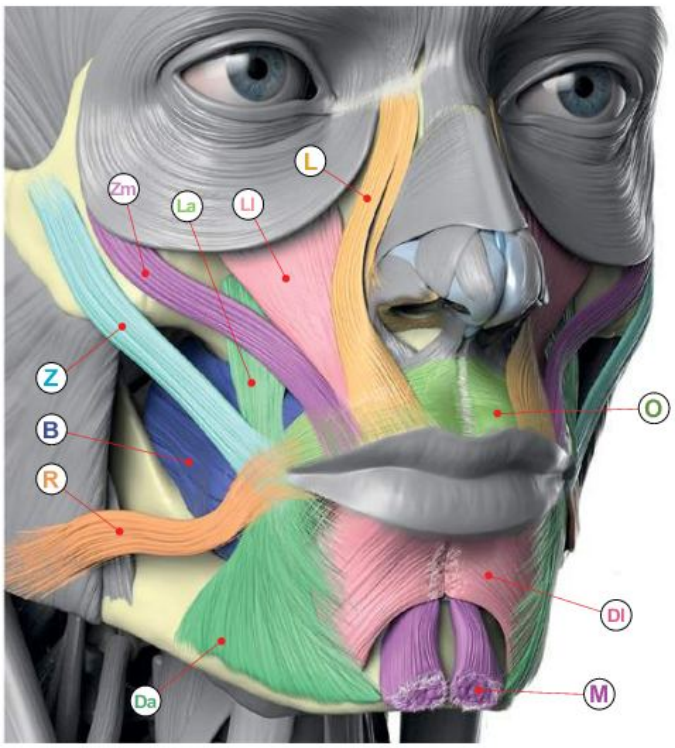
APPEARANCE CHANGES DUE TO AU39 (nostril compressor):
a - COMPRESSES THE NOSTRIL WINGS, FLATTENING THEM AND PULLS THE NOSTRIL WINGS DOWNWARD
b – NOSTRIL OPENINGS NARROW
c – NARROWING OF THE NOSE DORSUM/ TRANSVERSE SURFACE



MUSCLES OF THE ORAL REGION

ORBICULARIS ORIS, L.L.S.A.N*, LEVATOR LABII SUPERIORIS, ZYGOMATICUS MINOR, ZYGOMATICUS MAJOR, LEVATOR ANGULI ORIS, BUCCINATOR, RISORIUS, DEPRESSOR ANGULI ORIS, DEPRESSOR LASII INFERIORIS, MENTALIS



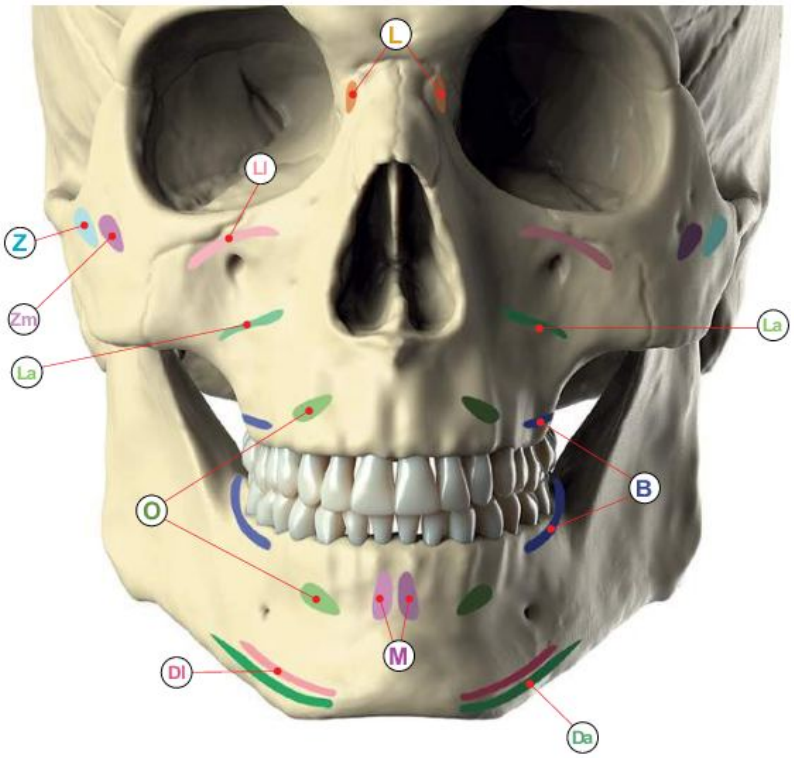


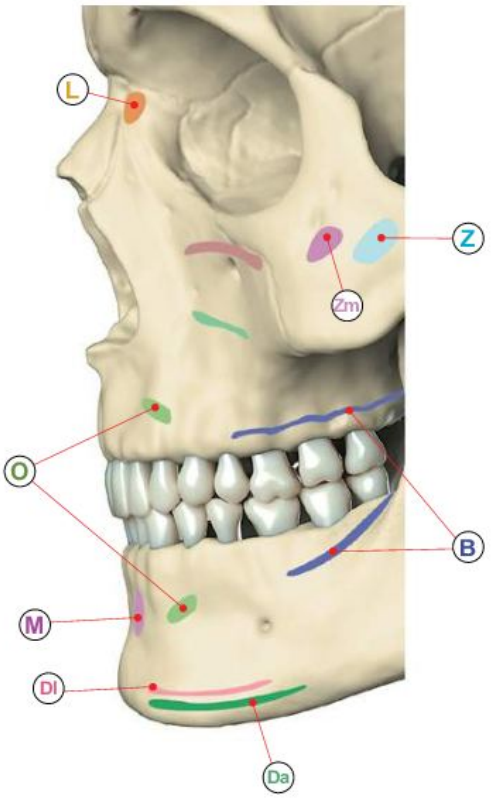
O	ORBICULARIS ORIS
L	L.L.S.A.N*
LI	LEVATOR LABII SUPERIORIS
Zm	ZYGOMATIC MINOR
Z	ZYGOMATIC MAJOR
La	LEVATOR ANGULI ORIS
B	BUCCINATOR
R	RISORIUS
Da	DEPRESSOR ANGULI ORIS
DI	DEPRESSOR LABII INFERORIS
M	MENTALIS

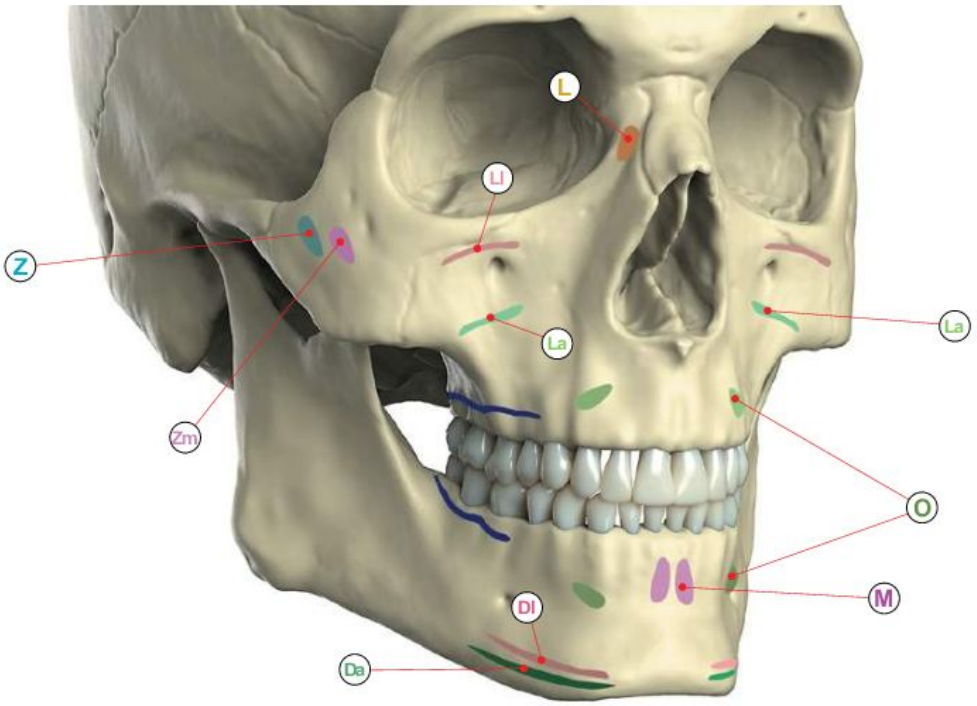
*L.L.S.A.N – Levator labii superioris alaeque nasi muscle

MUSCLES OF THE ORAL REGION

ORBICULARIS ORIS, L.L.S.A.N*, LEVATOR LABII SUPERIORIS, ZYGOMATICUS MINOR, ZYGOMATICUS MAJOR, LEVATOR ANGULI ORIS, BUCCINATOR, RISORIUS, DEPRESSOR ANGULI ORIS, DEPRESSOR LASII INFERIORIS, MENTALIS

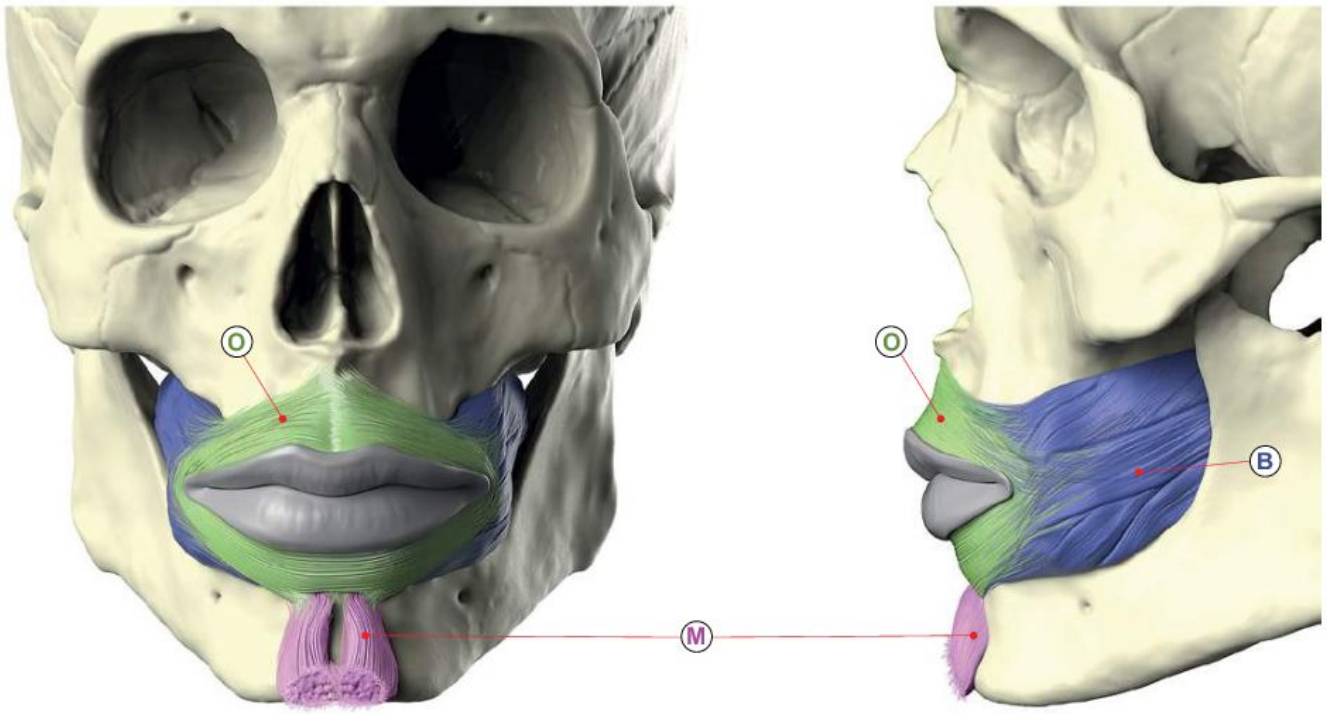






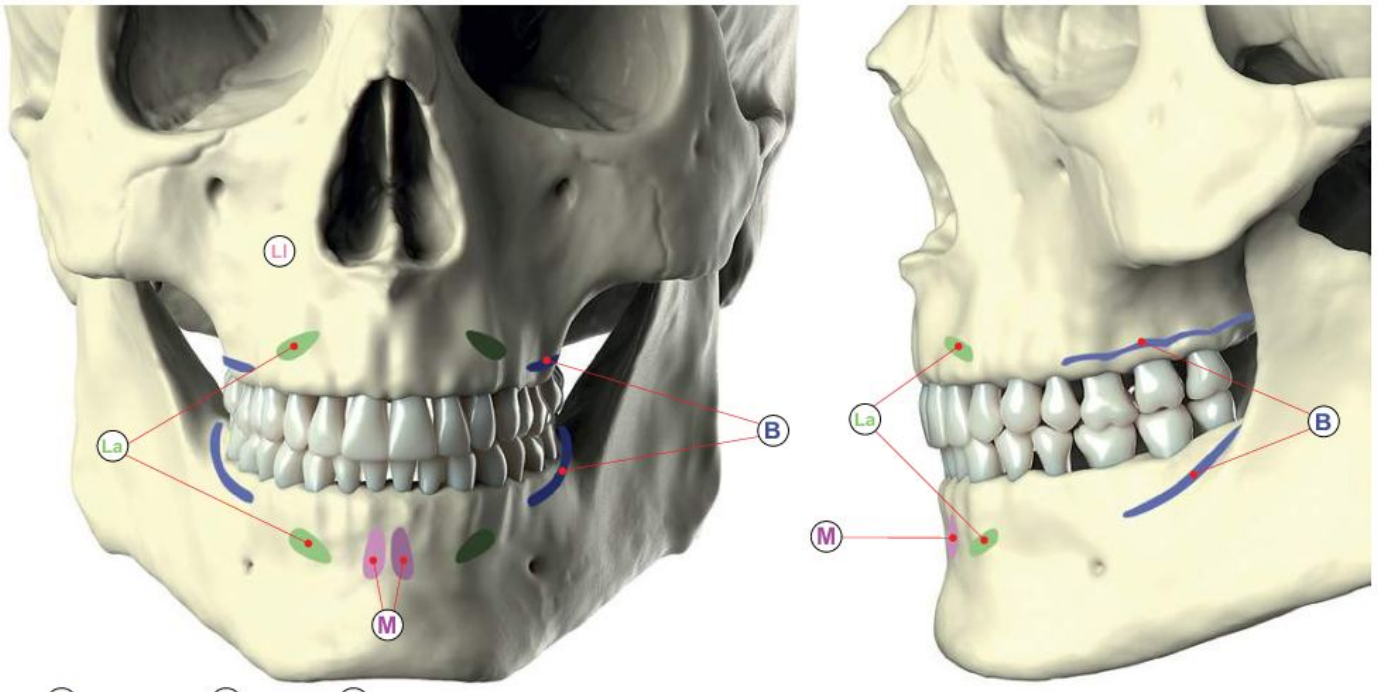
MUSCLES OF THE ORAL GROUP

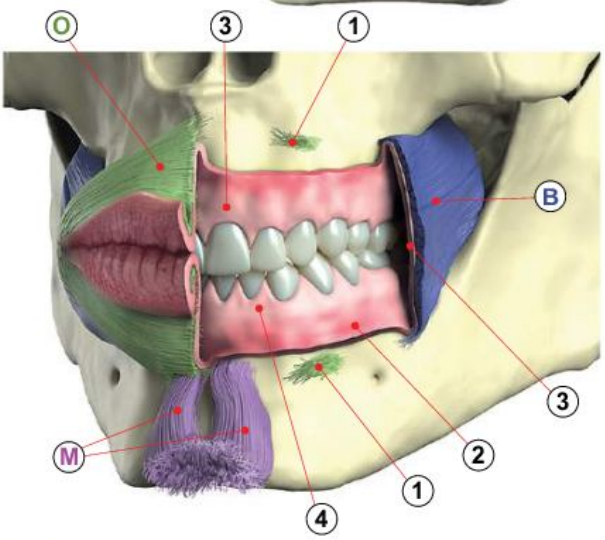
ORBICULARIS ORIS, BUCCINATOR AND MENTALIS MUSCLES



MUSCLES OF THE ORAL GROUP

ORBICULARIS ORIS, BUCCINATOR AND MENTALIS MUSCLES





O	ORBICULARIS ORIS
B	BUCCINATOR
M	MENTALIS
1	ORIGINS OF ORBICULARIS ORIS
2	ALVEOLAR MUCOSA
3	ALVEOLAR MUCOSA
4	GINGIVA

NAME:	ORBICULARIS ORIS
ORIGIN:	MAXILLA, MANDIBLE
INSERTION:	IN THE LIPS
ACTION:	KISSING, PUCKERING AND PRESSING LIPS AGAINST THE TEETH, CLOSING THE MOUTH

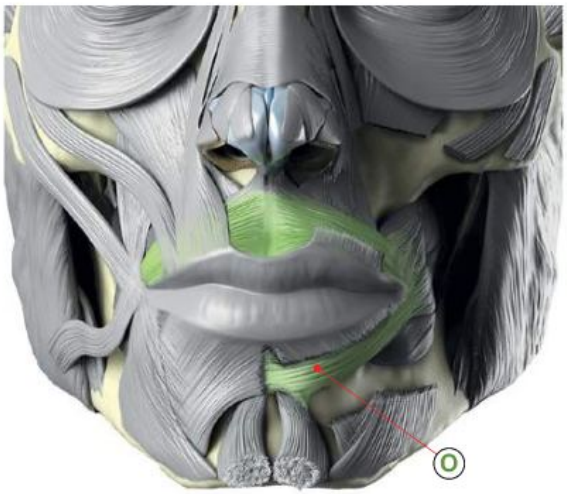
NAME:	MENTALIS
ORIGIN:	INCISOR FOSSA OF MANDIBLE
INSERTION:	SKIN OF THE CHIN
ACTION:	RAISES AND WRINKLES THE SKIN OF THE CHIN, THUS ELEVATING THE LOWER LIP

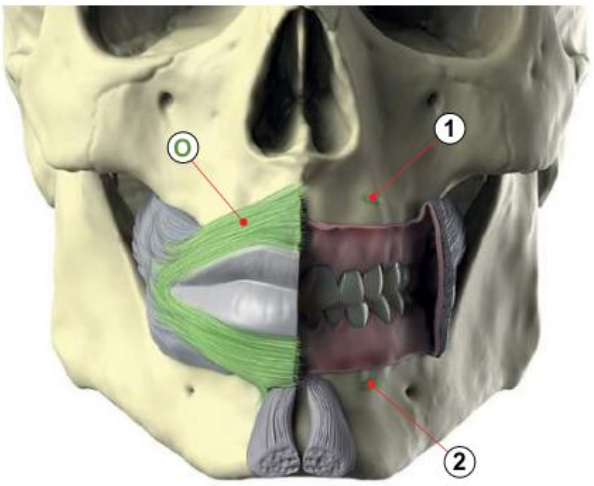
NAME:	BUCCINATOR
ORIGIN:	ALVEOLAR PROCESSES OF THE MAXILLA AND MANDIBLE
INSERTION:	ORBICULARIS ORIS
ACTION:	COMPRESSES THE CHEEKS AGAINST THE TEETH, USED IN BLOWING, SUCKING, ASSISTING IN MASTICATION

MUSCLES OF THE ORAL GROUP

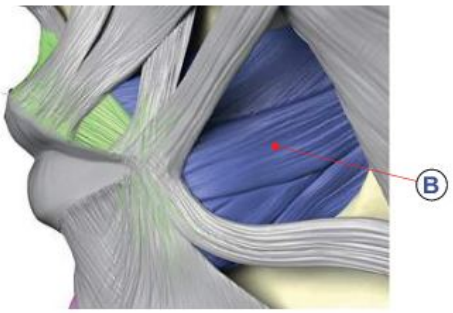
ORBICULARIS ORIS

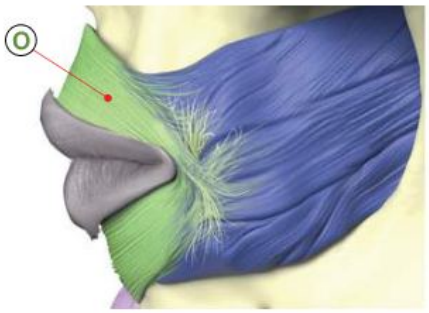
ORBICULARIS ORIS (**O**) MUSCLE CONTROLS MOVEMENTS OF THE MOUTH AND LIPS. SPECIFICALLY IT ENCIRCLES THE MOUTH, ORIGINATING FROM THE MAXILLA (upper jaw (**1**)) AND MANDIBLE (lower jaw (**2**)) THE MUSCLE INSERTS DIRECTLY INTO THE LIPS.



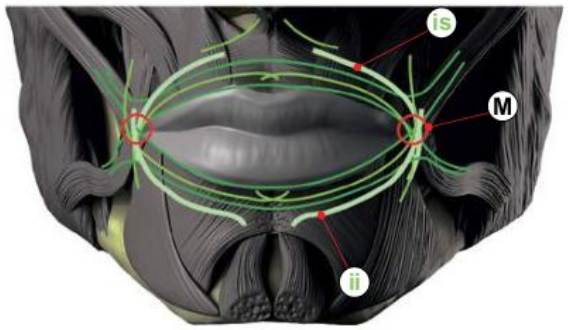


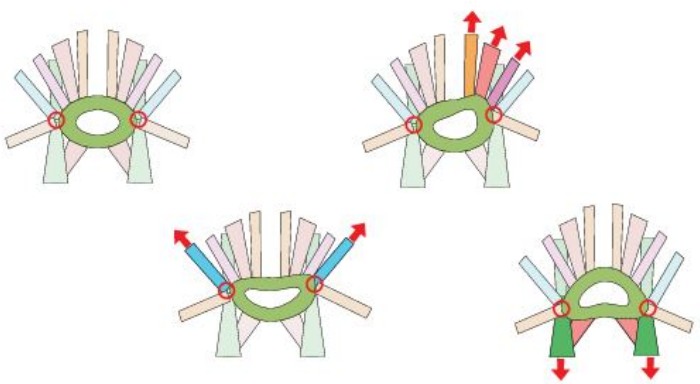
THE **ORBICULARIS ORIS** (**O**) IS A CIRCULAR MUSCLE AROUND THE MOUTH THAT CLOSES AND COMPRESSES THE LIPS. IT IS NOT A SPHINCTER MUSCLE, ALTHOUGH IT GIVES THE APPEARANCE OF ONE. IT IS MADE OF MULTIPLE STRATA OF MULTIPLE AXES OF MUSCULAR FIBERS SURROUNDING THE ORIFICE OF THE MOUTH. A CONSIDERABLE NUMBER OF ITS FIBERS INTERMINGLE WITH **BUCCINATOR** (**B**) MUSCLE FIBERS AND AND FORM THE DEEPER STRATUM OF THE **ORBICULARIS ORIS** (**O**).





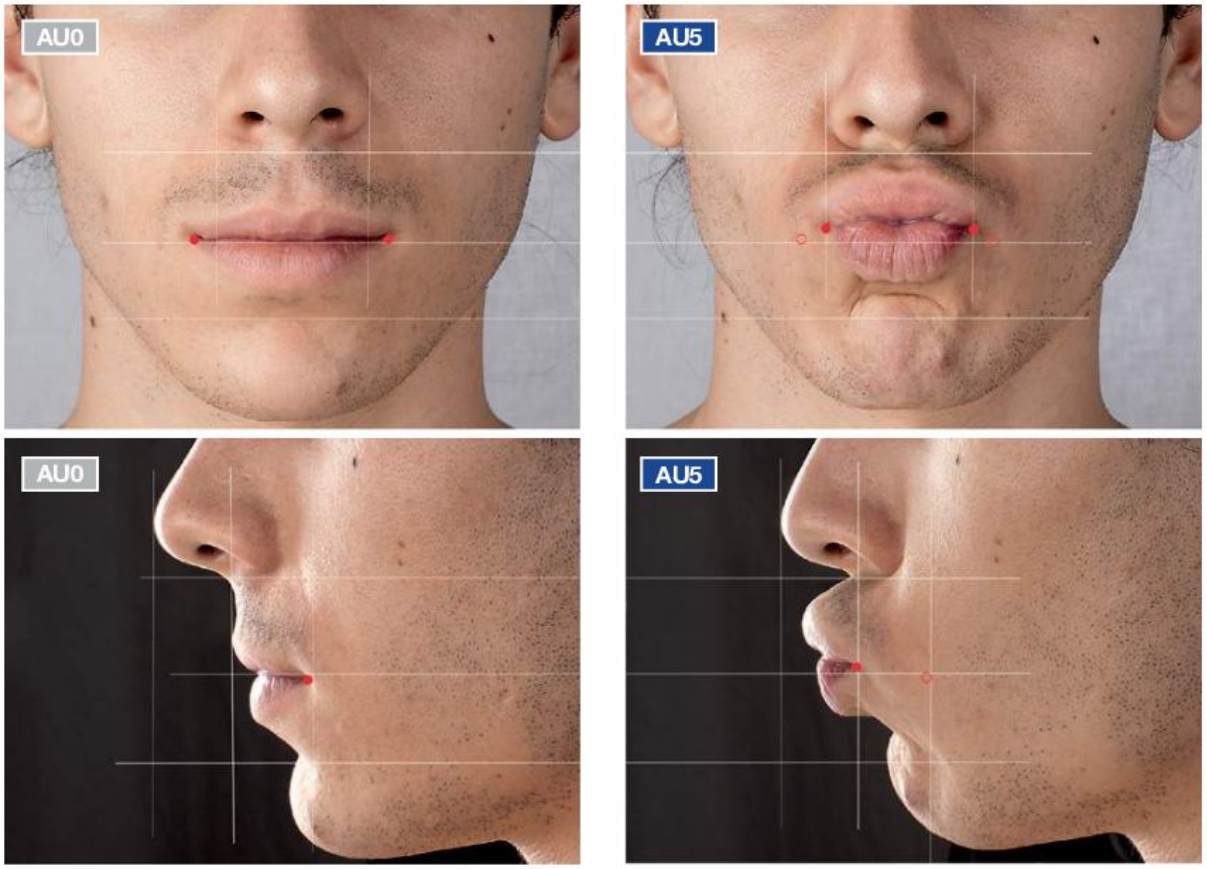
THE **ORBICULARIS ORIS** MUSCLE IS ONE OF THE MIMETIC, OR FACIAL EXPRESSION, MUSCLES THAT ARE FOUND IN ALL MAMMALS. IN HUMANS IT IS A COMPLEX, MULTI-LAYERED MUSCLE THAT ATTACHES VIA A THIN, SUPERFICIAL MUSCULOAPONEUROTIC SYSTEM TO THE DERMIS OF THE UPPER AND LOWER LIPS, AND SERVES AS AN ATTACHMENT FOR MANY **OTHER** MUSCLES OF THE ORAL REGION.



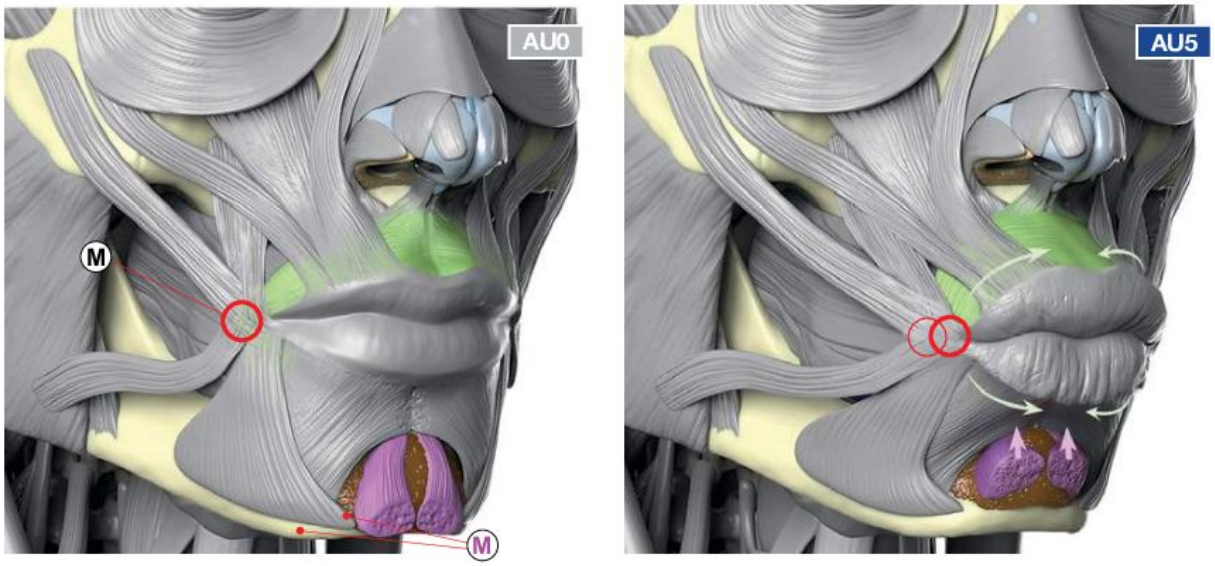


MUSCLES OF THE ORAL GROUP

ACTION UNIT **18** (Lip Pucker): **ORBICULARIS ORIS AND MENTALIS MUSCLES**



MUSCLE FIBERS THAT PUCKERS THE LIPS ARE CALLED **INCISIVUS LABII SUPERIORIS** (is) AND **INFERIORIS** (ii) THEY CAN ACT INDEPENDENTLY. (is) IS PULLING THE MODIOLUS OBLIQUELY UPWARD AND MEDIALLY AND (ii) AND PULLS IT DOWNWARD AND MEDIALLY. USUALLY, ALL FOUR PARTS WORK TOGETHER TO PULL BOTH THE **MODIOLUS** (**M**) MUSCLES MEDIALLY (toward each other), WHICH ROUNDS OUT THE MOUTH AND PUCKERS THE LIPS FOR KISSING OR WHISTLING.



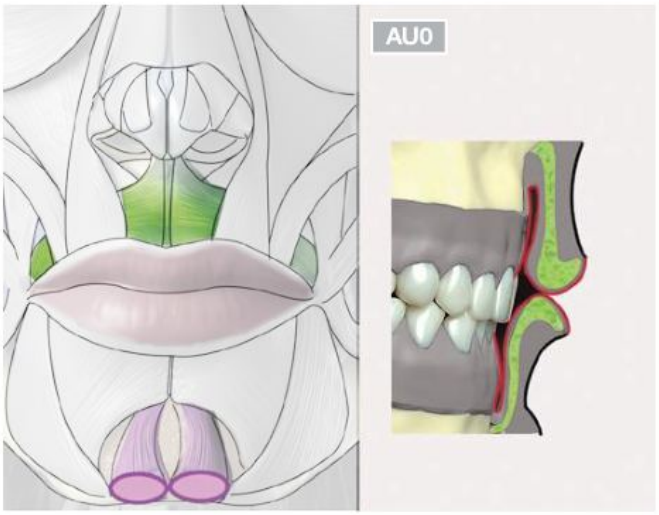
MUSCLES OF THE ORAL GROUP

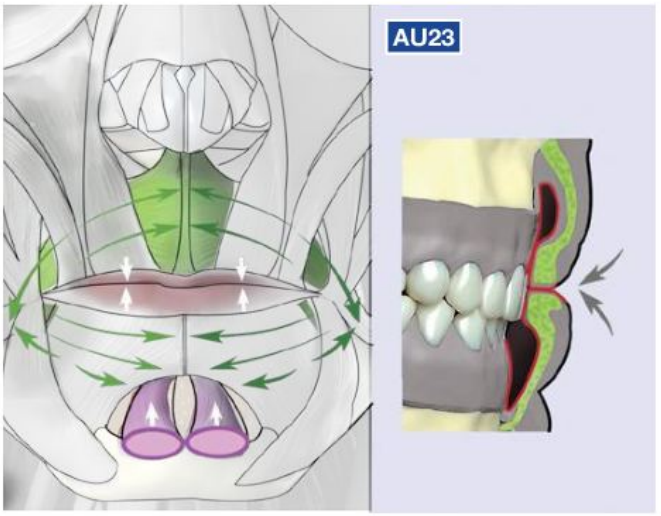
ACTION UNIT **23** (Lip Tightener): **ORBICULARIS ORIS** AND **MENTALIS** MUSCLES

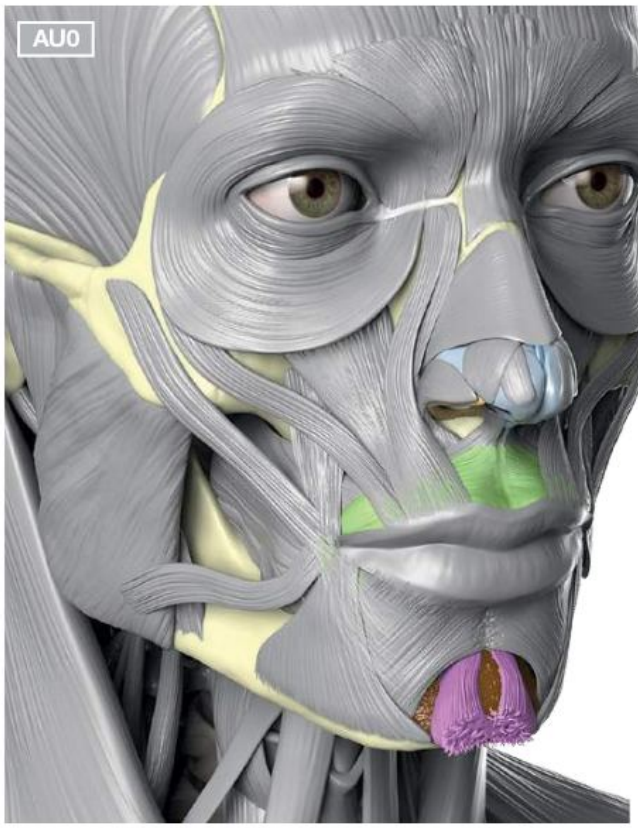
MUSCLES OF THE ORAL GROUP

ACTION UNIT **23** (Lip Tightener): **ORBICULARIS ORIS AND MENTALIS MUSCLES**

THE **LIP TIGHTENER** INVOLVES THE DISAPPEARANCE OF MUCH OF THE **RED MARGIN** (**1**) (VERMILLION BORDER), WHEN BOTH LIPS TIGHTEN WITH THE MOUTH CLOSED. THERE IS ALSO A VARIABLE BULGING-OUT FROM AROUND THE LIPS AS THOUGH WE WERE TRYING TO HOLD IN A MOUTHFUL OF AIR OR PLAYING A TRUMPET OR HORN. WHEN WE TENSE AND PRESS OUR LIPS IN SADNESS OR ANGER, THE LIPS NARROW, BUT THE MOUTH DOES NOT SHORTEN.

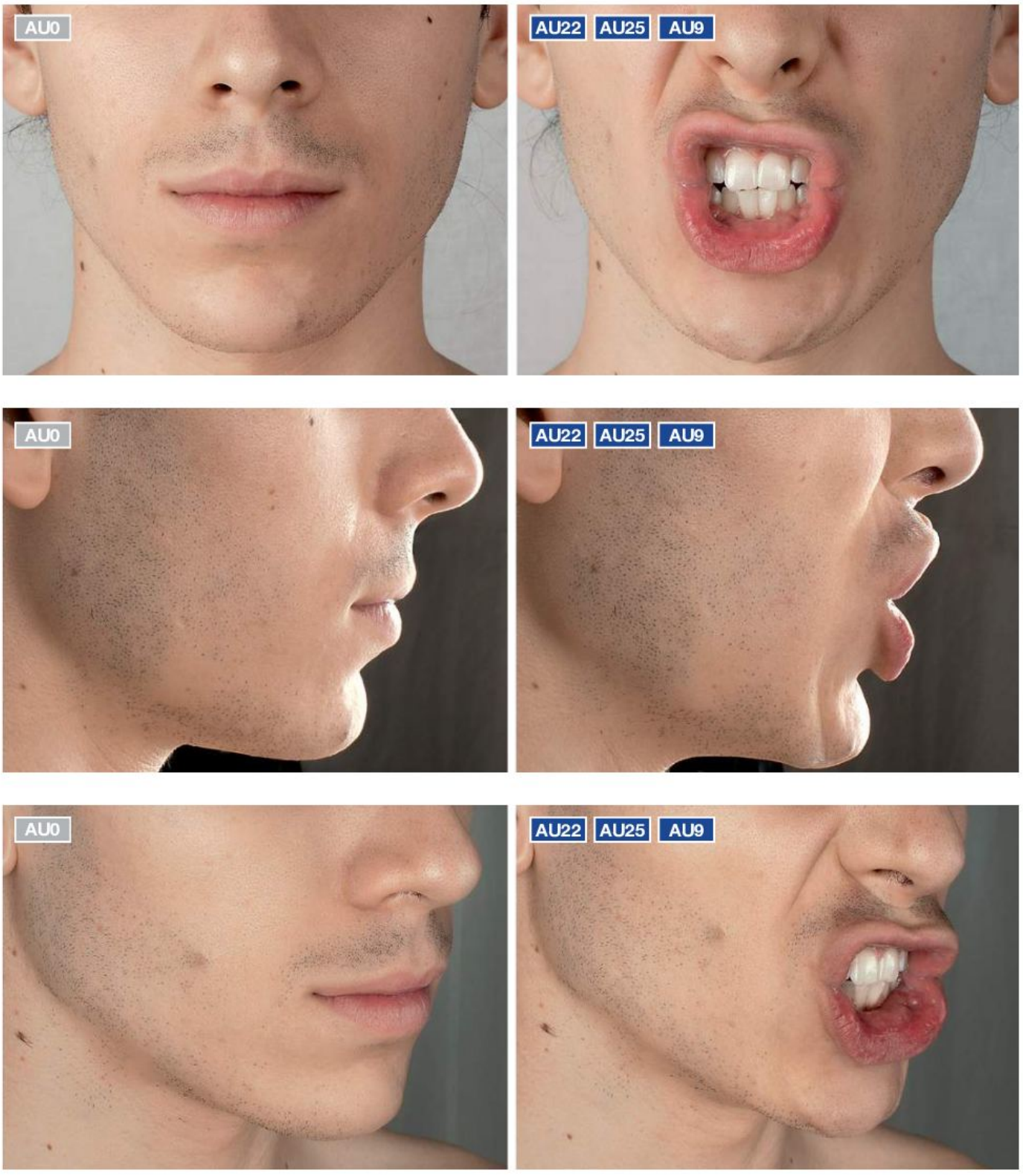






MUSCLES OF THE ORAL GROUP

ACTION UNIT **22** (Lip Funneler), **25** (Lips Part), **9** (Nose Wrinkler):
ORBICULARIS ORIS AND L.L.S.A.N MUSCLES



MUSCLES OF THE ORAL GROUP

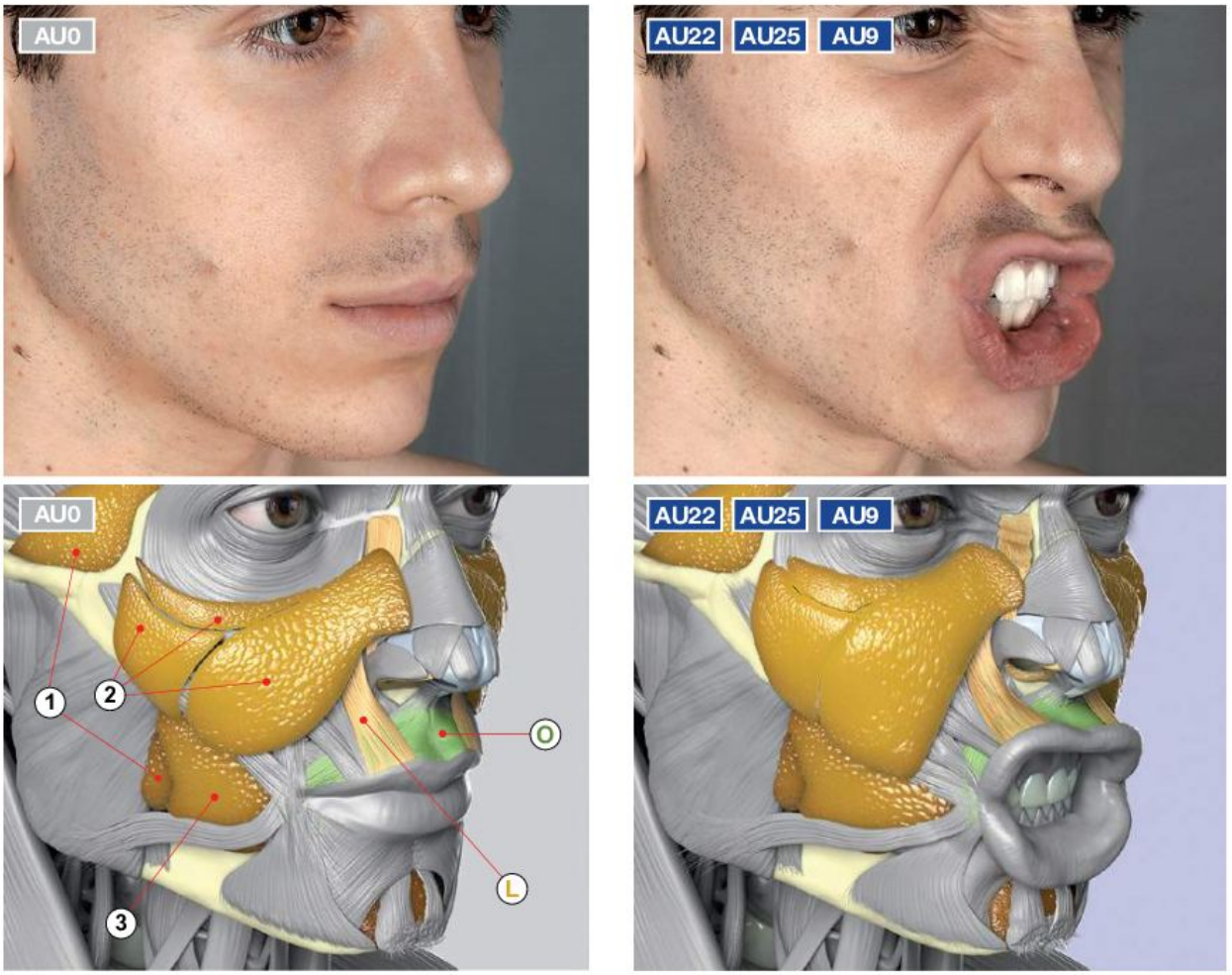
ACTION UNIT **22** (Lip Funneler), **25** (Lips Part), **9** (Nose Wrinkler): **ORBICULARIS ORIS AND L.L.S.A.N MUSCLES**

AU22 IS BASED ON THE **OUTER STRANDS** OF THE **ORBICULARIS ORIS** (O). IN **AU 22+25** THE DIRECTION OF THE MOVEMENTS IS TO TIGHTEN THE SKIN SURROUNDING THE LIPS.

APPEARANCE CHANGES DUE TO AUs 22+25:

a – LIPS FUNNEL OUTWARDS TAKING ON THE SHAPE AS THOUGH THE PERSON WERE SAYING THE WORD "FLIRT"
b – PULLS IN MEDIALLY ON THE LIP CORNERS
c – EXPOSES THE TEETH AND MAY EXPOSE GUMS, OFTEN IN THE LOWER LIP MORE THAN THE UPPER
d – EXPOSES MORE OF THE RED PARTS OF THE LIPS AS THE LIPS MAY TURN OUT, OFTEN IN THE LOWER LIP MORE THAN THE UPPER
e – FLATTENS OR WRINKLES CHIN BOSS (this change is small)
f – IT IS POSSIBLE, ALTHOUGH NOT COMMON, FOR **AU22** TO AFFECT ONLY ONE LIP

APPEARANCE CHANGES DUE TO **AU9** INCLUDES ACTIVATION OF **L.L.S.A.N** MUSCLE AND IS DESCRIBED ON PAGE 74.

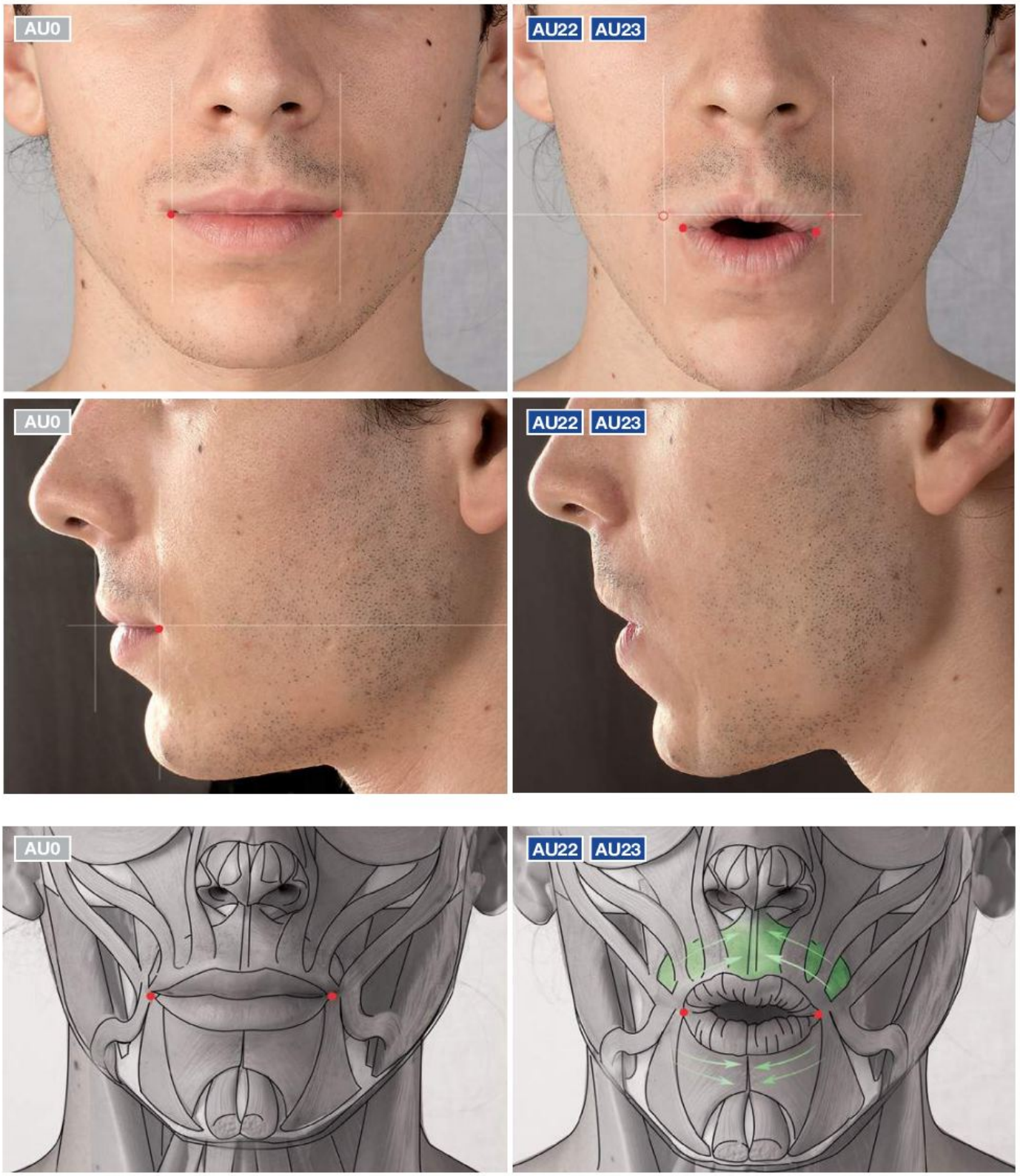


1	BUCCAL FAT PAD
2	MALAR FAT PAD
3	DEEP CHEEK FAT PAD

O	ORBICULARIS ORIS
L	L.L.S.A.N

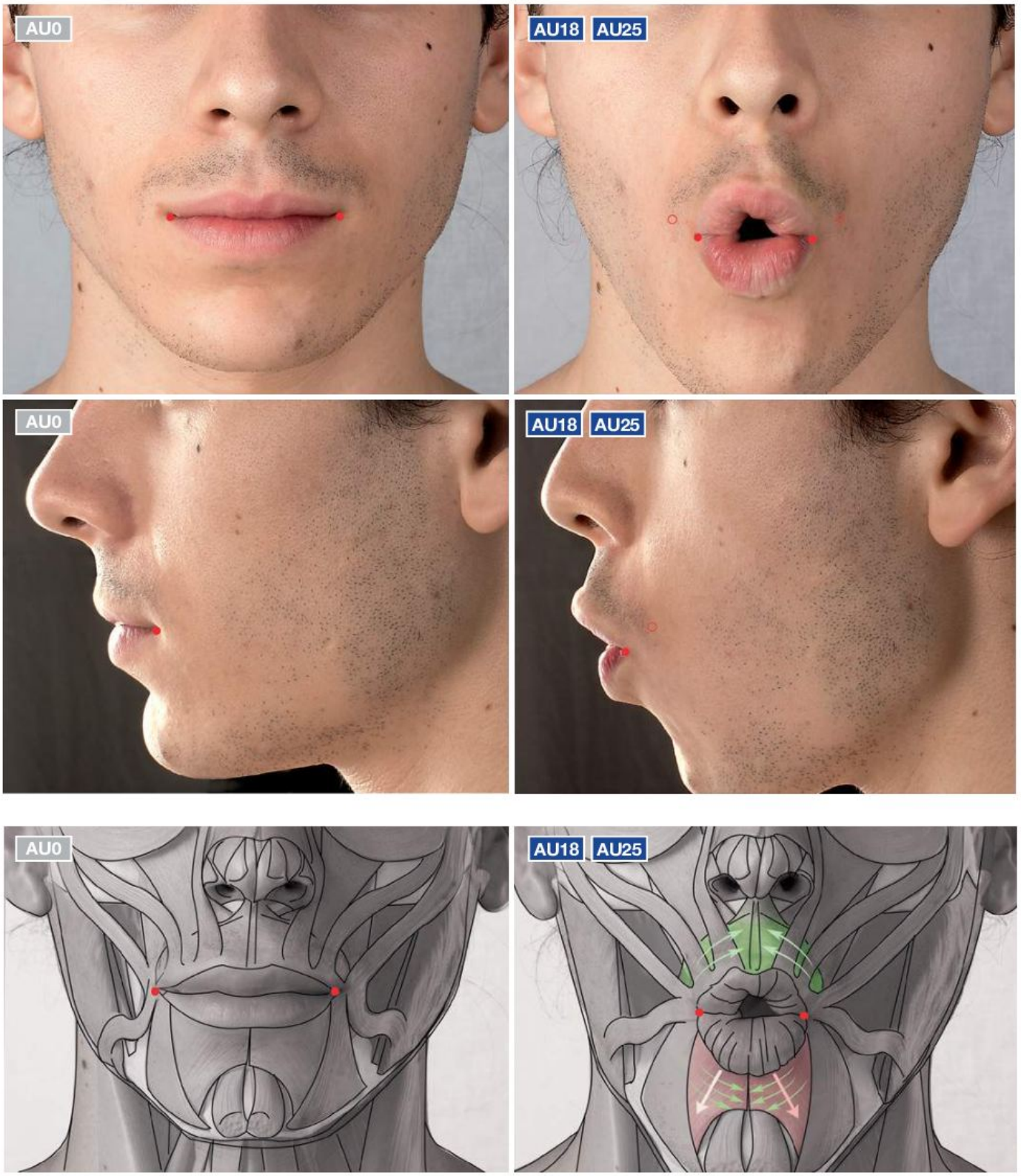
MUSCLES OF THE ORAL GROUP

MIXED ACTION UNITS **22** (Lip Funneler) **AND 23** (Lip Tightener): **ORBICULARIS ORIS MUSCLES**



MUSCLES OF THE ORAL GROUP

MIXED ACTION UNITS 18 (Lip Pucker) AND 25 (Lips Part): DEPRESSOR LABII INFERIORIS ORBICULARIS ORIS MUSCLES

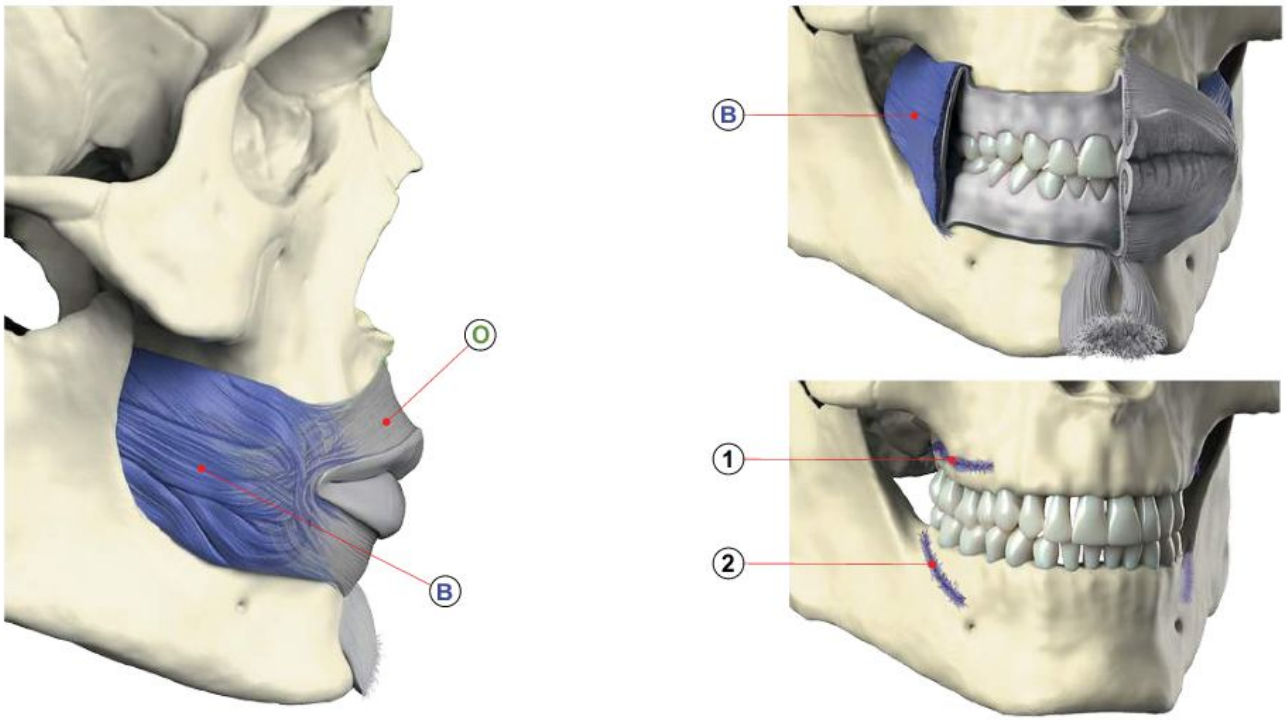


MUSCLES OF THE ORAL GROUP

ACTION UNIT **14** (Dimpler): **BUCCINATOR MUSCLE**

THE **BUCCINATOR** (**B**) FORMS THE MUSCLE LAYER OF THE CHEEK. IT ARISES FROM THE **OUTER ALVEOLAR MARGINS** OF BOTH **THE UPPER** (**1**) AND THE **LOWER JAWS** (**2**) IN THE REGION OF THE MOLAR TEETH AND PASSES TO THE ANGLE OF THE MOUTH, WHERE IT BLENDS WITH THE **ORBICULARIS ORIS** (**O**).

BY ITS ACTION OF RETRACTING THE ANGLE OF THE MOUTH AND FLATTENING THE CHEEK, IT COMPRESSES THE CHEEK SO THAT, IN COMBINATION WITH THE TONGUE, FOOD IS PUSHED ONTO AND MAINTAINED ON THE MOLAR SURFACES OF THE TEETH WHEN CHEWING. COMPRESSION OF THE CHEEK AGAINST THE GUMS PREVENTS CHEWED FOOD FROM BECOMING LODGED THERE. THE **BUCCINATOR** (**B**) ALSO AIDS IN THE ACT OF BLOWING AND WHISTLING.

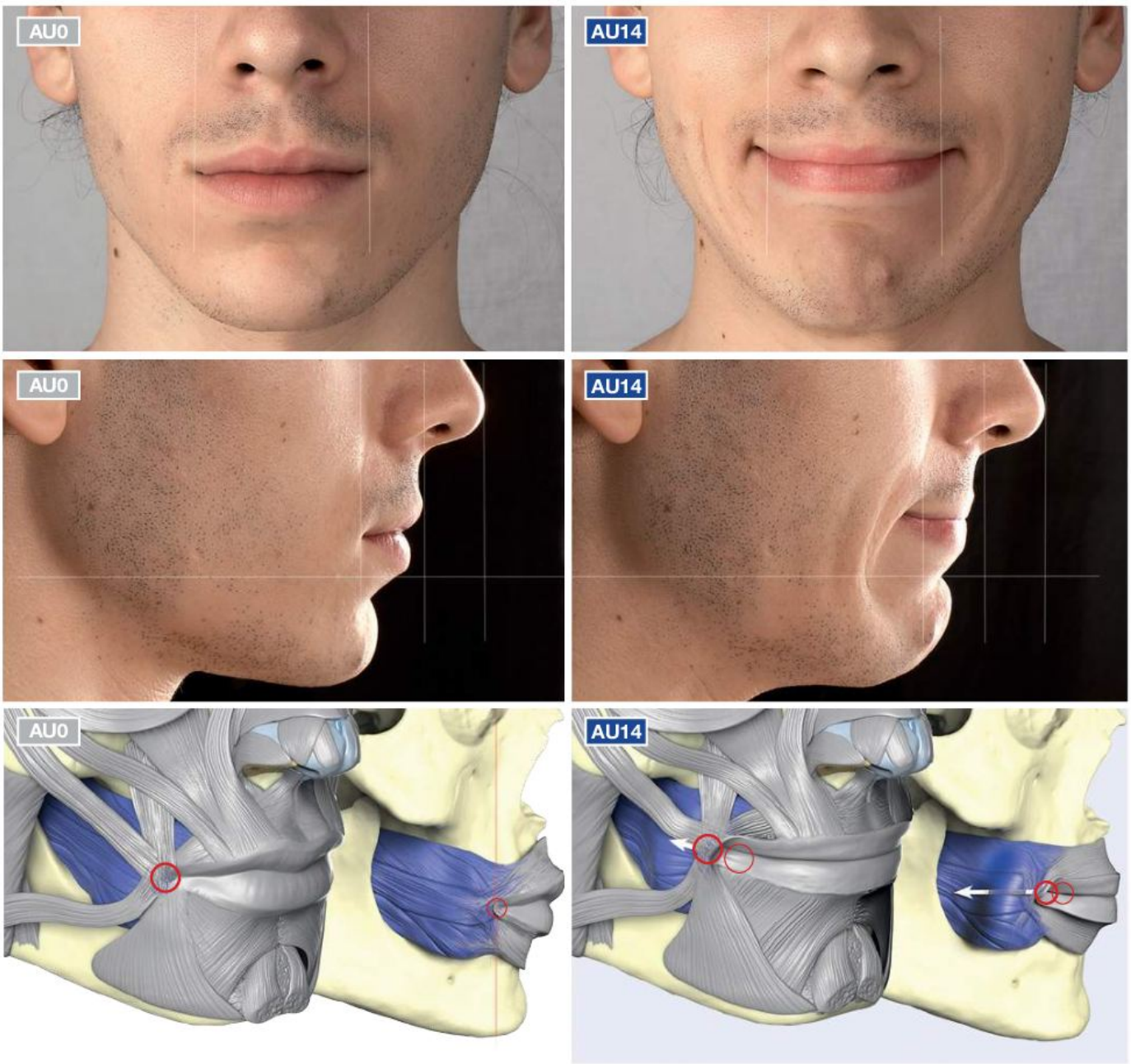


MUSCLES OF THE ORAL GROUP

ACTION UNIT **14** (Dimpler): **BUCCINATOR MUSCLE**

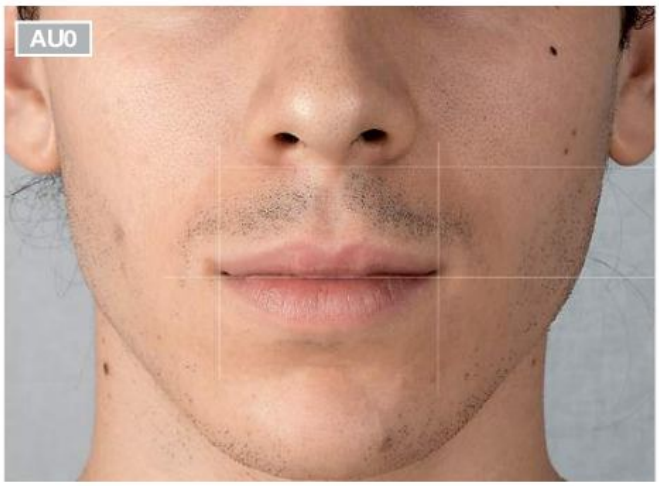
APEARANCE CHANGES DUE TO AU14:

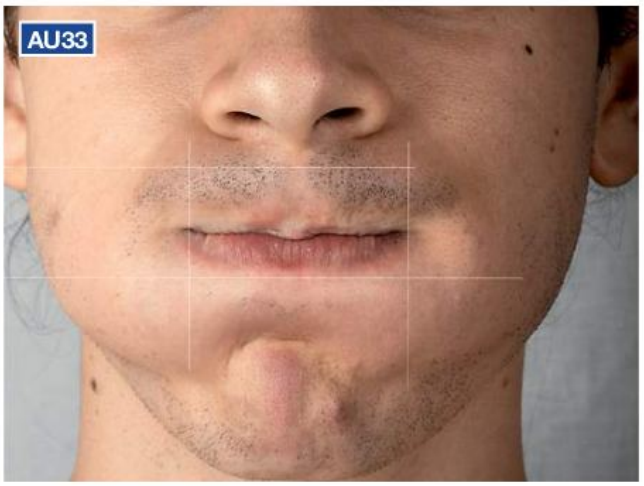
a – TIGHTENS THE CORNERS OF THE MOUTH PULLING THE CORNERS SOMEWHAT INWARDS, AND NARROWING THE LIP CORNERS
b – PRODUCES THE WRINKLES AND/OR BULGE AT THE LIP CORNER
c – MAY CAUSE DIMPLE-LIKE WRINKLE BEYOND THE LIP CORNER
d – STRETCHES LIPS LATERALLY AND TO A LIMITED EXTENT, FLATTENS THEM
e – MAY DEEPEN NASOLABIAL FURROW
f – PULLS THE SKIN BELOW THE LIP CORNERS AND THE CHIN BOSS UP, FATTENING AND STRETCHING THE CHIN
g – MAY CAUSE A SHORT BULGE OR WRINKLE AT THE LIP CORNERS WHICH EXTENDS THE LINE BETWEEN THE LIPS DOWN TOWARDS THE CHIN



MUSCLES OF THE ORAL GROUP

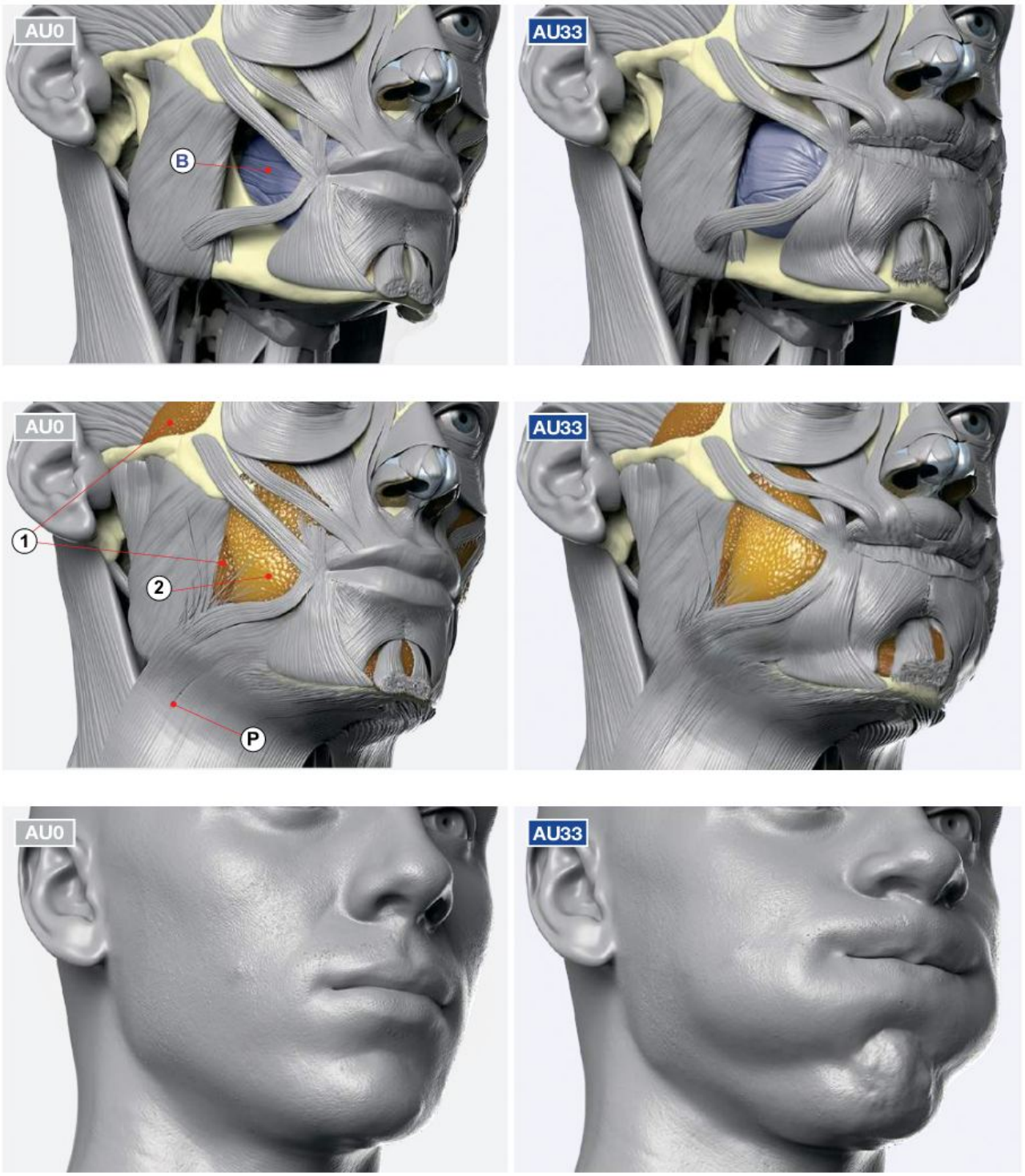
ACTION UNIT **33** (Cheek blow)





MUSCLES OF THE ORAL GROUP

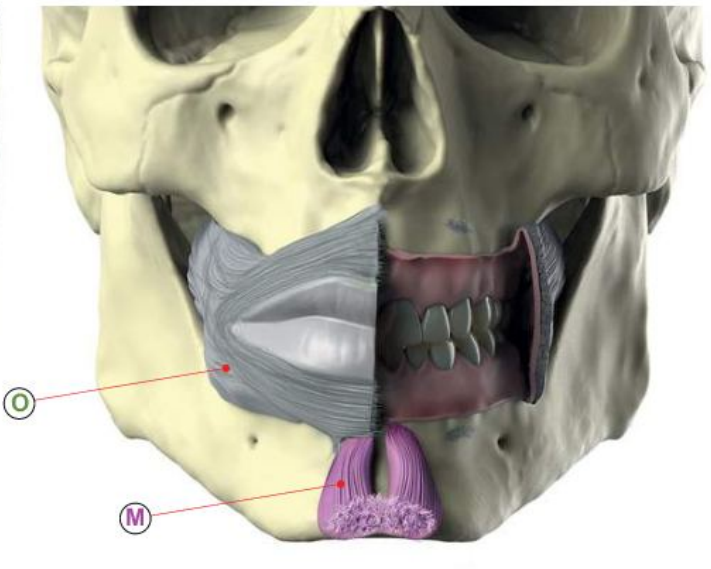
ACTION UNIT **33** (Cheek blow)



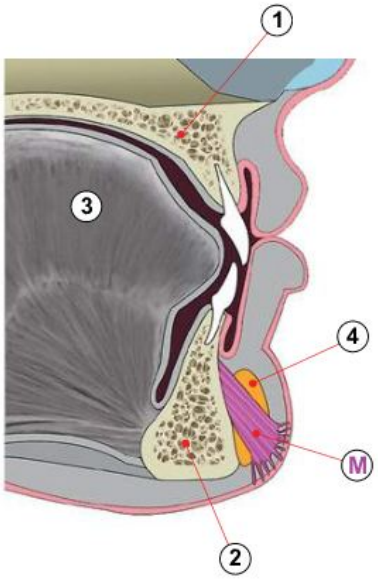
1	BUCCAL FAT PAD	B	**BUCCINATOR**
2	MALAR FAT PAD	P	PLATYSMA

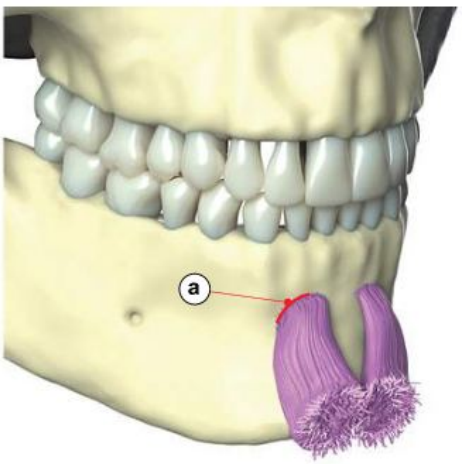
MUSCLES OF THE ORAL GROUP

MENTALIS



MENTALIS (**M**) IS A PAIRED CENTRAL MUSCLE, SITUATED AT THE TIP OF THE CHIN. IT ORIGINATES FROM THE **ANTERIOR PART OF THE MANDIBLE** DIRECTLY BELOW THE LOWER LIP NEAR THE ROOTS OF THE SECOND INCISORS (**a**) AND INSERTS INTO THE SOFT TISSUE OF THE CHIN. IT IS RESPONSIBLE FOR RAISING THE CENTRAL PORTION OF THE LOWER LIP AND CHIN. SINCE IT WORKS TO WRINKLE THE CHIN, THE MENTALIS, TOGETHER WITH **ORBICULARIS ORIS** (**O**), PUSHES THE LOWER LIP OUT AND THUS IS OFTEN CALLED THE "**POUTING MUSCLE**". SOMEONE WHO EXAGGERATES HIS OR HER EXPRESSION OF DISPLEASURE OR SADNESS WILL MOST LIKELY USE THIS MUSCLE.





1 MAXILLA	4 MENTAL FAT PAD
2 MANDIBLE	M **MENTALIS**
3 TONGUE	

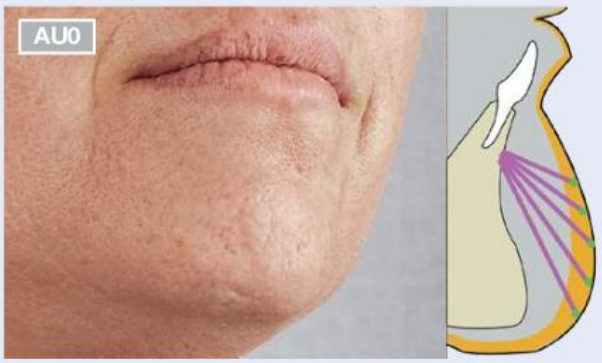
MUSCLES OF THE ORAL GROUP

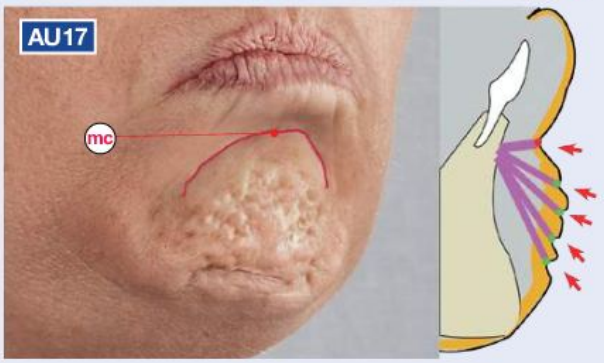
ACTION UNIT **17** (Chin raiser): **MENTALIS MUSCLE**

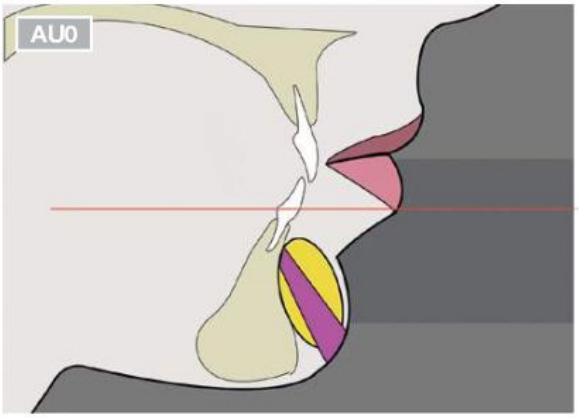
APPEARANCE CHANGES DUE TO AU17:

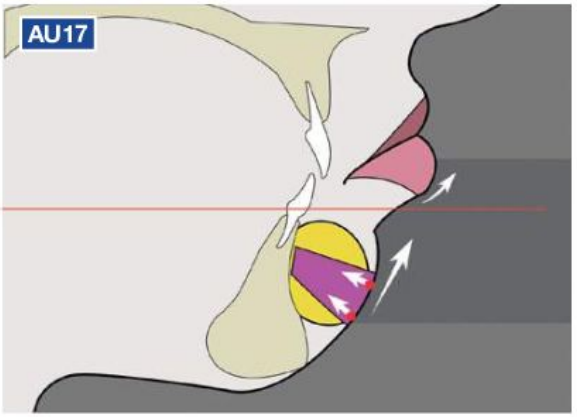
a – PUSHES THE CHIN BELOW UPWARD
b – PUSHES THE LOWER LIP UPWARD
c – MAY CAUSE WRINKLES TO APPEAR ON THE CHIN BOSS AS SKIN IS DRAWN INWARD AND UPWARD, AND MAY PRODUCE A DEPRESSION CALLED **MENTAL CREASE** (mc) MIDLINE UNDER THE LOWER LIP
d – CAUSES THE APPEARANCE OF AN ⌒ OR ARCH SHAPE OF THE MOUTH AND MENTAL CREASE
e – IF THE ACTION IS STRONG, THE LOWER LIP MAY PROTRUDE

A PEBBLE CHIN IS CAUSED BY OVER ACTIVITY OF THE **MENTALIS** MUSCLE AND CAN RESULT IN PITTED AND "**ORANGE PEEL TEXTURE**", AND DEEP TRANSVERSE **MENTAL CREASE** (mc) AS **MENTALIS** FIBERS INSERT ON THE SKIN.



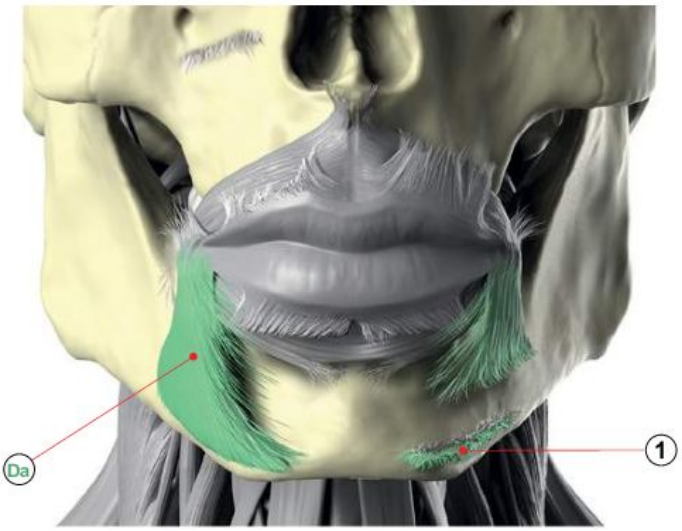


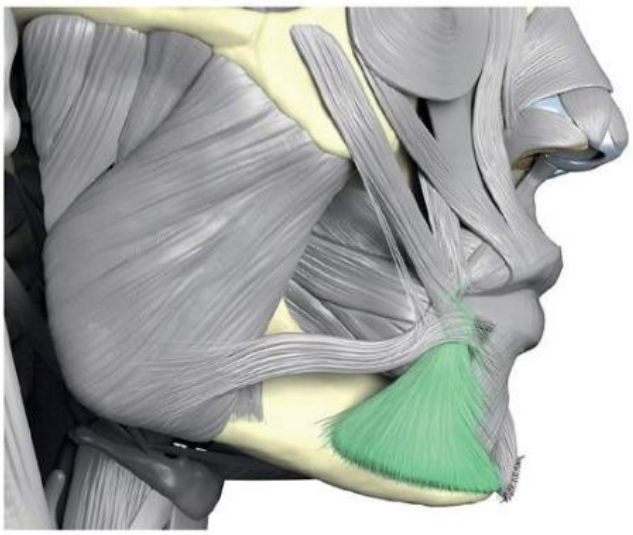


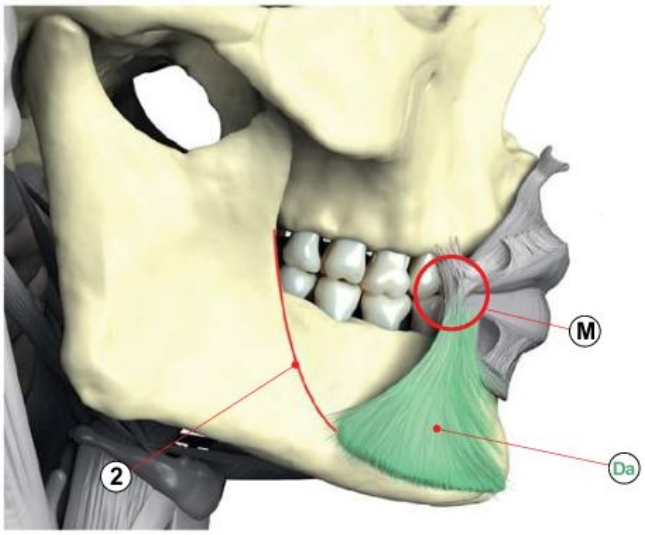


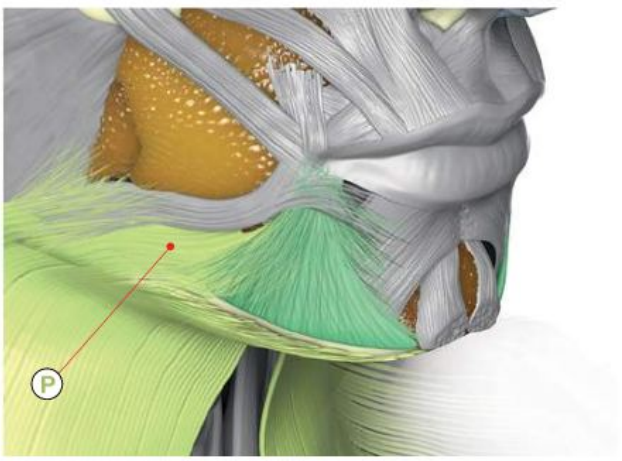
MUSCLES OF THE ORAL GROUP

DEPRESSOR ANGULI ORIS





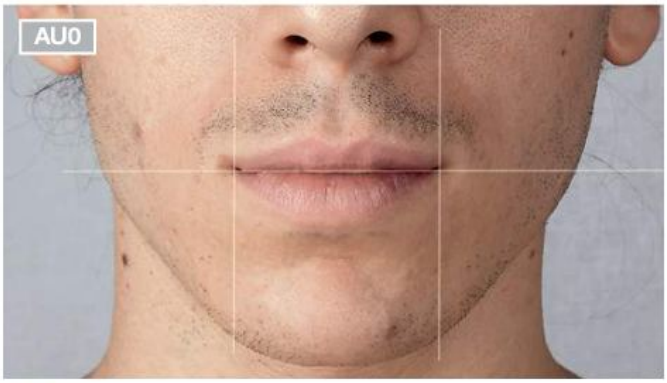


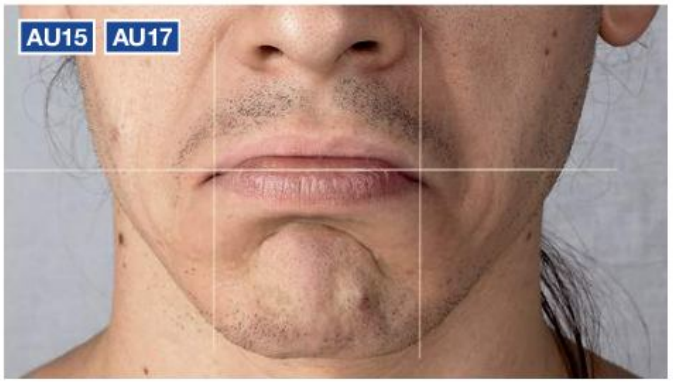


DEPRESSOR ANGULI ORIS (Da) IS A FACIAL MUSCLE ASSOCIATED WITH **FROWNING**.
IT ORIGINATES FROM THE **LATERAL SURFACE OF THE MANDIBLE** (**1**) POSTERIOR TO THE **OBLIQUE LINE** (**2**) AND INSERTS INTO THE **MODIOLUS** (**M**) AT THE ANGLE OF THE MOUTH.
ITS ACTION IS TO DEPRESS AND LATERALLY DISPLACE THE ANGLE OF THE MOUTH.
THIS ACTION MAY BE ASSISTED BY POSTERIOR FIBERS OF THE **PLATYSMA** (P).

MUSCLES OF THE ORAL GROUP

ACTION UNIT **15** (Lip corner depressor) **AND** ACTION UNIT **17** (Chin raiser): **DEPRESSOR ANGULI ORIS, PLATYSMA AND MENTALIS MUSCLES**





APPEARANCE CHANGES DUE TO AU15:

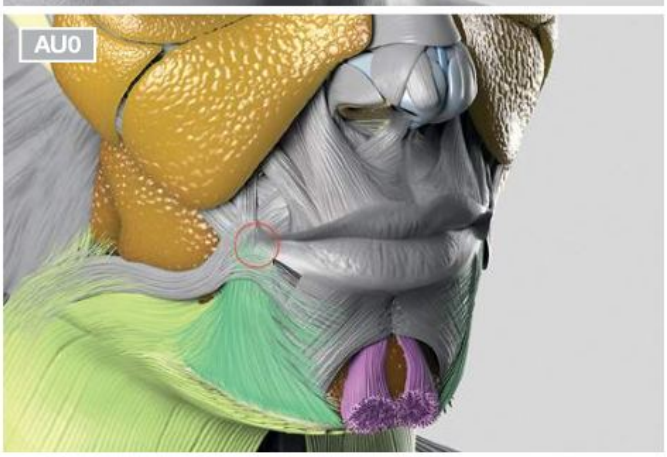
a – PULLS THE CORNERS OF THE LIPS DOWN

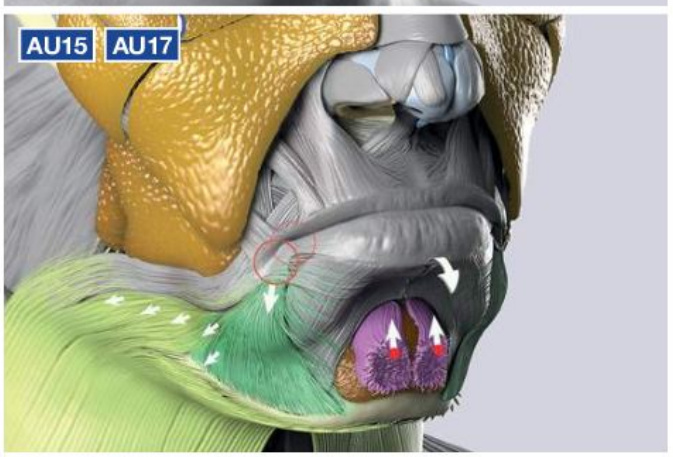
b – CHANGES THE SHAPE OF THE LIPS SO THEY ARE ANGLED DOWN AT THE CORNERS AND USUALLY SOMEWHAT STRETCHED HORIZONTALLY

c – PRODUCES SOME POUCHING, BAGGING, OR WRINKLING OF THE SKIN BELOW THE LIP CORNERS, WHICH MAY NOT BE APPARENT UNLESS THE ACTION IS STRONG

d – MAY FLATTEN OR CAUSE BULGES TO APPEAR ON THE CHIN BOSS, MAY PRODUCE A DEPRESSION MEDIALLY UNDER THE LOWER LIP

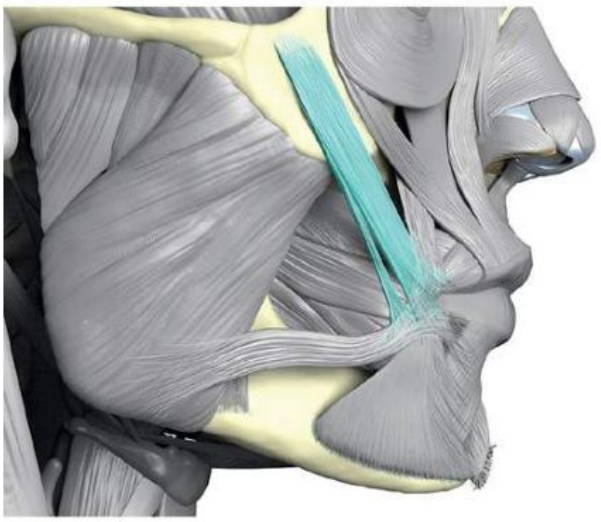
e – IF THE NASOLABIAL FURROW IS PERMANENTLY ETCHED, IT DEEPENS AND MAY APPEAR PULLED DOWN OR LENGTHENED

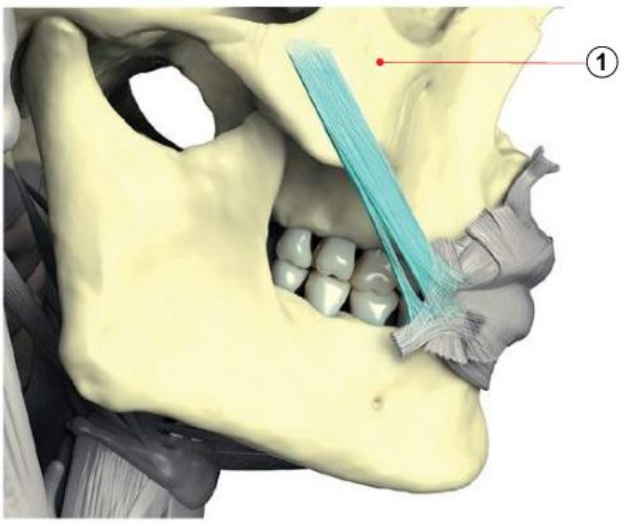


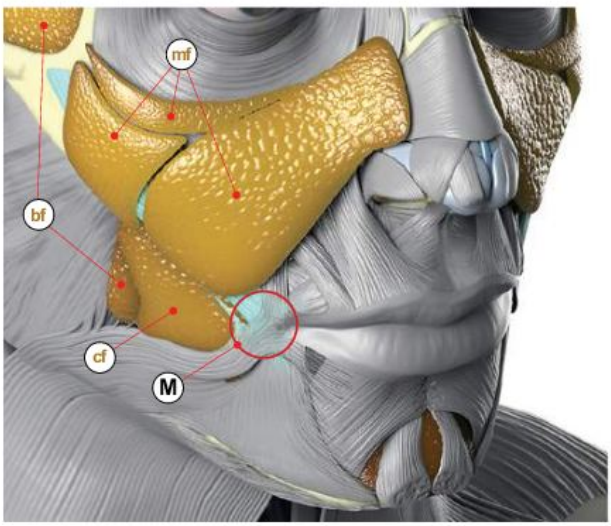


MUSCLES OF THE ORAL GROUP

ZYGOMATICUS MAJOR







THE **ZYGOMATICUS MAJOR** (Z) MUSCLE ARISES FROM THE ZYGOMATIC BONE AND INSERTS INTO THE MODIOLUS (M) AT THE ANGLE OF THE MOUTH. THE **ZYGOMATICUS MAJOR** (Z) IS A MUSCLE OF FACIAL EXPRESSION WHICH PULLS THE ANGLE OF THE MOUTH UPWARD, OUTWARD AND BACKWARD WHEN SMILING OR LAUGHING.
VARIATIONS OF ZYGOMATICUS MAJOR MAY CAUSE CHEEK DIMPLES.

(1) **ZYGOMATIC BONE**	(mf) **MALAR FAT PAD**
(M) MODIOLUS	(cf) **DEEP CHEEK PAD**
	(bf) **BUCCAL FAT PAD**

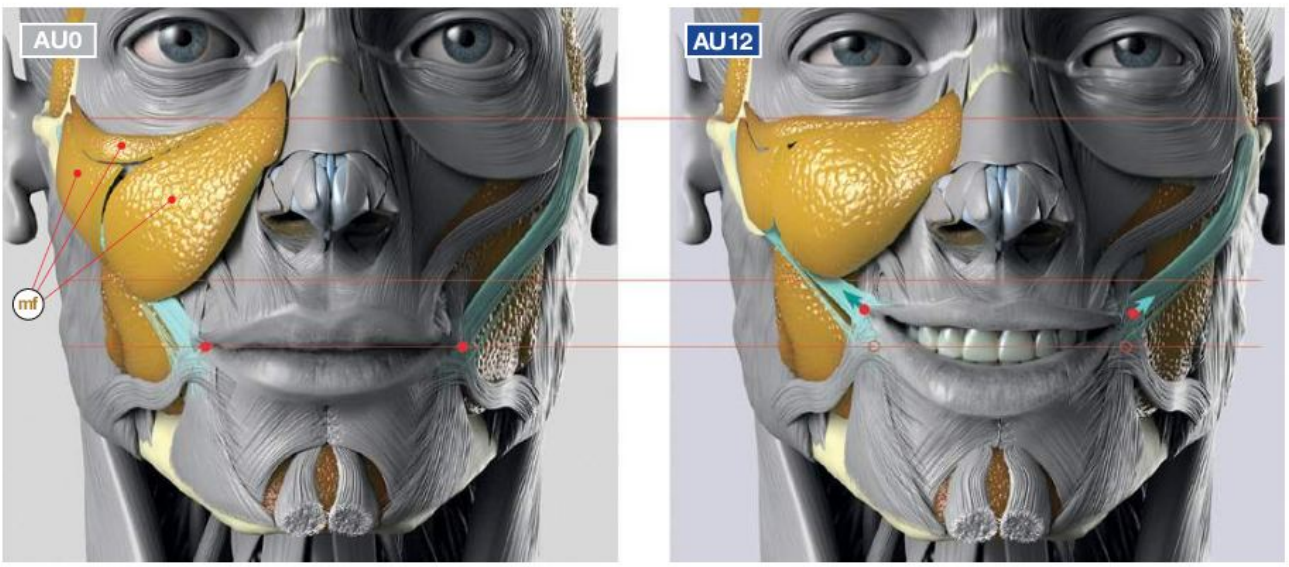
MUSCLES OF THE ORAL GROUP

ACTION UNIT 12: ZYGOMATICUS MAJOR

APPEARANCE CHANGES DUE TO AU12:

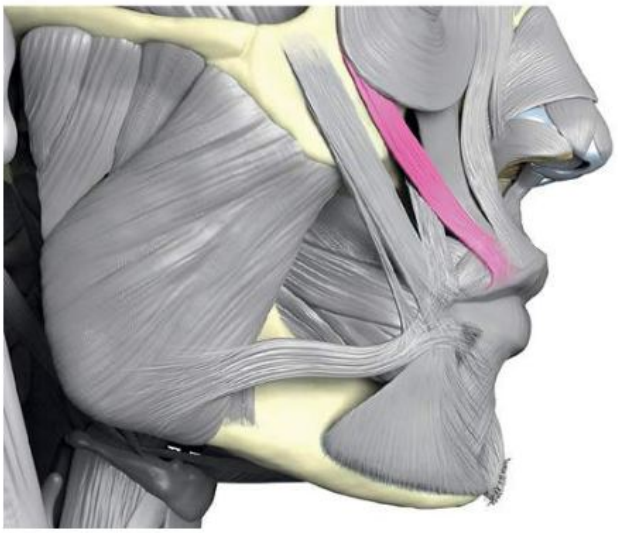
a – PULLS THE CORNERS OF THE LIPS UP, BACKWARD AND OUTWARD
b – DEEPENS THE NASOLABIAL FURROW, PULLING IT LATERALLY AND UP
c – **MALAR FAT PAD** (**mf**) PUSH UPWARDS, BECOMES MORE EVIDENT (rounded)
d – BAGS THE SKIN BELOW THE LOWER EYELID
e – NARROWS THE EYE APERTURE BY PUSHING UP THE MALAR FAT (**mf**) AND SKIN BELOW THE LOWER EYELID
f – PRODUCES CROW'S FEET AT THE CORNERS OF THE EYES
g – MAY FLATTEN AND STRETCH THE SKIN ON THE CHIN BOSS
h – MAY RAISE AND WIDEN THE NOSTRILS

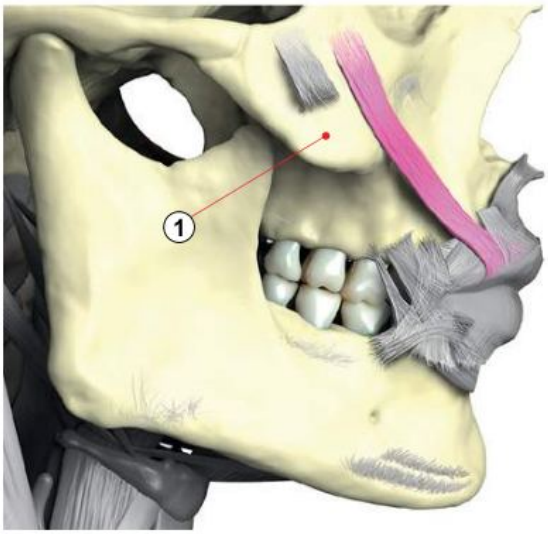
AU6 WIDENS AND SLIGHTLY ELONGATES THE OPENING OF THE MOUTH, THE IDEA OF A "WIDE SMILE".

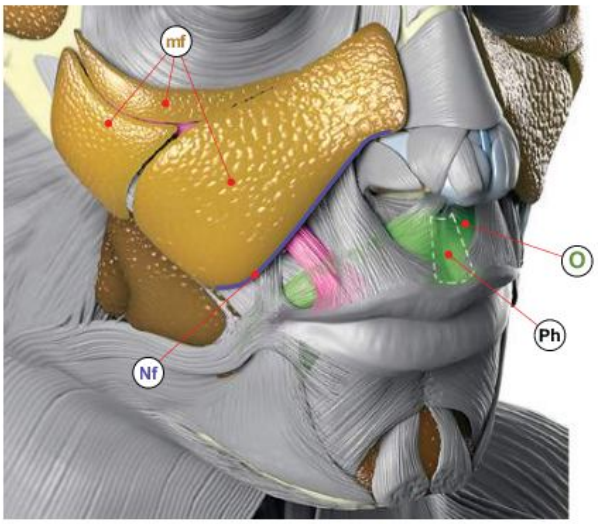


MUSCLES OF THE ORAL GROUP

ZYGOMATICUS MINOR







THE ZYGOMATICUS MINOR (Z) MUSCLE ARISES FROM THE **ZYGOMATIC BONE** (1), AND AS IT TRAVELS DOWNWARD, IT HAS MULTIPLE INSERTIONS INTO THE SKIN OF THE MIDDLE SECTION OF THE **NASOLABIAL FURROW** (nf), THE **MALAR FAT PAD** (mf), THE SUPERIOR FIBERS OF **ORBICULARIS ORIS**, WITH THE MAJORITY OF FIBERS TERMINATING AT THE LATERAL VERMILLION BORDER OF THE UPPER LIP.
ZYGOMATICUS MINOR PULLS THE MIDDLE SECTION OF THE **NASOLABIAL FURROW** (Nf) AND MIDDLE PORTION OF ONE SIDE OF THE UPPER LIP OUTWARD AND SLIGHTLY UPWARD.

(1) ZYGOMATIC BONE	(O) ORBICULARIS ORIS
(Nf) NASALOBIAL FURROW	(Ph) PHILTRUM
(mf) MALAR FAT PAD	

MUSCLES OF THE ORAL GROUP

ACTION UNIT **11** (Nasolabial Deepener): ZYGOMATICUS MINOR

APPEARANCE CHANGES DUE TO AU11:

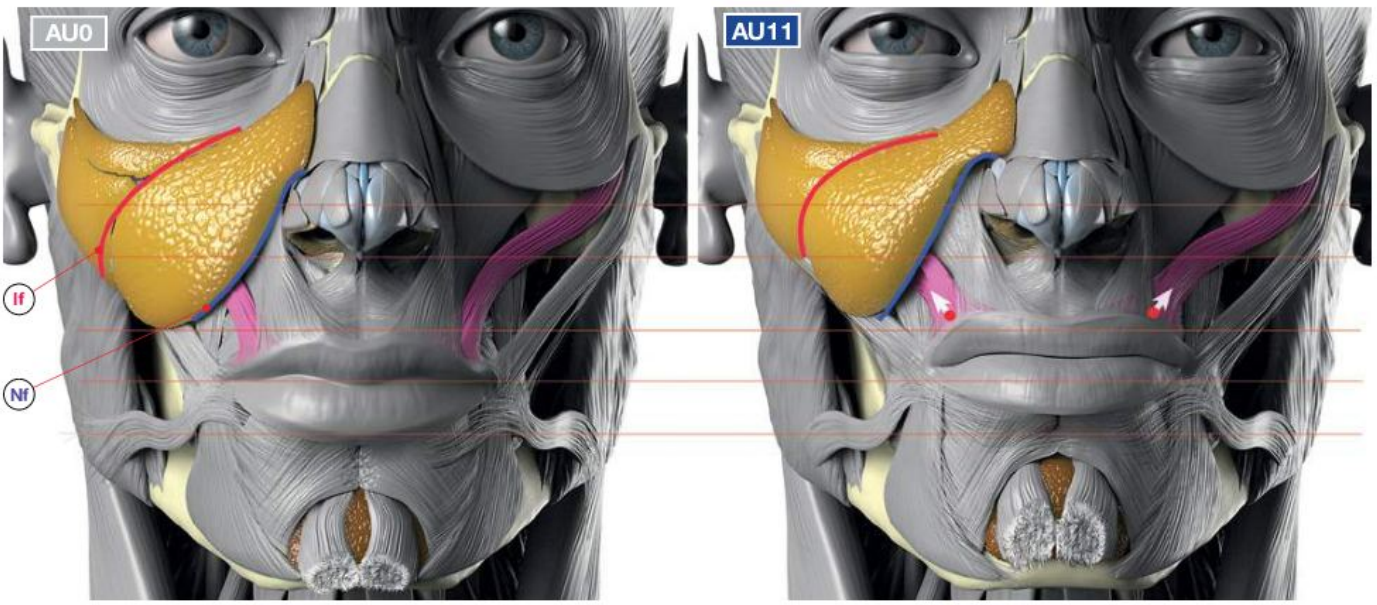
a – PULLS THE LIP UPWARD AND LATERALLY TO A SMALL EXTENT AT THE MIDPOINT BETWEEN THE **PHILTRUM** (**Ph**) AND OUTER LIP CORNERS. IT GIVES THE SO-CALLED "**STALLONE'S SNEER**" TO THE LIPS

b – PULLS THE SKIN BELOW THE UPPER PORTION OF THE **NASOLABIAL FURROW** (**Nf**), OBLIQUELY UPWARDS

c – DEEPENS THE UPPER MIDDLE PORTION OF THE **NASOLABIAL FURROW** (**Nf**)

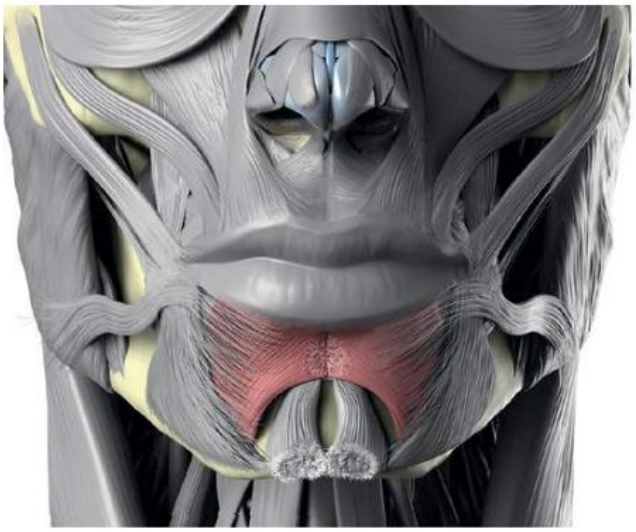
d – RAISES AND PUFFS THE UPPER MEDIAL PORTION OF THE **MALAR FAT** (**mf**)

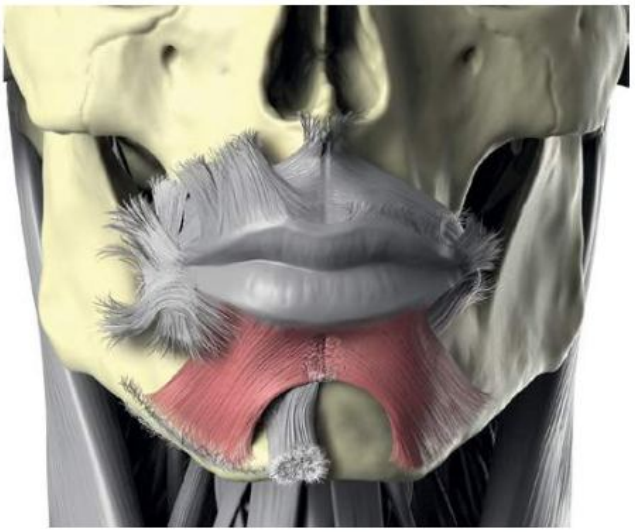
e – IN A STRONG ACTION IT MAY DEEPEN THE UPPER MEDIAL PORTION OF THE **INFRAORBITAL FURROW** (**If**)

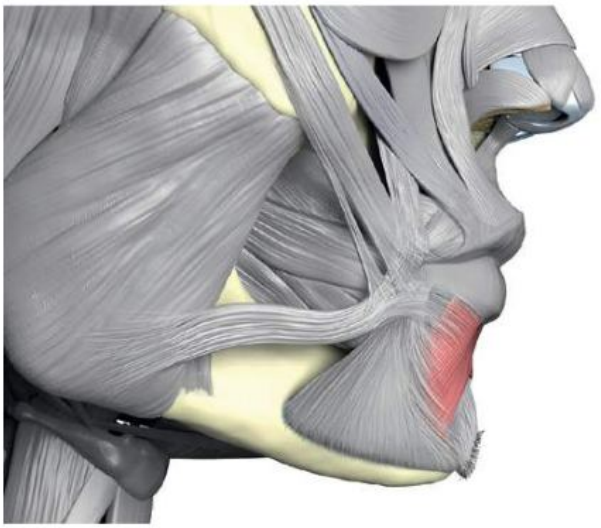


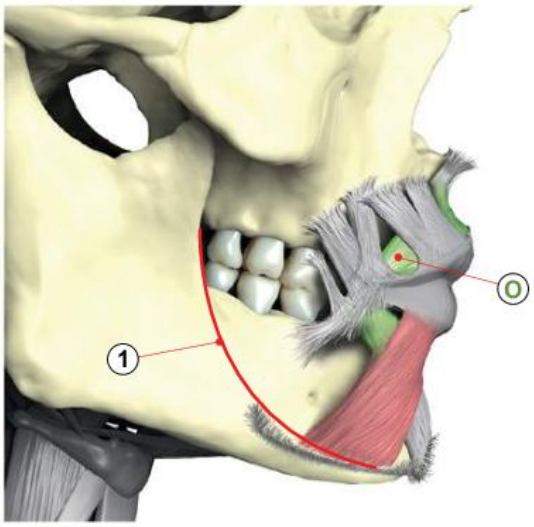
MUSCLES OF THE ORAL GROUP

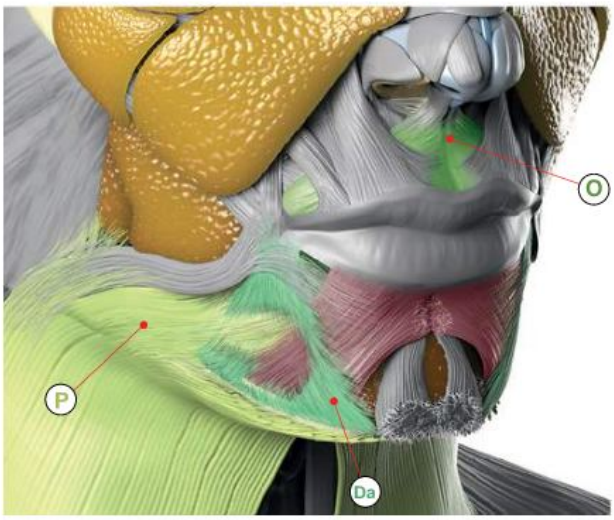
DEPRESSOR LABII INFERIORIS











DEPRESSOR LABII INFERIORIS ORIGINATES FROM THE **OBLIQUE LINE** (**1**) ON THE OUTSIDE OF THE BODY OF THE MANDIBLE, JUST SUPERIOR TO THE ORIGIN OF THE **DEPRESSOR ANGULI ORIS** (**Da**) AND INSERTS INTO THE SKIN OF THE MEDIAL PORTION OF EACH HALF OF THE LOWER LIP, ALMOST UP TO THE VERMILLION BORDER AND INTO THE **ORBICULARIS ORIS** (**O**). THE FIBERS OF THESE MUSCLES ON EACH SIDE OF THE FACE BLEND AT THE MIDLINE JUST BELOW THE **LOWER LIP.**

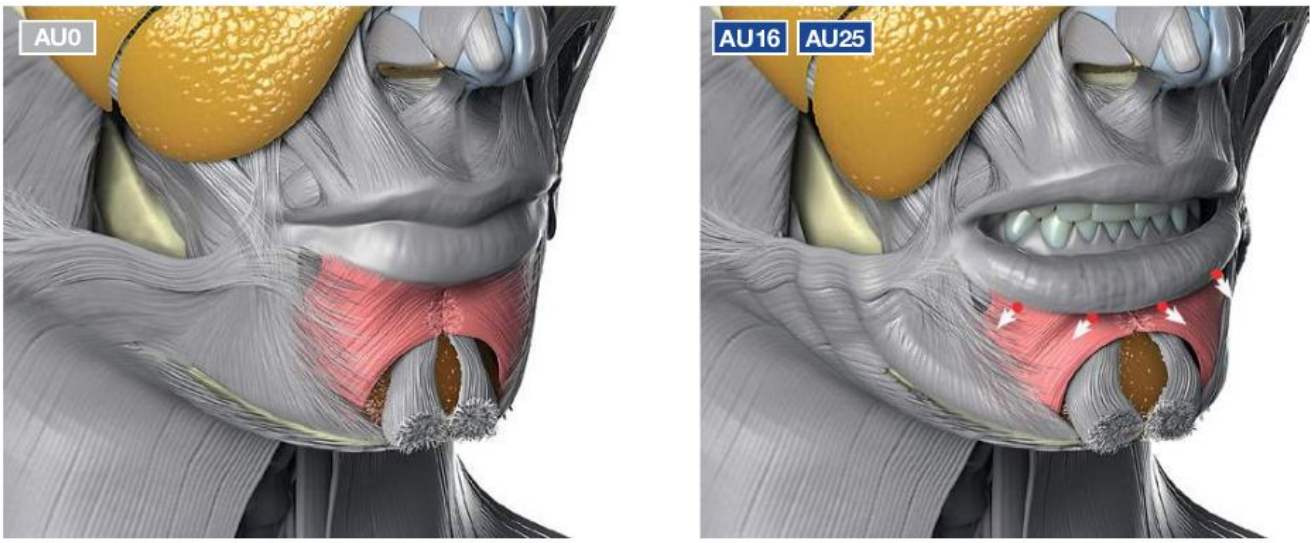
BOTH **DEPRESSOR LABII INFERIORIS** MUSCLES CONTRACT TOGETHER TO PULL THE MIDDLE THIRD OF THE ENTIRE LOWER LIP STRAIGHT DOWNWARD. THE LOWER LATERAL PORTION LIES DEEP TO FIBERS OF THE DEPRESSOR ANGULI ORIS AND THE LABIAL **PLATYSMA** (**P**).

MUSCLES OF THE ORAL GROUP

ACTION UNITS **16** (Lower Lip Depressor), **25** (Lips Part): **DEPRESSOR LABII INFERIORIS**

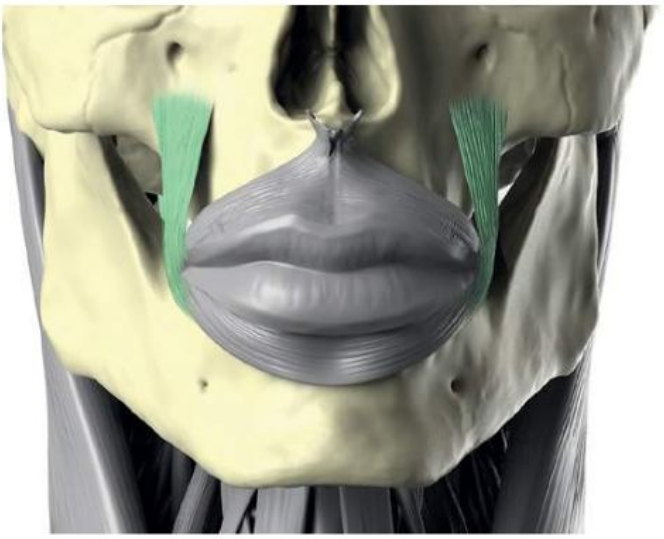
APPEARANCE CHANGES DUE TO AU16:

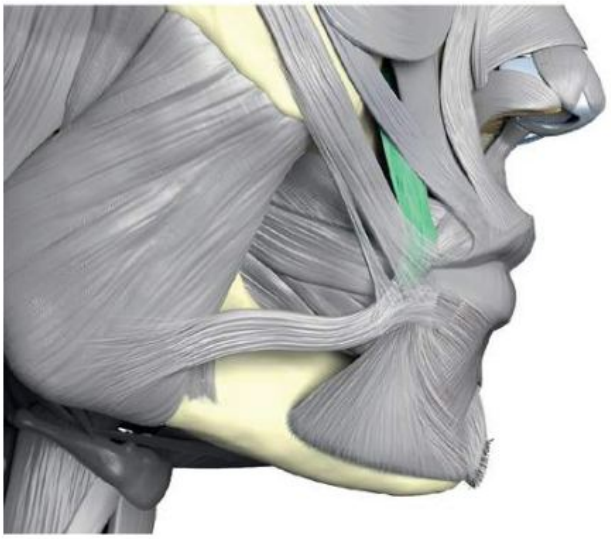
a – PULLS THE LOWER LIP DOWN
b – STRETCHES THE LOWER LIP AND PULLS IT SOMEWHAT LATERALLY
c – MAY CAUSE THE LOWER LIP TO PROTRUDE OR FLATTEN
d – USUALLY PARTS THE LIPS (SCORED **AU16+AU25**) EXPOSING MORE OF THE LOWER TEETH AND IN A STRONG ACTION THE LOWER GUM IS EXPOSED AS WELL. SOMETIMES AU-16 DOES NOT PART THE LIPS AND IS SCORED **AU16** ALONE
e – STRETCHES THE CHIN BOSS LATERALLY AND DOWN, FLATTENING THE SKIN OVER THE CHIN BOSS, AND SOMETIMES CAUSING WRINKLES TO APPEAR OVER THE CHIN BOSS
f – IN SOME PEOPLE, IT MAY CAUSE WRINKLES TO APPEAR DIRECTLY BELOW THE LOWER LIP

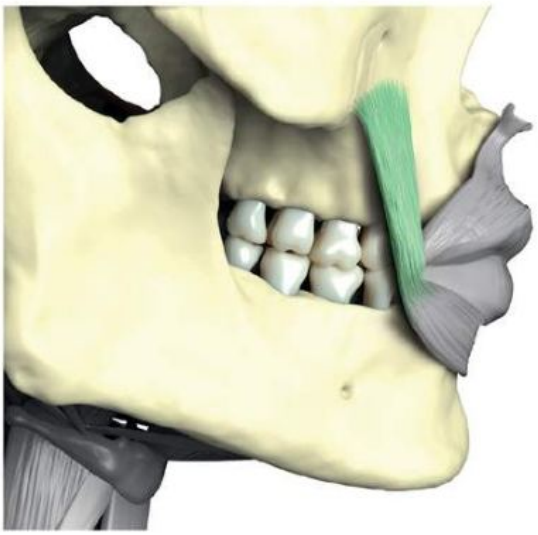


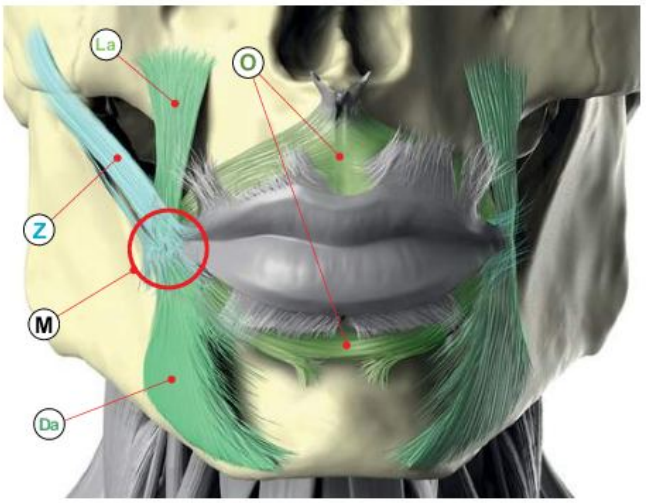
MUSCLES OF THE ORAL GROUP

LEVATOR ANGULI ORIS









LEVATOR ANGULI ORIS (La) IS A MUSCLE DEEPLY SEATED IN THE ORAL GROUP. IT ARISES FROM THE CANINE FOSSA OF THE MAXILLA AND INSERTS IN THE **MODIOLUS** (**M**) AT THE ANGLE OF THE MOUTH, INTERMINGLING WITH THE FIBERS OF THE **ZYGOMATICUS MAJOR** (Z), THE **DEPRESSOR ANGULI** (Da), AND THE **ORBICULARIS ORIS** (O) MUSCLES.

THE **LEVATOR ANGULI ORIS** (La) PULLS THE ANGLE OF THE MOUTH STRAIGHT UP, AND CURVES THE MOUTH LINE UPWARD AT ITS ENDS. (La) ALSO STRECHES THE LIPS. LEVATOR ANGULI ORIS FOR THE MOST PART IS NOT USED IN EXPRESSING THE BASIC EMOTIONS, RATHER IT PRIMARILY STABILIZES THE **MODIOLUS** (**M**).

MUSCLES OF THE ORAL GROUP

ACTION UNITS **13** (Sharp Lip Puller): **LEVATOR ANGULI ORIS**

APPEARANCE CHANGES DUE TO AU13:

a – CAUSES THE CHEEKS AND THE **MALAR FAT PAD** (**mf**) TO BECOME VERY EVIDENT, PUFFING OUT, AS IT IS LIFTED PRIMARILY UP, MORE THAN OBLIQUELY

b – PULLS THE CORNERS OF THE MOUTH UP BUT AT A SHARPER ANGLE THAN **AU12**

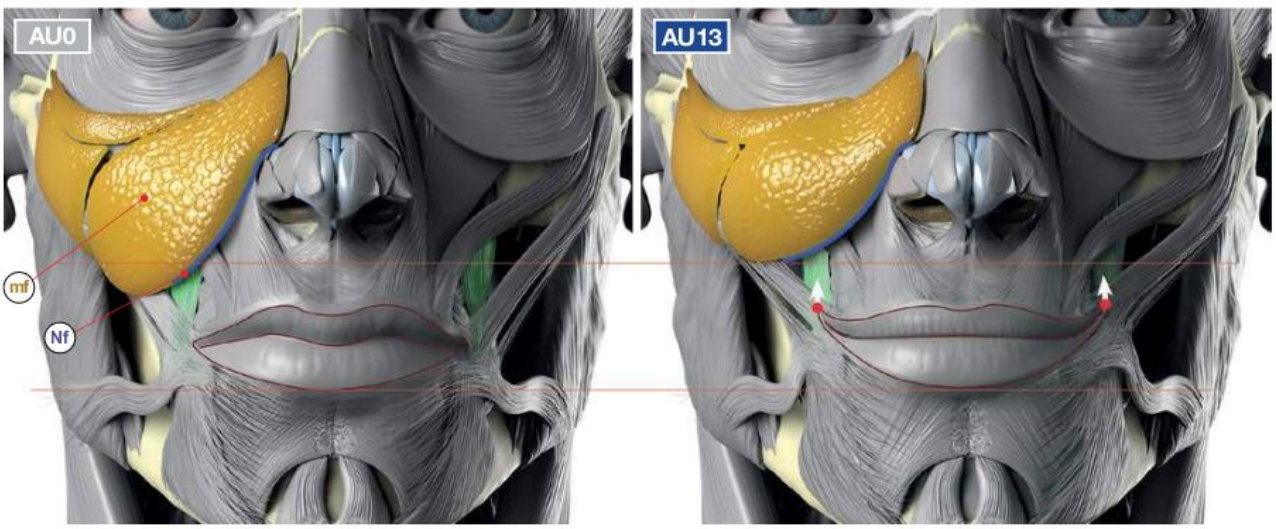
c – WHILE THE CORNERS OF THE LIPS ARE PULLED UP, THE VERMILLION BORDER OR RED OF THE LIPS DOES NOT MOVE UP WITH THE LIP CORNERS

d – THE LIP CORNERS APPEAR TO BE TIGHTENED, NARROWED, AND SHARPLY RAISED

e – MAY CAUSE THE UPPER AND/OR MIDDLE PORTION OF THE **NASOLABIAL FURROW** (**Nf**) TO DEEPEN

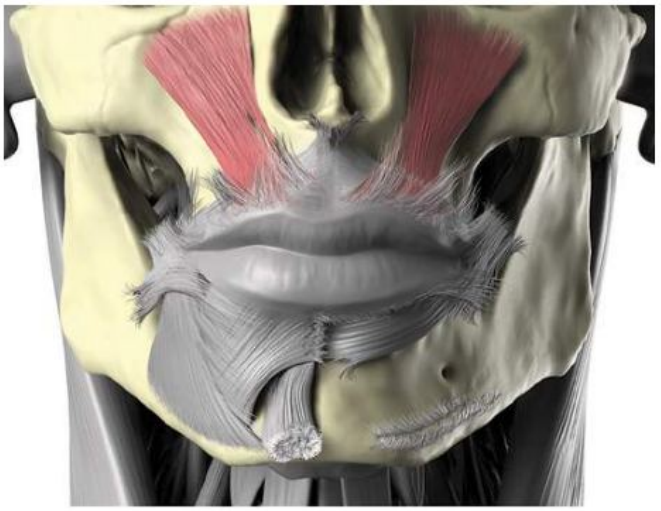
f – MAY CAUSE THE UPPER LIP TO APPEAR TAUT OR FLAT

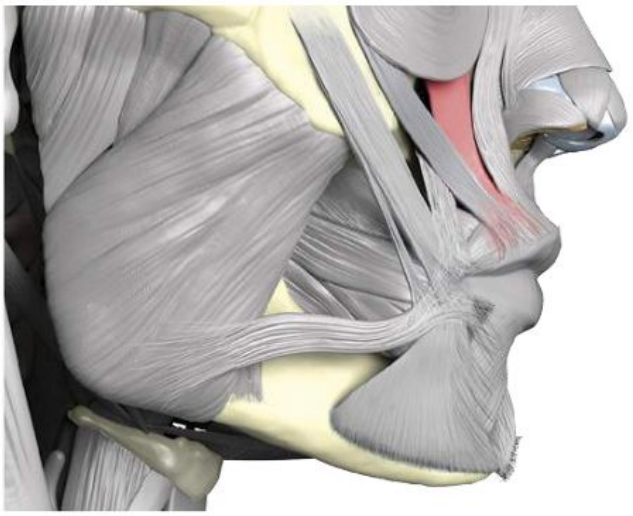
g – WHEN THE ACTION IS STRONG, CROW'S FEET WRINKLING, BAGGING AND FURROWING BELOW THE LOWER EYELIDS APPEAR

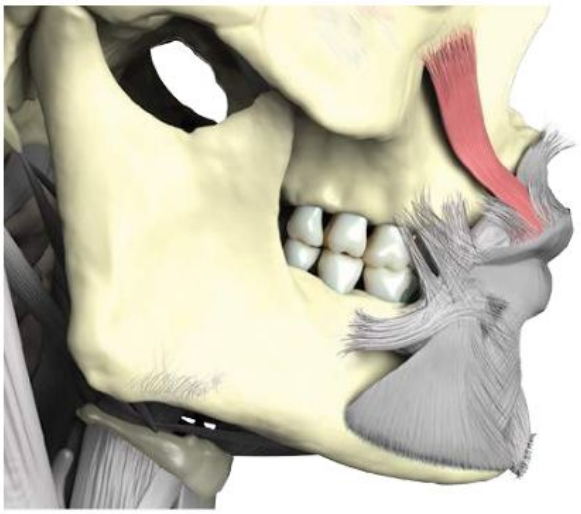


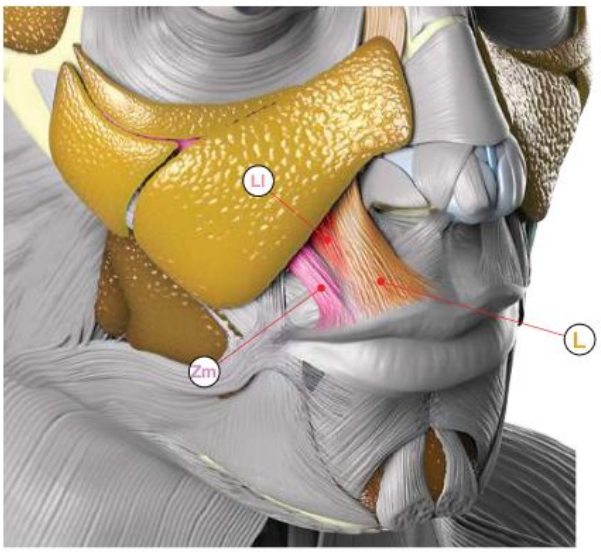
MUSCLES OF THE ORAL GROUP

LEVATOR LABII SUPERIORIS









LEVATOR LABII SUPERIORIS (LI) MUST NOT BE CONFUSED WITH ANOTHER MUSCLE, **LEVATOR LABII SUPERIORIS ALAEQUE NASI L.L.S.A.N.** (L).

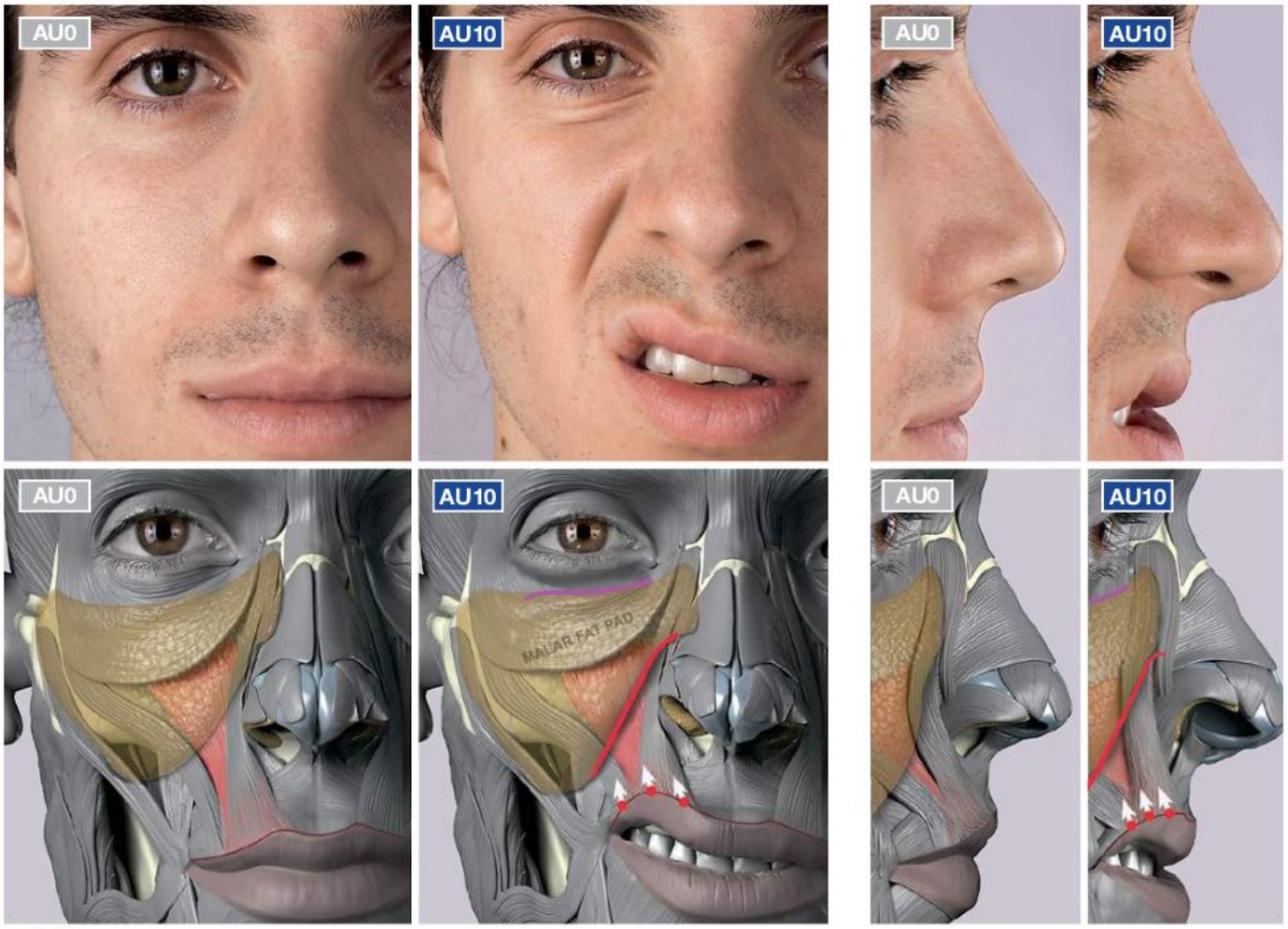
LEVATOR LABII SUPERIORIS (LI) IS A WIDE FLAT MUSCLE THAT ORIGINATES FROM THE **INFERIOR ORBITAL MARGIN** (1), THEN PASSES INFERIORLY AND ITS FIBERS CONVERGE INTO THE MUSCULAR SUBSTANCE OF THE MID-LATERAL PORTION OF THE UPPER LIP BETWEEN THE LATERAL SLIP OF **L.L.S.A.N.** (L) AND **ZYGOMATICUS MINOR** (Zm).

LEVATOR LABII SUPERIORIS (LI) INSERTS INTO THE MID-LATERAL PORTION OF THE SKIN OF THE UPPER LIP.

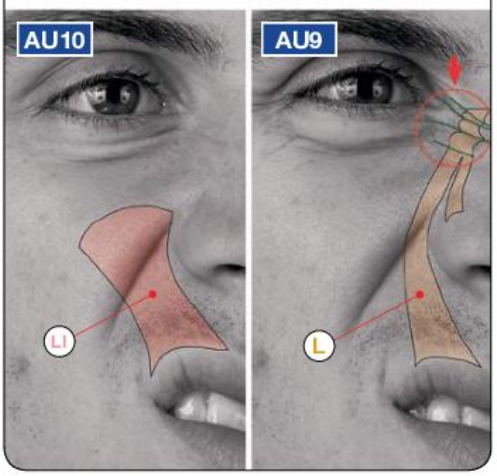
LEVATOR LABII SUPERIORIS (LI) ELEVATES AND EVERTS THE UPPER LIP.

MUSCLES OF THE ORAL GROUP

ACTION UNITS **10** (Upper Lip Raiser): LEVATOR LABII SUPERIORIS



MAIN DIFFERENCE BETWEEN **AU10** AND **AU9** IS THE APPEARANCE OF WRINKLES IN **AU9** CALLED "**BUNNY LINES**"

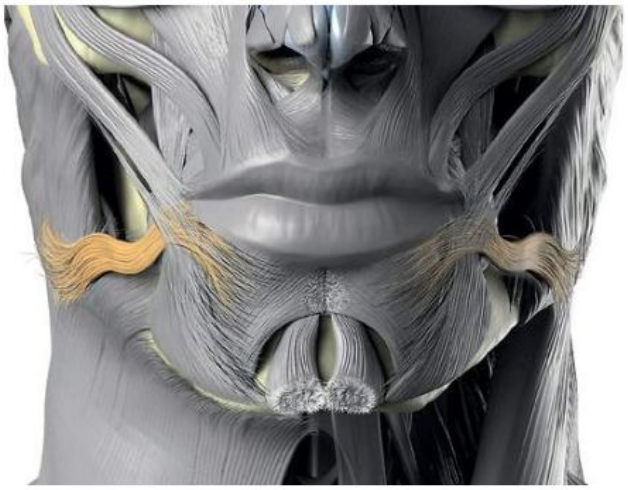


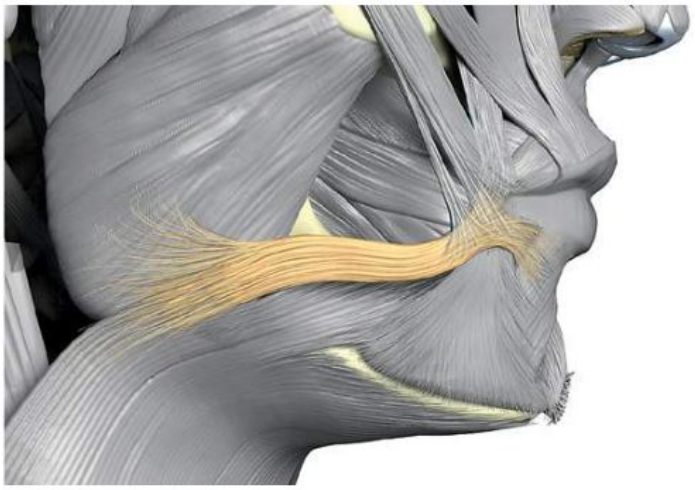
APPEARANCE CHANGES DUE TO AU10:

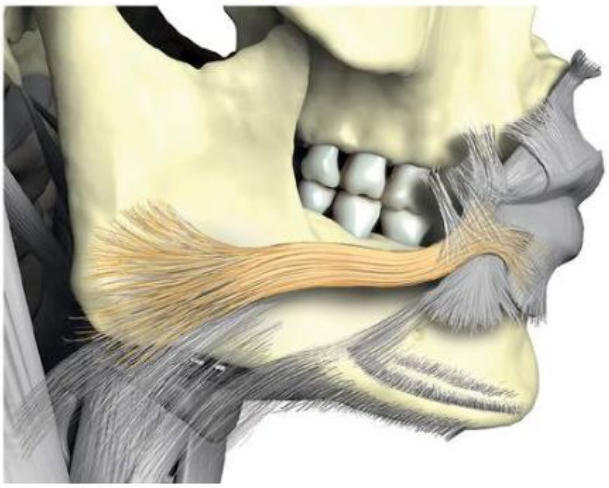
- **a** – RAISES THE UPPER LIP. CENTER OF THE UPPER LIP IS DRAWN STRAIGHT UP, THE OUTER PORTIONS OF UPPER LIP ARE DRAWN UP, BUT NOT AS HIGH AS THE CENTER
- **b** – CAUSES AN ANGULAR BEND IN THE SHAPE OF THE UPPER LIP
- **c** – PUSHES THE **MALAR FAT PAD** UP, AND MAY CAUSE THE **INFRAORBITAL FURROW** TO WRINKLE, OR DEEPEN IF ALREADY EVIDENT IN THE NEUTRAL POSITION
- **d** – DEEPENS THE **NASOLABIAL FURROW** AND RAISES THE UPPER PART OF IT
- **e** – WIDENS AND RAISES THE NOSTRIL WINGS
- **f** – WHEN THE ACTION IS STRONG, THE LIPS PART

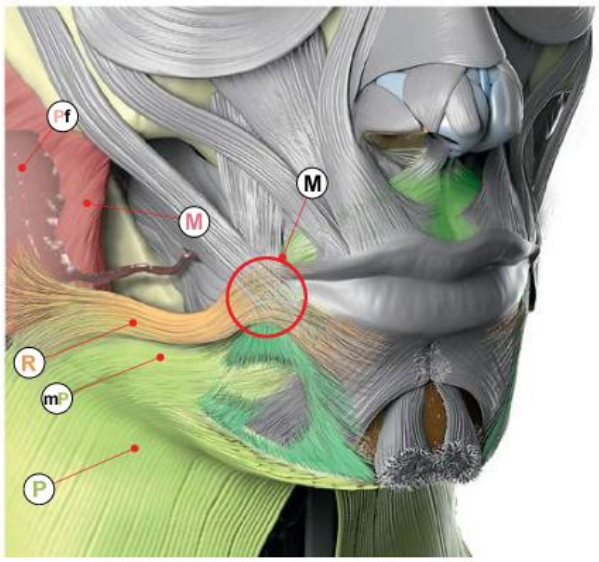
MUSCLES OF THE ORAL GROUP

RISORIUS









COMPRESSION OF THE CHEEK AGAINST THE GUMS PREVENTS CHEWED FOOD FROM BECOMING LODGED THERE. THE BUCCINATOR (B) ALSO AIDS IN THE ACT OF BLOWING AND WHISTLING, AS DOES THE MASSETER (M), THE **FASCIA ENCLOSING MODIOLAR PORTION** (**mP**) OF THE PLATYSMA (P), AND EVEN THE **FASCIA OVER THE MASTOID PROCESS**.

RISORIUS (R) INSERTS INTO THE **MUSCULAR MODIOLUS** (**M**) AT THE ANGLE OF THE MOUTH.

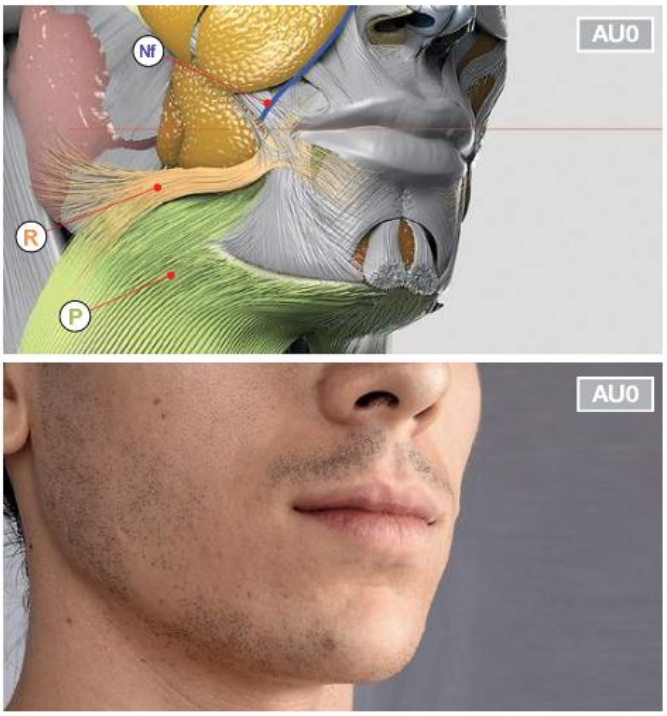
RISORIUS (R) PULLS THE MODIOLUS, THEREFORE THE ANGLE OF THE MOUTH, BACKWARD AND OUTWARD. THIS IS A VERY WEAK ACTION AND PROBABLY USED FOR CREATING SUBTLE MOVEMENTS DURING SPEECH. STRONG RETRACTION OF THE ANGLE OF THE MOUTH IS MORE PRODUCED BY THE **MODIOLAR PORTION** (**mP**) OF THE PLATYSMA (P).

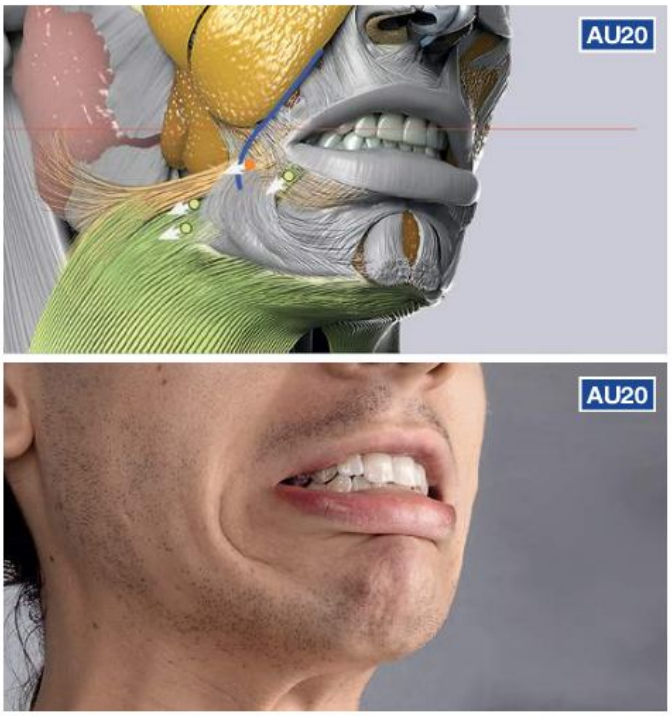
MUSCLES OF THE ORAL GROUP

ACTION UNITS **20** (Lip Stretcher): **RISORIUS, PLATYSMA**

APPEARANCE CHANGES DUE TO AU20:

- **a** – PULLS THE LIPS BACK AND LATERALLY, THE LIP CORNERS MAY BE RAISED OR LOWERED, BUT THE MAIN MOMENT IS HORIZONTAL
- **b** – ELONGATES THE MOUTH
- **c** – THE LIPS BECOME FLATTENED AND STRETCHED BY THE LATERAL PULL
- **d** – PULLS THE SKIN BEYOND THE LIP CORNERS LATERALLY
- **e** – WRINKLES MAY APPEAR AT THE LIP CORNERS OR BEYOND THE LIP CORNERS
- **f** – PULLS THE LOWER PORTION OF THE **NASOLABIAL FURROW** (Nf)
- **g** – STRETCHES THE SKIN OVER THE CHIN BOSS LATERALLY. MAY CAUSE THE CHIN TO APPEAR FLATTENED AND/OR WRINKLED
- **h** – CAN STRETCH NOSTRIL WINGS LATERALLY TO ELONGATE THE NOSTRIL OPENINGS



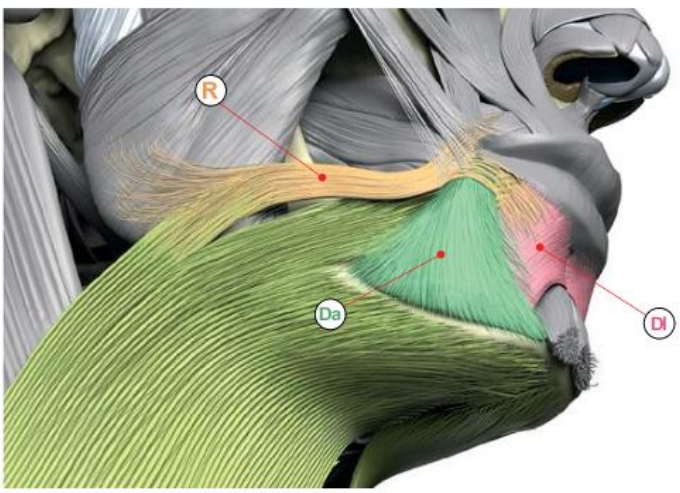


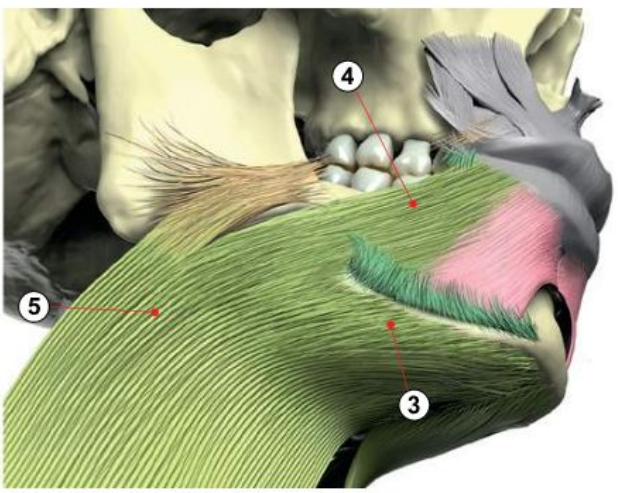
MUSCLES OF THE NECK

PLATYSMA

THE **PLATYSMA** (P) IS A THIN, SUPERFICIAL MUSCLE ON EACH SIDE OF THE NECK ARISING FROM THE UPPER PART OF THE SHOULDERS, PARTLY COVERING THE **PECTORALIS MAJOR** (**1**) AND THE **DELTOID** (**2**) MUSCLES AND INSERTS INTO THE MOUTH AND CHIN AREA. IN THE MOUTH AREA THE PLATYSMA DIVIDES INTO THE **MANDIBULAR** (**3**), **LABIAL** (**4**) AND **MODIOLAR (nodular)** (**5**) PARTS. THE **MANDIBULAR PART** (**3**) ATTACHES TO THE LOWER **BORDER OF THE MANDIBLE**. POSTERIOR TO THIS ATTACHMENT, A SUBSTANTIAL FLATTENED BUNDLE SEPARATES AND PASSES SUPEROMEDIALLY TO THE LATERAL BORDER OF **DEPRESSOR ANGULI ORIS** (Da), WHERE A FEW FIBERS JOIN IT. THE REMAINDER CALLED THE **LABIAL PART** (**4**), CONTINUES WITHIN THE TISSUE OF THE LATERAL HALF OF THE LOWER LIP, AS A DIRECT LABIAL TRACTOR. THE **LABIAL PART** OF THE TRACTOR FILLS UP THE SPACE BETWEEN THE **DEPRESSOR ANGULI ORIS** (Da) AND **DEPRESSOR LABII INFERIORIS** (DI) AND IS ON THE SAME PLANE AS THESE MUSCLES. THE **MODIOLAR PART** (**5**) OF THE **PLATYSMA** MUSCLE IS POSTEROLATERAL TO THE **DEPRESSOR ANGULI ORIS** (Da) AND PASSES SUPEROMEDIALLY, DEEP TO THE **RISORIUS** (R).

THE **PLATYSMA** PULLS THE LOWER LIP AND CORNER OF THE MOUTH SIDEWAYS AND DOWNWARDS. WHEN ALL THE MUSCLE FIBERS OF THE PLATYSMA WORK TO THEIR MAXIMUM, THIS MUSCLE EFFECTIVELY INCREASES THE DIAMETER OF THE NECK AS MIGHT BE SEEN DURING INTENSE BREATHING OF AN ATHLETE SPRINTING.



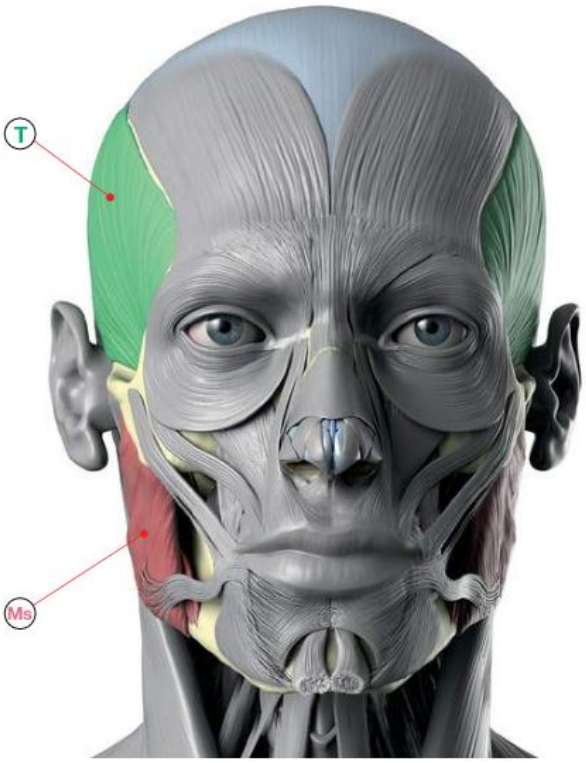


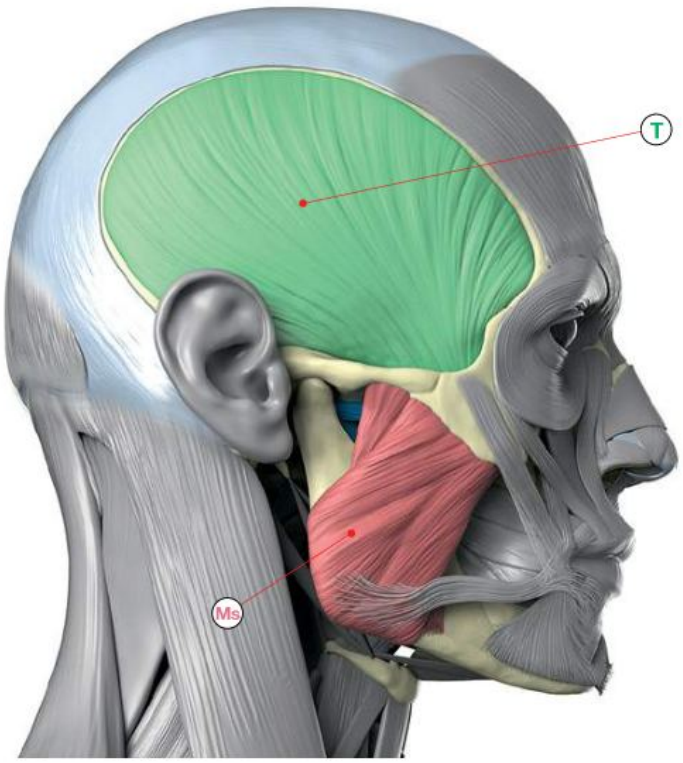
MUSCLES OF THE NECK

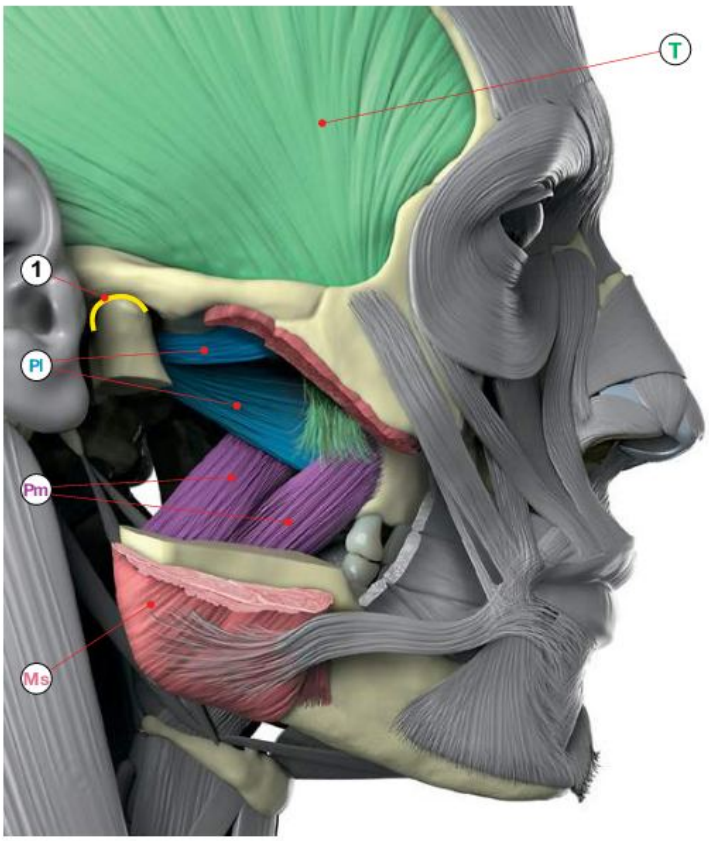
ACTION UNITS **20** (Lip Stretcher), **25** (Lips Part): **RISORIUS, PLATYSMA**

PRIMARY MUSCLES OF MASTICATION

MASSETER, TEMPORALIS, MEDIAL PTERYGOID, LATERAL PTERYGOID







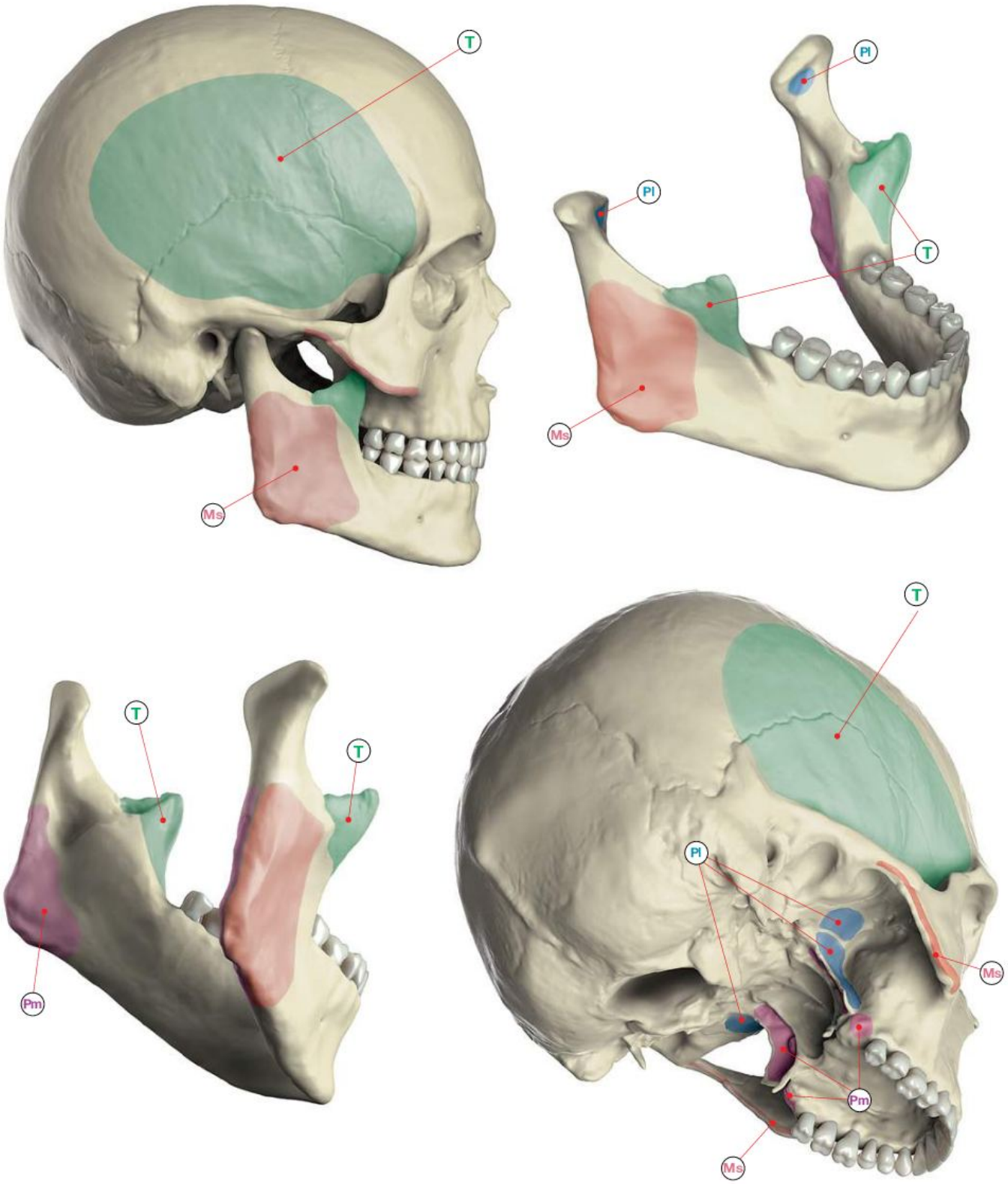
MASTICATION IS THE PROCESS OF CHEWING, TEATING, AND GRINDING FOOD WITH TEETH. THIS PROCESS INVOLVES THE MUSCLES OF MASTICATION, THE TEETH, THE TONGUE, AND A PAIR OF **TEMPOROMANDIBULAR JOINTS** (**1**).

DURING MASTICATION, THE 3 PAIRS OF THE **PRIMARY MUSCLES OF MASTICATION**, THE **MASSETER**, THE **TEMPORALIS**, AND THE **MEDIAL PTERYGOID**, ARE RESPONSIBLE FOR ADDUCTION OF THE JAW (closing the mouth) WHILE THE PRIMARY ACTION OF THE **LATERAL PTERYGOID** IS TO OPEN THE JAW.

T	**TEMPORALIS**
Ms	**MASSETER**
Pm	**MEDIAL PTERYGOID**
Pl	**LATERAL PTERYGOID**
1	**TEMPOROMANDIBULAR JOINT (TMJ)**

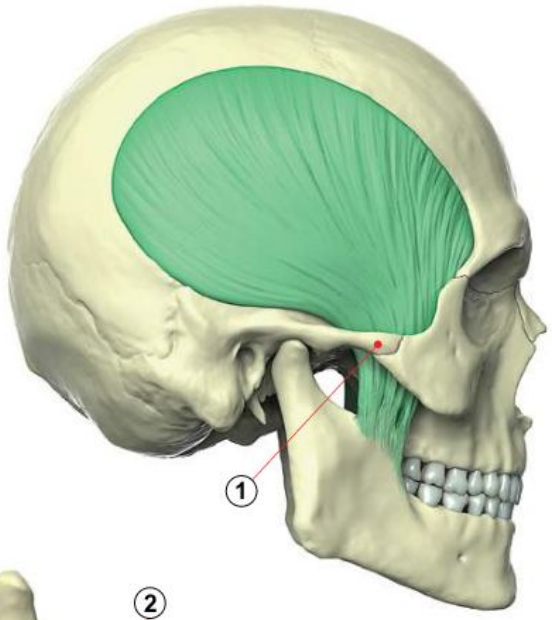
PRIMARY MUSCLES OF MASTICATION

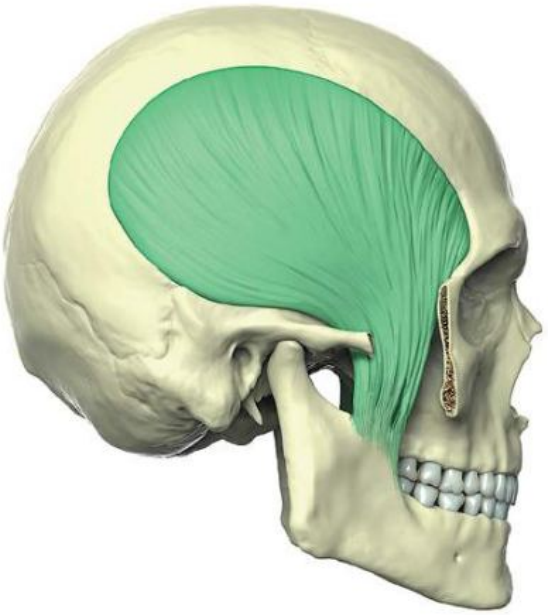
MASSETER, TEMPORALIS, MEDIAL PTERYGOID, LATERAL PTERYGOID
ORIGINS AND INSERTIONS

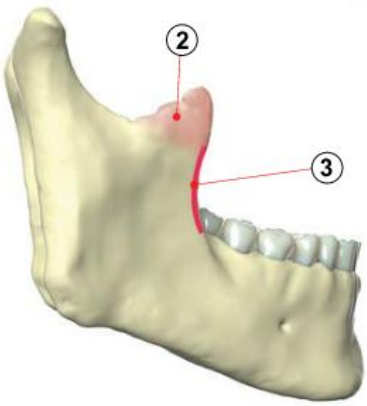


PRIMARY MUSCLES OF MASTICATION

TEMPORALIS







THE **TEMPORALIS** MUSCLE IS A FLAT, FAN-SHAPED MUSCLE THAT FILLS MUCH OF THE CONCAVITY OF THE **TEMPORAL FOSSA** OF THE SKULL. FROM ITS TEMPORAL LINE ATTACHMENT, THE MUSCLE FORMS A BROAD SHEATH THAT NARROWS DISTALLY AS IT PASSES THROUGH A SPACE FORMED BETWEEN THE **ZYGOMATIC ARCH** (**1**) AND THE LATERAL SIDE OF THE SKULL. THE MUSCLE INSERTS ON THE **CORONOID PROCESS** (**2**) AND THE **ANTERIOR EDGE AND MEDIAL SURFACE OF THE RAMUS** (**3**) OF THE MANDIBLE.

CONTRACTION OF THE **TEMPORALIS** ELEVATES THE MANDIBLE. THE MORE OBLIQUE POSTERIOR FIBERS ACT TO ELEVATE AND RETRACT THE MANDIBLE.

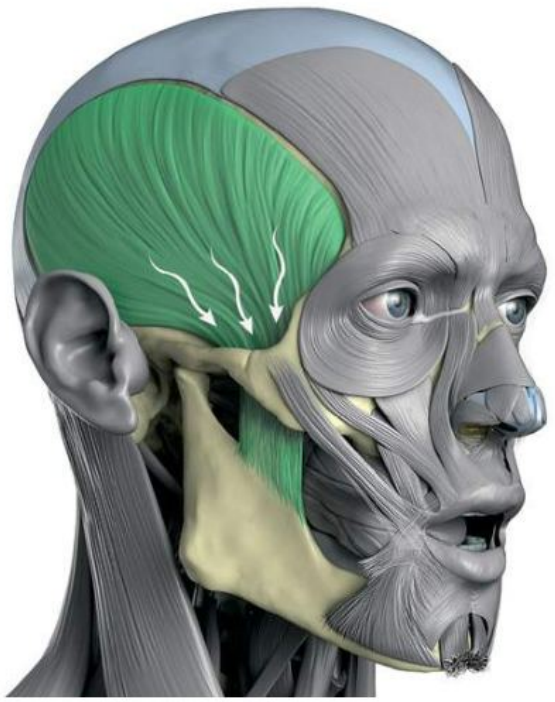
PRIMARY MUSCLES OF MASTICATION

TEMPORALIS

RELAXED

CONTRACTED

RELAXED



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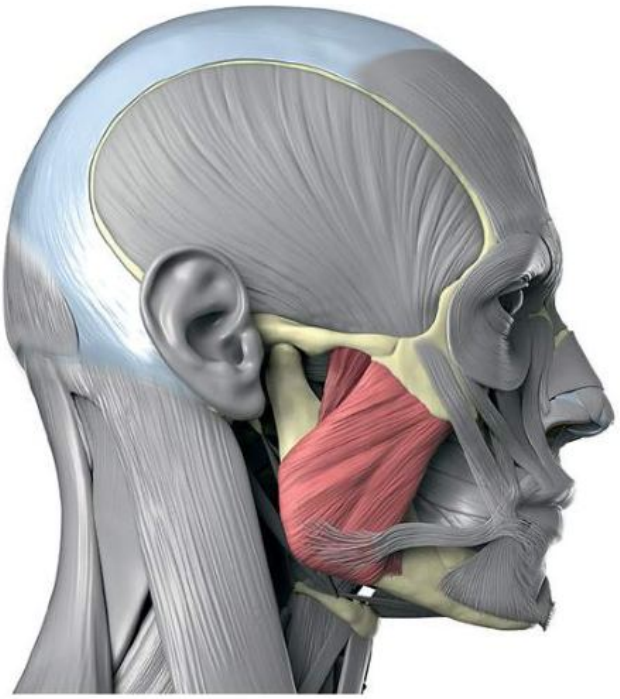
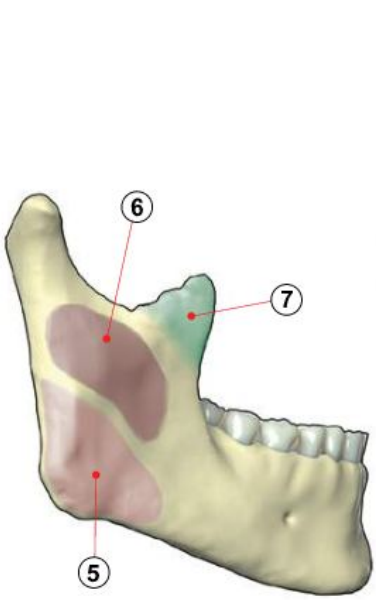
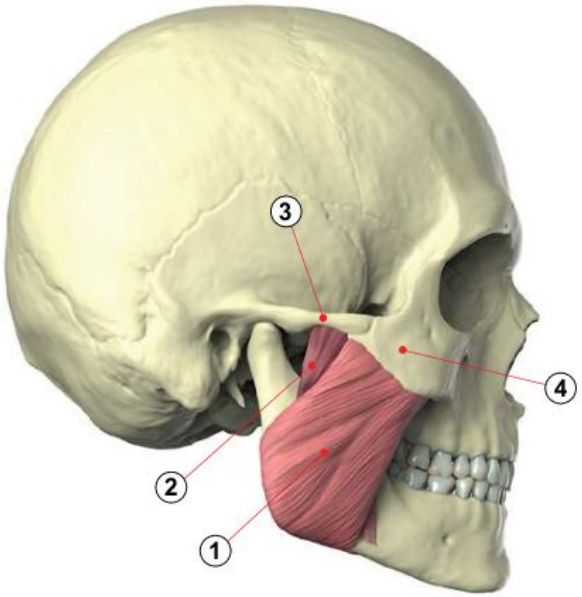
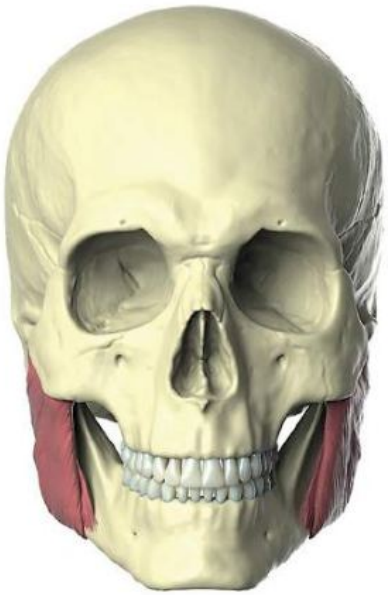
PRIMARY MUSCLES OF MASTICATION

MASSETER









THE MASSETER IS A THICK, STRONG MUSCLE. IT HAS **SUPERFICIAL** (**1**) AND **DEEP** (**2**) **HEADS**. THE FIBERS OF THE LARGER MORE **SUPERFICIAL HEAD** (**1**) ORIGINATE FROM THE **ZYGOMATIC ARCH** (**3**) AND THE **ZYGOMATIC BONE** (**4**) WHICH RUNS INFERIORLY AND POSTERIORLY AND INSERTS NEAR THE **ANGLE OF THE MANDIBLE** (**5**).

THE **DEEPER HEAD** (**2**) IS MUCH SMALLER. IT ARISES FROM THE POSTERIOR THIRD OF THE LOWER BORDER FROM THE WHOLE OF THE MEDIAL SURFACE OF THE **ZYGOMATIC ARCH** (**3**) AND ITS FIBERS PASS DOWNWARD AND FORWARD AND INSERT INTO THE **UPPER HALF OF THE RAMUS** (**6**) AS HIGH AS THE **CORONOID PROCESS** (**7**) OF THE MANDIBLE.

PRIMARY MUSCLES OF MASTICATION

MASSETER

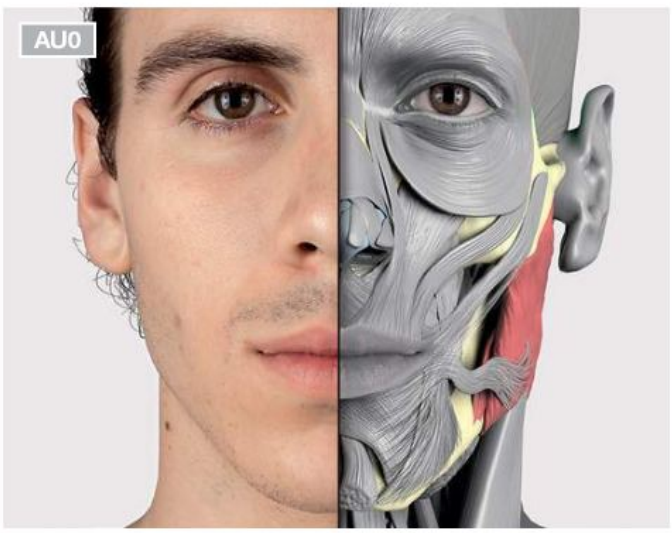
RELAXED

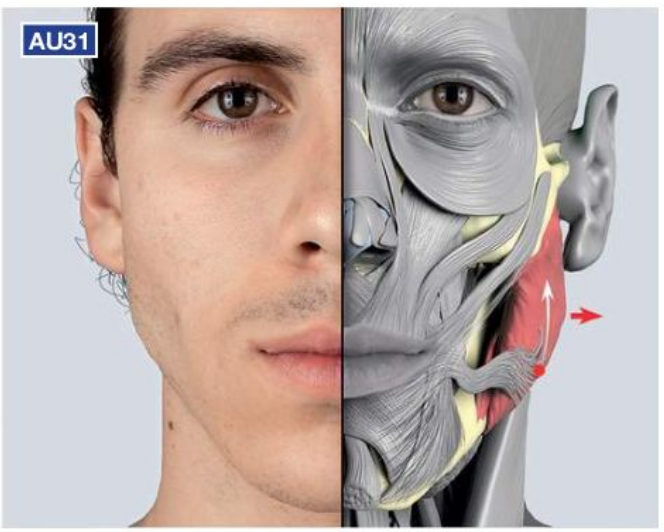
CONTRACTED

ACTION UNITS **31** (Jaw Clencher): **MASSETER**

IN **AU31**, THE JAW IS CLOSED, LIFTING THE MANDIBLE. WHEN THE **MASSETER** IS RELAXED, IT ALLOWS **AU26** (Jaw Drop) TO OCCUR.

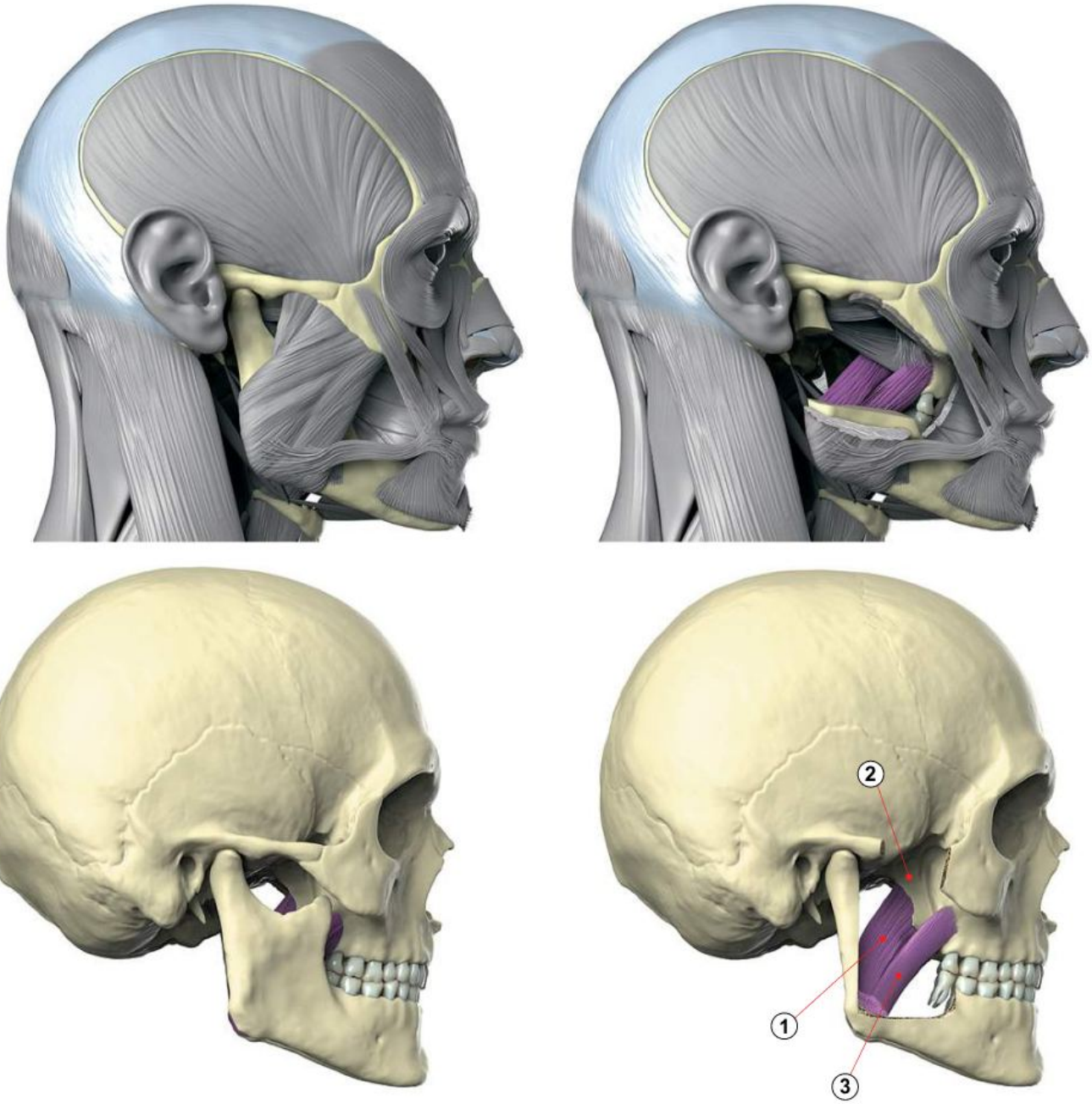
APPEARANCE CHANGES DUE TO AU31:
a – A BULGE APPEARS FAR BACK ALONG THE MANDIBLE WHERE IT IS HINGED
b – THE CHEEK ADJACENT TO THIS BULGE MAY BECOME MORE CONCAVE





PRIMARY MUSCLES OF MASTICATION

MEDIAL PTERYGOID

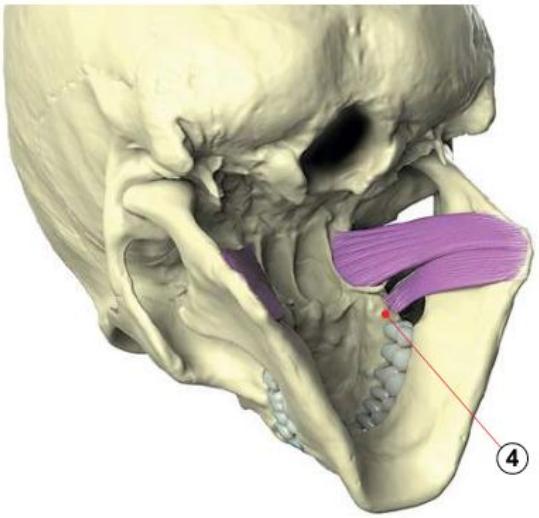


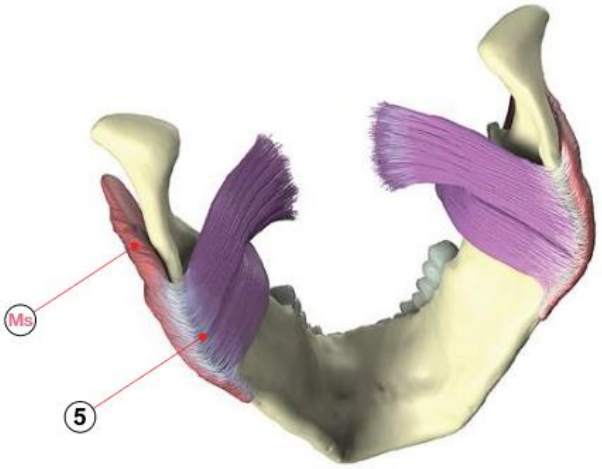
THE **MEDIAL PTERYGOID** IS A THICK QUADRILATERAL MUSCLE OF MASTICATION. THE BULK OF MUSCLE ARISES AS A **DEEP HEAD** (**1**) FROM JUST ABOVE THE MEDIAL SURFACE OF THE LATERAL **PTERYGOID PLATE** (**2**). THE SMALLER **SUPERFICIAL HEAD** (**3**) ORIGINATES FROM THE **MAXILLARY TUBEROSITY** (**4**) AND THE **PYRAMIDAL PROCESS** OF THE PALATINE BONE.

ITS FIBERS PASS DOWNWARD, LATERAL, AND POSTERIOR, AND INSERTS INTO THE LOWER AND BACK PART OF THE **MEDIAL SURFACE OF THE RAMUS** AND **ANGLE OF THE MANDIBLE**. THE INSERTION JOINS THE **MASSETER** MUSCLE TO FORM A **COMMON TENDINOUS SLING** (**5**) WHICH ALLOWS THE **MEDIAL PTERYGOID** AND **MASSETER** TO BE POWERFUL ELEVATORS OF THE JAW.

PRIMARY MUSCLES OF MASTICATION

MEDIAL PTERYGOID





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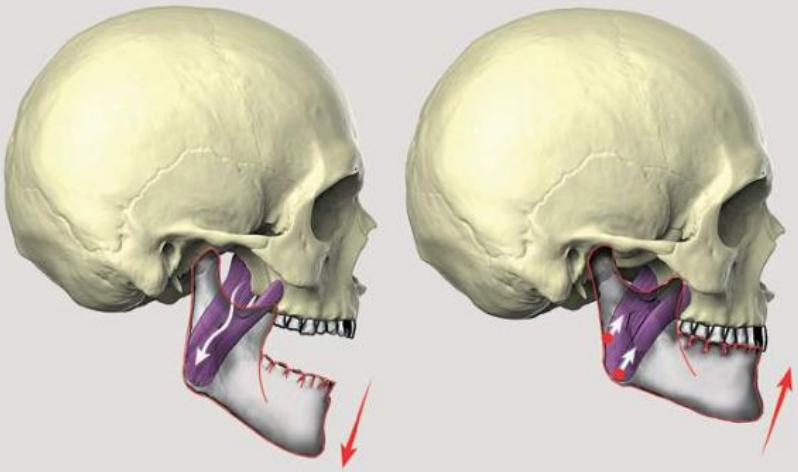
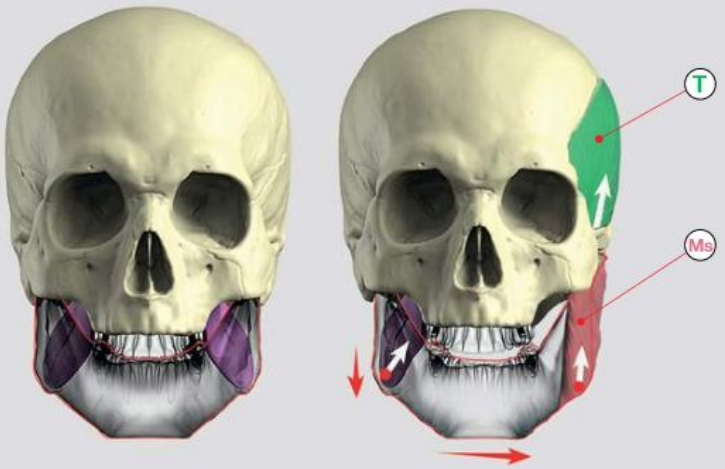


ELEVATION

THE **MEDIAL PTERYGOID** MUSCLES WITH BILATERAL CONTRACTION ALONG WITH THE **MASSETER** (Ms) AND **TEMPORALIS** (T) MUSCLES ASSIST IN ELEVATION OF THE MANDIBLE.

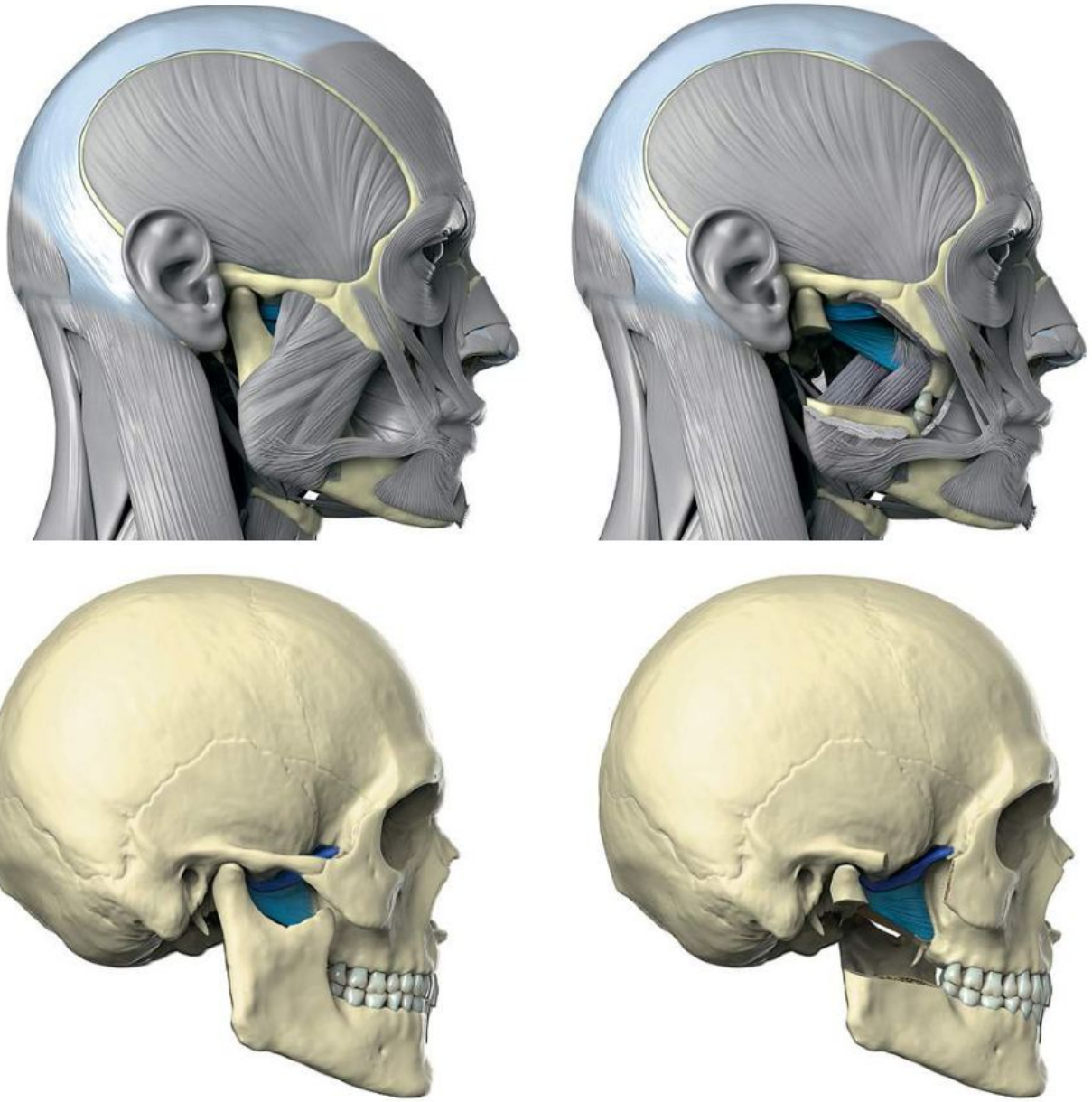
LATERAL EXCURSION OF MANDIBLE

THE MUSCLES THAT SWING THE MANDIBLE TO THE LEFT ARE THE LEFT **MASSETER** (Ms), LEFT **TEMPORALIS** (T), AND THE RIGHT **MEDIAL PTERYGOID** AND LEFT LATERAL PTERYGOID.



PRIMARY MUSCLES OF MASTICATION

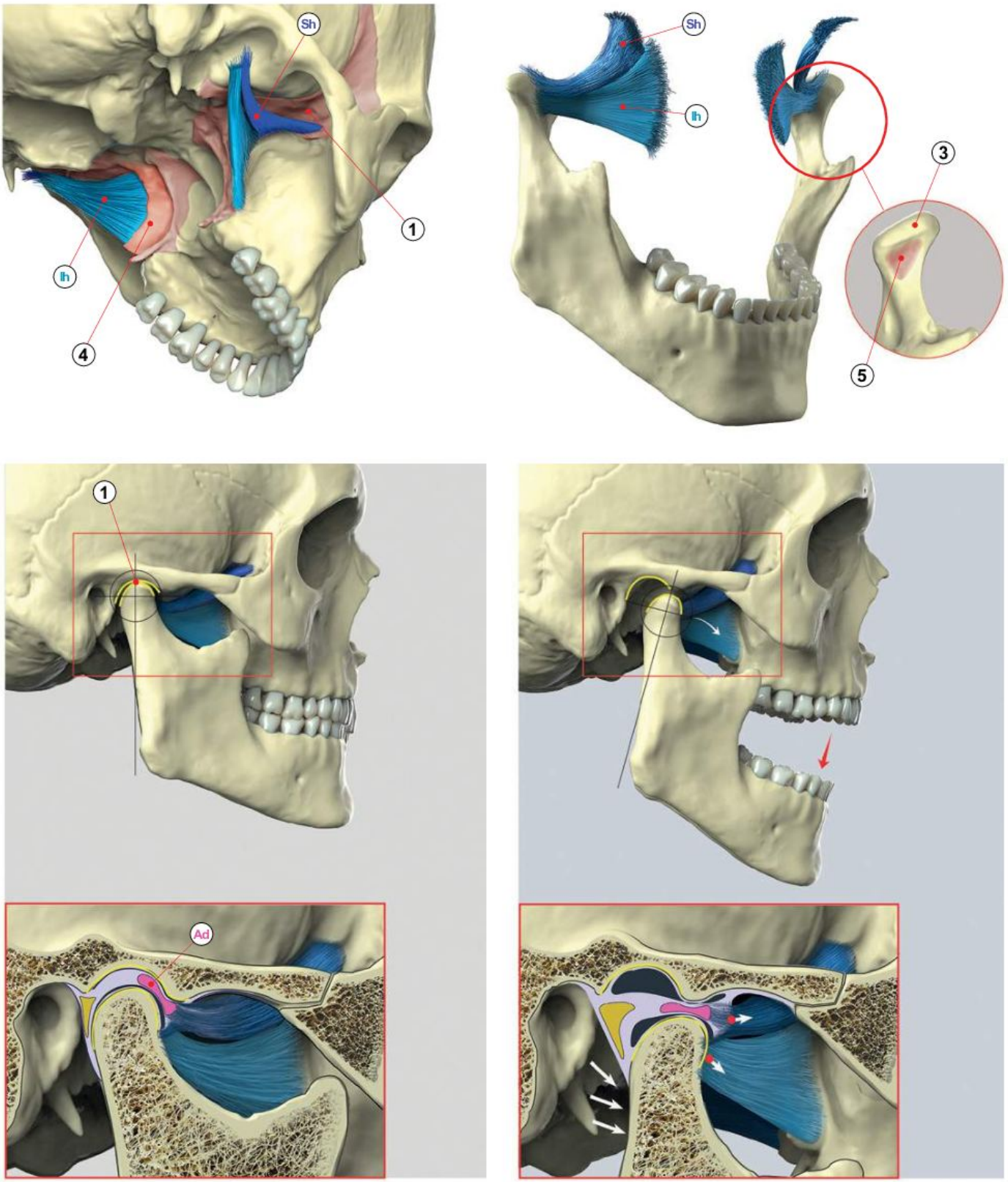
LATERAL PTERYGOID

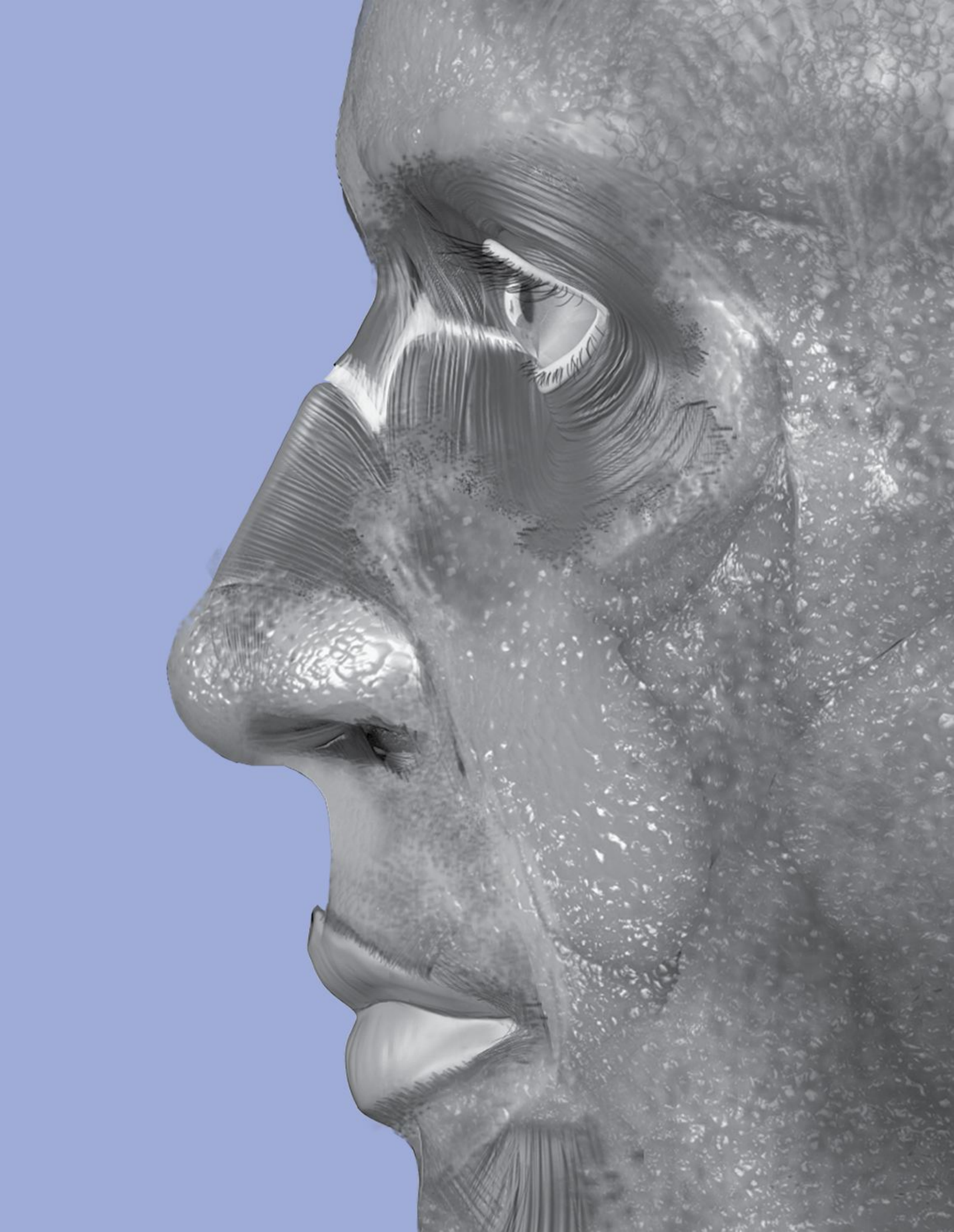


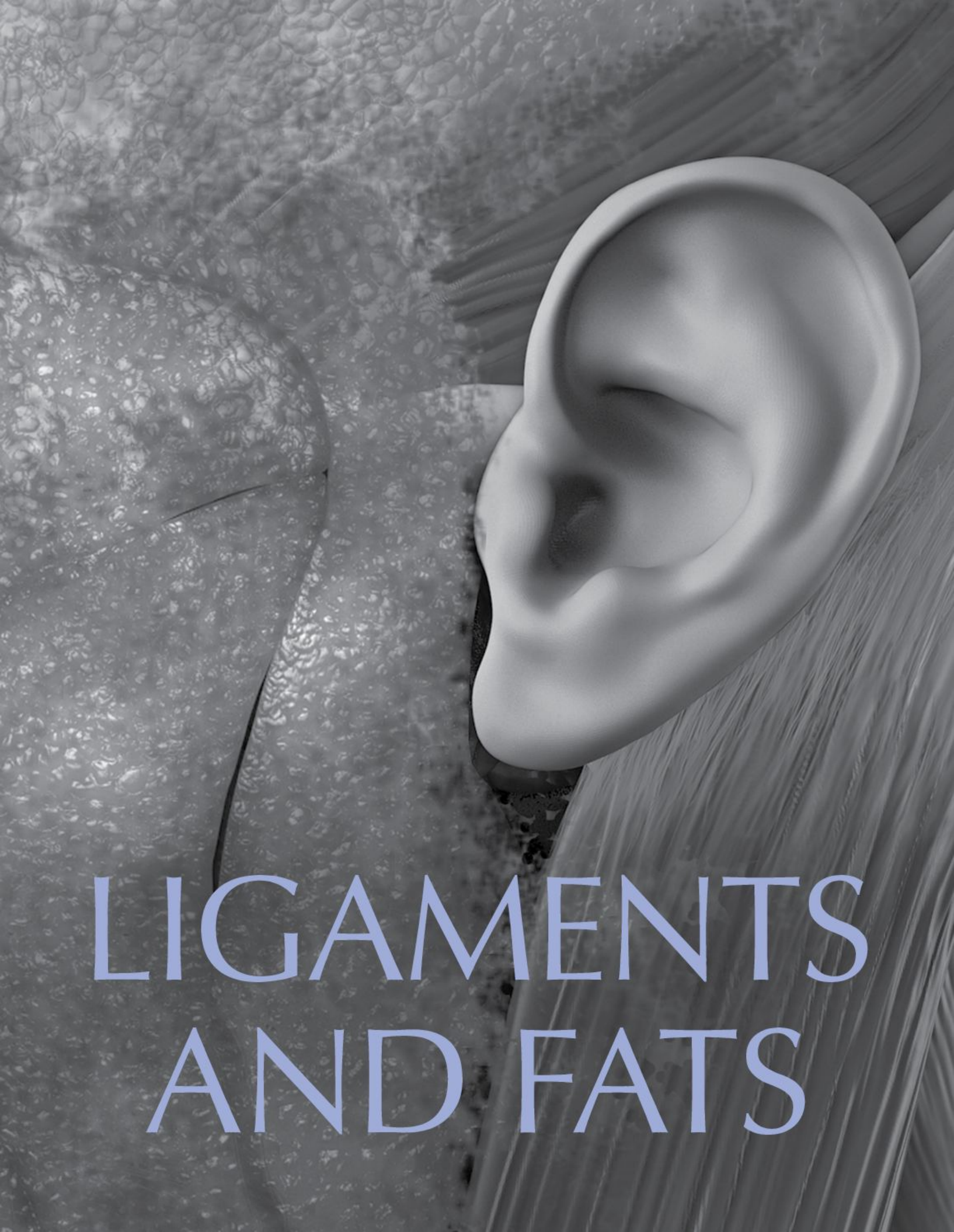
THE **LATERAL PTERYGOID** IS A MASTICATION MUSCLE WITH TWO HEADS: **SUPERIOR** (**Sh**) AND **INFERIOR HEAD** (**Ih**). THE **SUPERIOR HEAD** (**Sh**) ORIGINATES FROM THE INFRATEMPORAL SURFACE OF THE **SPHENOID BONE** (**1**) AND INSERTS INTO THE **CAPSULE** AND **ARTICULAR DISC** (**Ad**) OF THE **TEMPOROMANDIBULAR JOINT** (**2**). THE REMAINING PART OF THE **SUPERIOR HEAD** (**Sh**) IS ATTACHED TO THE **CONDYLE PROCESS** (**3**) OF THE MANDIBLE.
THE **SUPERIOR HEAD'S** (**Sh**) PRIMARY FUNCTION IS TO CONTROL AND STABILIZE THE **ARTICULAR DISC** (**Ad**) DURING MASTICATION. ALSO, THE **SUPERIOR HEAD** (**Sh**) IS INVOLVED IN CLENCHING, PROTRUSIVE, RETRUSIVE, AND OPEN-CLOSE JAW MOVEMENTS.
THE **INFERIOR HEAD** (**Ih**) ORIGINATES FROM THE LATERAL SURFACE OF THE **LATERAL PTERYGOID PLATE** (**4**) AND INSERTS INTO THE **PTERYGOID FOVEA** (**5**) BELOW THE **CONDYLE PROCESS** (**3**) OF THE MANDIBLE. THE **INFERIOR HEAD** (**Ih**) DEPRESSES AND PROTRACTS THE MANDIBLE TO OPEN THE MOUTH. BOTH HEADS PULL DOWN AND FORWARD AT THE **CONDYLE PROCESSES** (**3**) DURING THE OPENING OF THE MOUTH.

PRIMARY MUSCLES OF MASTICATION

LATERAL PTERYGOID





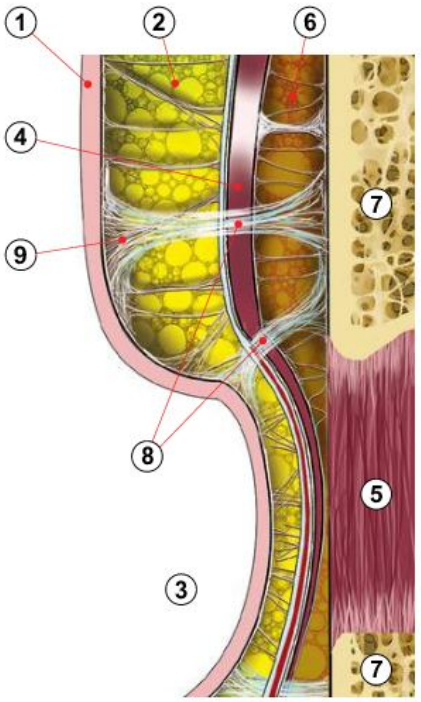


LIGAMENTS AND FATS

SOFT TISSUES OF THE FACE

THE SOFT TISSUES OF THE FACE ARE ARRANGED IN A SERIES OF LAYERS: **SKIN** (**1**), **SUBCUTANEOUS FAT** (**2**), **SUPERFICIAL FASCIA**, INCLUDING **PLATYSMA** AND **SUPERFICIAL MUSCULOAPONEUROTIC SYSTEM** (**SMAS**) (**3**), **DEEP FASCIA**, **FACIAL MIMETIC MUSCULATURE** (**4**), **DEEP MUSCLE** (**5**), **DEEP FAT** (**6**), AND **BONE** (**7**).

THE **RETAINING LIGAMENTS** (**8**) OF THE FACE ARE IMPORTANT IN UNDERSTANDING OF THE ARCHITECTURE AND CONTOURS OF FACIAL EXPRESSION, WHERE DYNAMIC WRINKLING AND THE PROCESS OF FACIAL AGING OCCURS. THEY ARE LOCATED IN FIXED ANATOMIC LOCATIONS WHERE THEY SEPARATE FACIAL SPACES AND FAT. THE **SUPERFICIAL EXTENSIONS** (**9**) FORM SUBCUTANEOUS SEPTAE THAT DELINEATE AND SEPARATE THESE FACIAL FAT COMPARTMENTS OR "FAT PADS". THE DESCRIPTION OF RETAINING LIGAMENTS ARE VARIABLE IN THE LITERATURE DUE TO DIFFERENT INTERPRETATIONS OF ANATOMY, INDIVIDUAL GENETIC FACTORS, SEVERAL CLASSIFICATIONS OF WHAT CONSTITUTES A RETAINING LIGAMENT, AND THEIR LOCATION.

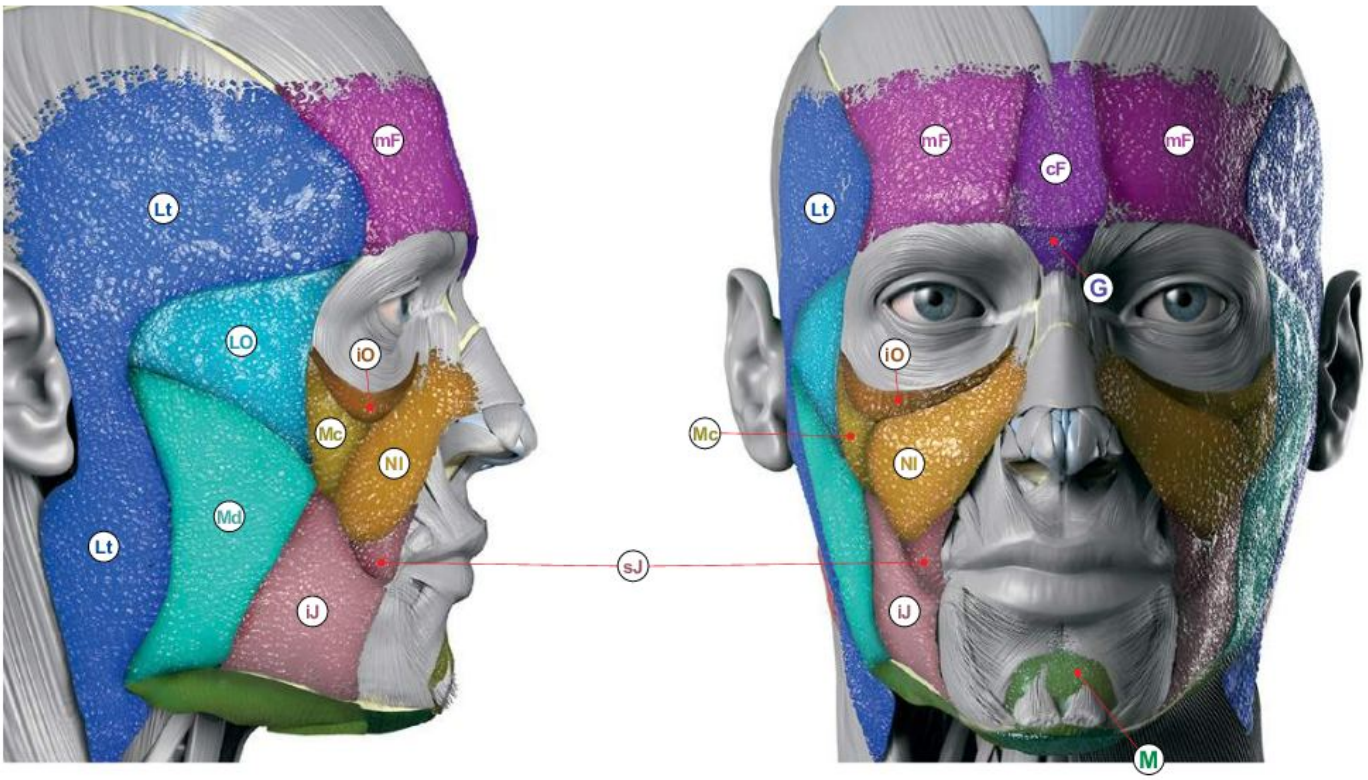


FACIAL FAT

TRADITIONALLY, FACIAL FAT IS BROADLY DIVIDED INTO **SUPERFICIAL** AND **DEEP LAYERS** RELATIVE TO THE **SUPERFICIAL MUSCULOAPONEUROTIC SYSTEM** (**SMAS**) (**3**) AND **MIMETIC MUSCLES** (**4**).

SOFT TISSUES OF THE FACE

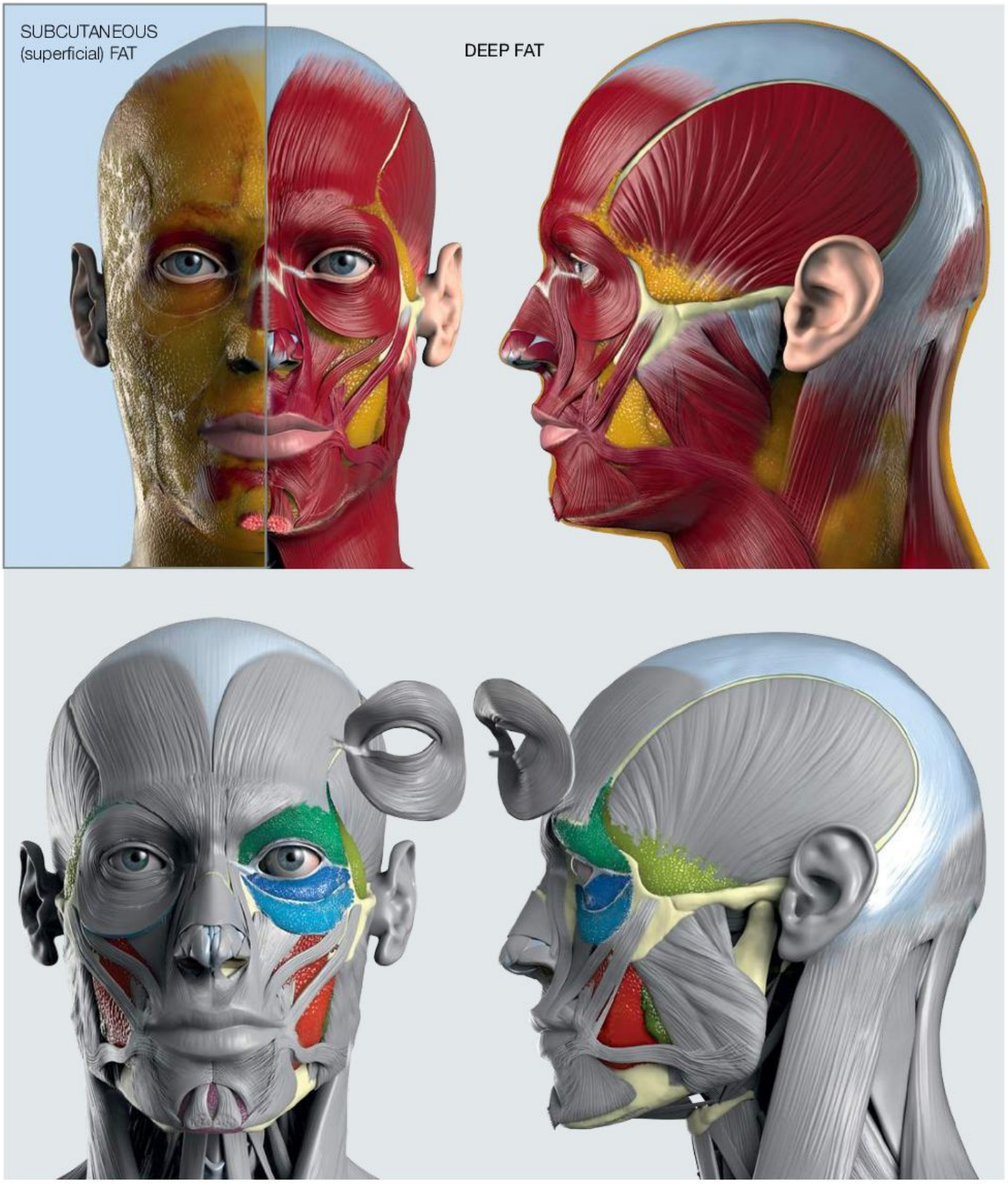
MAJOR SUBCUTANEOUS FAT COMPARTMENTS OF THE FACE



mF	MIDDLE FOREHEAD
cF	CENTRAL FOREHEAD
G	GLABELLA
iO	INFRAORBITAL
Mc	MEDIAL CHEEK
Nl	NASOLABIAL
Lt	LATERAL TEMPORAL
LO	LATERAL ORBITAL
Md	MIDDLE CHEEK
sJ	SUPERIOR JOWL
iJ	INFERIOR JOWL
mJ	SUBMANDIBULAR JOWL
M	MENTAL
iM	INFERIOR MENTAL
sM	SUBMENTAL

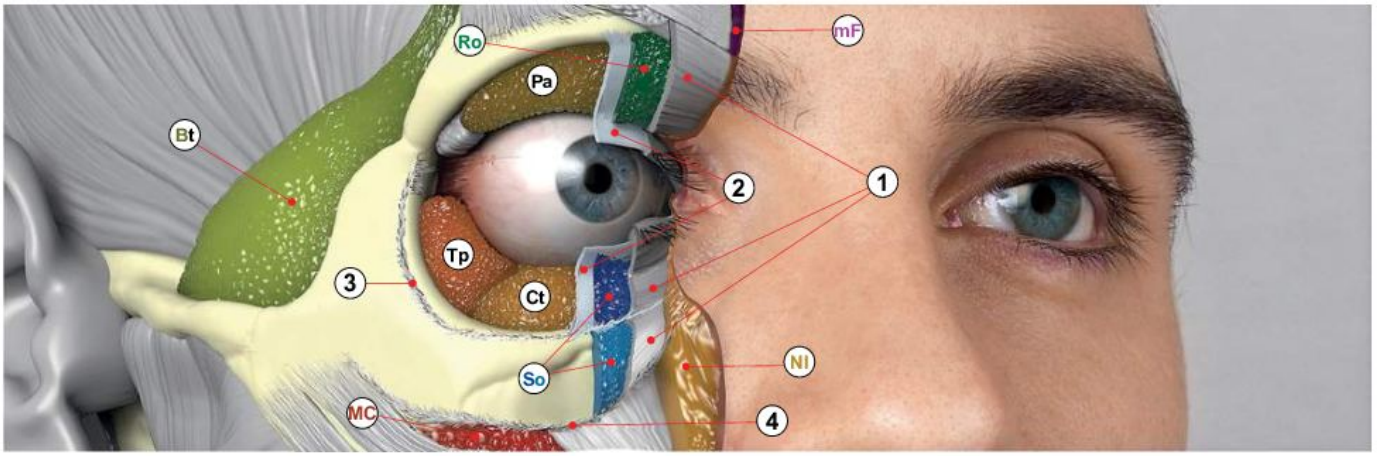
SOFT TISSUES OF THE FACE

DEEP FAT COMPARTMENTS OF THE FACE



SOFT TISSUES OF THE FACE

DEEP FAT COMPARTMENTS OF THE FACE



SUBCUTANEOUS FACIAL FAT

Nl	NASOLABIAL fat pad
mF	MIDDLE FOREHEAD

DEEP FACIAL FAT

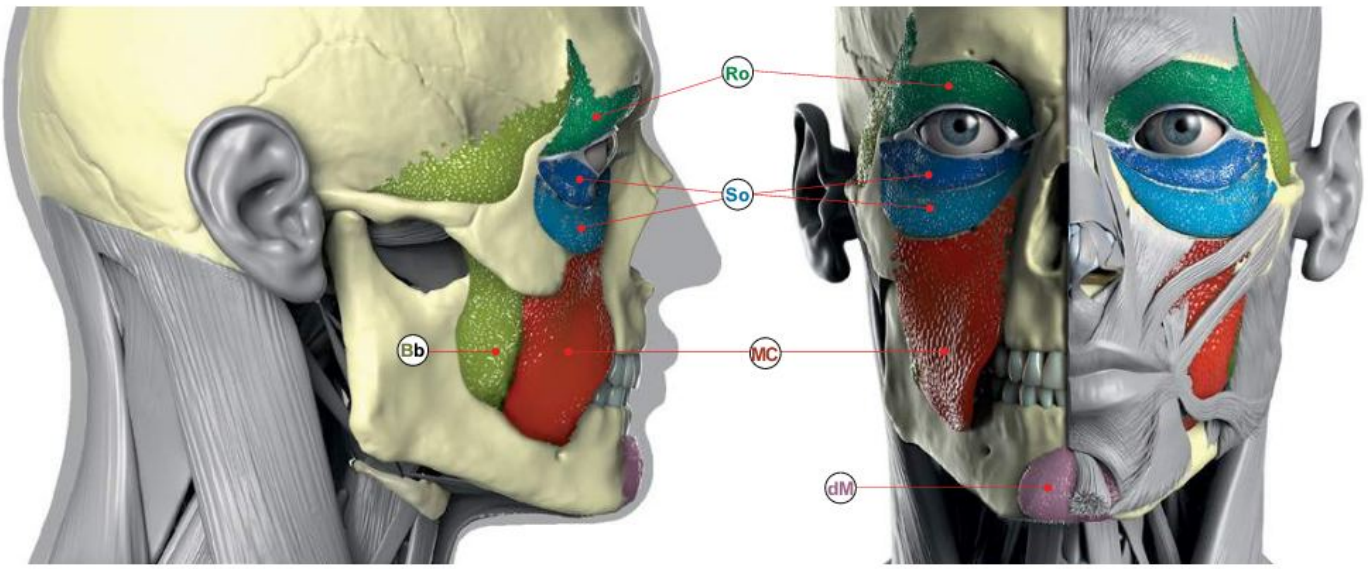
Ro	RETRO-ORBICULARIS OCULI FAT PAD (ROOF)
So	SUB-ORBICULARIS FAT PADS (SOOF)
Bt	BUCCAL FAT PAD (temporal extension)
Bb	BUCCAL FAT PAD (buccal extension)
MC	MIDDLE CHEEK FAT PAD
dM	DEEP MENTAL FAT PAD

DEEP ORBITAL FAT

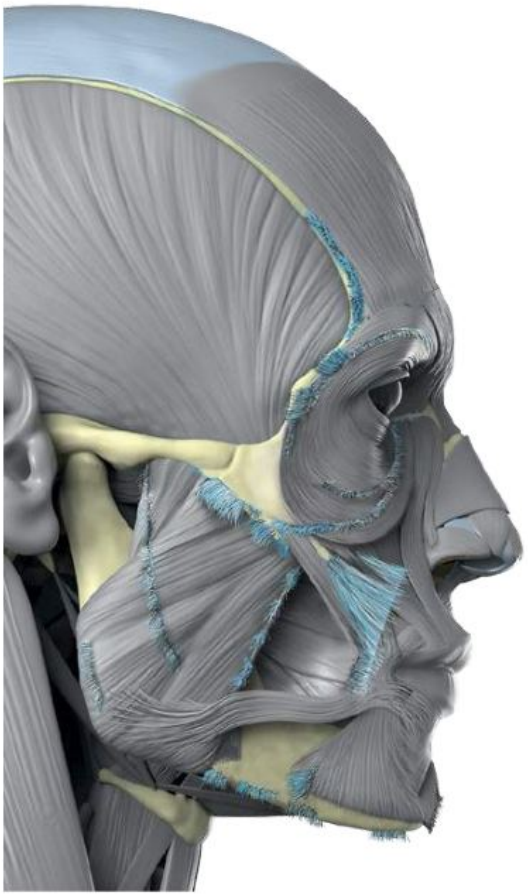
Pa	PREAPONEUROTIC FAT PAD
Tp	CENTRAL FAT PAD
Ct	TEMPORAL FAT PAD

COMPARTMENT BOUNDARIES AND LAYERS

1	ORBICULARIS OCULI MUSCLE
2	ORBITAL SEPTUM
3	ORBITOMALAR LIGAMENT
4	ZYGOMATICO-CUTANEOUS LIGAMENT



CONNECTIVE TISSUES OF THE FACE



CONNECTIVE TISSUE SERVES TO SUPPORT OTHER TISSUES OF THE BODY AND APPEARS IN THE FORM OF THE **SUPERFICIAL MUSCULAR APONEUROTIC SYSTEM** (***SMAS***) AND THE RETAINING LIGAMENTS. THERE ARE TWO TYPES OF LIGAMENTS – **TRUE LIGAMENTS** AND **FALSE LIGAMENTS**.

TRUE LIGAMENTS ARE EASILY IDENTIFIABLE STRUCTURES THAT CONNECT THE SKIN TO THE UNDERLYING PERIOSTEUM (membrane that covers the outer surface of the bone).

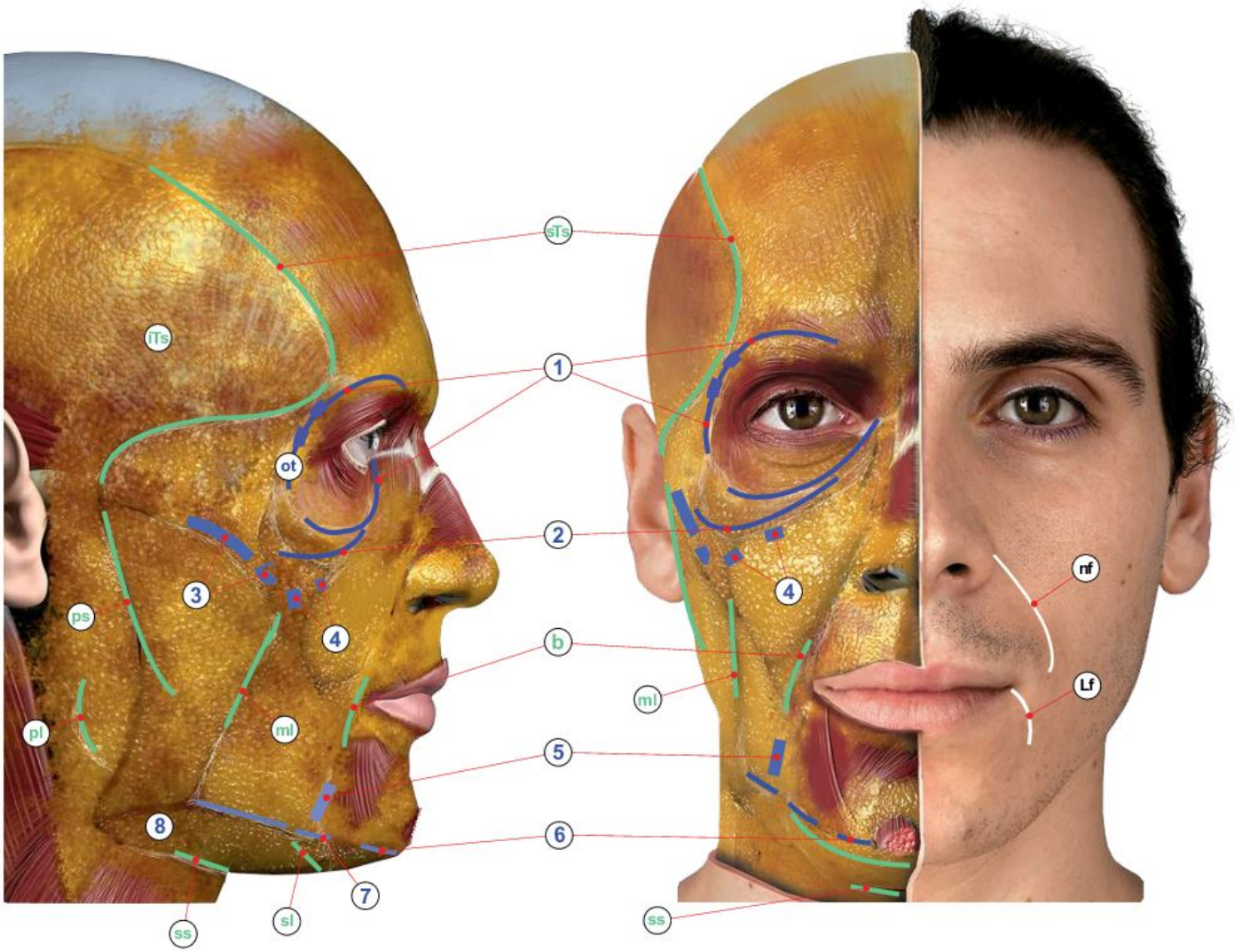
FALSE RETAINING LIGAMENTS ARE MORE DIFFUSE CONDENSATIONS OF FIBROUS TISSUE THAT CONNECT SUPERFICIAL AND DEEP FACIAL FASCIA AND SKIN.

THE **ZYGOMATIC LIGAMENT** (**3**) IS A **TRUE LIGAMENT** THAT CONNECTS THE **INFERIOR BORDER OF THE ZYGOMATIC ARCH** TO THE SKIN AND IS FOUND JUST POSTERIOR TO THE ORIGINS OF THE **ZYGOMATIC MUSCLES**. OTHER IMPORTANT **TRUE LIGAMENTS** INCLUDE THE **ORBICULARIS RETAINING LIGAMENT** (**1**) WHICH, WHEN THICKENED, RESULTS IN A **LATERAL ORBITAL THICKENING** (ot). THE **ORBITAL RETAINING LIGAMENTS** (**1**) ARISE FROM THE INFRA- AND SUPRAORBITAL MARGINS AND PENETRATE THE **ORBICULARIS OCULI MUSCLE**. THE **MANDIBULAR RETAINING LIGAMENT** (**5**), WHICH CONNECTS THE MANDIBLE TO THE OVERLYING SKIN, CAN ALSO THICKEN, GIVING RISE TO THE **LABIOMANDIBULAR FOLD** (**Lf**) JUST ANTERIOR TO THE CHEEK JOWL. ATTRITION OF THE MASSETERIC LIGAMENTS, SAGGING OF THE BUCCAL AND MIDDLE CHEEK FAT PAD, AND EXPANSION OF THE CONNECTIVE TISSUE SPACE ANTERIOR TO THE MASSETER MUSCLE CONTRIBUTES TO A FULLNESS OF THE Lf WITH AGE.

THE **MASSETER-CUTANEOUS LIGAMENT** (ml) IS AN EXAMPLE OF A FALSE LIGAMENT. IT ARISES FROM THE ANTERIOR BORDER OF THE **MASSETER MUSCLE** AND INSERTS INTO THE ***SMAS*** AND OVERLAYING SKIN OF THE CHEEK.

THE **MAXILLARY PORTION** (**4**) OF THE **BUCCOMAXILLARY LIGAMENTS** ORIGINATES FROM THE **ZYGOMATICO-MAXILLARY SUTURE** AND INSERTS INTO THE SKIN OF THE **NASOLABIAL FOLD** (**nf**). AMONG THE FALSE LIGAMENTS IS ALSO THE **PLATYSMA-AURICULAR LIGAMENT**, WHICH ARISES FROM THE ***SMAS*** AND THE **PAROTID-MASSETERIC FASCIA**. **THE SUBCUTANEOUS PAROTID-MASSETERIC SEPTUM** (ps) ORIGINATES FROM THE ***SMAS*** AND RUNS INTO THE SKIN OF THE CHEEK. THE **BUCCAL PORTION** OF THE **BUCCOMAXILLARY LIGAMENTS** (b) ORIGINATES FROM THE **BUCCAL MUCOSSA**, PENETRATES THE **BUCCINATOR MUSCLE**, AND INSERTS INTO THE SKIN OF THE **NASOLABIAL FOLD** (**Nf**).

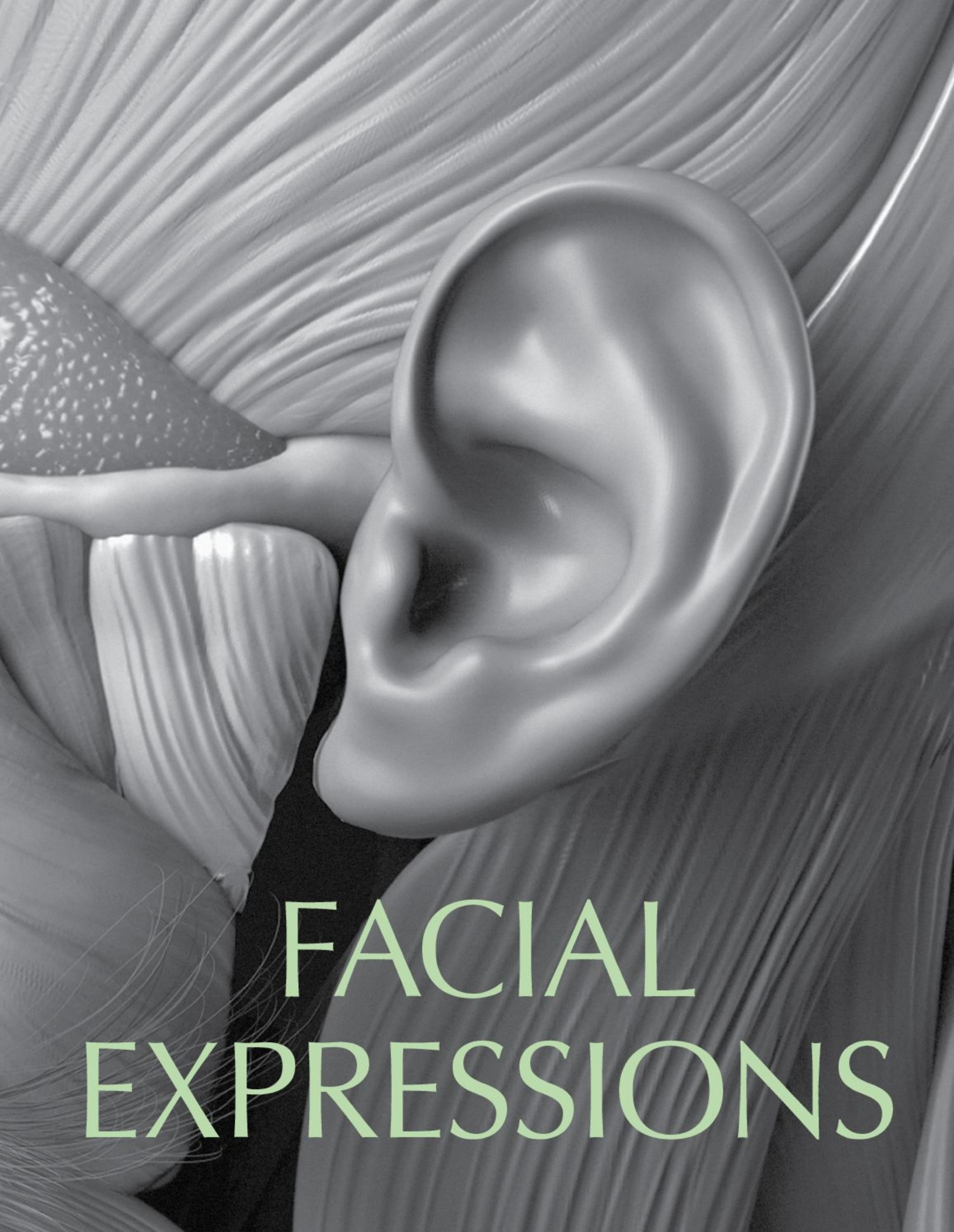
CONNECTIVE TISSUES OF THE FACE



1	ORBITAL RETAINING LIGAMENT
2	ZYGOMATIC CUTANEOUS LIGAMENT
3	ZYGOMATIC LIGAMENTS
4	MAXILLARY PORTION OF THE BUCCOMAXILLARY LIGAMENTS
5	MANDIBULAR RETAINING LIGAMENT
6	MENTAL LIGAMENT
7	MEDIAL MANDIBULAR LIGAMENT
8	PLATYSMA MANDIBULAR LIGAMENT
ot	LATERAL ORBITAL THICKENING

sTs	SUPERIOR TEMPORAL SEPTUM
iTs	INFERIOR TEMPORAL SEPTUM
ml	MASSETER-CUTANEOUS LIGAMENTS
b	BUCCAL PORTION OF THE BUCCOMAXILLARY LIGAMENTS
ps	PAROTIDEOMASSETERIC SUBCUTANEOUS SEPTUM
pl	PLATYSMA-AURICULAR LIGAMENT
sl	SUBMENTAL LIGAMENT
ss	SUPRAHYOID SEPTUM

nf	NASOLABIAL FOLD
Lf	LABIOMANDIBULAR FOLD

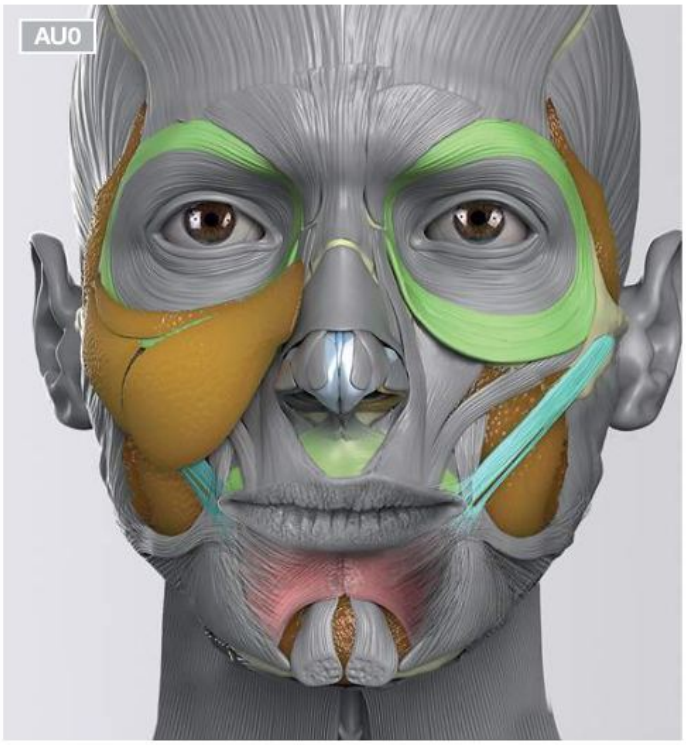

FACIAL
EXPRESSIONS

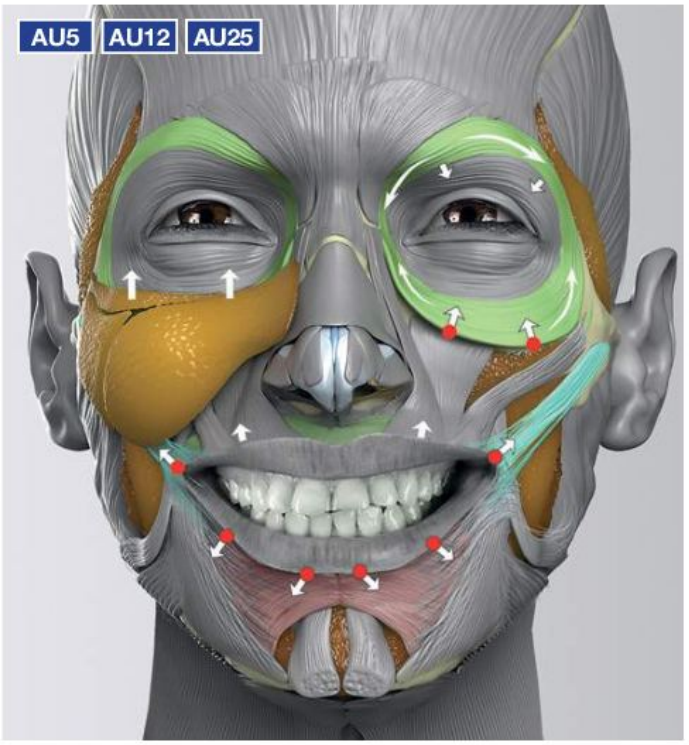
FACIAL EXPRESSIONS

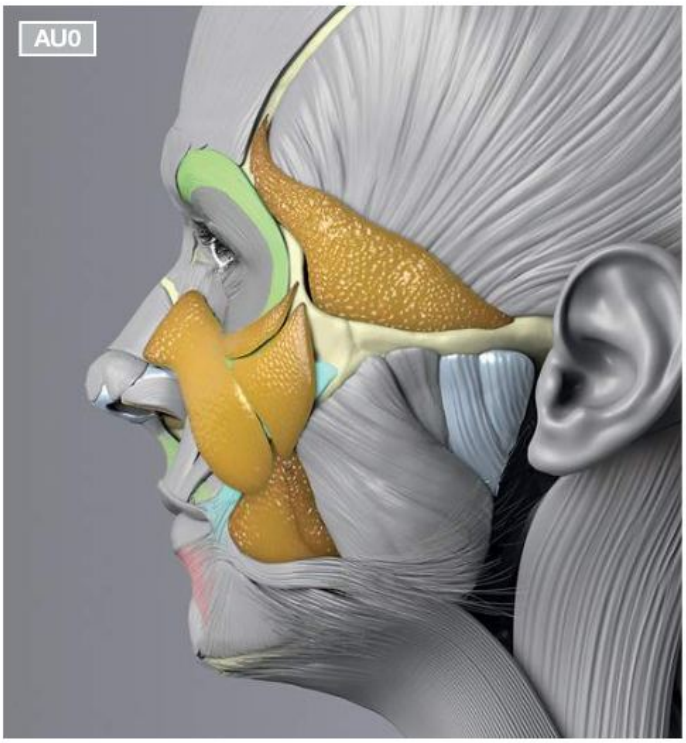
SMILE: ACTION UNITS **6+12+25**
ZYGOMATICUS MAJOR, ORBICULARIS OCULI (orbital portion), DEPRESSOR LABII INFERIORIS, ORBICULARIS ORIS

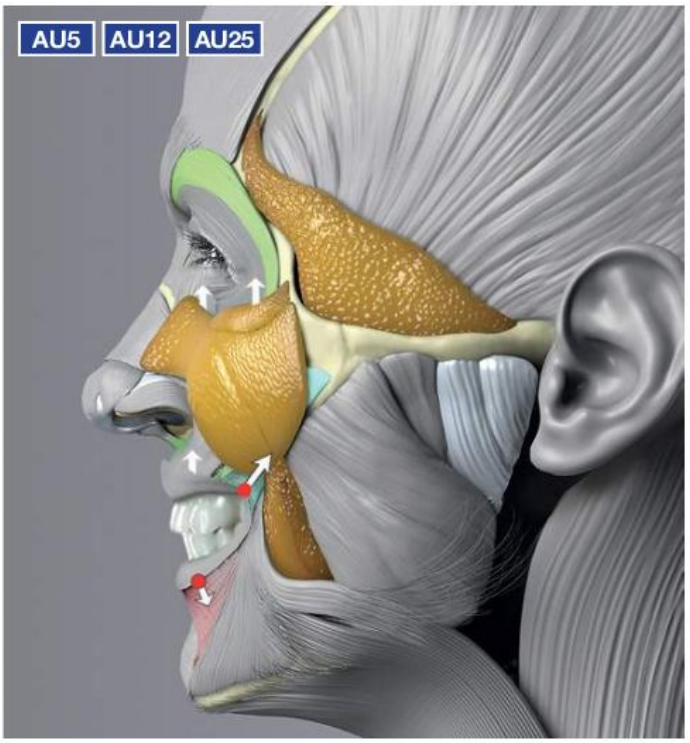
FACIAL EXPRESSIONS

SMILE: ACTION UNITS 6+12+25
ZYGOMATICUS MAJOR, ORBICULARIS OCULI (orbital portion), DEPRESSOR LABII INFERIORIS, ORBICULARIS ORIS





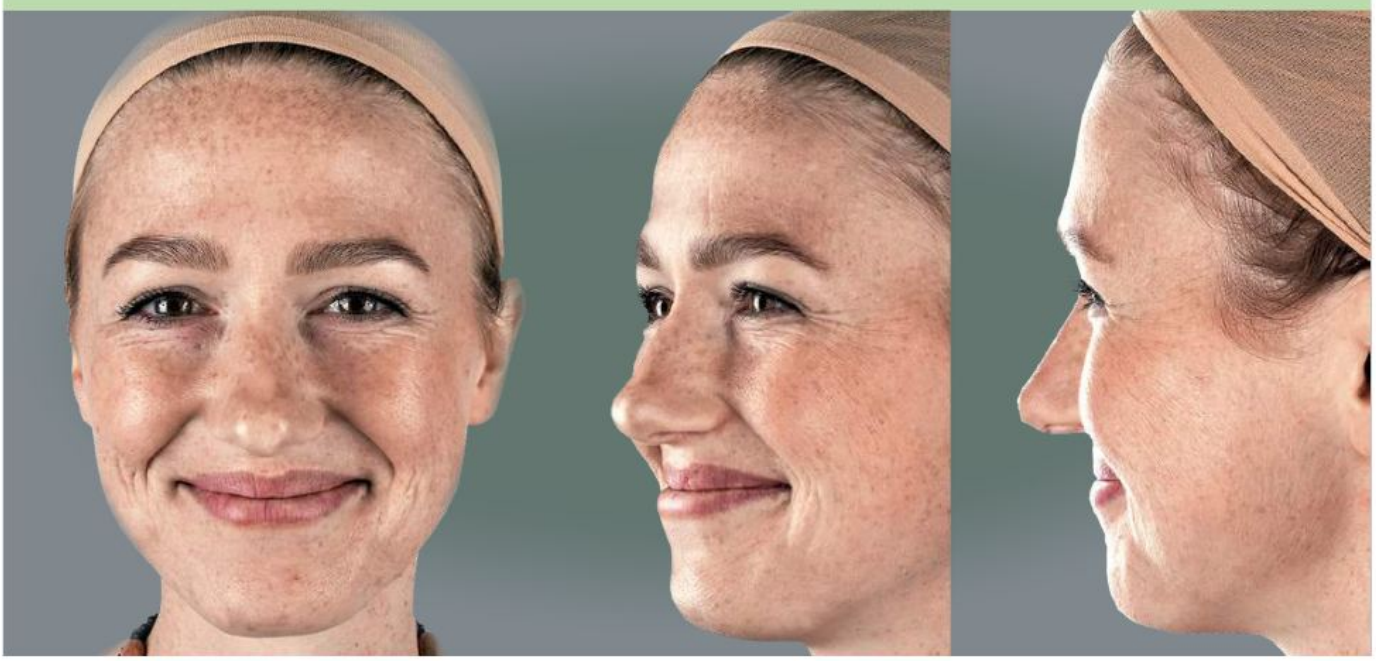




FACIAL EXPRESSIONS

SMILE

AU6 AU12

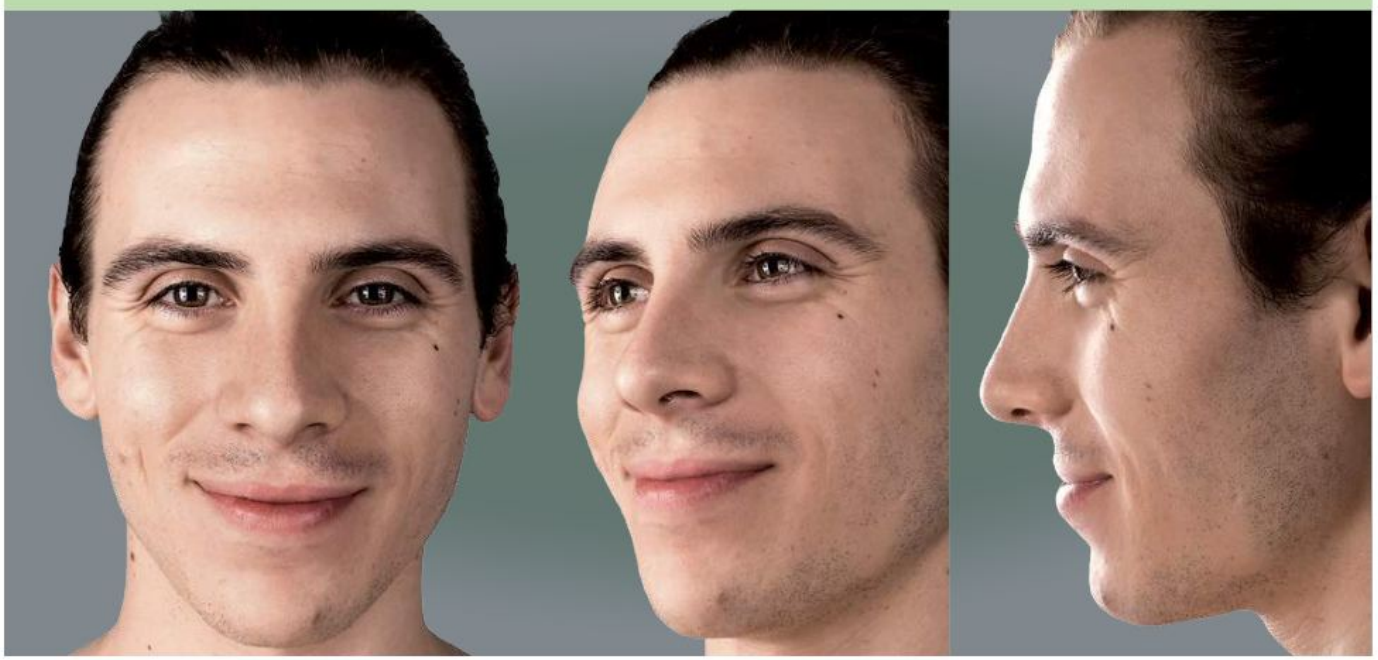


AU6 AU12 AU25 AU26

FACIAL EXPRESSIONS

SMILE

AU6 AU12



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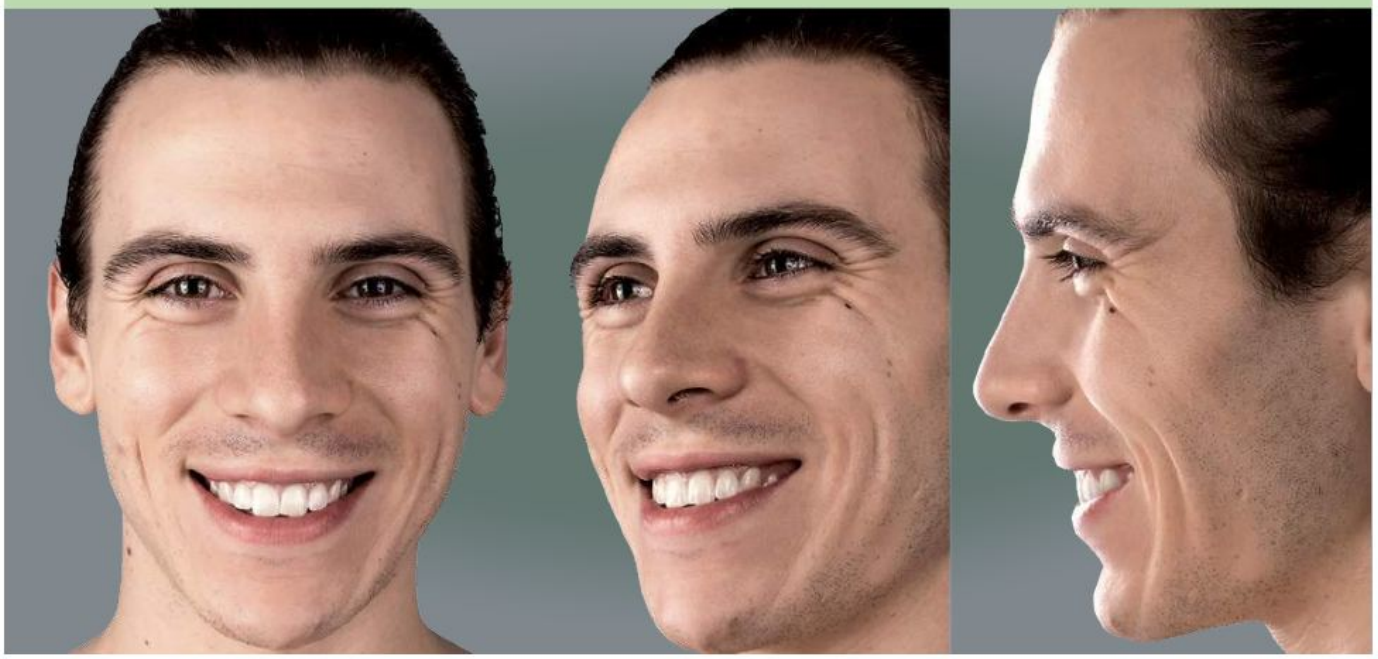


FACIAL EXPRESSIONS

SMILE

AU6 AU12 AU25 AU26

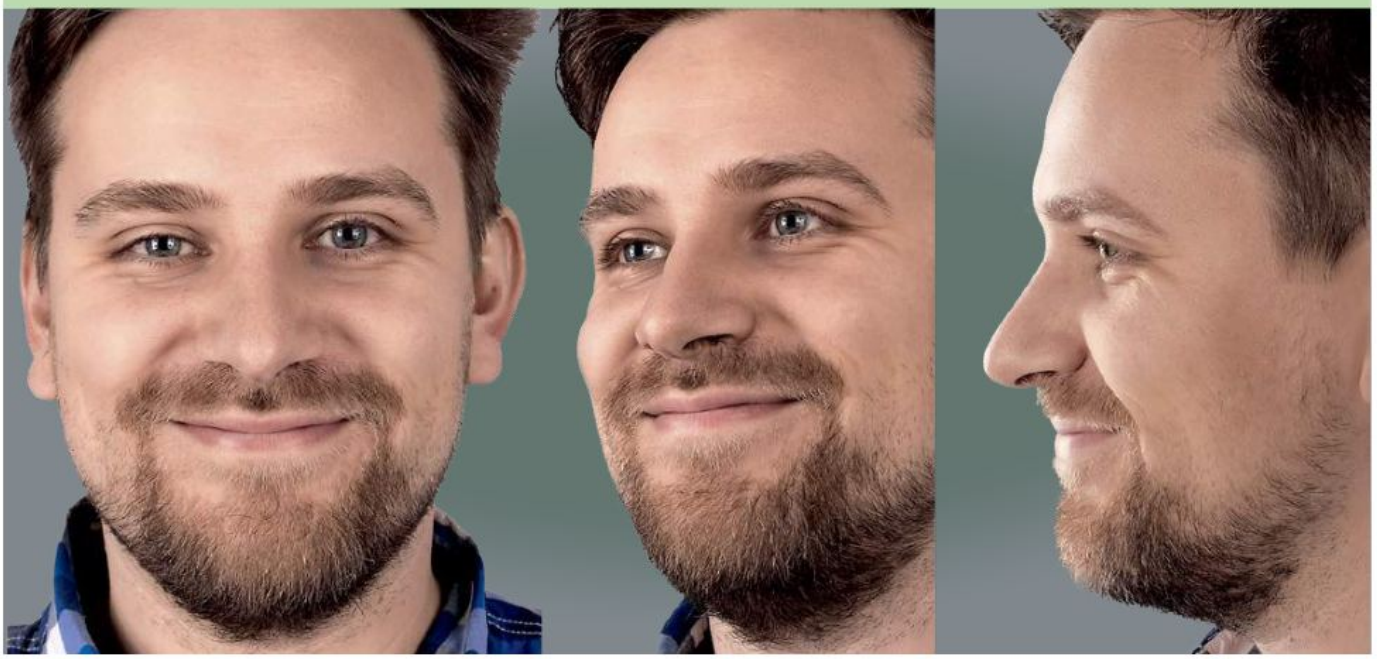
AU6 AU12 AU25

FACIAL EXPRESSIONS

SMILE

AU6 AU12 AU25

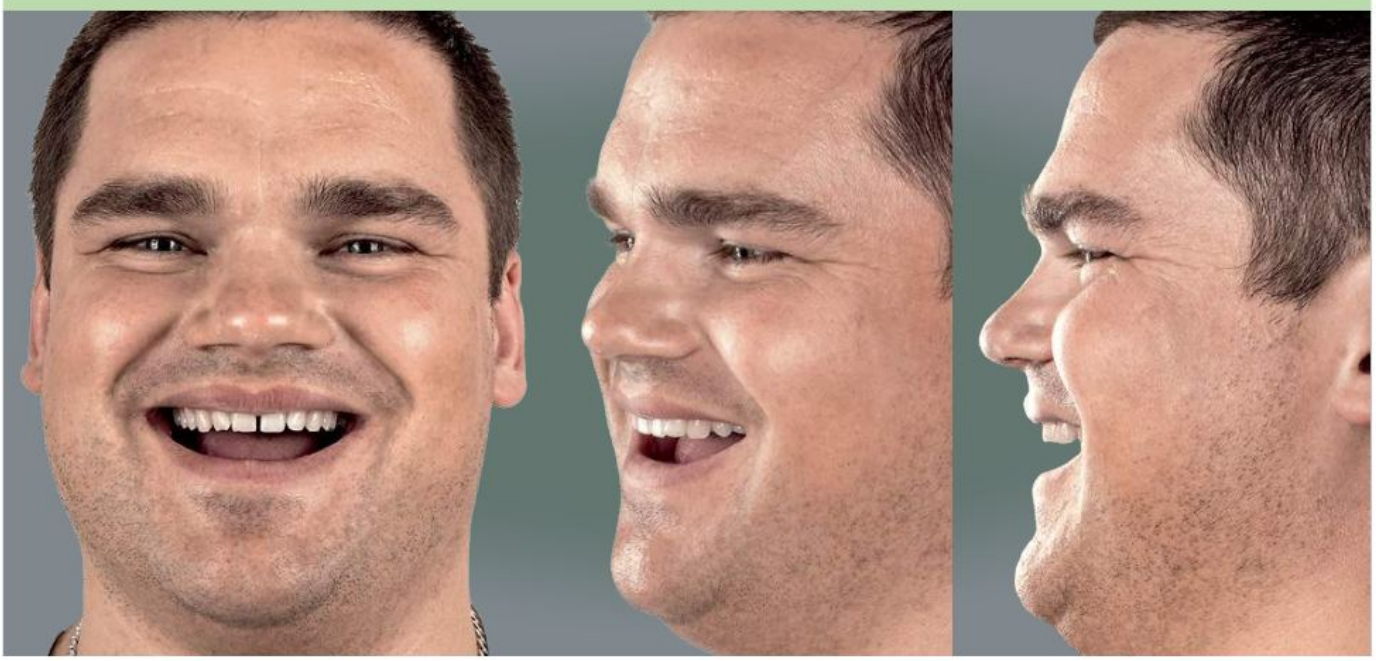
AU6 AU12



FACIAL EXPRESSIONS

SMILE

AU6 AU12 AU25 AU26



AU6 AU12 AU25

FACIAL EXPRESSIONS

SMILE

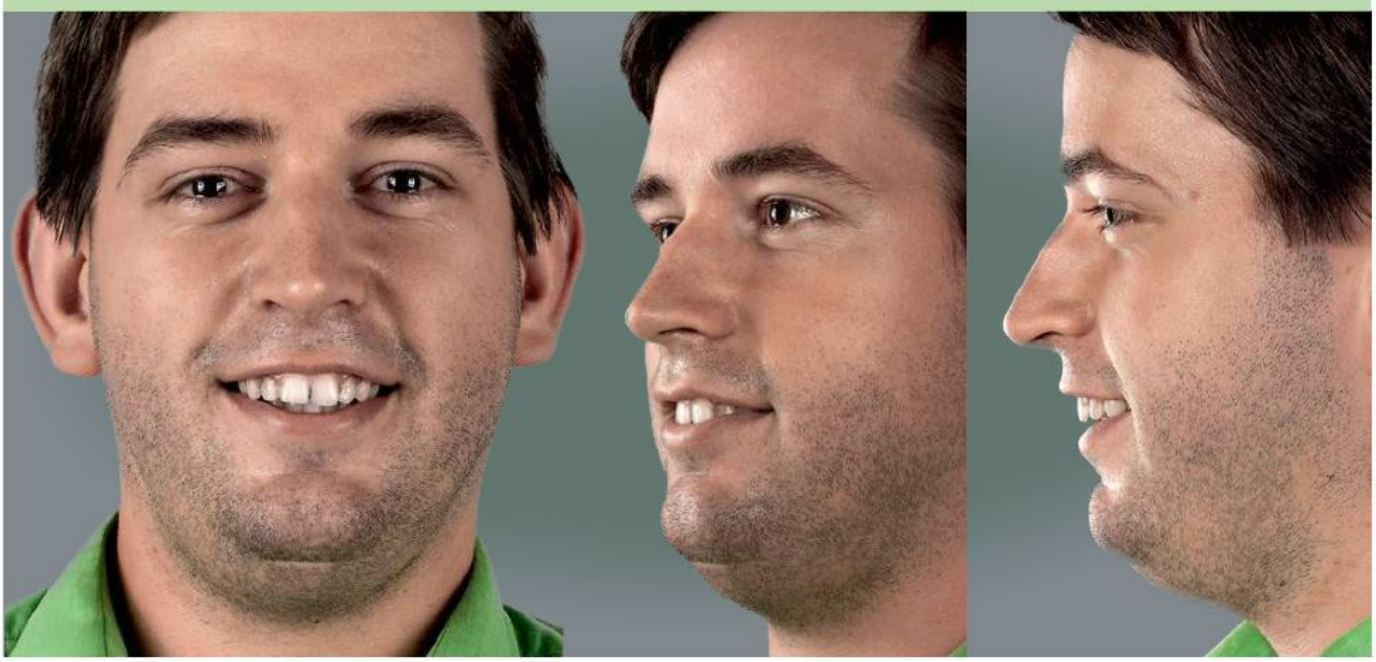
AU12 AU25

AU6 AU12 AU25

FACIAL EXPRESSIONS

SMILE

AU6 AU12 AU25

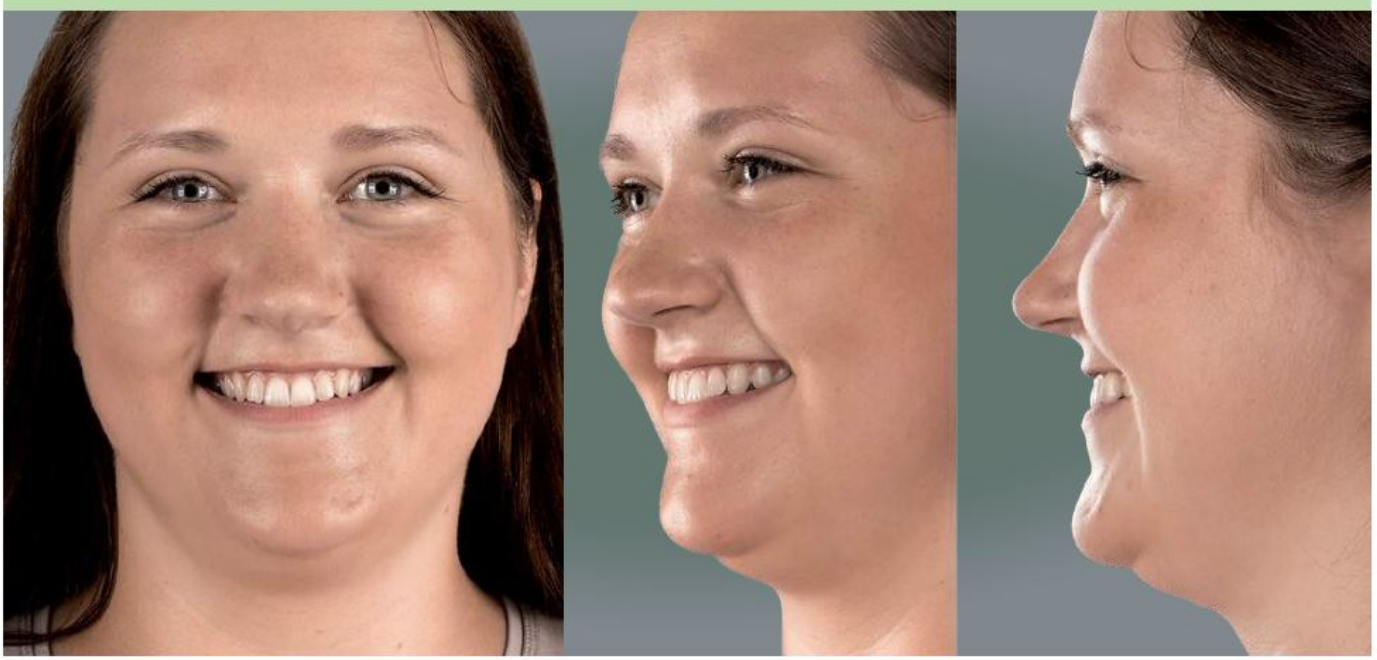


AU6 AU12 AU25 AU26

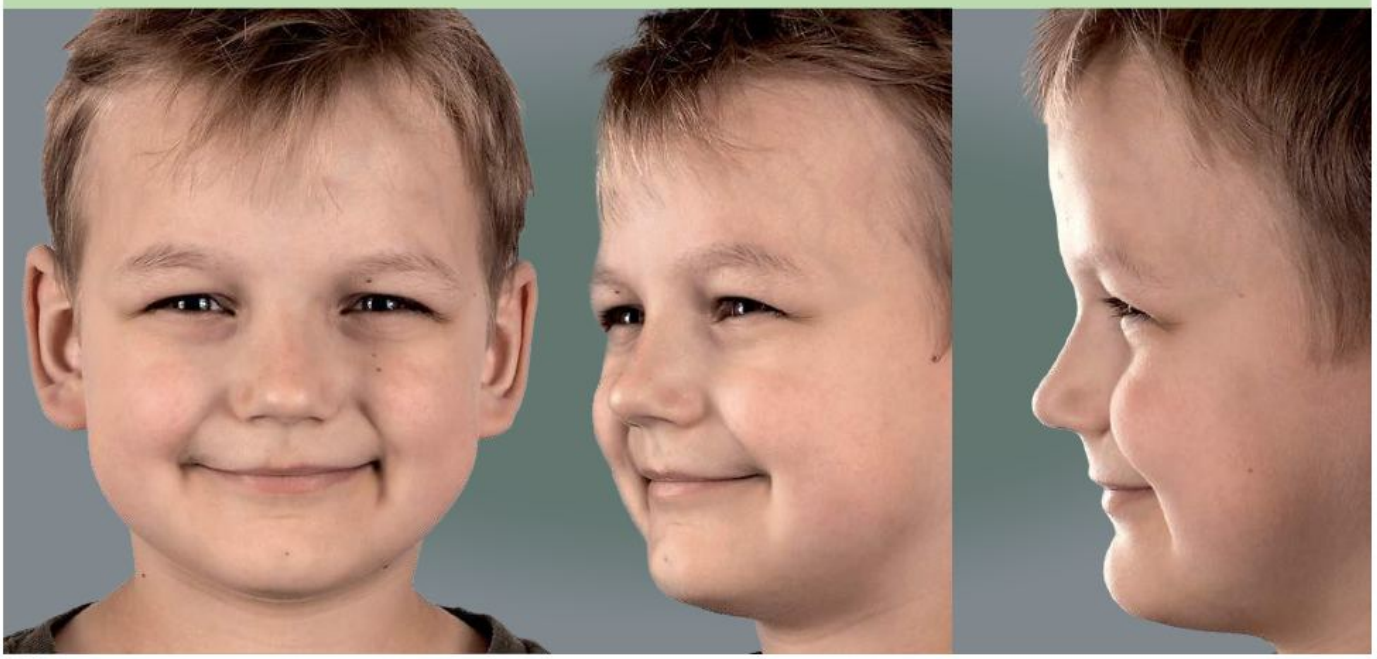
FACIAL EXPRESSIONS

SMILE

AU6 AU12 AU25

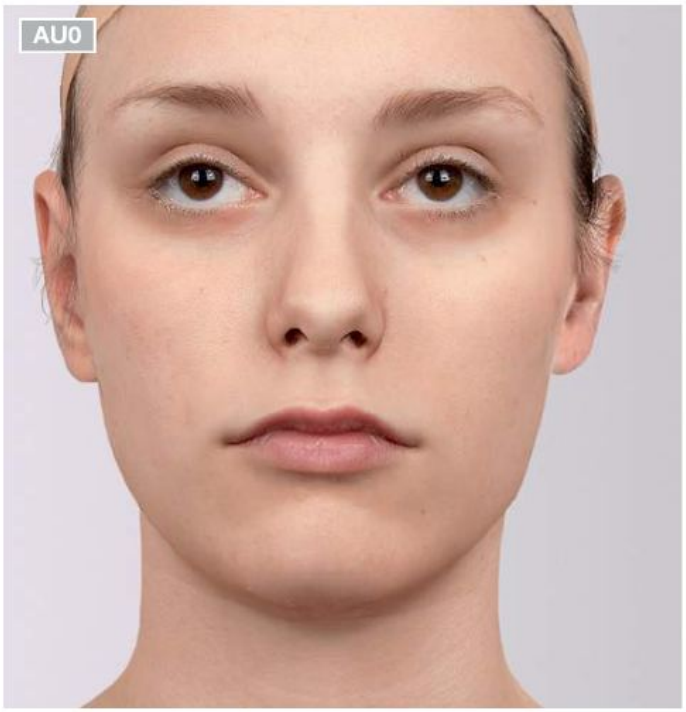


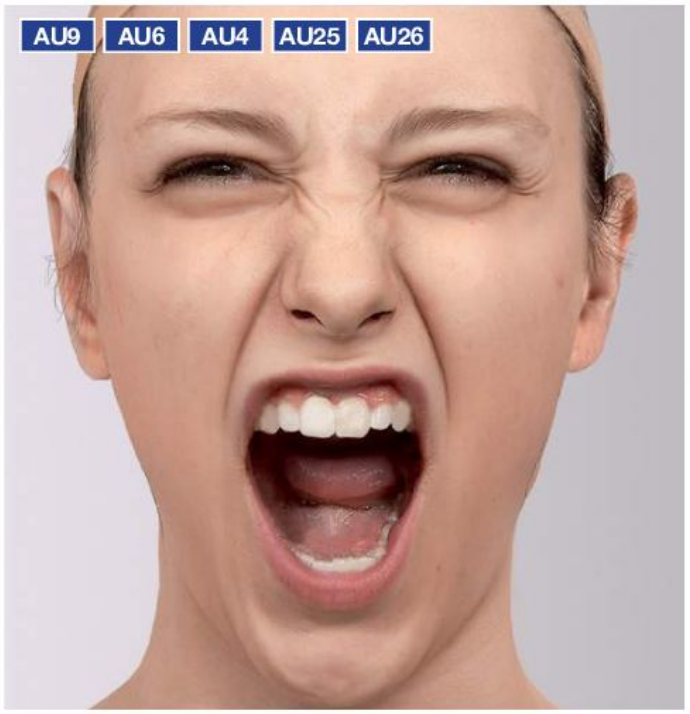
AU6 AU12

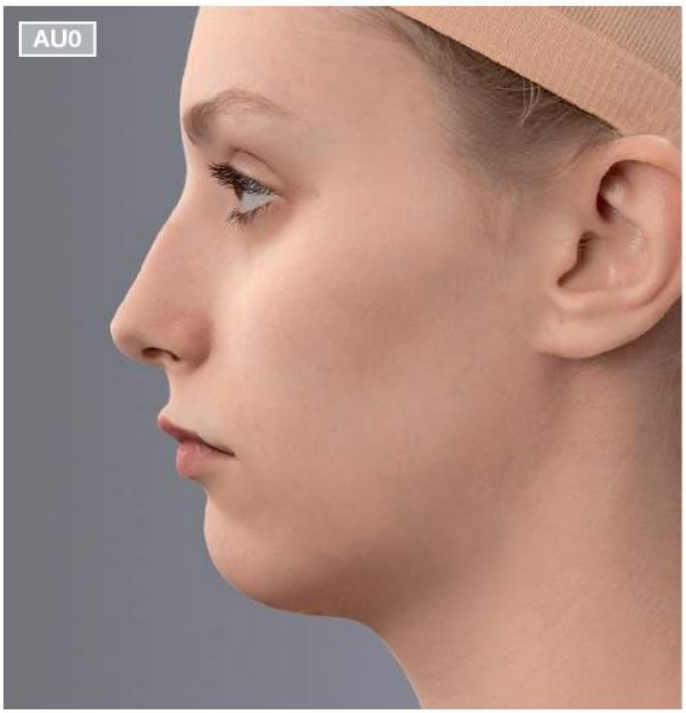


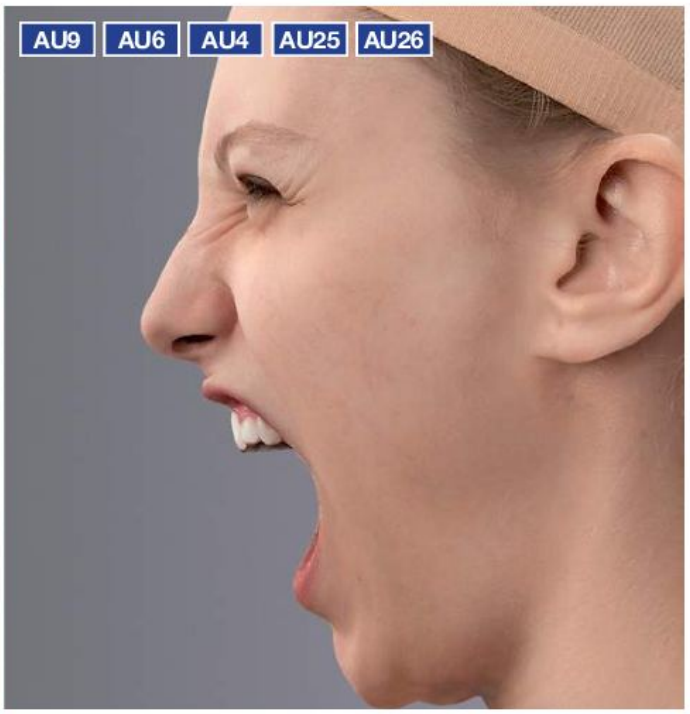
FACIAL EXPRESSIONS

RAGE: ACTION UNITS **9+6+4+25+26**
CONTRACTED: LEVATOR LABII SUPERIORIS ALAEQUE NASI, CORRUGATOR SUPERCILII, PROCERUS, DEPRESSOR SUPERCILII, ORBICULARIS OCULI (ORBITAL PORTION), DEPRESSOR LABII INFERIORIS, LATERAL PTERYGOID
RELAXED: TEMPORALIS, MASSETER, MEDIAL PTERYGOID MUSCLES AND ORBICULARIS ORIS



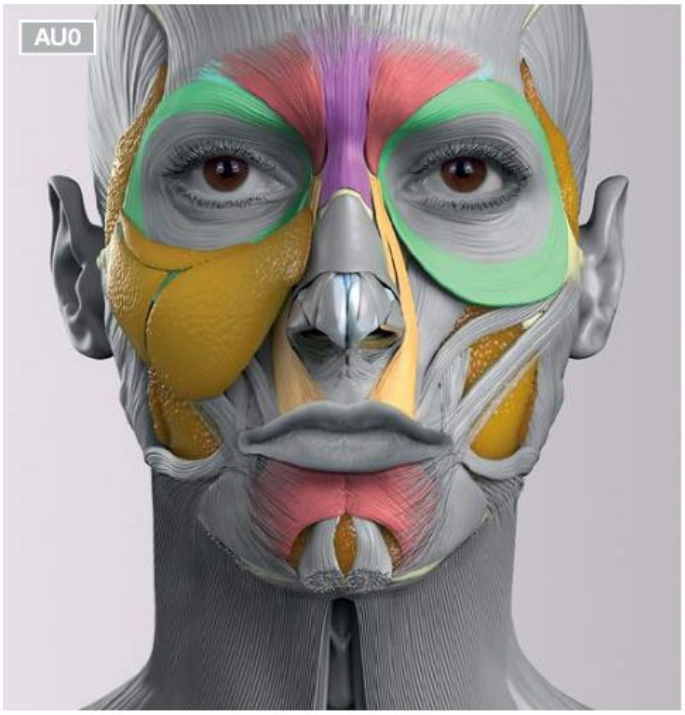


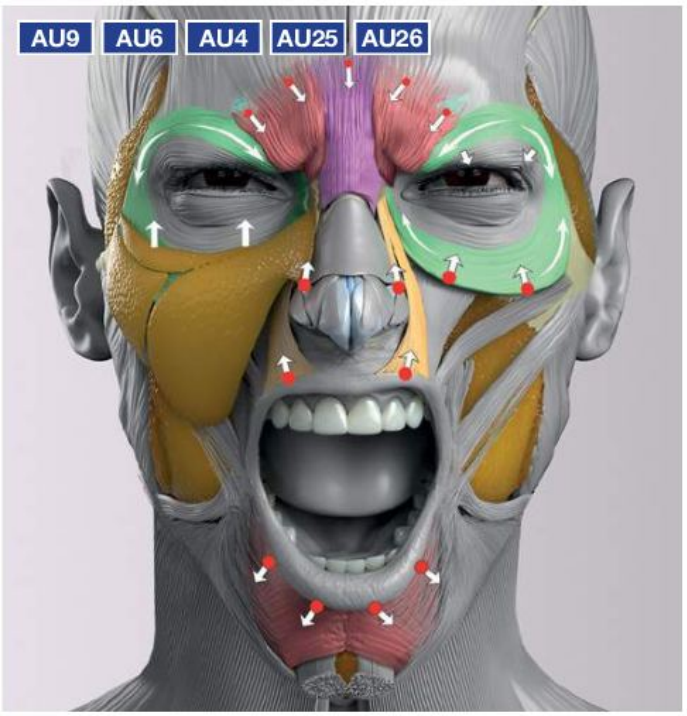


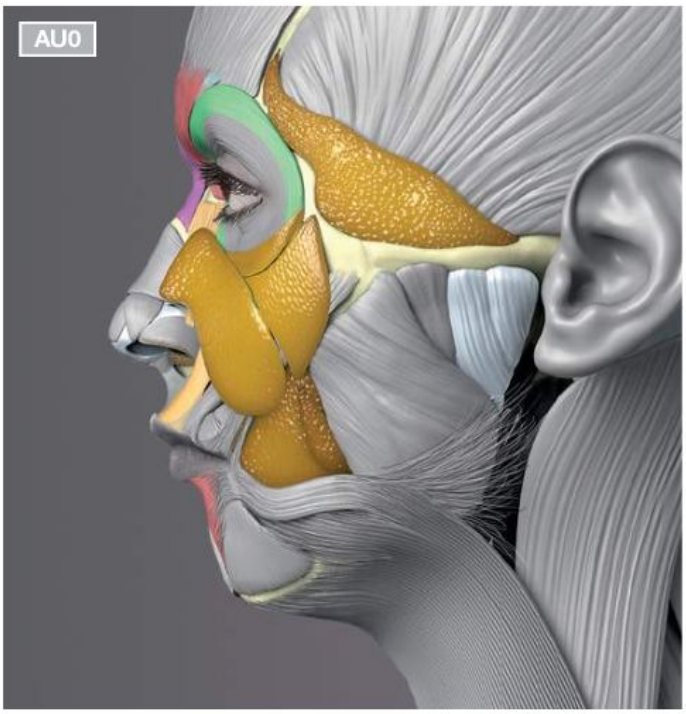


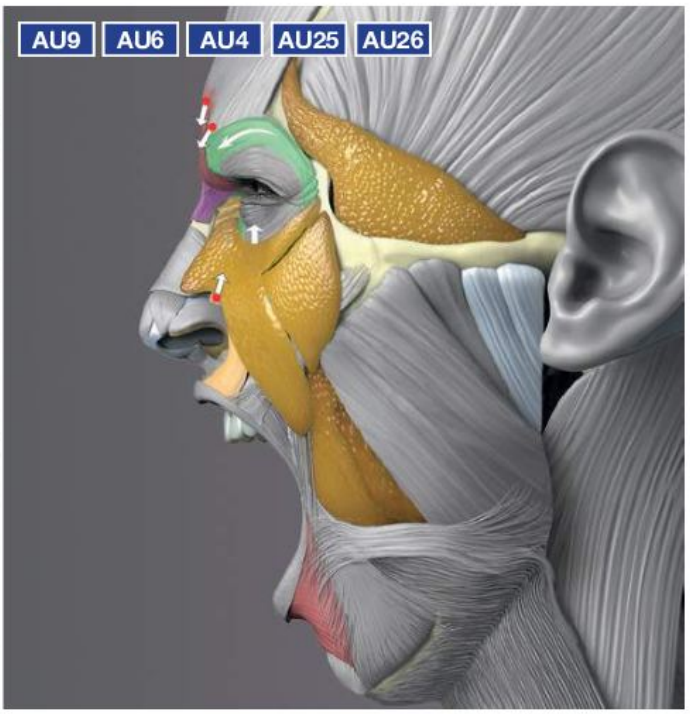
FACIAL EXPRESSIONS

RAGE: ACTION UNITS **9+6+4+25+26**
CONTRACTED: LEVATOR LABII SUPERIORIS ALAEQUE NASI, CORRUGATOR SUPERCILII, PROCERUS, DEPRESSOR SUPERCILII, ORBICULARIS OCULI (ORBITAL PORTION), DEPRESSOR LABII INFERIORIS, LATERAL PTERYGOID
RELAXED: TEMPORALIS, MASSETER, MEDIAL PTERYGOID MUSCLES AND ORBICULARIS ORIS









FACIAL EXPRESSIONS

RAGE

AU5 AU9 AU25 AU26

AU9 AU6 AU4 AU25 AU26

FACIAL EXPRESSIONS

RAGE

AU9 AU6 AU4 AU25 AU26

AU6 AU12

FACIAL EXPRESSIONS

RAGE

AU2 AU4 AU9 AU25 AU26

AU9 AU25 AU26

FACIAL EXPRESSIONS

RAGE

AU9 AU6 AU4 AU25 AU26

AU9 AU4 AU20 AU25 AU26

FACIAL EXPRESSIONS

RAGE

AU1+2 AU5 AU9 AU25 AU26

AU9 AU4 AU25 AU26

FACIAL EXPRESSIONS

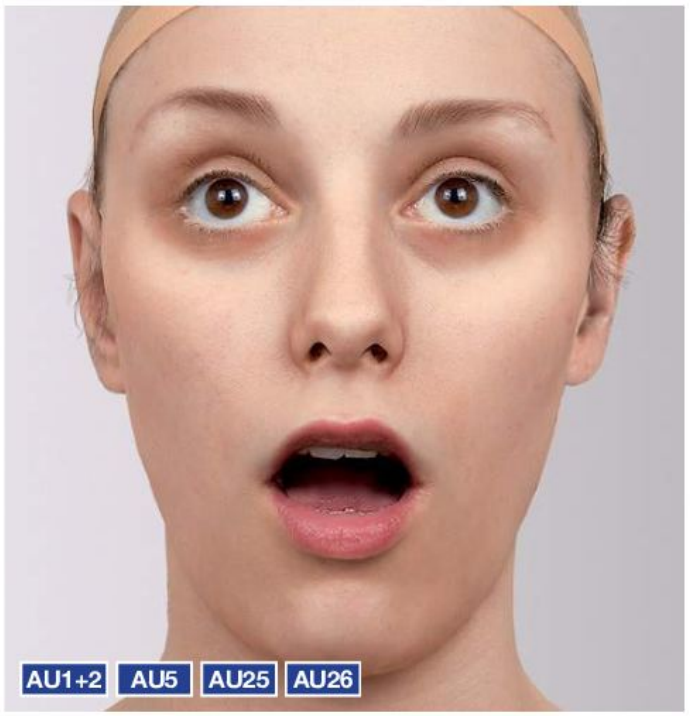
RAGE

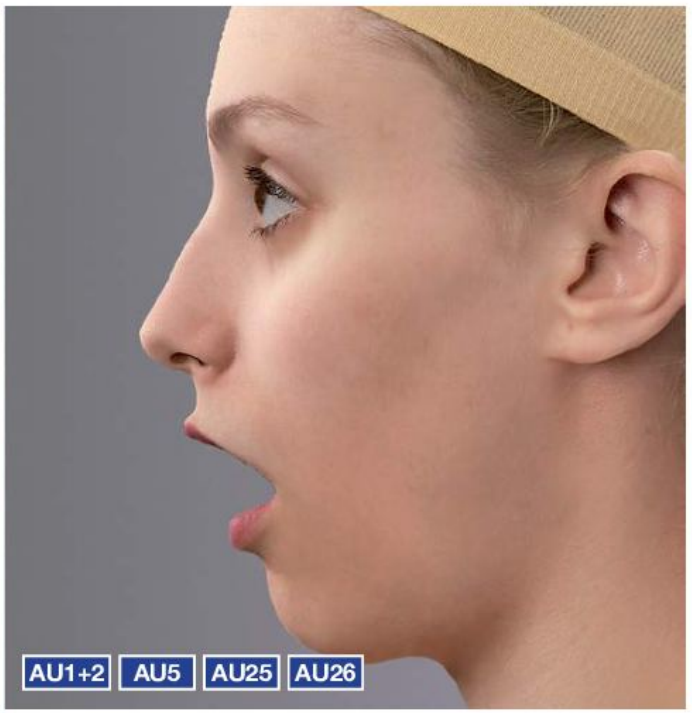
AU9 AU6 AU4 AU25 AU26

AU9 AU20 AU25 AU26

FACIAL EXPRESSIONS

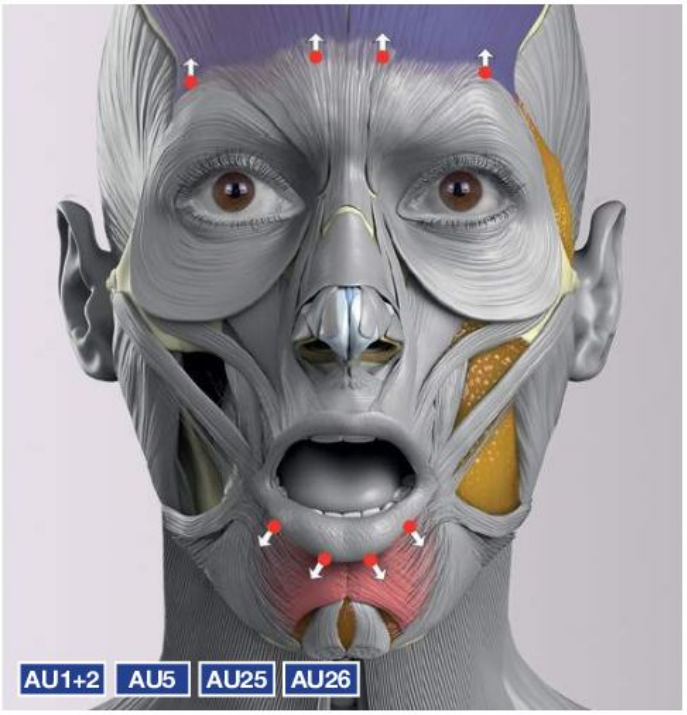
SURPRISE: ACTION UNITS **1+2+5+25+26**
CONTRACTED: FRONTALIS, **DEPRESSOR LABII INFERIORIS**; DEEP MUSCLES: **LEVATOR PALPEBRAE SUPERIORIS, SUPERIOR TARSAL AND LATERAL PTERYGOID MUSCLES**
RELAXED: TEMPORALIS, MASSETER, MEDIAL PTERYGOID AND ORBICULARIS ORIS MUSCLES

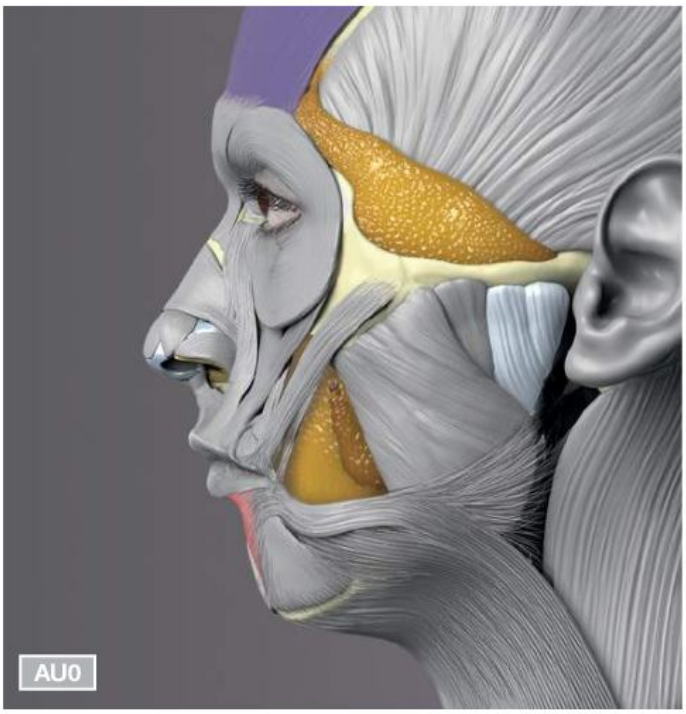


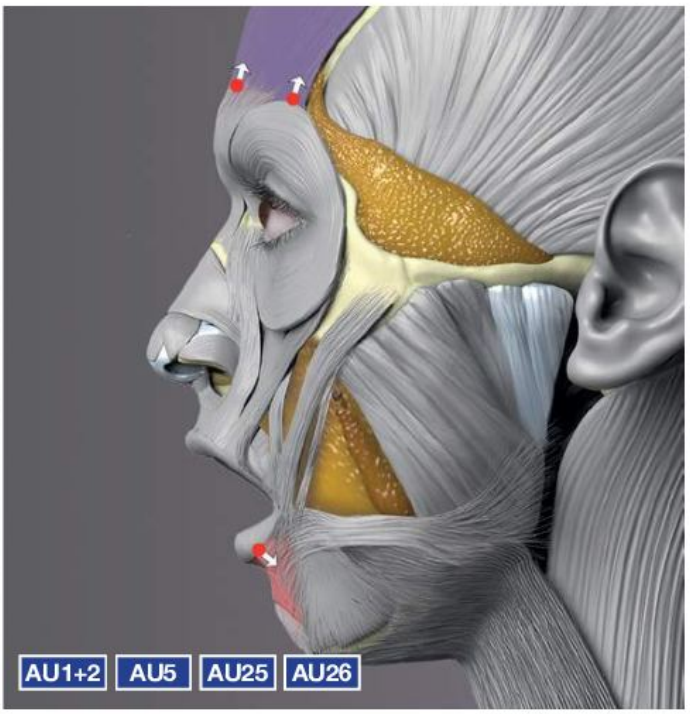


FACIAL EXPRESSIONS

SURPRISE: ACTION UNITS **1+2+5+25+26**
CONTRACTED: FRONTALIS, **DEPRESSOR LABII INFERIORIS**; DEEP MUSCLES: **LEVATOR PALPEBRAE SUPERIORIS,SUPERIOR TARSAL AND LATERAL PTERYGOID MUSCLES**
RELAXED: TEMPORALIS, MASSETER, MEDIAL PTERYGOID AND ORBICULARIS ORIS MUSCLES





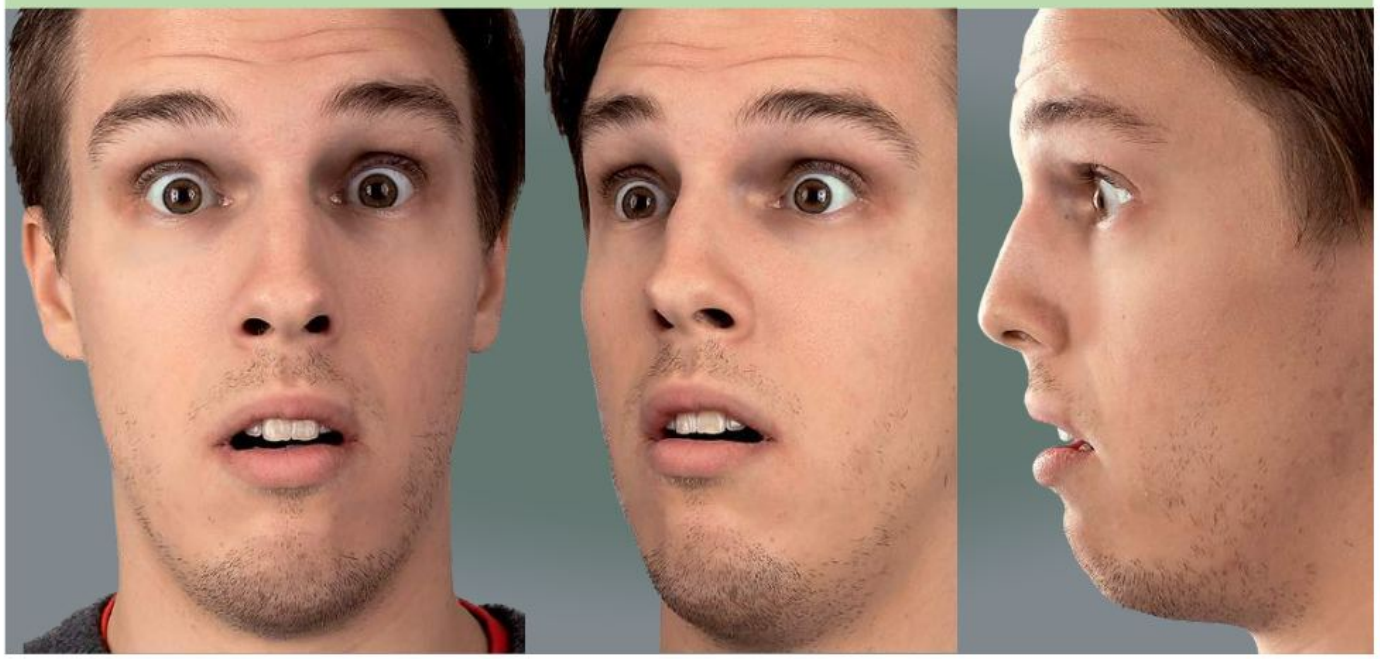


FACIAL EXPRESSIONS

SURPRISE

AU1+2 AU5 AU25 AU26

AU1+2 AU5 AU25 AU26



FACIAL EXPRESSIONS

SURPRISE

AU5 AU6 AU12 AU25 AU26

AU5 AU6 AU12 AU25 AU26

FACIAL EXPRESSIONS

SURPRISE

AU5 AU25 AU26

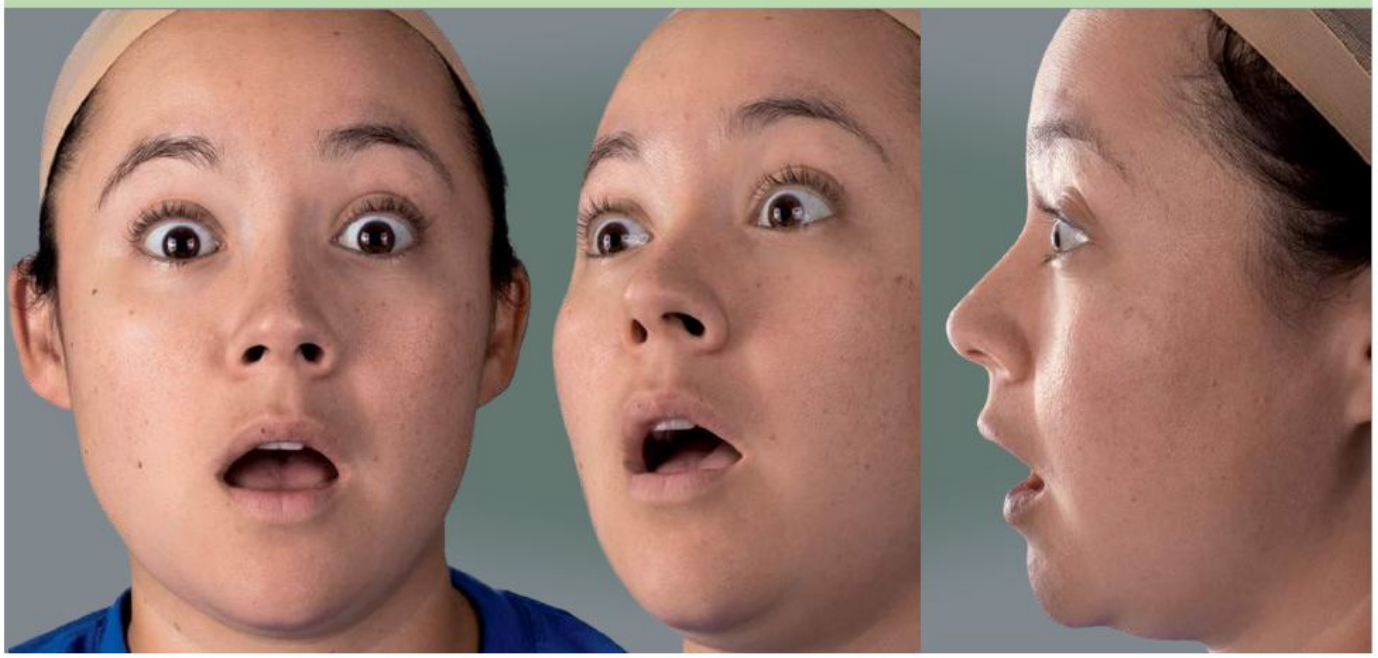
AU1+2 AU5 AU25 AU26

FACIAL EXPRESSIONS

SURPRISE

AU1+2 AU5 AU25 AU26

AU1+2 AU5 AU25 AU26



FACIAL EXPRESSIONS

SURPRISE

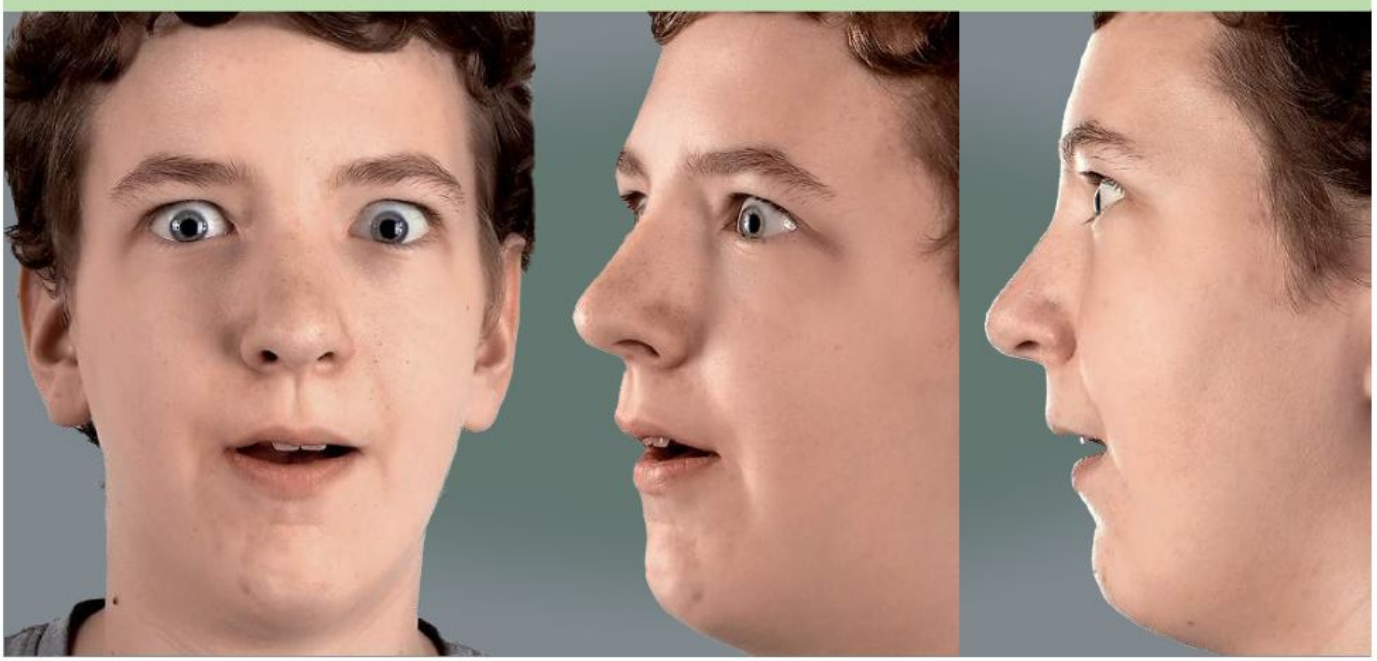
AU1+2 AU5 AU25 AU26

AU1+2 AU5 AU25 AU26

FACIAL EXPRESSIONS

SURPRISE

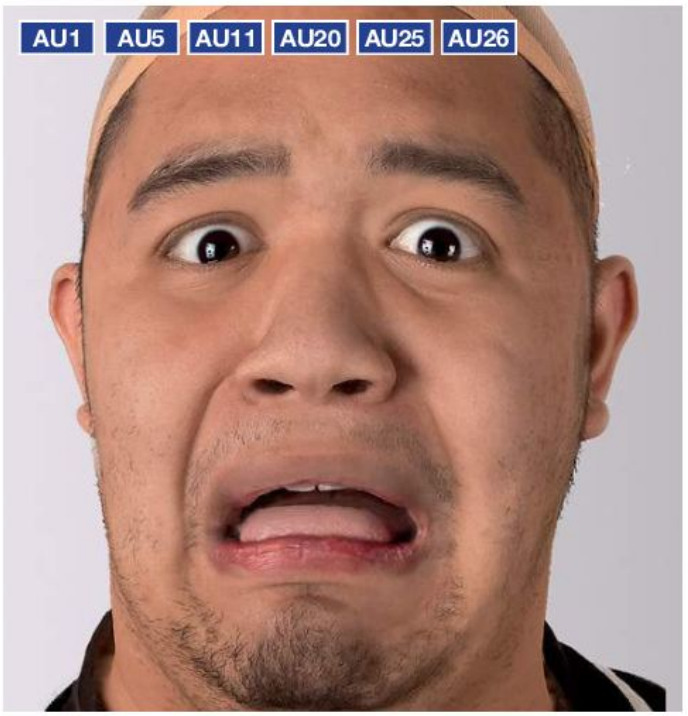
AU5 AU25 AU26



AU1+2 AU5 AU25 AU26

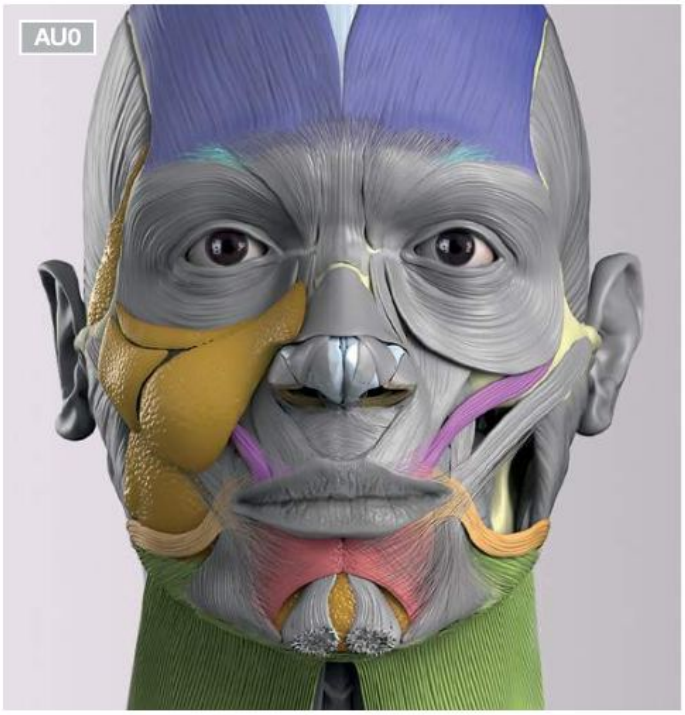
FACIAL EXPRESSIONS

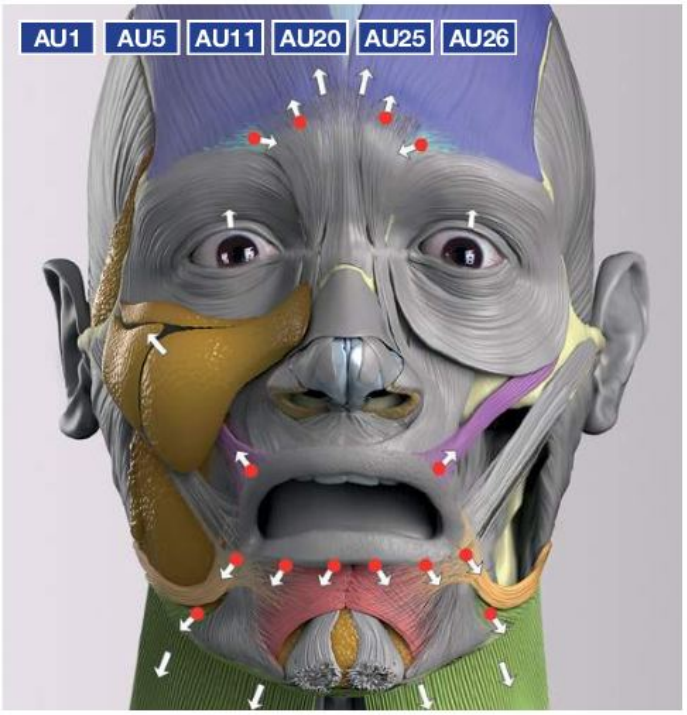
FEAR: ACTION UNITS **1+5+11+20+25+26**
CONTRACTED: FRONTALIS, CORRUGATOR SUPERCILII, ZYGOMATIC MINOR, DEPRESSOR LABII INFERIORIS, RISORIUS, PLATYSMA; DEEP MUSCLES: **LEVATOR PALPEBRAE SUPERIORIS, SUPERIOR TARSAL AND LATERAL PTERYGOID MUSCLES**
RELAXED: TEMPORALIS, MASSETER, MEDIAL PTERYGOID AND ORBICULARIS ORIS MUSCLES

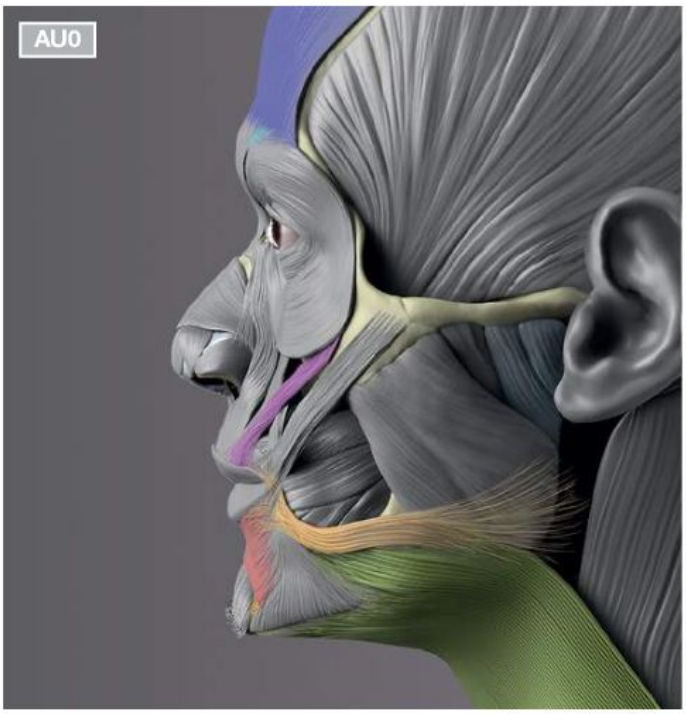


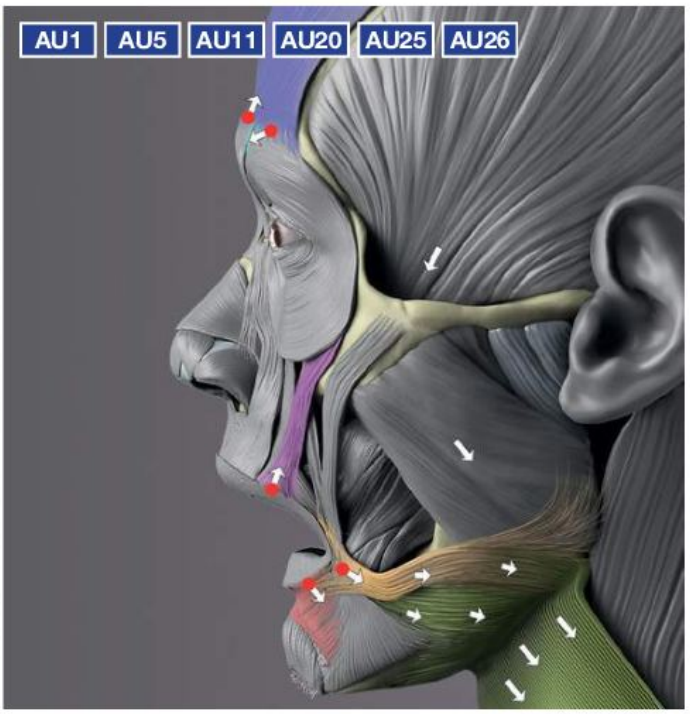
FACIAL EXPRESSIONS

FEAR: ACTION UNITS **1+5+11+20+25+26**
CONTRACTED: FRONTALIS, CORRUGATOR SUPERCILII, ZYGOMATIC MINOR, DEPRESSOR LABII INFERIORIS, RISORIUS, PLATYSMA; DEEP MUSCLES: **LEVATOR PALPEBRAE SUPERIORIS, SUPERIOR TARSAL AND LATERAL PTERYGOID MUSCLES**
RELAXED: TEMPORALIS, MASSETER, MEDIAL PTERYGOID AND ORBICULARIS ORIS MUSCLES









FACIAL EXPRESSIONS

FEAR

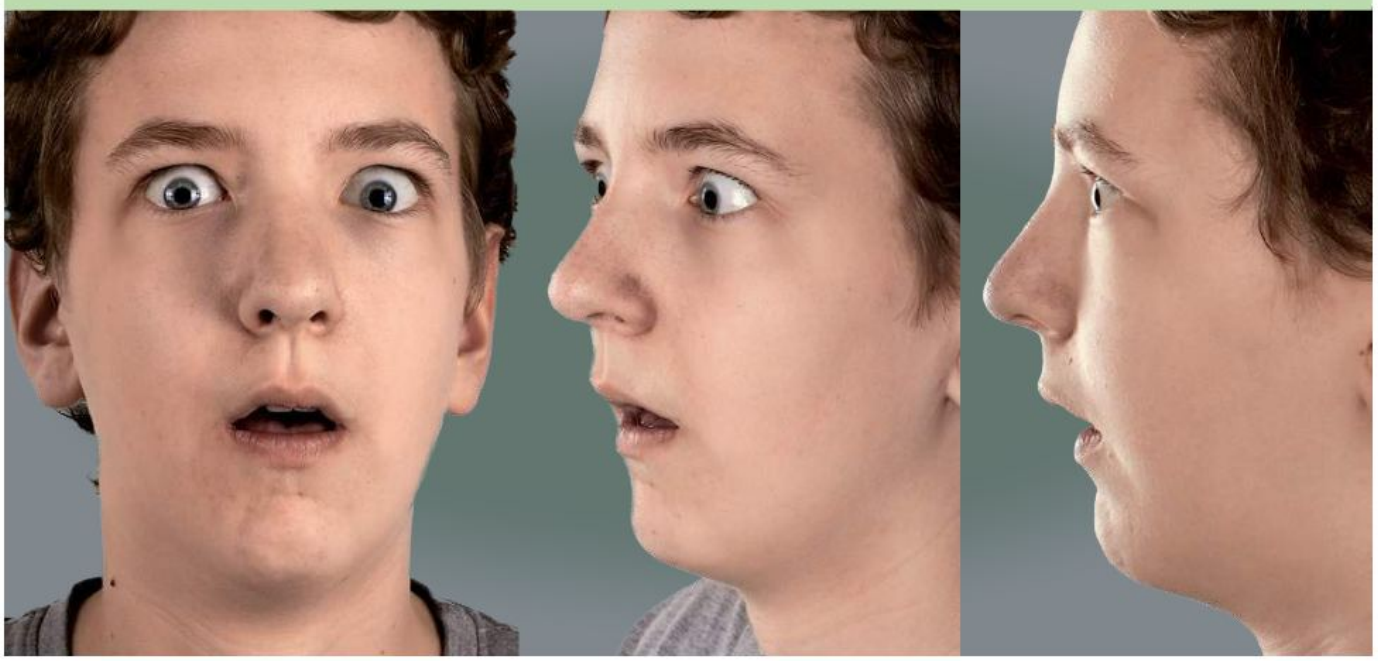
AU1+2 AU5

AU1+2 AU5 AU25 AU26

FACIAL EXPRESSIONS

FEAR

AU5 AU25 AU26



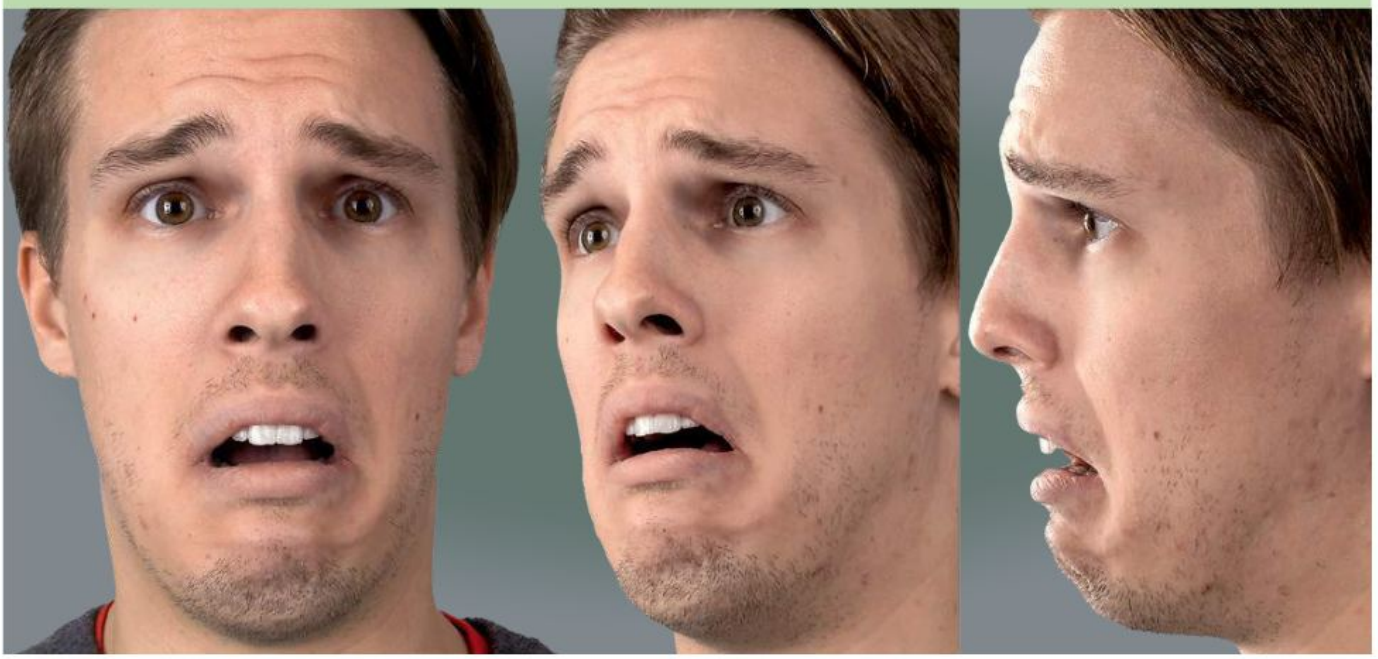
AU1+2 AU5 AU11 AU20 AU25 AU26

FACIAL EXPRESSIONS

FEAR

AU1+2 AU5 AU25 AU26

AU1 AU5 AU20 AU25 AU26

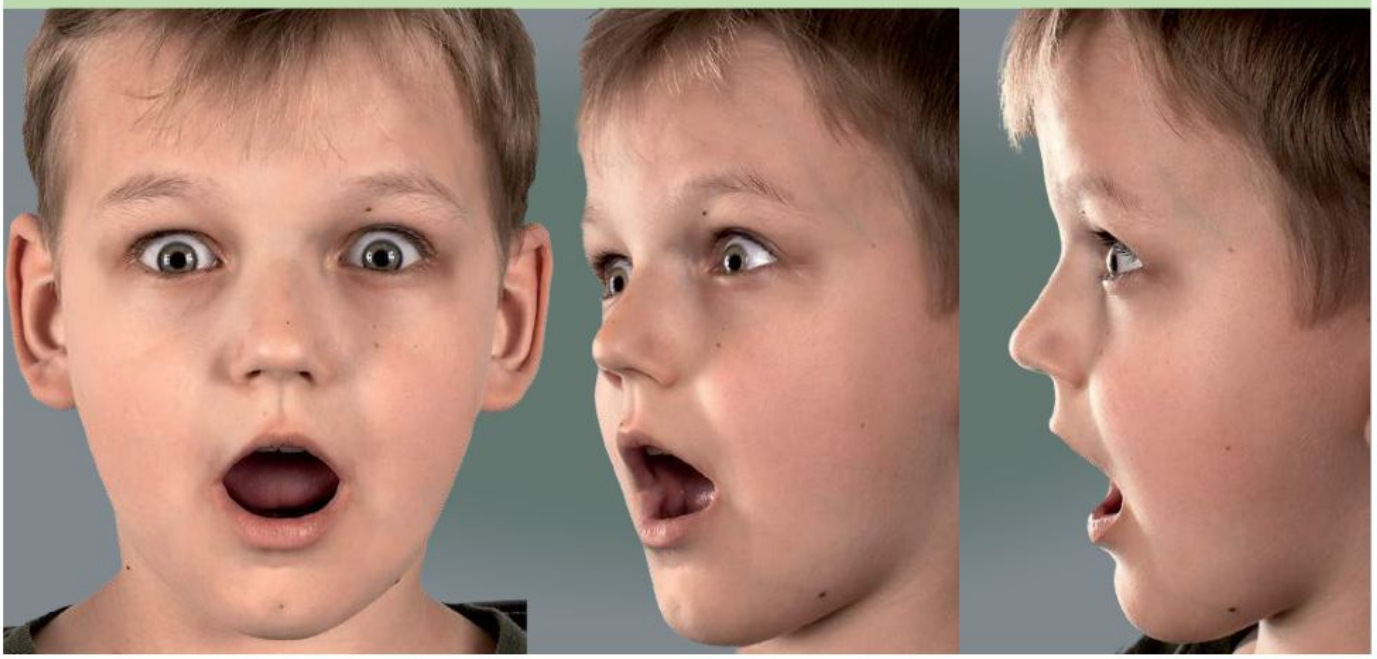


FACIAL EXPRESSIONS

FEAR

AU1 AU5 AU25 AU26

AU5 AU25 AU26

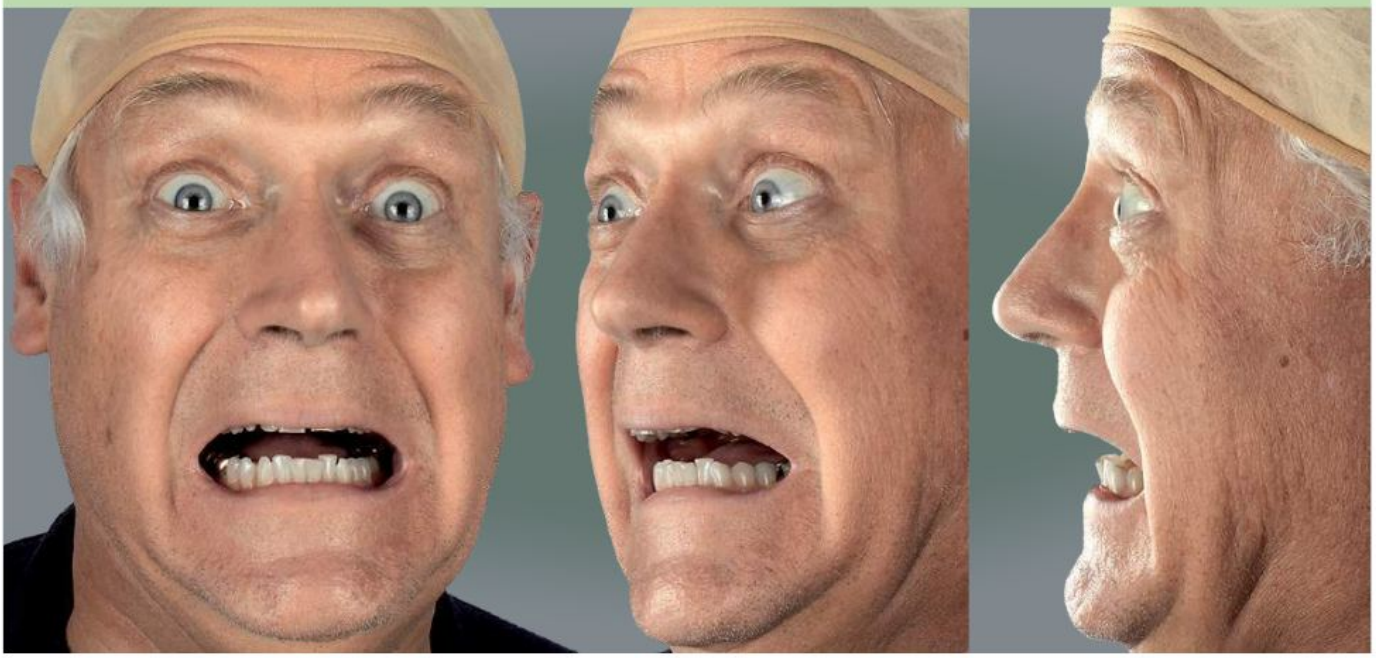


FACIAL EXPRESSIONS

FEAR

AU1 AU5 AU25 AU26

AU1+2 AU5 AU20 AU25 AU26



FACIAL EXPRESSIONS

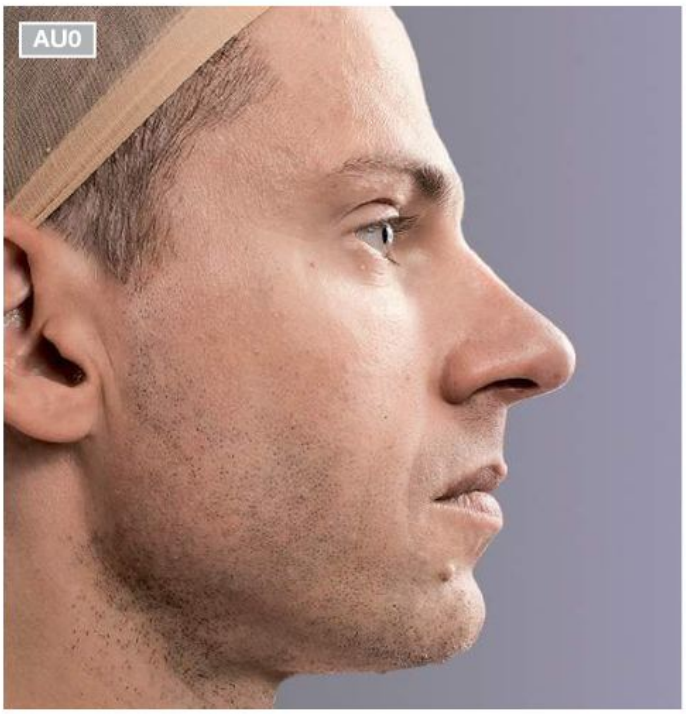
FEAR

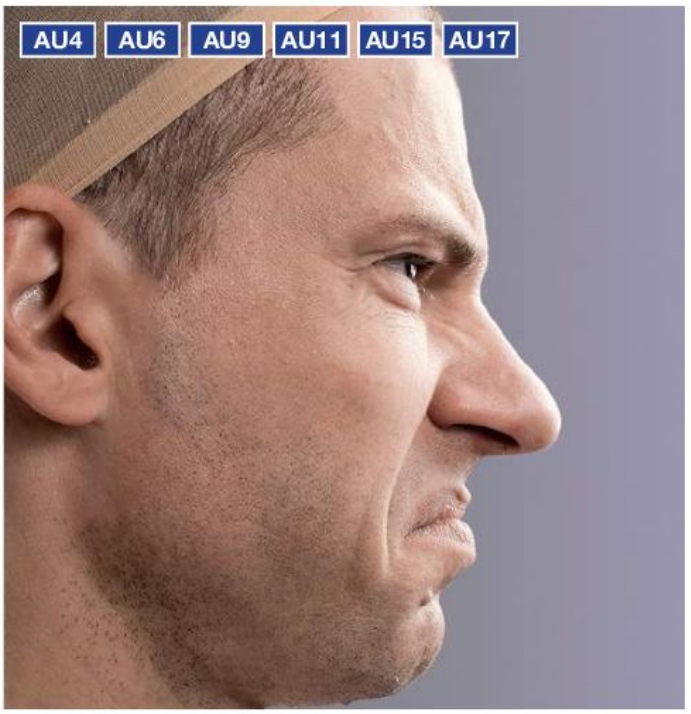
AU5 AU20 AU25

AU1 AU5 AU20 AU25 AU26

FACIAL EXPRESSIONS

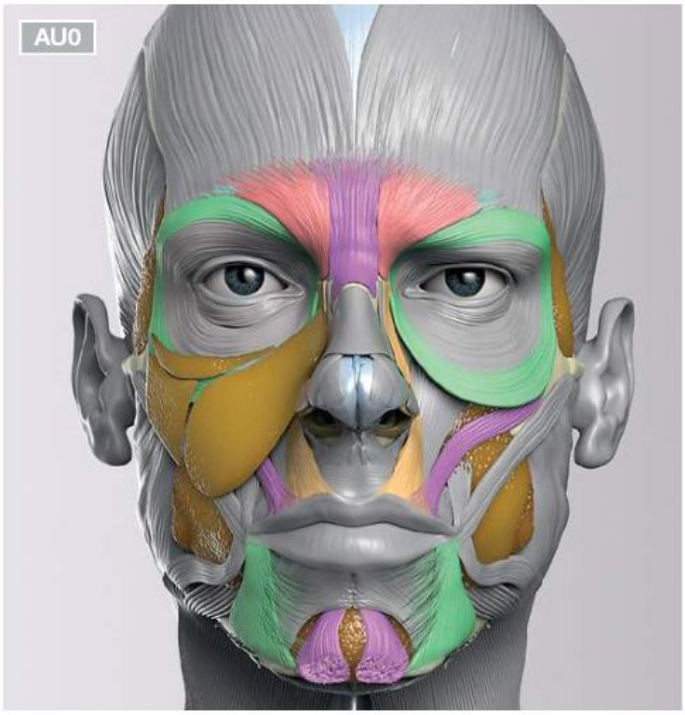
DISGUST: ACTION UNITS **4+6+9+11+15+17**
CORRUGATOR SUPERCILII, **PROCERUS**, **DEPRESSOR SUPERCILII**,
ZYGOMATIC MINOR, **LEVATOR LABII SUPERIORIS ALAEQUE NASI**, **ORBICULARIS OCULI**
(orbital portion), **DEPRESSOR ANGULI ORIS** **AND** **MENTALIS** **MUSCLES**

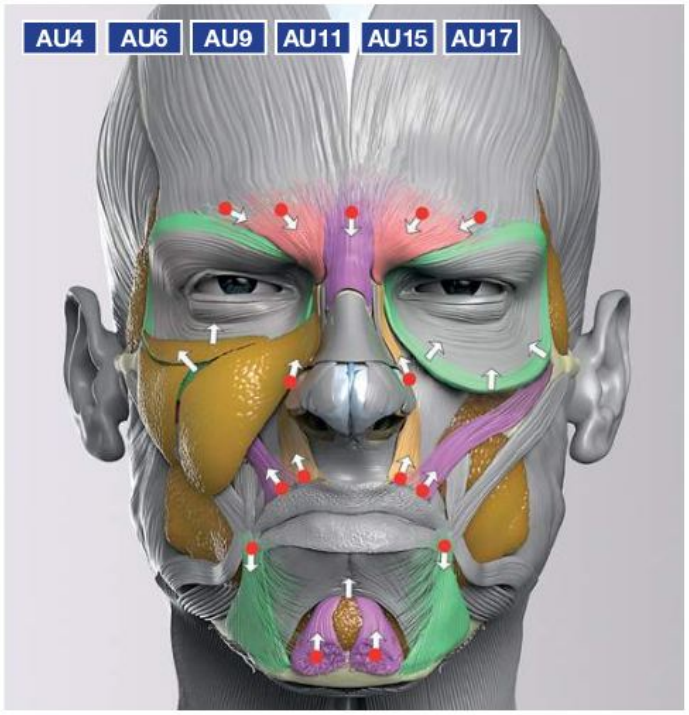




FACIAL EXPRESSIONS

DISGUST: ACTION UNITS **4+6+9+11+15+17**
CORRUGATOR SUPERCILII, **PROCERUS**, **DEPRESSOR SUPERCILII**, **ZYGOMATIC MINOR**, **LEVATOR LABII SUPERIORIS ALAEQUE NASI**, **ORBICULARIS OCULI (orbital portion)**, **DEPRESSOR ANGULI ORIS** AND **MENTALIS** MUSCLES





FACIAL EXPRESSIONS

DISGUST

AU4 AU9 AU7 AU17

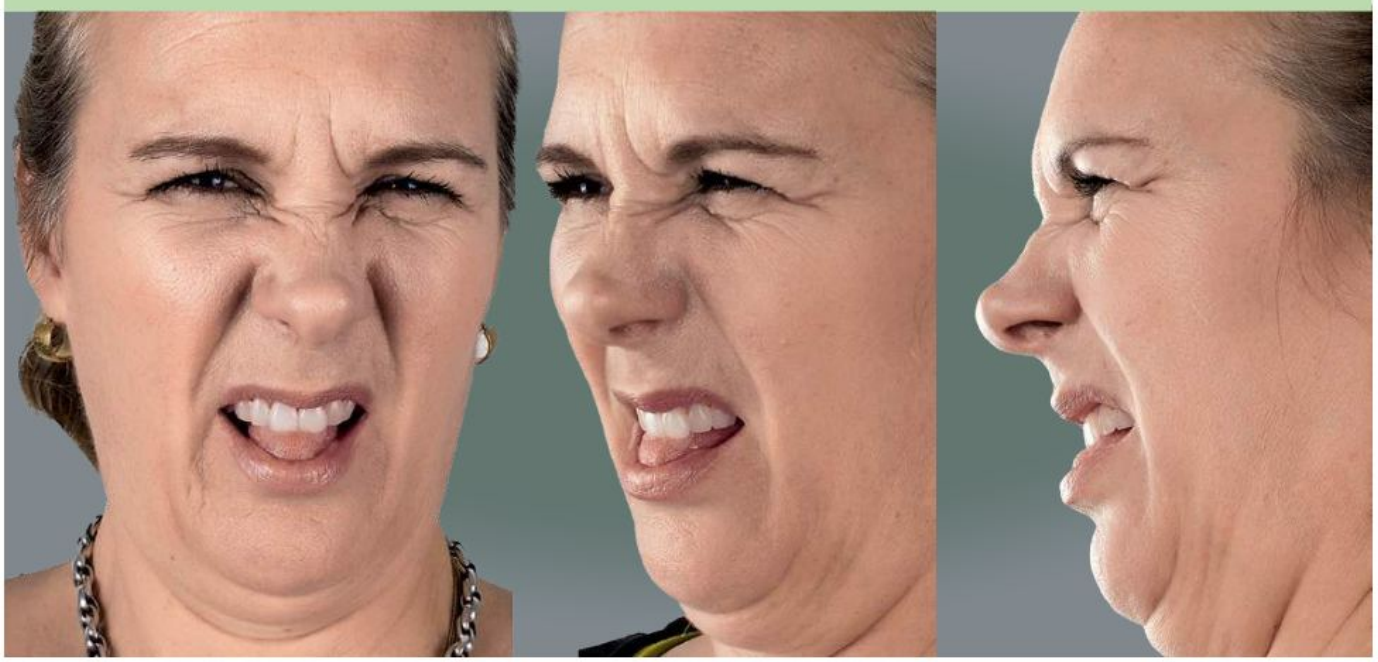
AU9 AU15

FACIAL EXPRESSIONS

DISGUST

AU4 AU9 AU25

AU4 AU6 AU9 AU25 AU26

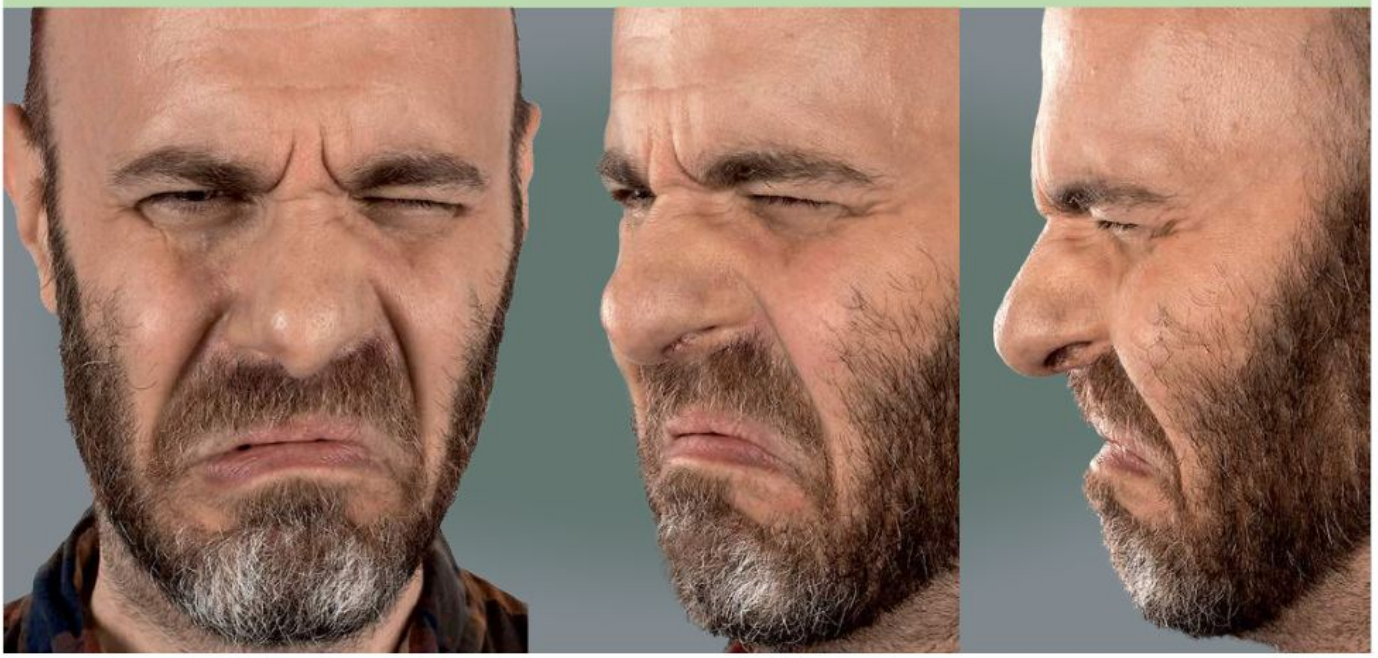


FACIAL EXPRESSIONS

DISGUST

AU4 AU9 AU25

AU4 AU7 AU9 AU15 AU43

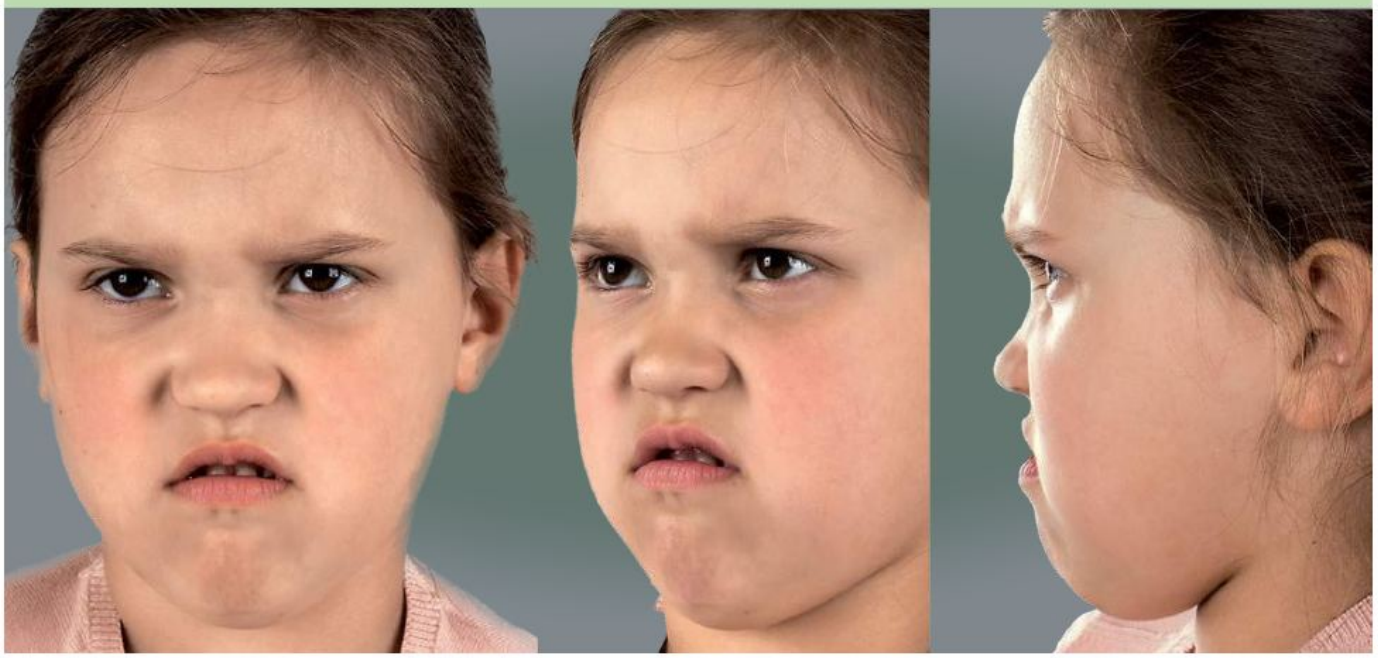


FACIAL EXPRESSIONS

DISGUST

AU1+2 AU7 AU9 AU11 AU25

AU4 AU9 AU25



FACIAL EXPRESSIONS

DISGUST

AU4 AU11

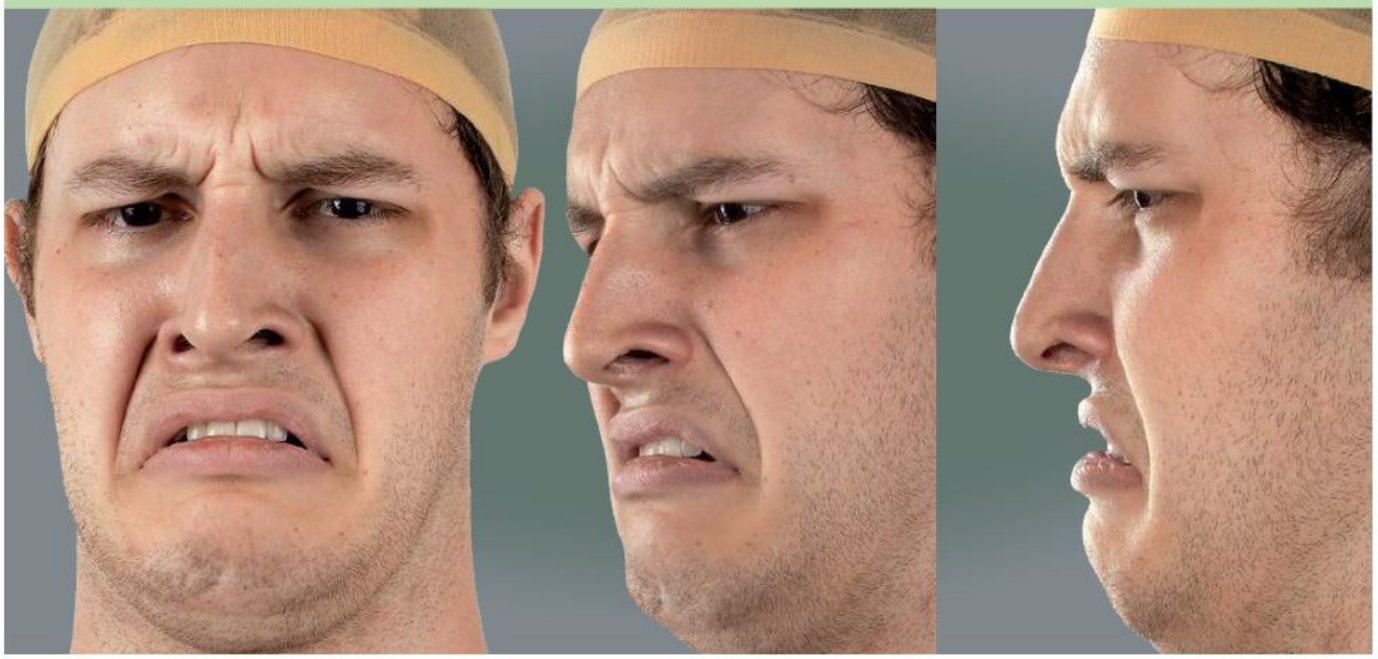
AU9 AU15 AU19 AU25 AU26

FACIAL EXPRESSIONS

DISGUST

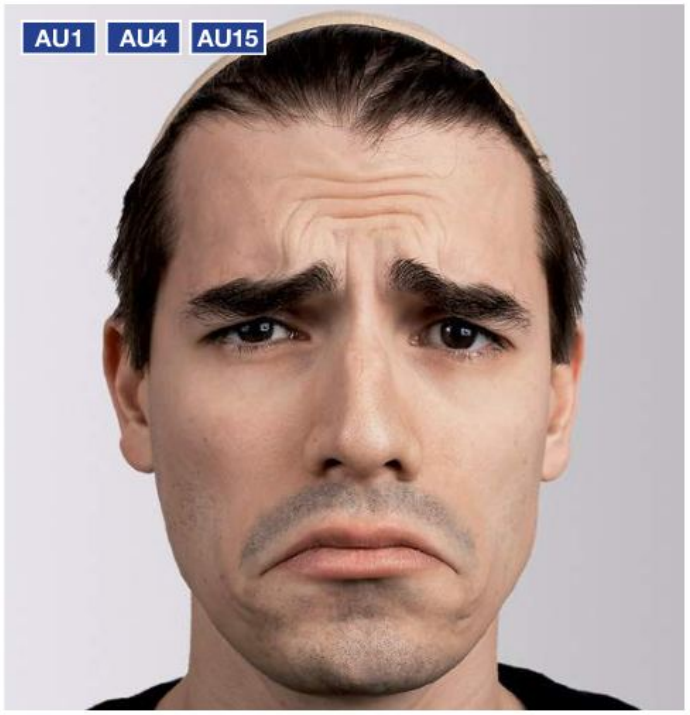
AU4 AU9 AU15

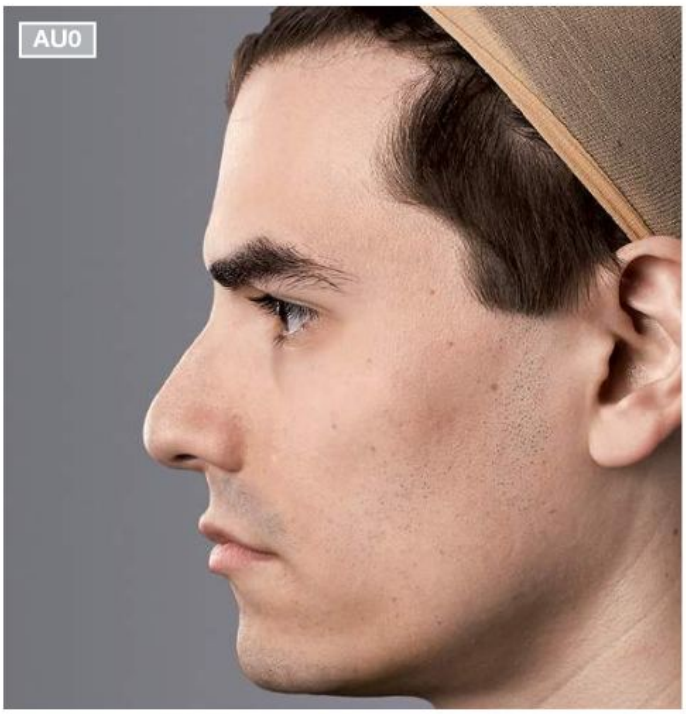
AU4 AU9 AU15 AU25

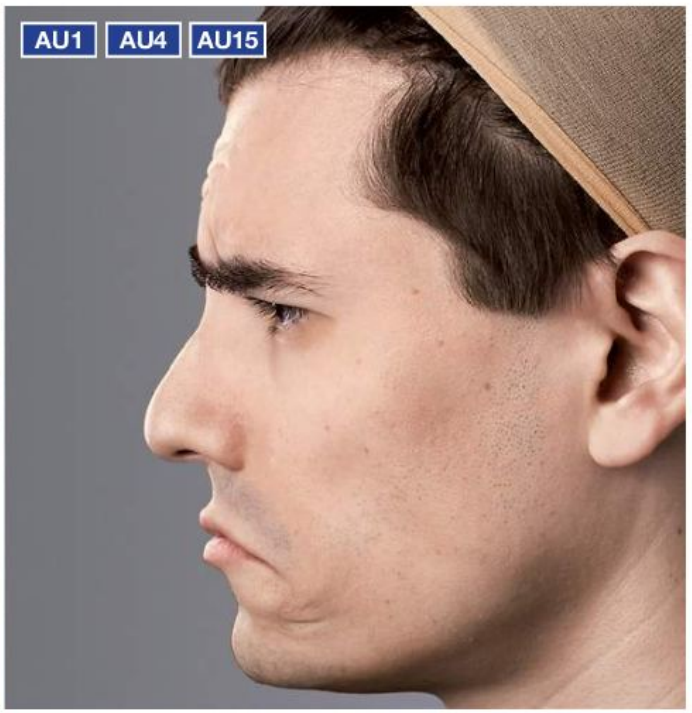


FACIAL EXPRESSIONS

SADNESS: ACTION UNITS **1+4+15**
FRONTALIS, **CORRUGATOR SUPERCILII**, **DEPRESSOR SUPERCILII**,
AND DEPRESSOR ANGULI ORIS MUSCLES

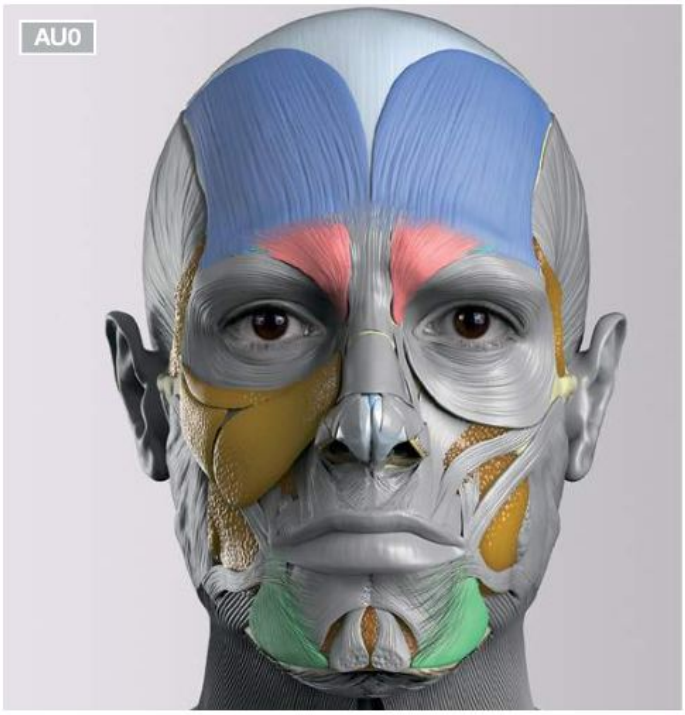


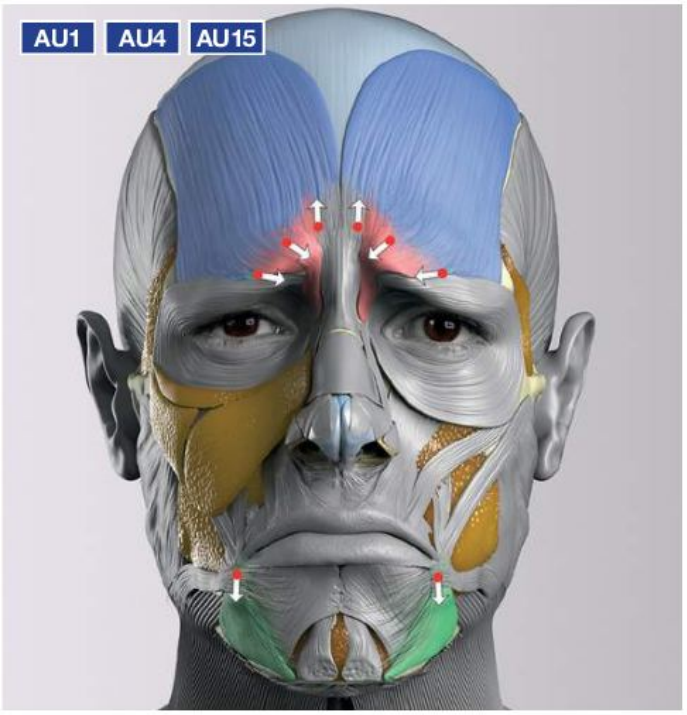


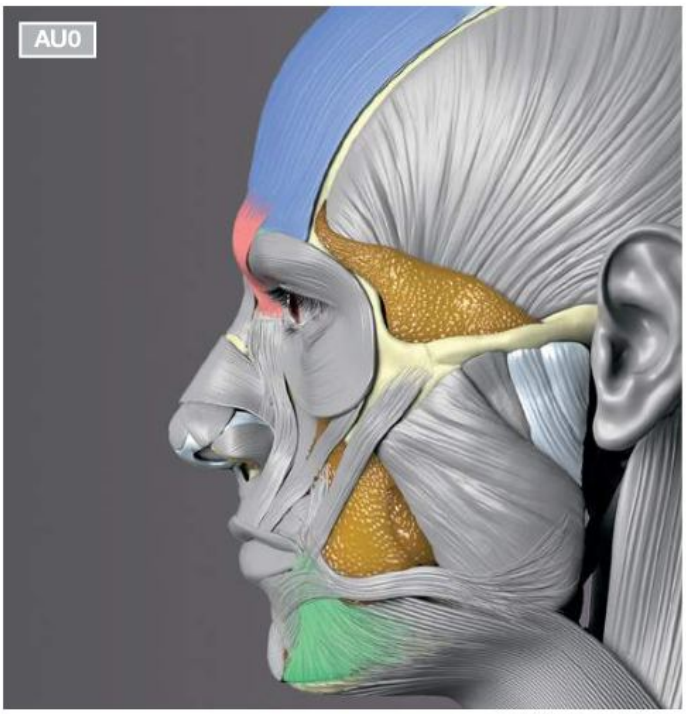


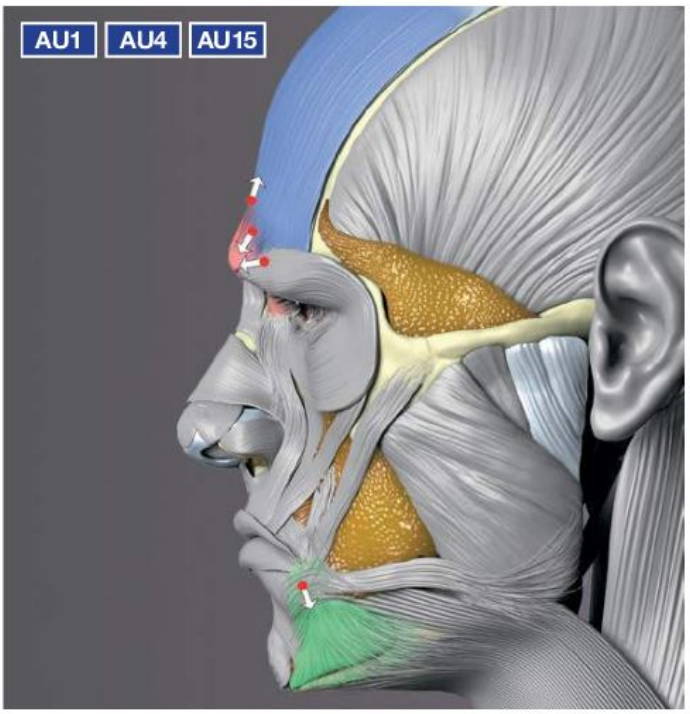
FACIAL EXPRESSIONS

SADNESS: ACTION UNITS 1+4+15
FRONTALIS, CORRUGATOR SUPERCILII, DEPRESSOR SUPERCILII, AND DEPRESSOR ANGULI ORIS MUSCLES









FACIAL EXPRESSIONS

SADNESS

AU1+2 AU15 AU17

AU1 AU11 AU15

FACIAL EXPRESSIONS

SADNESS

AU1 AU15

AU1 AU15

FACIAL EXPRESSIONS

SADNESS

AU1

AU1 AU11 AU15 AU17

FACIAL EXPRESSIONS

SADNESS

AU11

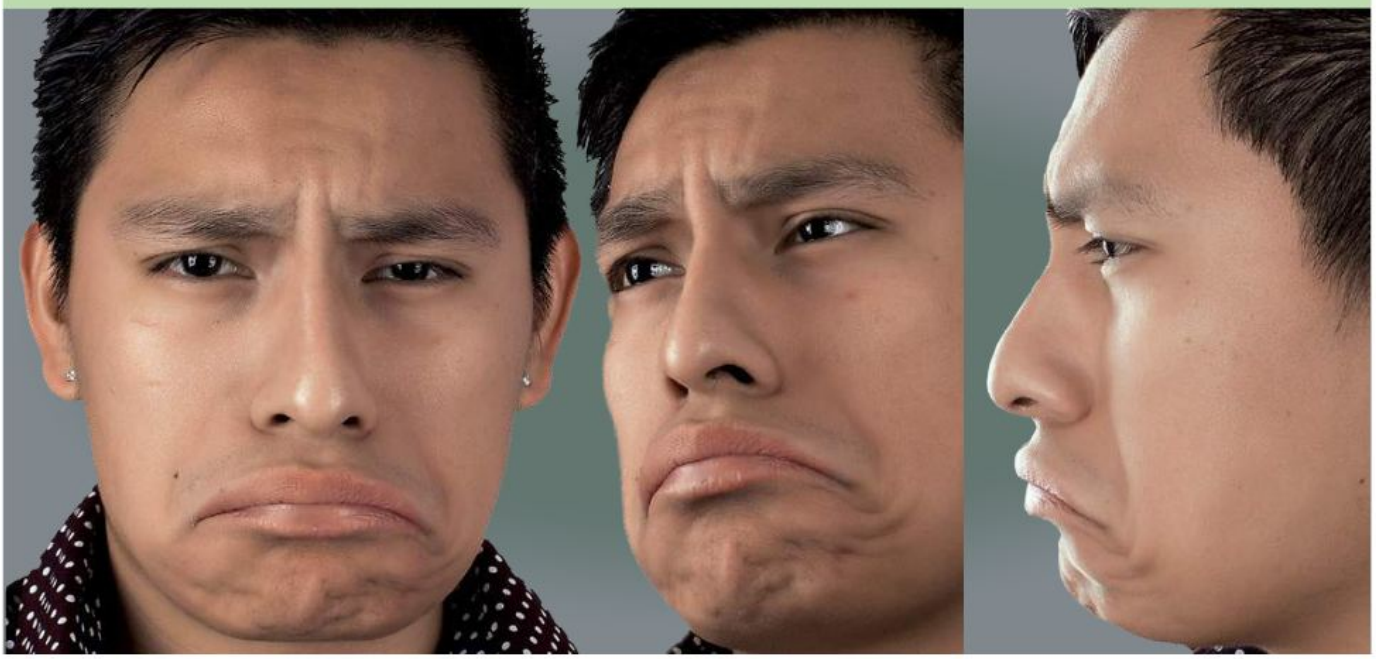
AU1 AU15 AU43 AU44

FACIAL EXPRESSIONS

SADNESS

AU1 AU15

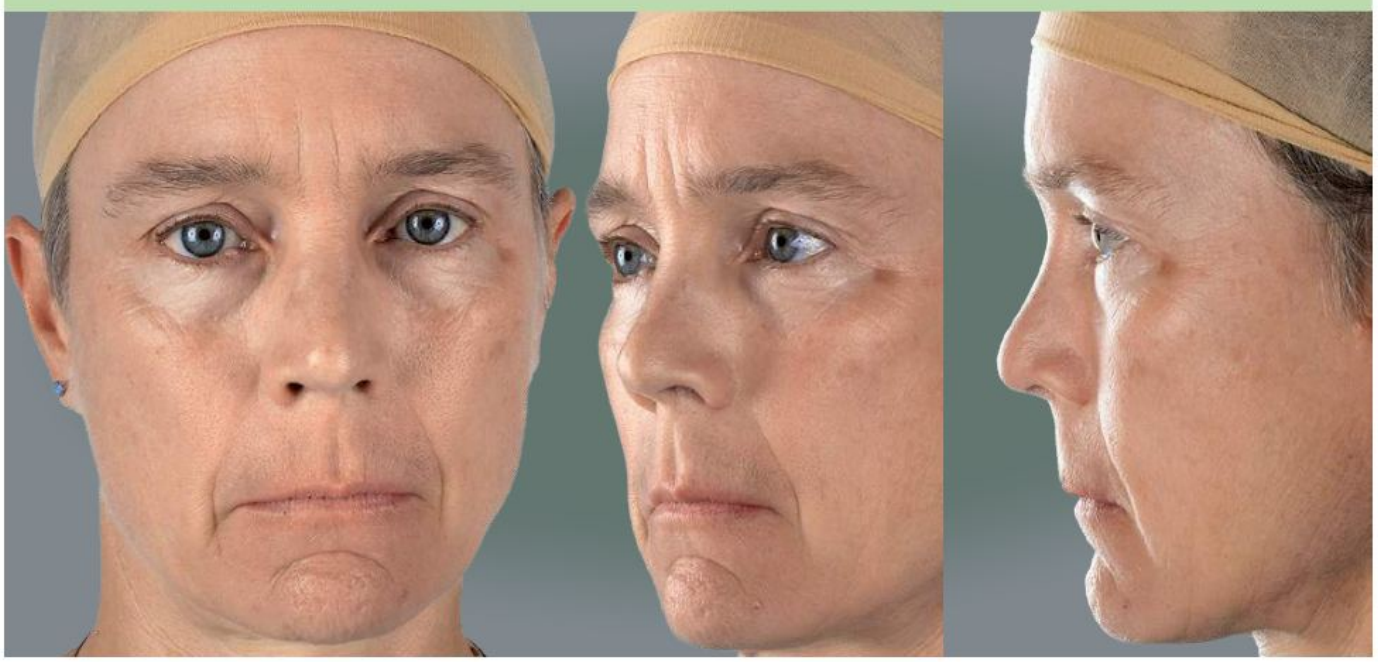
AU15 AU44



FACIAL EXPRESSIONS

SADNESS

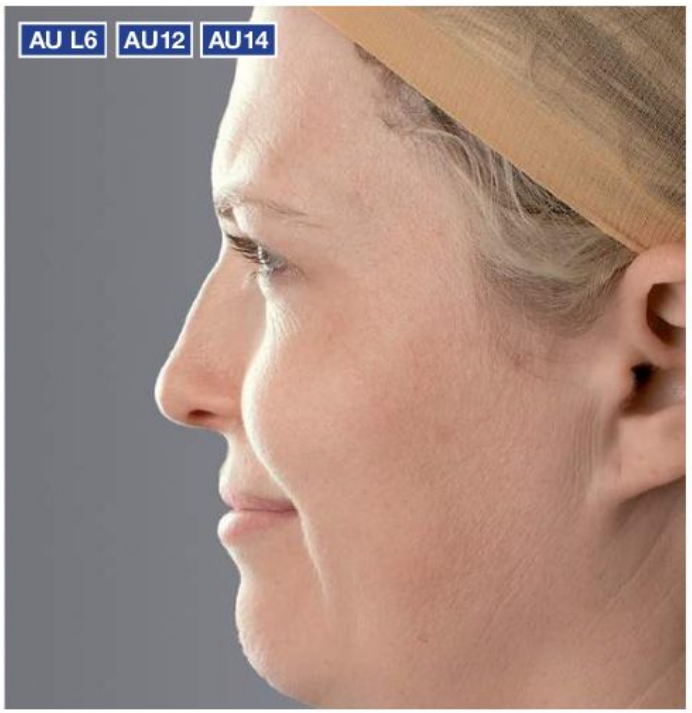
AU23 AU44



AU1 AU15 AU17 AU44

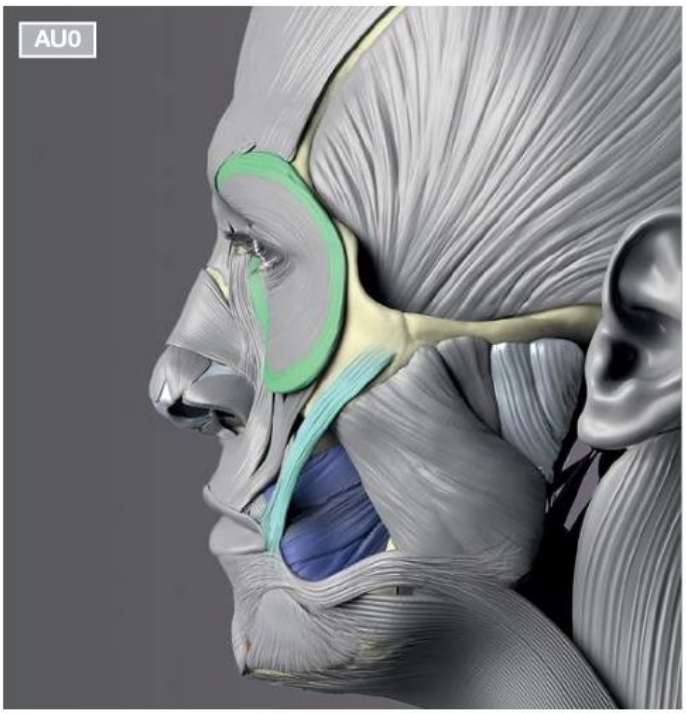
FACIAL EXPRESSIONS

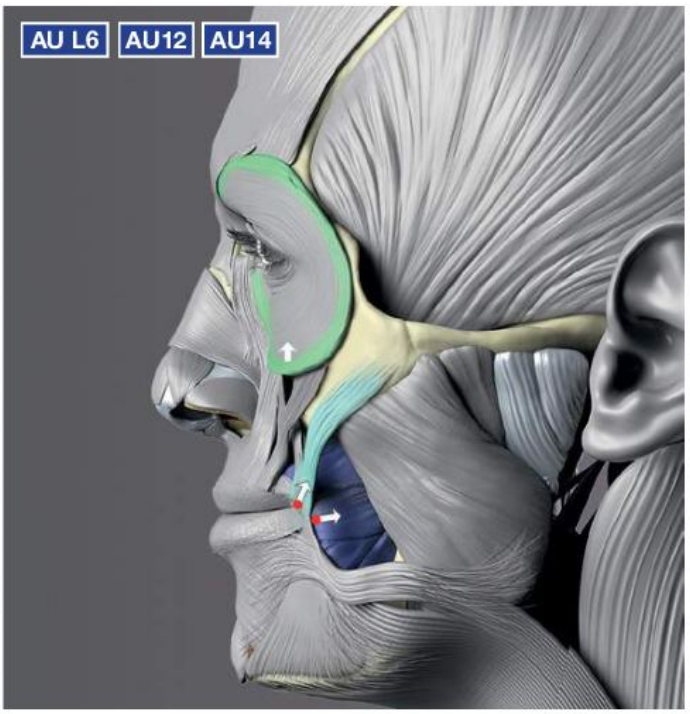
CONTEMPT: ACTION UNITS **6+12+14**
BUCCINATOR, **ZYGOMATICUS MAJOR**,
ORBICULARIS OCULI (orbital portion)



FACIAL EXPRESSIONS

CONTEMPT: ACTION UNITS **6+12+14**
BUCCINATOR, **ZYGOMATICUS MAJOR**,
ORBICULARIS OCULI (orbital portion)





FACIAL EXPRESSIONS

CONTEMPT

AU R12

AU11 AU63

FACIAL EXPRESSIONS

CONTEMPT

AU6 AU L12

AU6 AU L12

FACIAL EXPRESSIONS

CONTEMPT

AU L6 AU L9

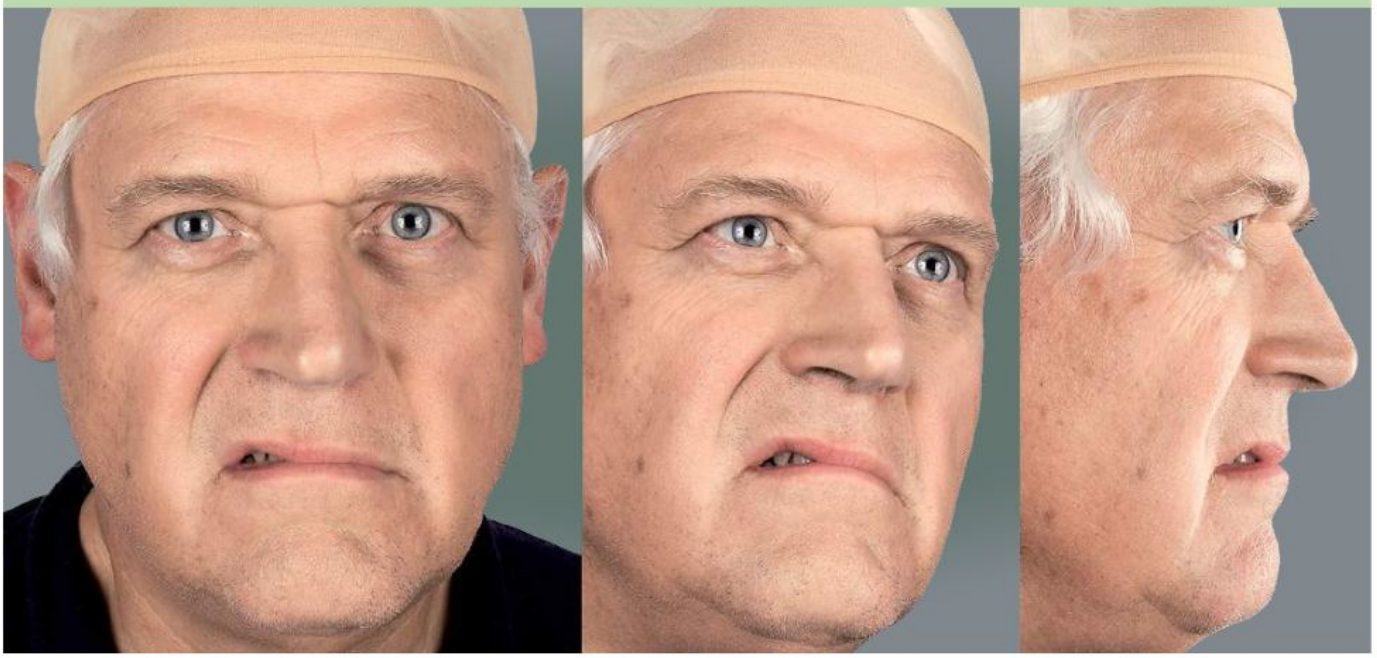
AU L12

FACIAL EXPRESSIONS

CONTEMPT

AU R6 AU R12

AU R9



FACIAL EXPRESSIONS

CONTEMPT

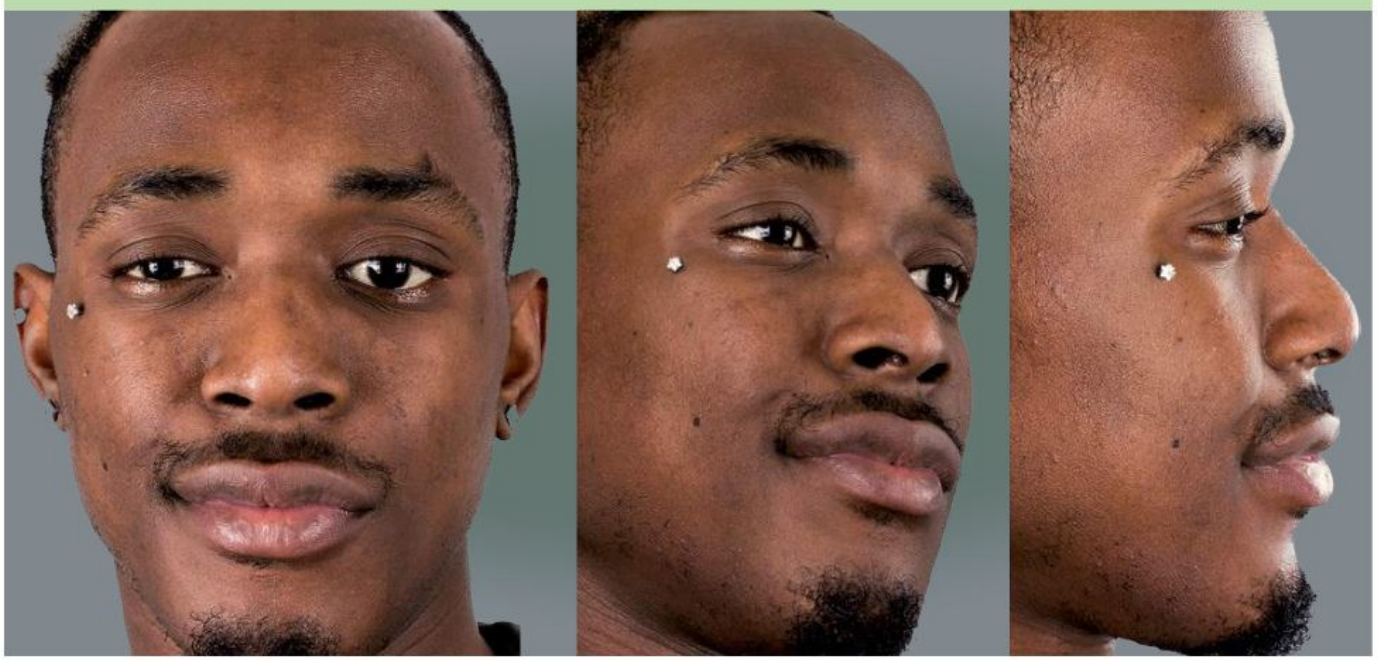
AU R12 AU R14

AU R6 AU R12

FACIAL EXPRESSIONS

CONTEMPT

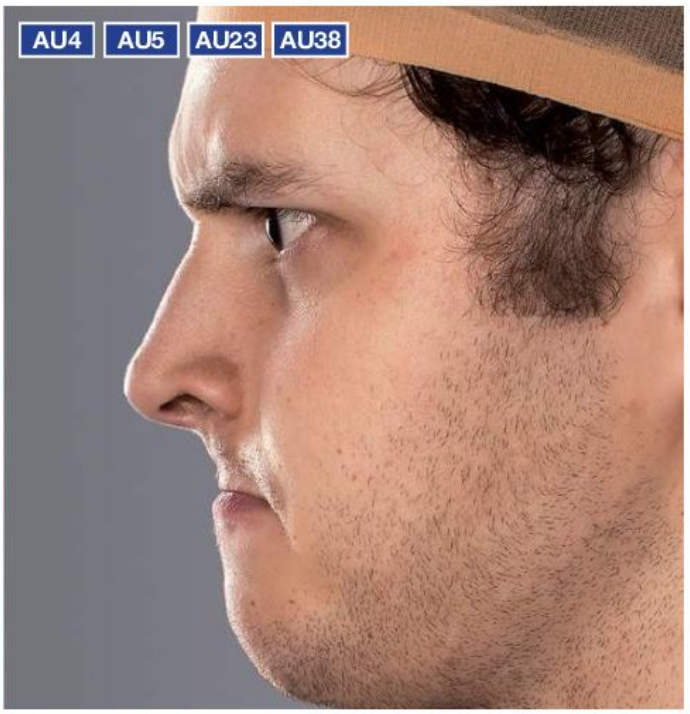
AU R6 AU R12



AU6 AU12

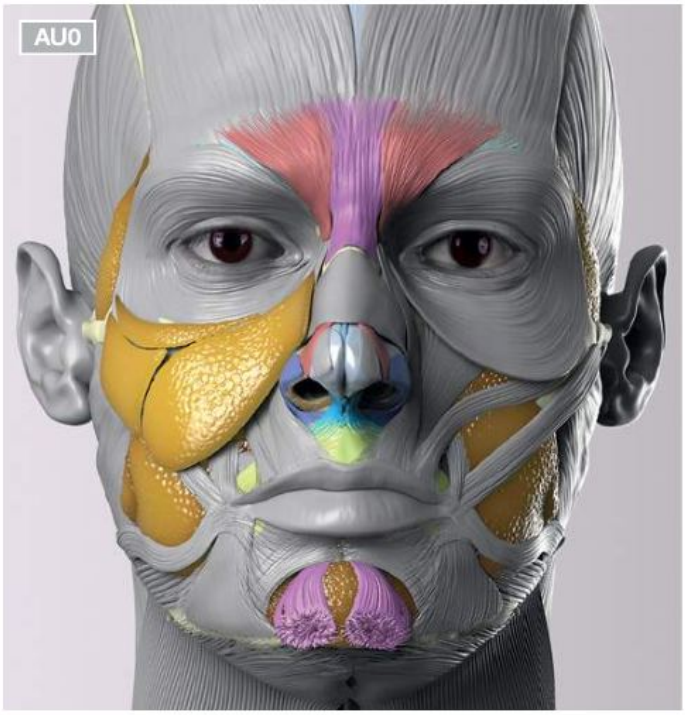
FACIAL EXPRESSIONS

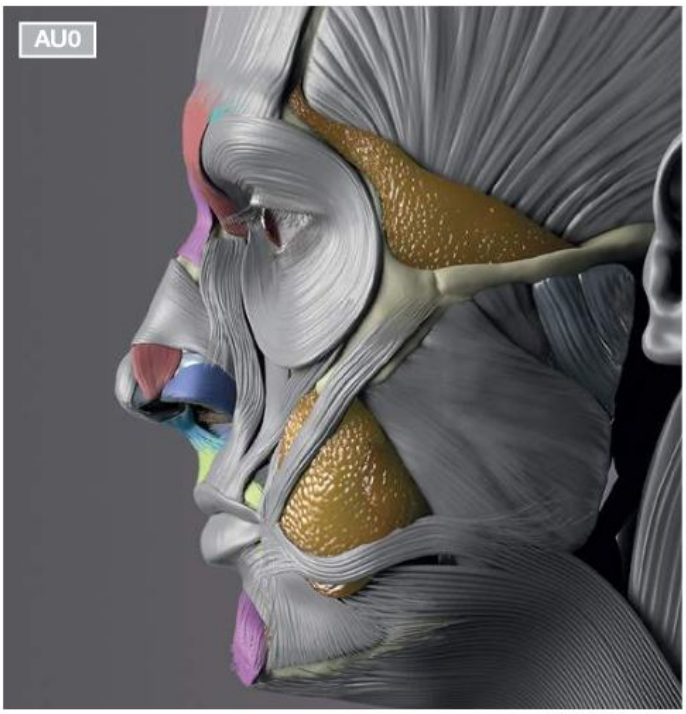
ANGER: ACTION UNITS **4+5+23+38**
CORRUGATOR SUPERCILII, **PROCERUS**, **DEPRESSOR SUPERCILII**,
LEVATOR PALPEBRAE SUPERIORIS, **SUPERIOR TARSAL**, **NASALIS (alar portion)**,
ORBICULARIS ORIS, **MENTALIS**, **DILATOR NARIS ANTERIOR**,
AND DEPRESSOR SEPTI NASI MUSCLES

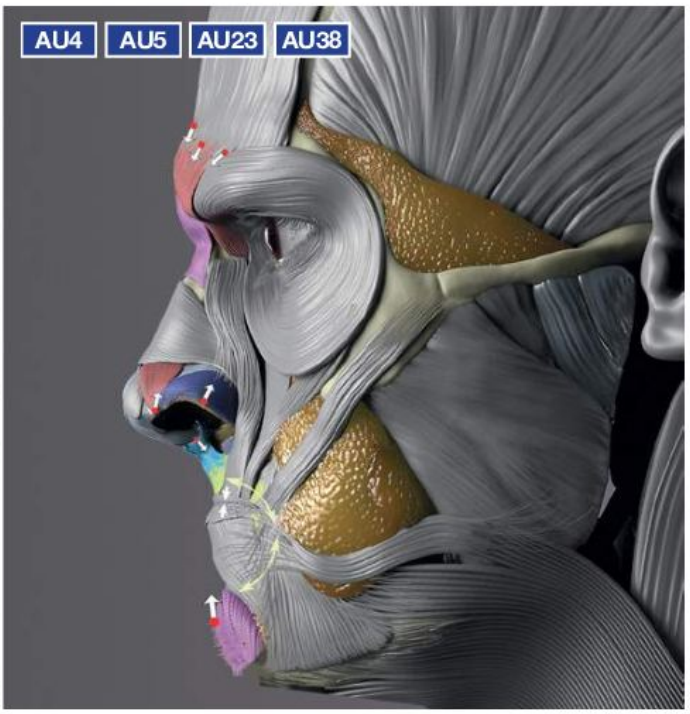


FACIAL EXPRESSIONS

ANGER: ACTION UNITS **4+5+23+38**
CORRUGATOR SUPERCILII, PROCERUS, DEPRESSOR SUPERCILII, LEVATOR PALPEBRAE SUPERIORIS, SUPERIOR TARSAL, NASALIS (alar portion), ORBICULARIS ORIS, MENTALIS, DILATOR NARIS ANTERIOR, AND DEPRESSOR SEPTI NASI MUSCLES





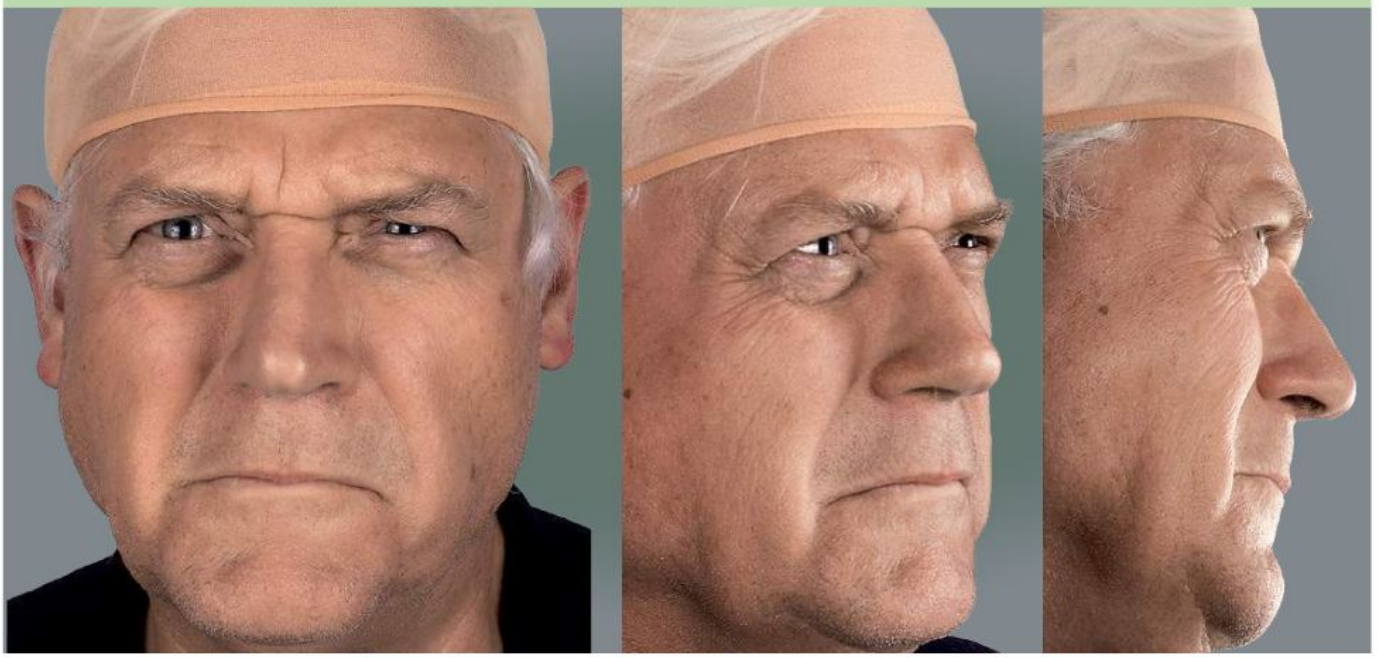


FACIAL EXPRESSIONS

ANGER

AU5 AU23

AU4 AU6 AU23



FACIAL EXPRESSIONS

ANGER

AU2 AU4 AU9 AU16 AU25

AU4 AU9 AU25

FACIAL EXPRESSIONS

ANGER

AU5 AU23

AU2 AU4 AU9 AU23

FACIAL EXPRESSIONS

ANGER

AU4 AU9 AU16 AU25

AU4 AU9 AU16 AU25

FACIAL EXPRESSIONS

ANGER

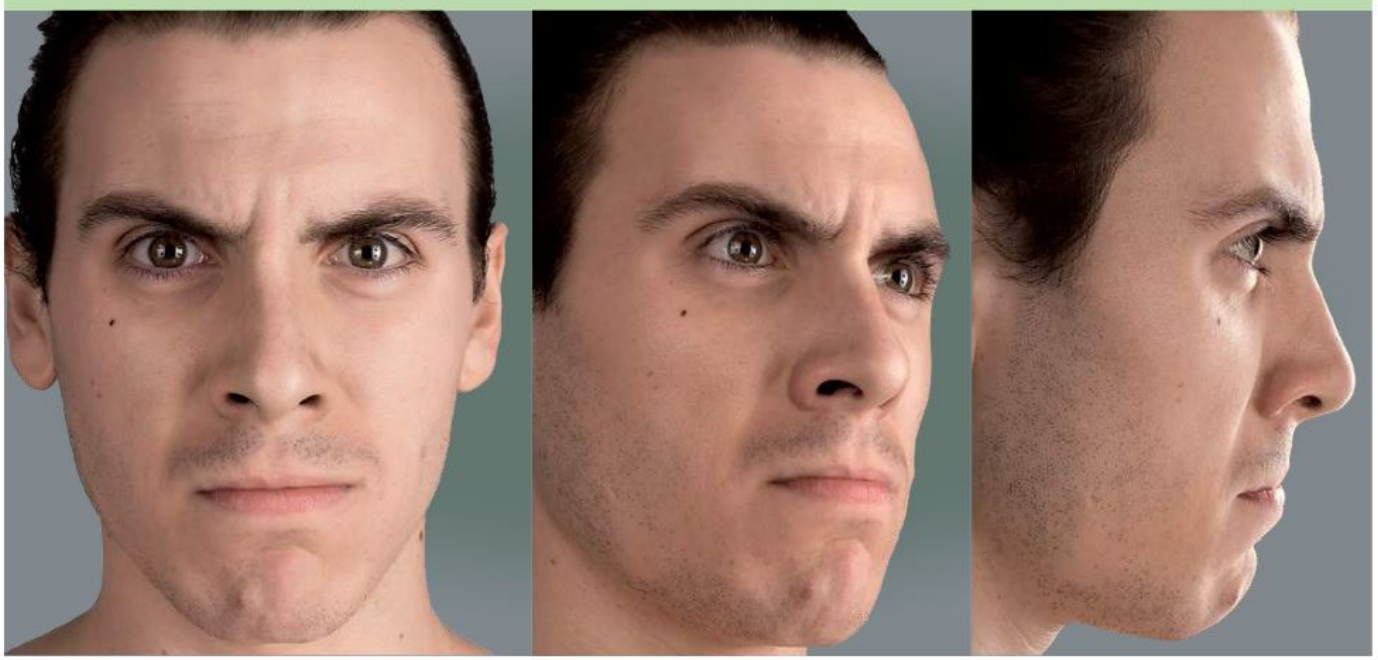
AU4 AU11

AU2 AU4 AU9 AU16 AU25

FACIAL EXPRESSIONS

ANGER

AU2 AU4 AU23



AU4 AU17 AU R9

FACS

FACIAL ACTION CODING SYSTEM

FACIAL ACTION CODING SYSTEM

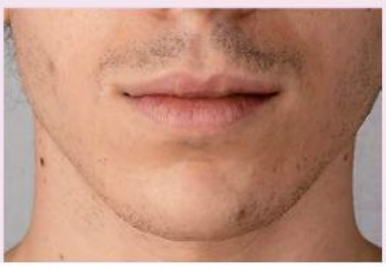
FACIAL ACTION CODING SYSTEM (**FACS**) REFERS TO A SET OF FACIAL MUSCLE MOVEMENTS THAT CORRESPOND TO A DISPLAYED EMOTION. ORIGINALLY CREATED BY CARL-HERMAN HJORTSJÖ WITH 23 FACIAL MOTION UNITS IN 1970, IT WAS SUBSEQUENTLY DEVELOPED FURTHER BY PAUL EKMAN, AND WALLACE FRIESEN. THE FACS AS WE KNOW IT TODAY WAS FIRST PUBLISHED IN 1978, BUT WAS SUBSTANTIALLY UPDATED IN 2002.

AU NUMBER	FACS NAME	PRACTICE IMAGES	NEUTRALS FOR PRACTICE IMAGES	MUSCULAR BASIS
AU0	NEUTRAL			
AU6	INNER BROW RAISER			FRONTALIS (medial part)
AU2	OUTER BROW RAISER			FRONTALIS (lateral part)
AU4	BROW LOWERER			PROCERUS DEPRESSOR SUPERCILII CORRUGATOR SUPERCILII
AU5	UPPER LID RAISER			LEVATOR PALPEBRAE SUPERIORIS SUPERIOR TARSAL MUSCLE
AU6	CHEEK RAISER			ORBICULARIS OCULI (orbital part)

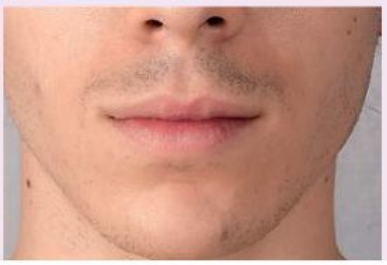
FACIAL ACTION CODING SYSTEM

AU NUMBER	FACS NAME	PRACTICE IMAGES	NEUTRALS FOR PRACTICE IMAGES	MUSCULAR BASIS
AU7	LID TIGHTENER			ORBICULARIS OCULI (palpebral part)
AU8	LIPS TOWARD EACH OTHER			ORBICULARIS ORIS
AU9	NOSE WRINKLER			LEVATOR LABII SUPERIORIS ALAEQUE NASI
AU10	UPPER LIP RAISER			LEVATOR LABII SUPERIORIS
AU11	NASOLABIAL DEEPENER			ZYGOMATICUS MINOR
AU6	LIP CORNER PULLER			ZYGOMATICUS MAJOR

FACIAL ACTION CODING SYSTEM

AU NUMBER	FACS NAME	PRACTICE IMAGES	NEUTRALS FOR PRACTICE IMAGES	MUSCULAR BASIS
AU7	SHARP LIP PULLER			LEVATOR ANGULI ORIS
AU14	DIMPLER			BUCCINATOR
AU15	LIP CORNER DEPRESSOR			DEPRESSOR ANGULI ORIS
AU16	LOWER LIP DEPRESSOR			DEPRESSOR LABII INFERIORIS
AU17	CHIN RAISER			MENTALIS
AU18	LIP PUCKER			ORBICULARIS ORIS (*incisivii labii superioris* and *incisivii labii inferioris* fibers)

FACIAL ACTION CODING SYSTEM

AU NUMBER	FACS NAME	PRACTICE IMAGES	NEUTRALS FOR PRACTICE IMAGES	MUSCULAR BASIS
AU19	TONGUE SHOW			GENIOGLOSSUS MEDIAL PTERYGOID MASSETER
AU20	LIP STRECHER			RISORIUS PLATYSMA
AU21	NECK TIGHTENER			PLATYSMA
AU22	LIP FUNNELER			ORBICULARIS ORIS
AU11	LIP TIGHTENER			ORBICULARIS ORIS
AU6	LIP PRESSOR			ORBICULARIS ORIS

FACIAL ACTION CODING SYSTEM

AU NUMBER	FACS NAME	PRACTICE IMAGES	NEUTRALS FOR PRACTICE IMAGES	MUSCULAR BASIS
AU25	LIPS PART			DEPRESSOR LABII INFERIORIS
AU26	JAW DROP			MASSETER TEMPORALIS MEDIAL PTERYGOID
AU27	MOUTH STRETCH			PTERYGOIDS DIGASTRIC
AU28	LIP SUCK			ORBICULARIS ORIS
AU29	JAW THRUST			PTERYGOIDS MASSETER
AU30	JAW SIDEWAYS			PTERYGOIDS MASSETER TEMPORALIS

FACIAL ACTION CODING SYSTEM

AU NUMBER	FACS NAME	PRACTICE IMAGES	NEUTRALS FOR PRACTICE IMAGES	MUSCULAR BASIS
AU31	JAW CLENCHER			MASSETER
AU32	[LIP] BITE			MASSETER
AU33	[CHEEK] BLOW			BUCCINATOR ORBICULARIS ORIS MENTALIS
AU34	[CHEEK] PUFF			ORBICULARIS ORIS BUCCINATOR MENTALIS DEPRESSOR SEPTI NASI
AU35	[CHEEK] SUCK			BUCCINATOR
AU36	TONGUE BULGE			PTERYGOIDS MASSETER GENIOGLOSSUS

FACIAL ACTION CODING SYSTEM

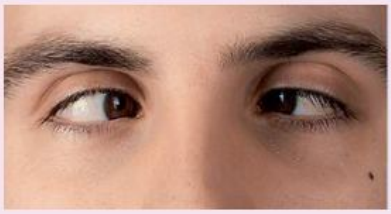
AU NUMBER	FACS NAME	PRACTICE IMAGES	NEUTRALS FOR PRACTICE IMAGES	MUSCULAR BASIS
AU37	LIP WIPE			PTERYGOIDS MASSETER GENIOGLOSSUS
AU38	NOSTRIL DILATOR			NASALIS (alar portion) DILATOR NARIS ANTERIOR DEPRESSOR SEPTI NASI
AU39	NOSTRIL COM-PRESSOR			NASALIS (transverse portion) COMPRESSOR NARIUM MINOR
AU41	LID DROP			Relaxation of: LEVATOR PALPEBRAE SUPERIORIS
AU42	SLIT			Separate Strand of AU 4 DEPRESSOR SUPERCILII
AU43	EYES CLOSED			Relaxation of: LEVATOR PALPEBRAE SUPERIORIS

FACIAL ACTION CODING SYSTEM

AU NUMBER	FACS NAME	PRACTICE IMAGES	NEUTRALS FOR PRACTICE IMAGES	MUSCULAR BASIS
AU44	SQUINT			Separate Strand of AU 4 CORRUGATOR SUPERCILII
AU45	BLINK			Relaxation of LEVATOR PALPEBRAE SUPERIORIS Contraction of ORBICULARIS OCULI (palpebral portion)
AU46	WINK			ORBICULARIS OCULI

FACIAL ACTION CODING SYSTEM

EYE MOVEMENT CODES

AU NUMBER	FACS NAME	PRACTICE IMAGES	NEUTRALS FOR PRACTICE IMAGES	MUSCULAR BASIS
AU61	EYES TURN LEFT			MEDIAL RECTUS (right eye) LATERAL RECTUS (left eye)
AU62	EYES TURN RIGHT			MEDIAL RECTUS (left eye) LATERAL RECTUS (right eye)
AU63	EYES UP			SUPERIOR RECTUS INFERIOR OBLIQUE
AU64	EYES DOWN			INFERIOR RECTUS SUPERIOR OBLIQUE
AU66	CROSS-EYED			MEDIAL RECTUS

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William Vaughan
Youri Vandevelde
Zaid Salman

This book is thorough, complete and absolutely beautiful. The use of 3D models to show what's happening under the skin makes the information so much easier to visualize. Uldis has the ability to filter information to the key bits that will help artists make better art. And he does it in a comprehensible way with simple illustrations. This is a book that doesn't spend much time on a bookshelf. It's a reference companion you'll keep coming back to and leave on your desk. A friend you'll carry in your backpack for years as you embark on the exciting journey of facial anatomy.

Stan Prokopenko

Artist and Founder *at Proko.com*
www.stanprokopenko.com
Art Education – *www.Proko.com*

For anyone who is interested in solidifying their knowledge of the human face and all its complexities, this book is for you. This will forever be part of my pool of reference whenever I create work that deals with facial anatomy and expression.

Giovanni Nakpil

Character Artist
www.gionakpil.com

The arrival of the digital era and 3D modeling offers vast opportunities and challenges in teaching and learning. I am very pleased to see that editors have now brought their expertise to this brilliant guide with innovative and original interpretation of muscle anatomy.
Authors have created an important resource for students and teachers. This well-written book provides coverage of a number of important issues and techniques not commonly treated in a didactic manner and specifically not covered in most introductory anatomy books.
Overall a brilliant piece of work! I wish I had had this book when I was a student...

Peteris Stradins

Associate Professor, *MD, PhD*
Chief of Cardiac Surgery Department of
Pauls Stradins Clinical University Hospital

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