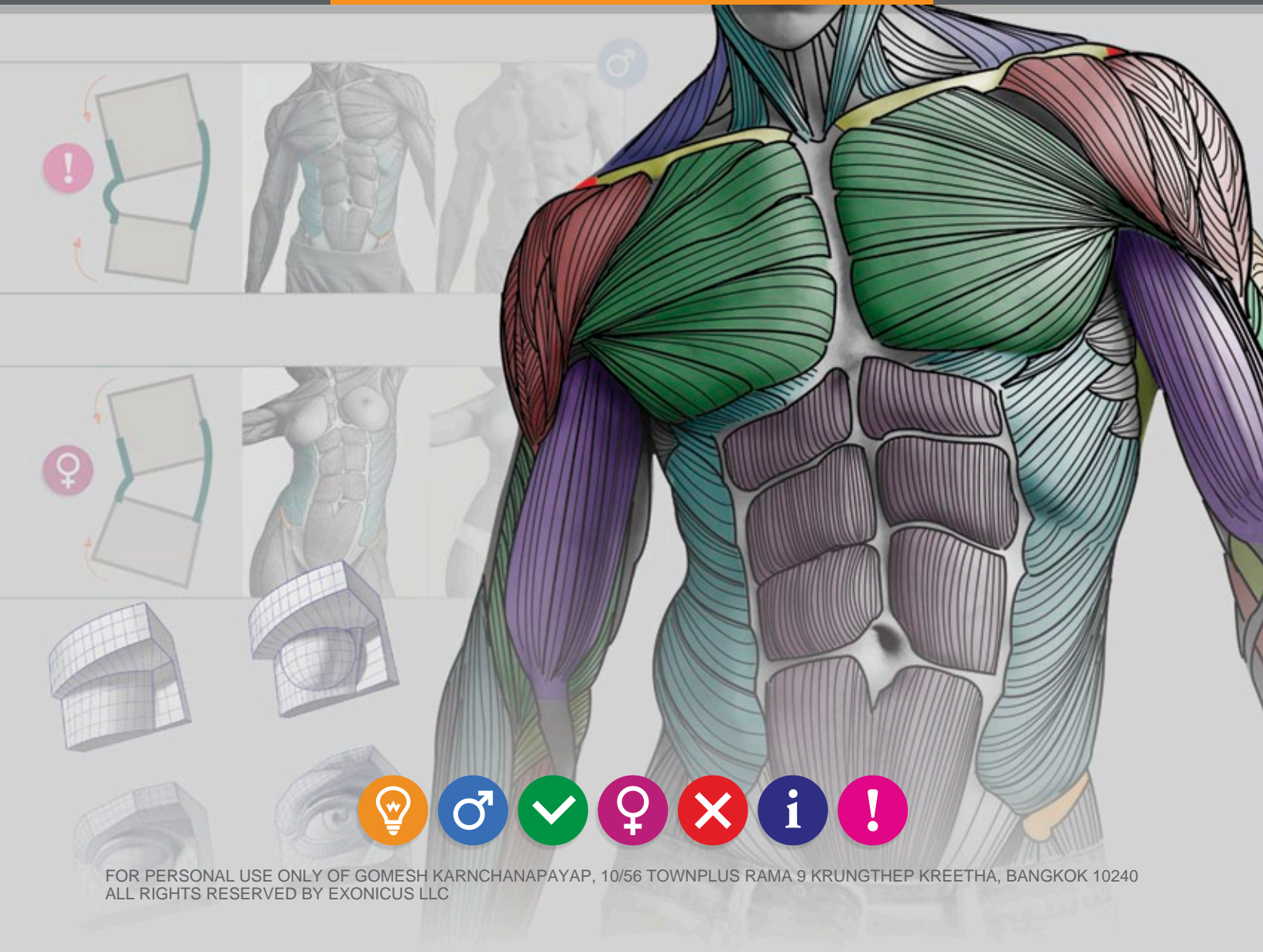


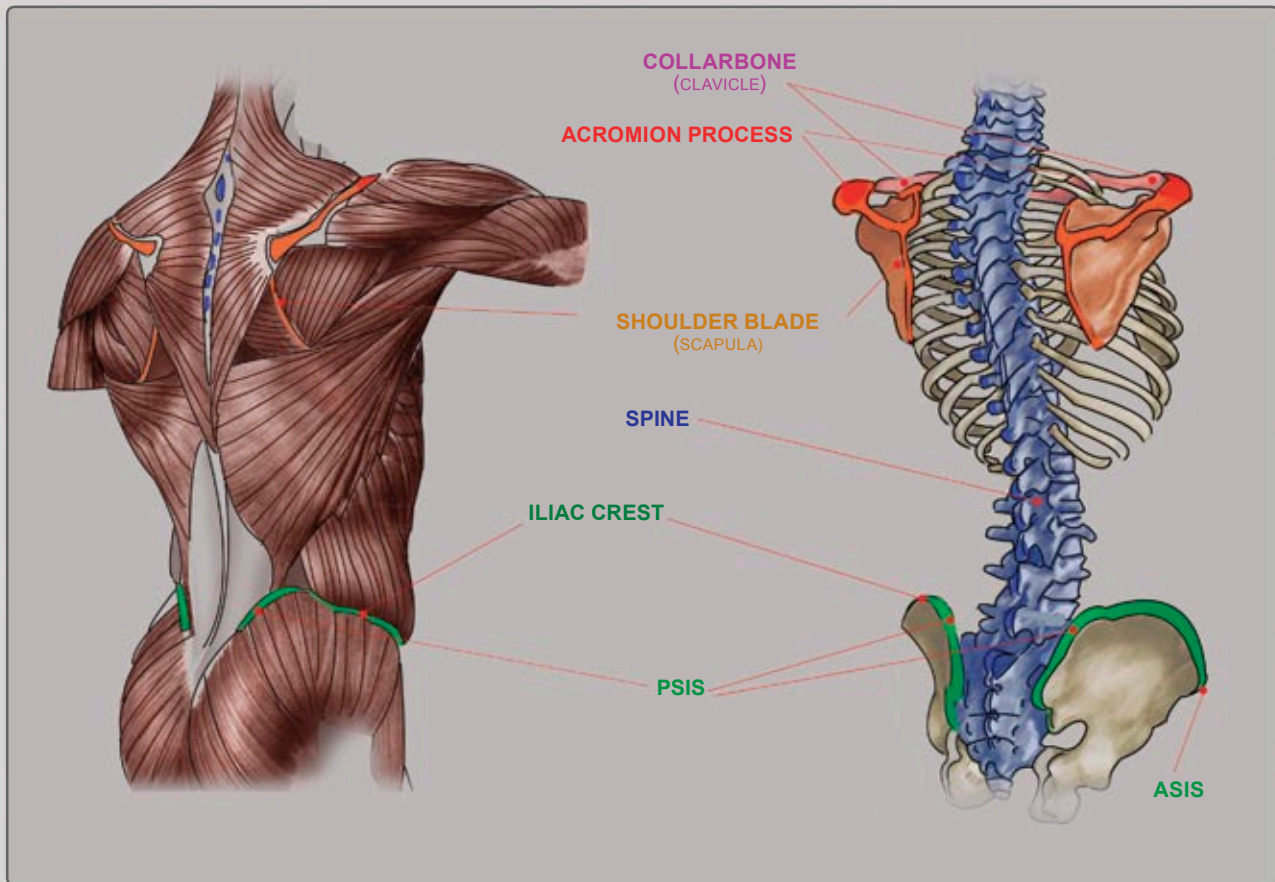
ULDIS ZARINS
WITH
SANDIS KONDRATS

ANATOMY FOR SCULPTORS

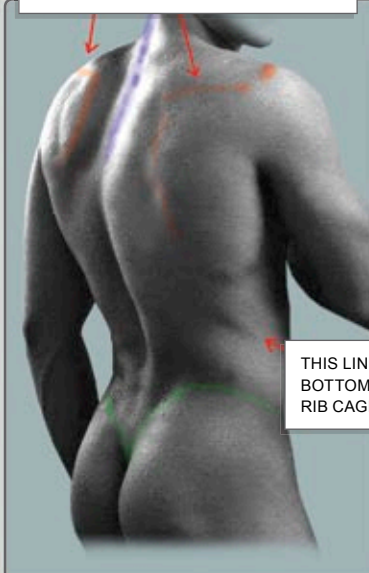
UNDERSTANDING THE HUMAN FIGURE



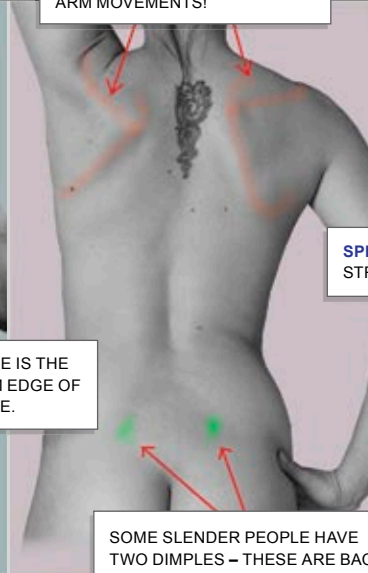
MAIN LANDMARKS OF BACK OF THE TORSO



THE MALE'S **SHOULDER BLADE** IS COVERED BY A THICK LAYER OF MUSCLES AND IS HARDER TO LOCATE THAN A FEMALE'S.



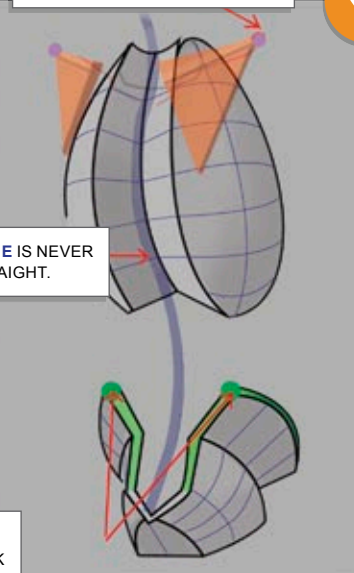
PAY ATTENTION TO POSITION OF **SHOULDER BLADE** DURING ARM MOVEMENTS!



THIS LINE IS THE BOTTOM EDGE OF RIB CAGE.

SOME SLENDER PEOPLE HAVE TWO DIMPLES – THESE ARE BACK CORNERS OF **ILIAC CREST** (PSIS).

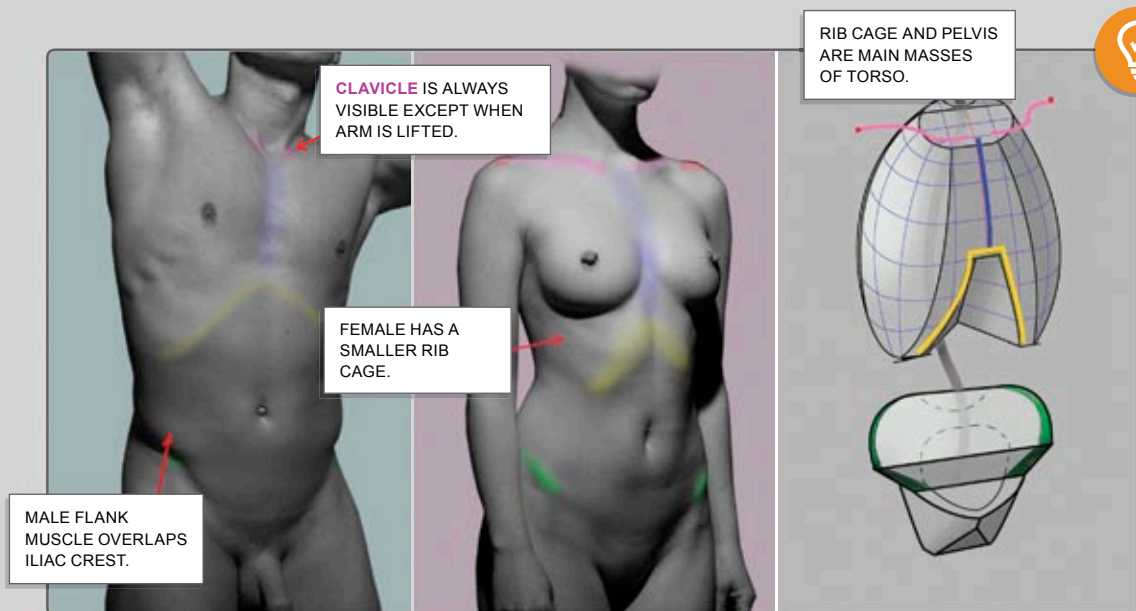
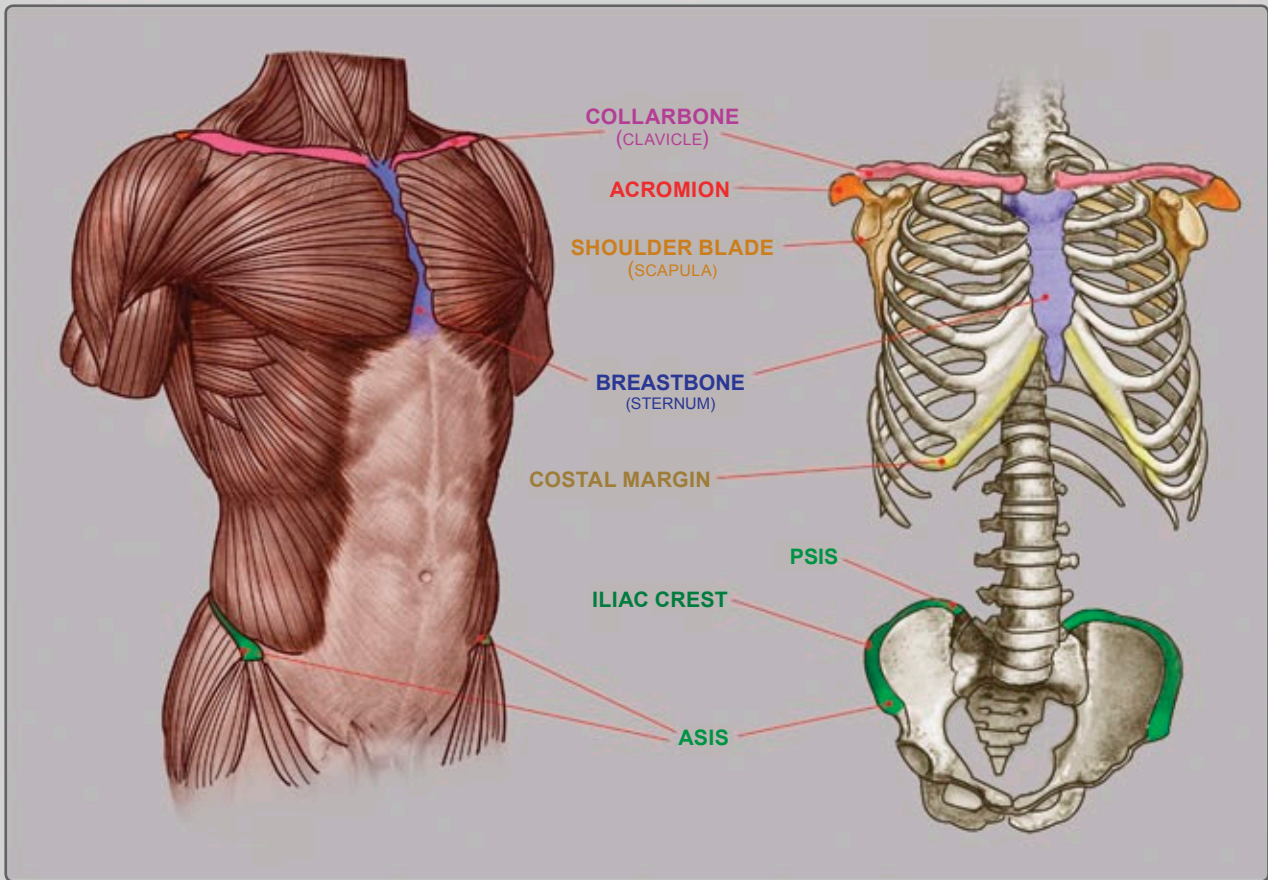
AC JOINT IS WHERE **CLAVICLE** MEETS **ACROMION**.



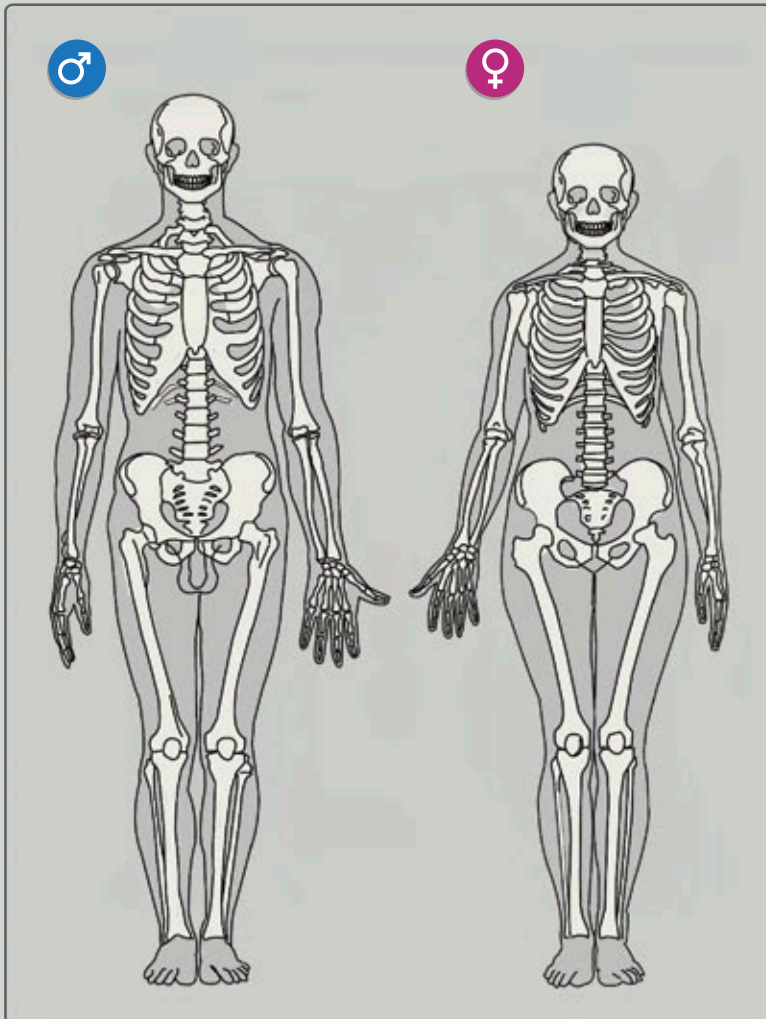
SPINE IS NEVER STRAIGHT.



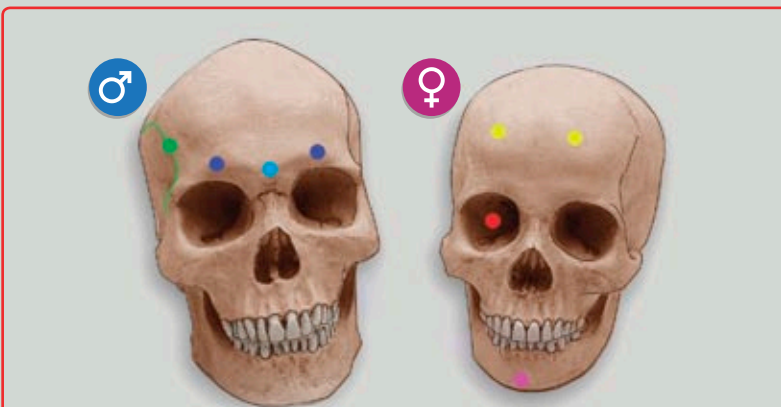
MAIN LANDMARKS OF FRONTAL TORSO



MAIN DIFFERENCES BETWEEN MALE AND FEMALE SKELETONS

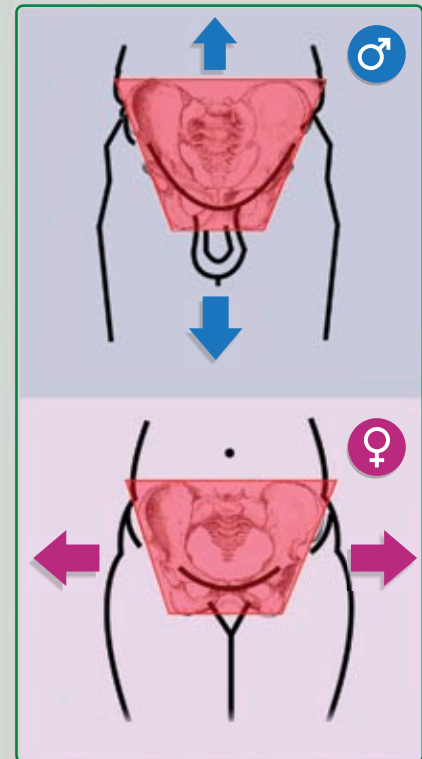


SKULL

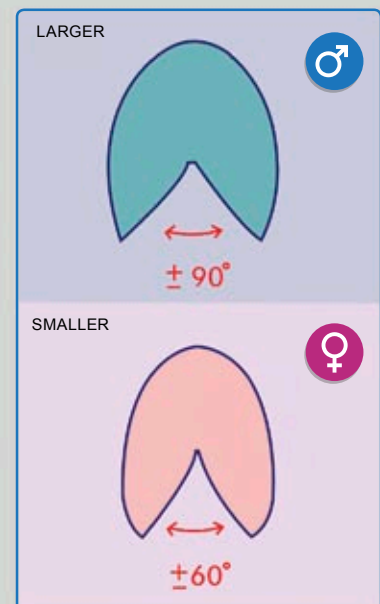


- FOREHEAD:** MALE SKULLS HAVE MORE PROMINENT **GLABELLA** AND **SUPRAORBITAL RIDGES**
TEMPLE: MALE SKULLS HAVE MORE PROMINENT **TEMPORAL LINES**
EYE ORBITS: FEMALE SKULLS HAVE ROUNDER **ORBITS**
JAWS: FEMALE **JAWS** ARE NARROWER AND ROUNDER
FRONTAL: FEMALE SKULLS HAVE LARGER **FRONTAL EMINENCES**

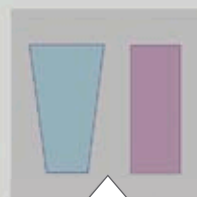
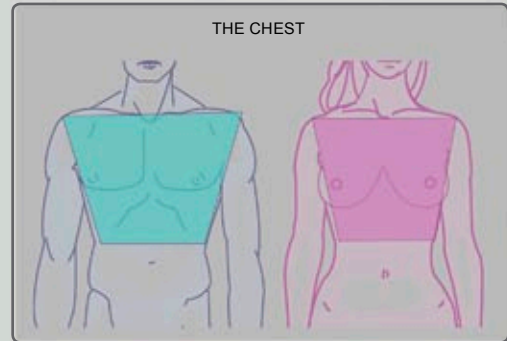
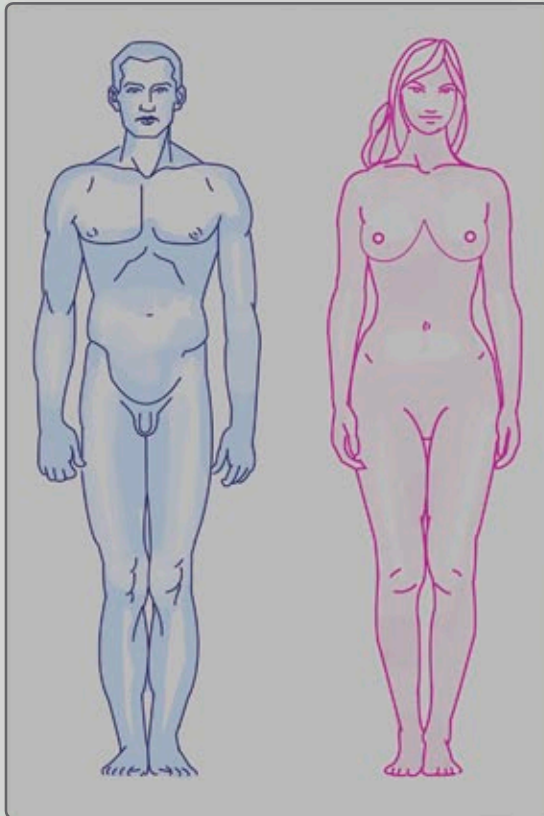
PELVIS



RIB CAGE

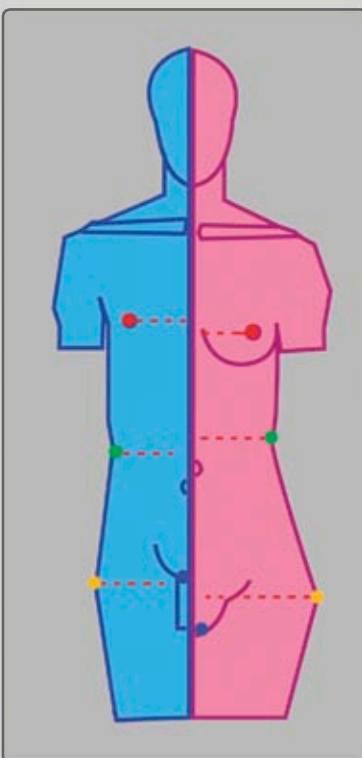
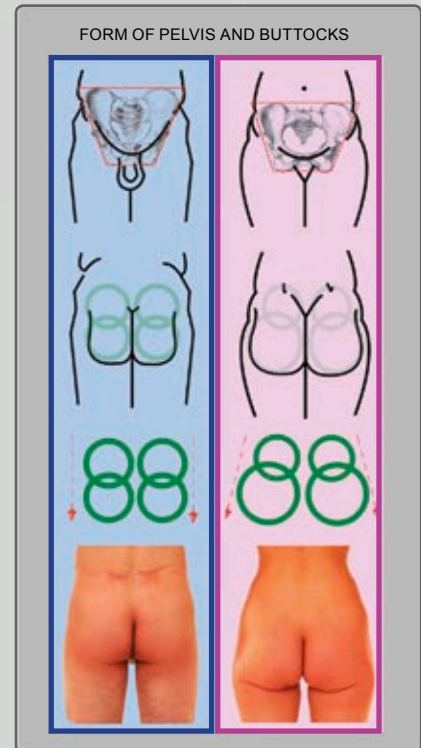


MOST IMPORTANT DIFFERENCES BETWEEN MALE AND FEMALE BODY SHAPES



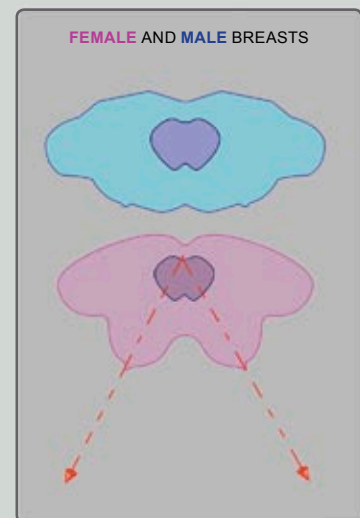
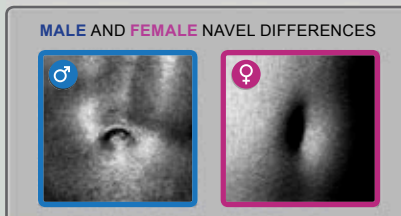
NOTE:

DIFFERENCE IN SILHOUETTE AT SHOULDERS AND HIPS.

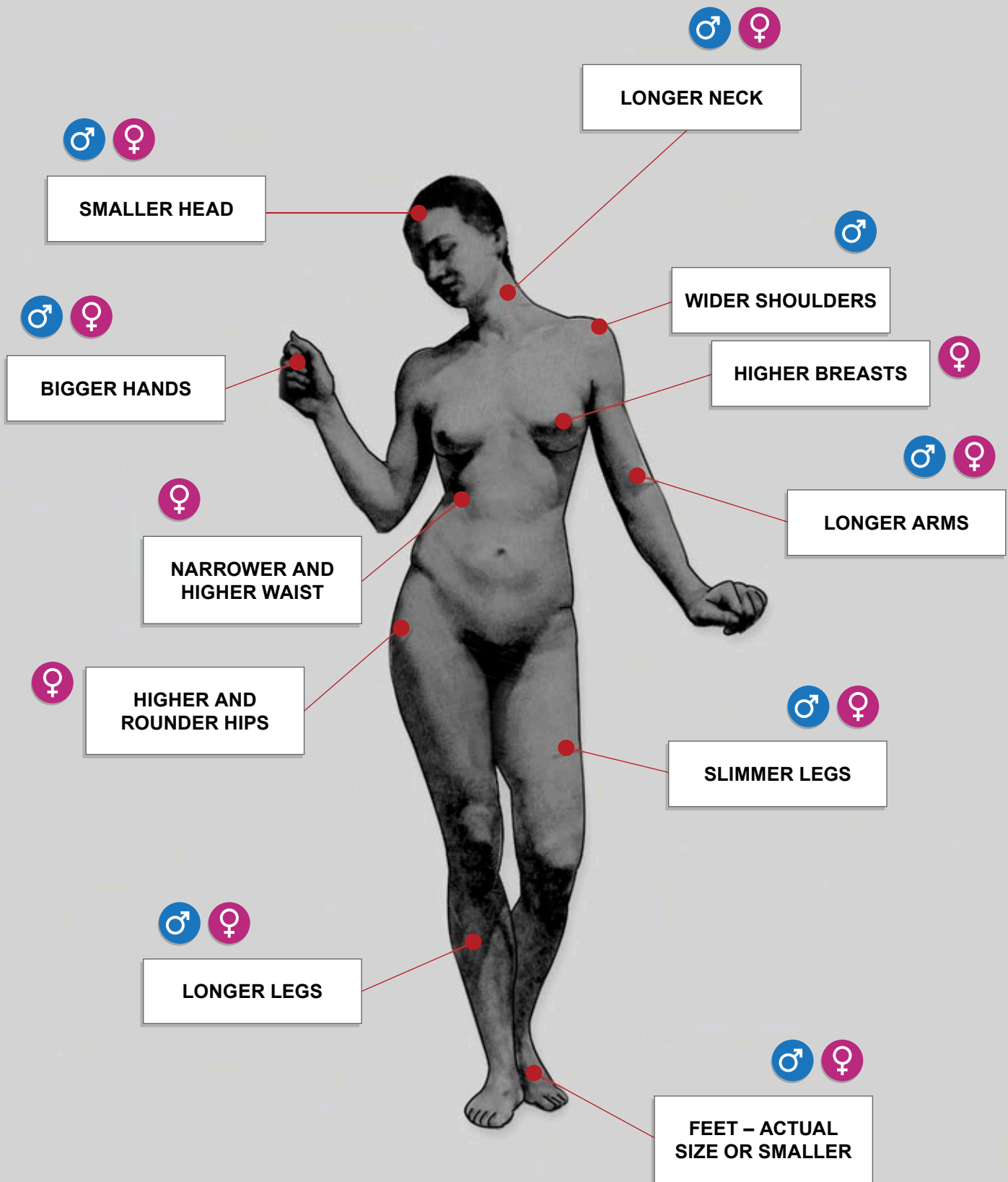


FEMALE FORMS ARE SOFTER AND CURVILINEAR. MALE FORMS ARE MORE ANGULAR.

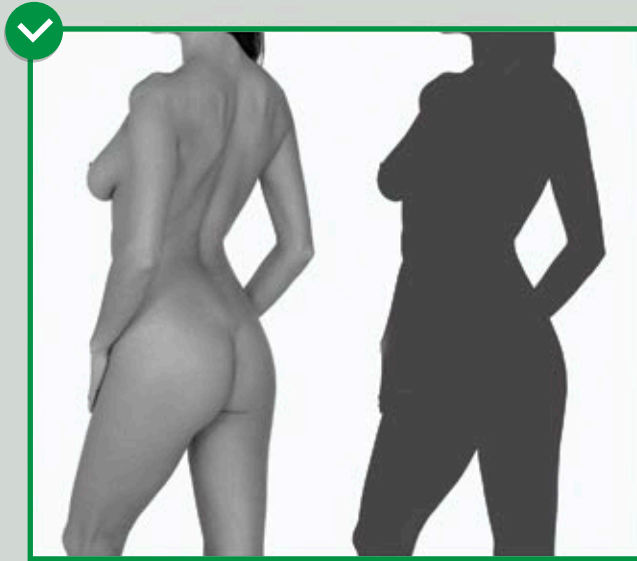
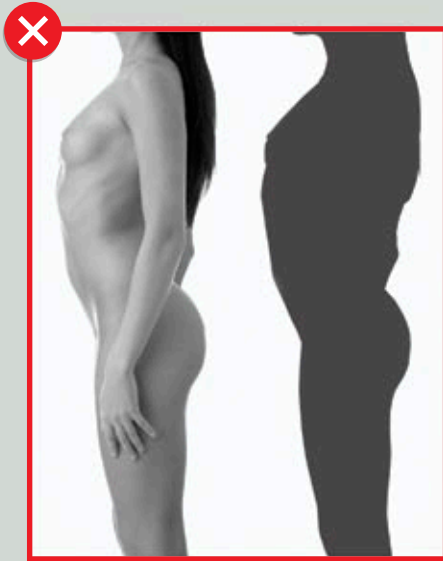
FEMALE HAS SLIGHTLY THICKER SUBCUTANEOUS FAT THAN MALE.



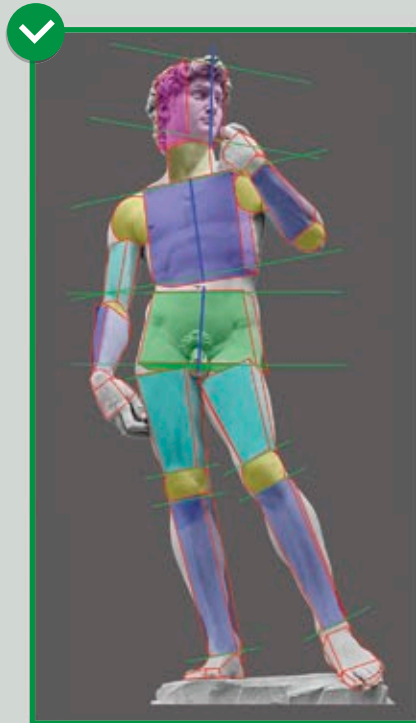
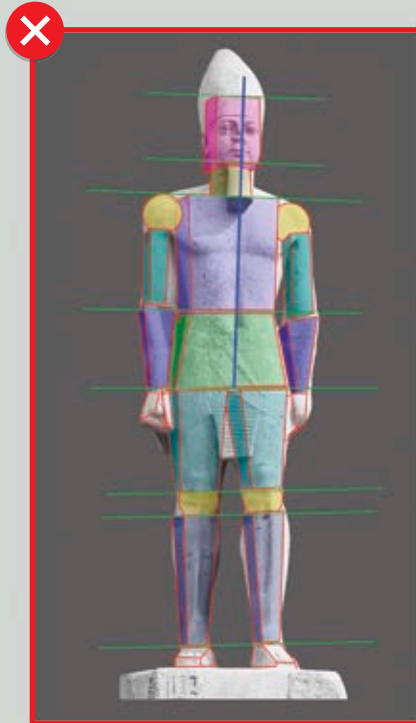
HOW TO MAKE A FIGURE MORE ATTRACTIVE



SILENT KILLER

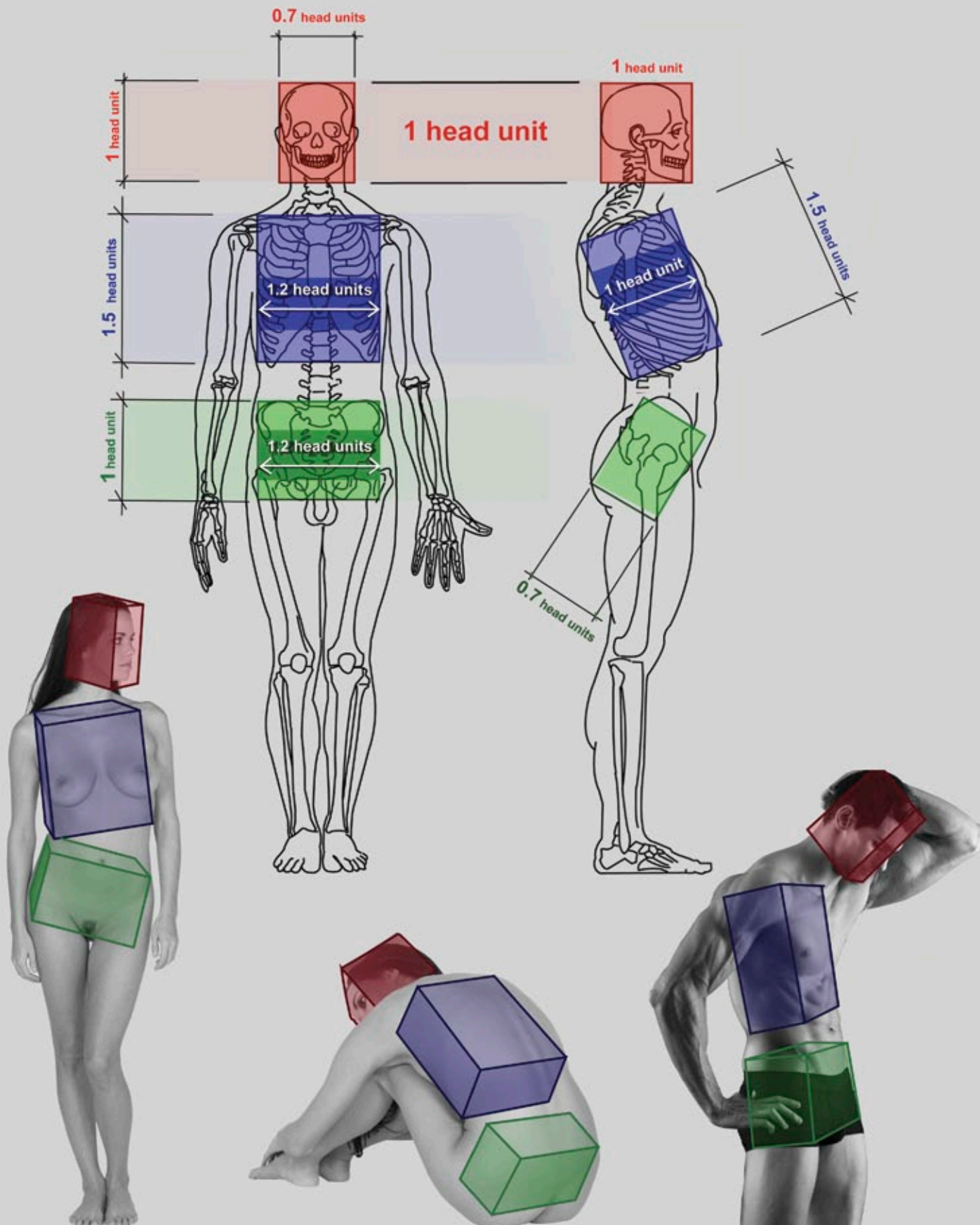


THE MOST ESSENTIAL ELEMENTS IN FIGURE SCULPTURE NEED TO BE FAR ENOUGH FROM THE BODY. IF YOU CAN'T EASILY DISTINGUISH YOUR CHARACTER BY SILHOUETTE ALONE, THEN RECONSIDER THE COMPOSITION! AN UNCLEAR SILHOUETTE IS THE "SILENT KILLER" OF DESIGN!

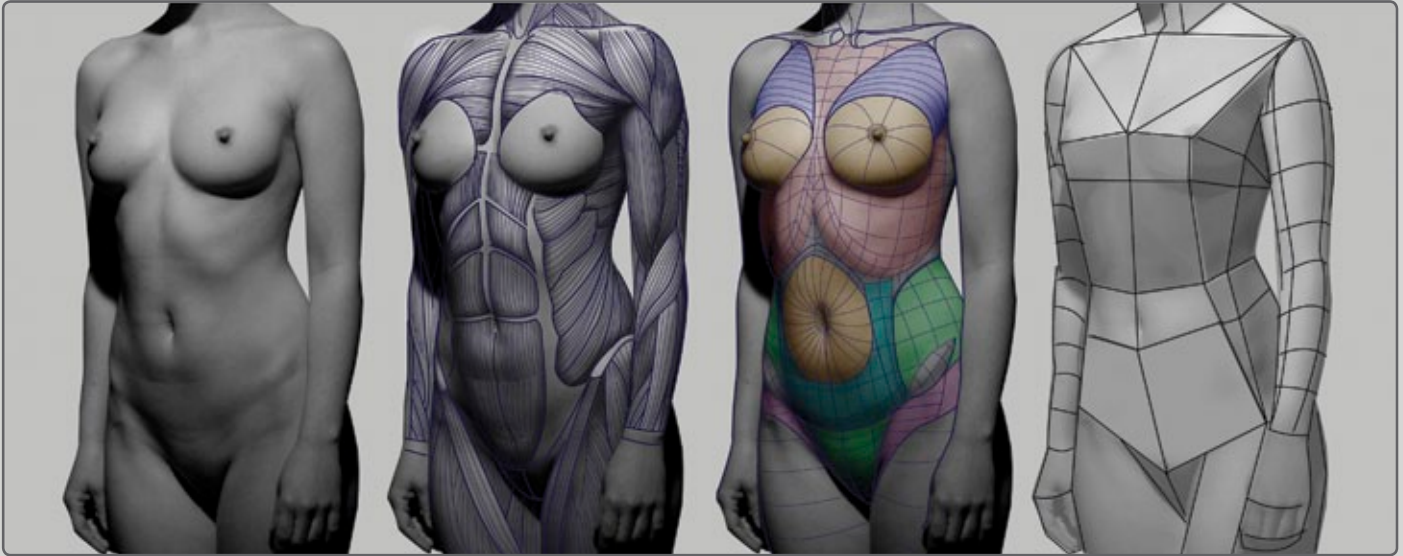


ANOTHER KILLER IS **SYMMETRY**! SYMMETRICAL FIGURE SEEMS LIFELESS AND BORING.

PROPORTIONS IN HEAD UNITS OF MOVABLE MASSES



FEMALE TORSO FROM REALISTIC TO SIMPLIFIED

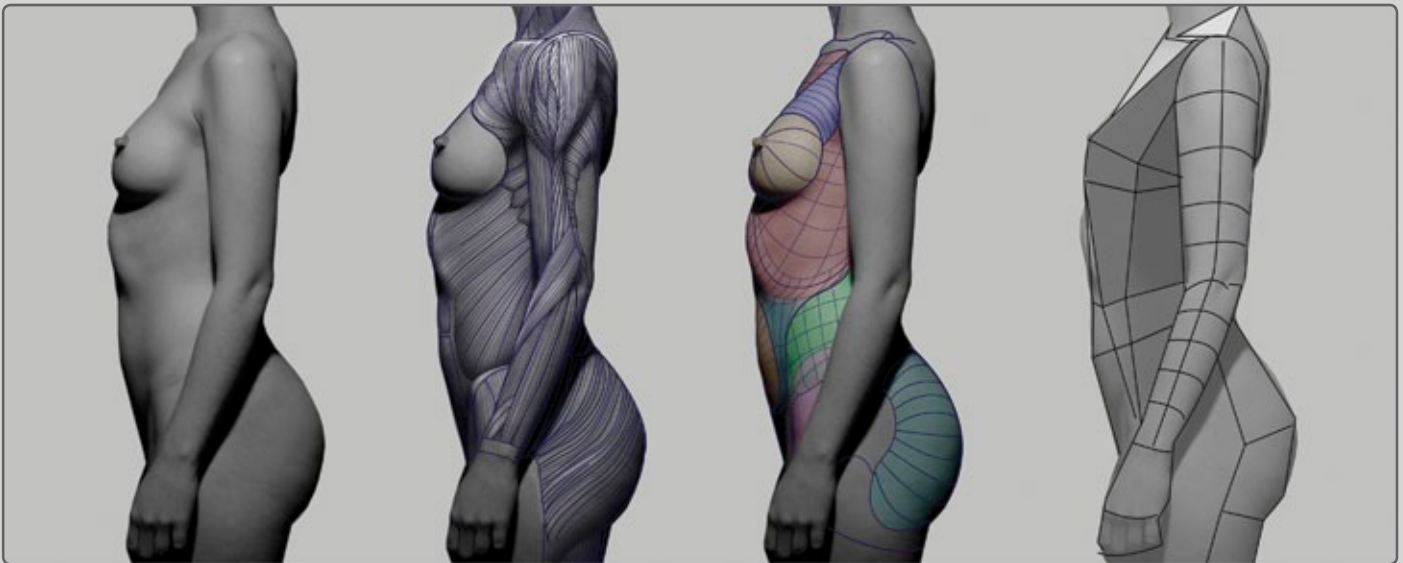


REAL

MUSCLES

SHAPES

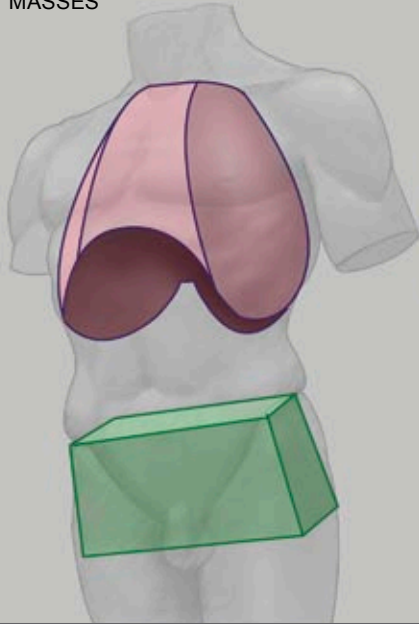
BLOCK-OUT



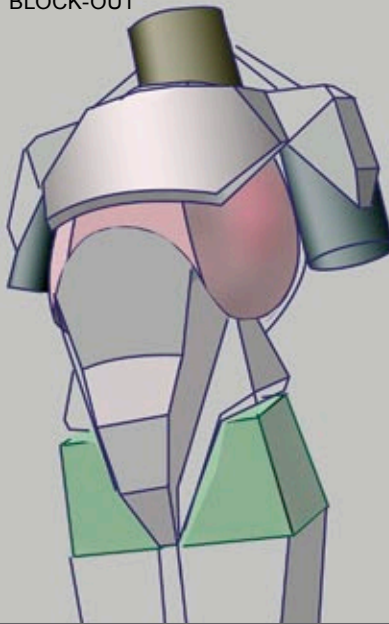
MALE TORSO FROM REALISTIC TO SIMPLIFIED



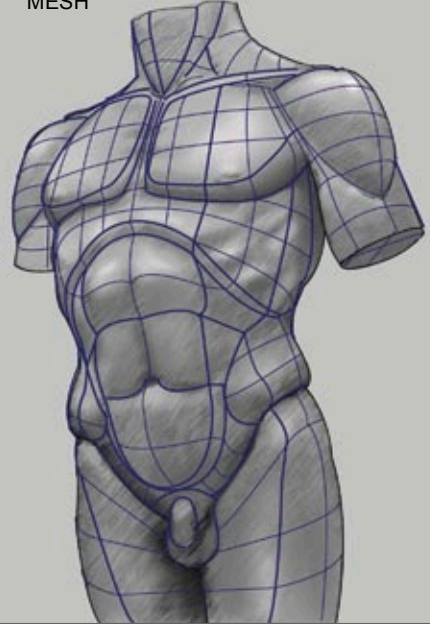
MASSSES



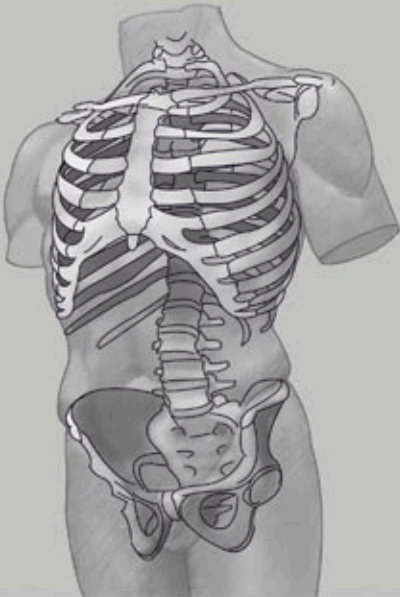
BLOCK-OUT



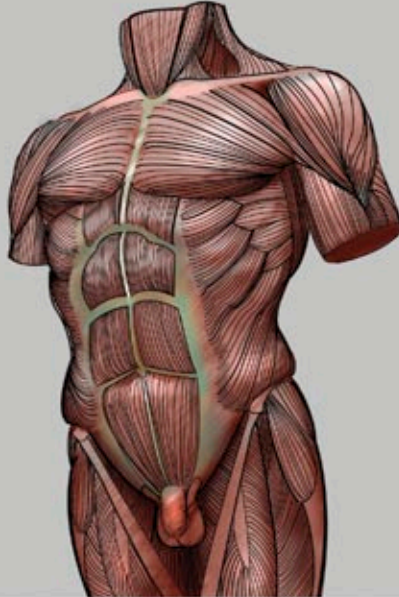
MESH



BONES



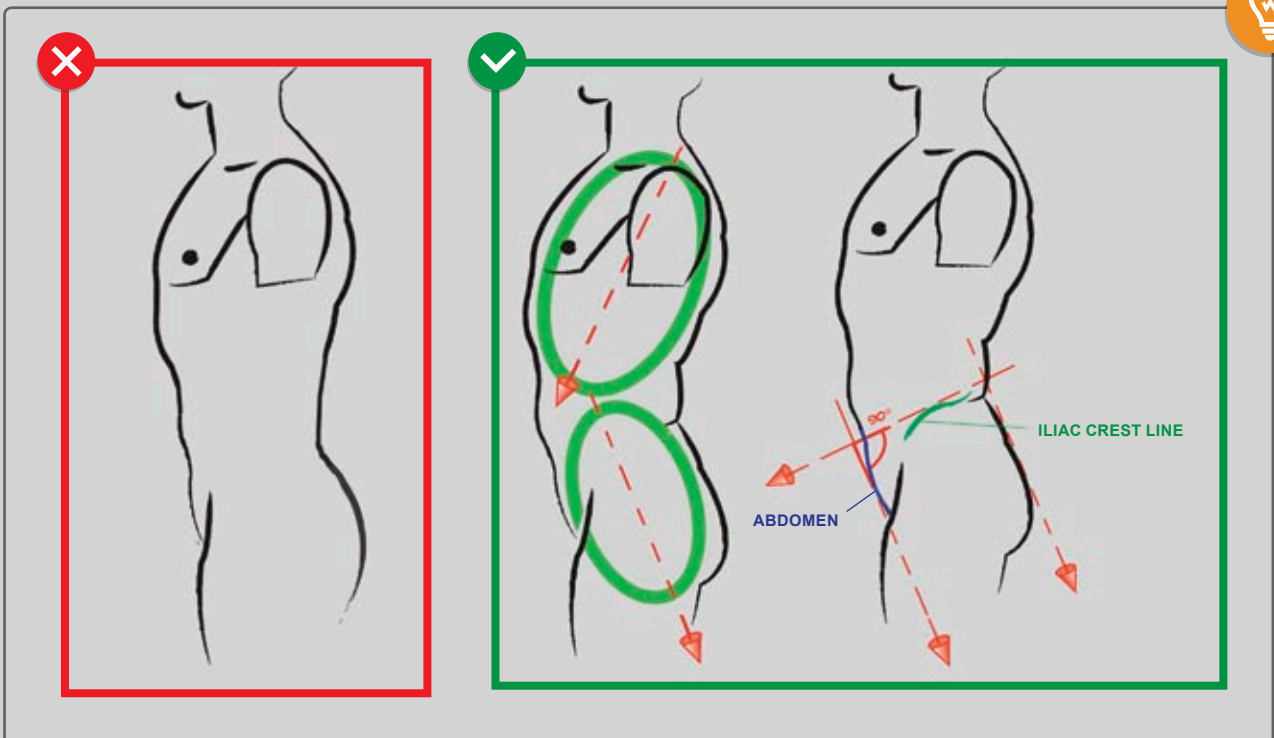
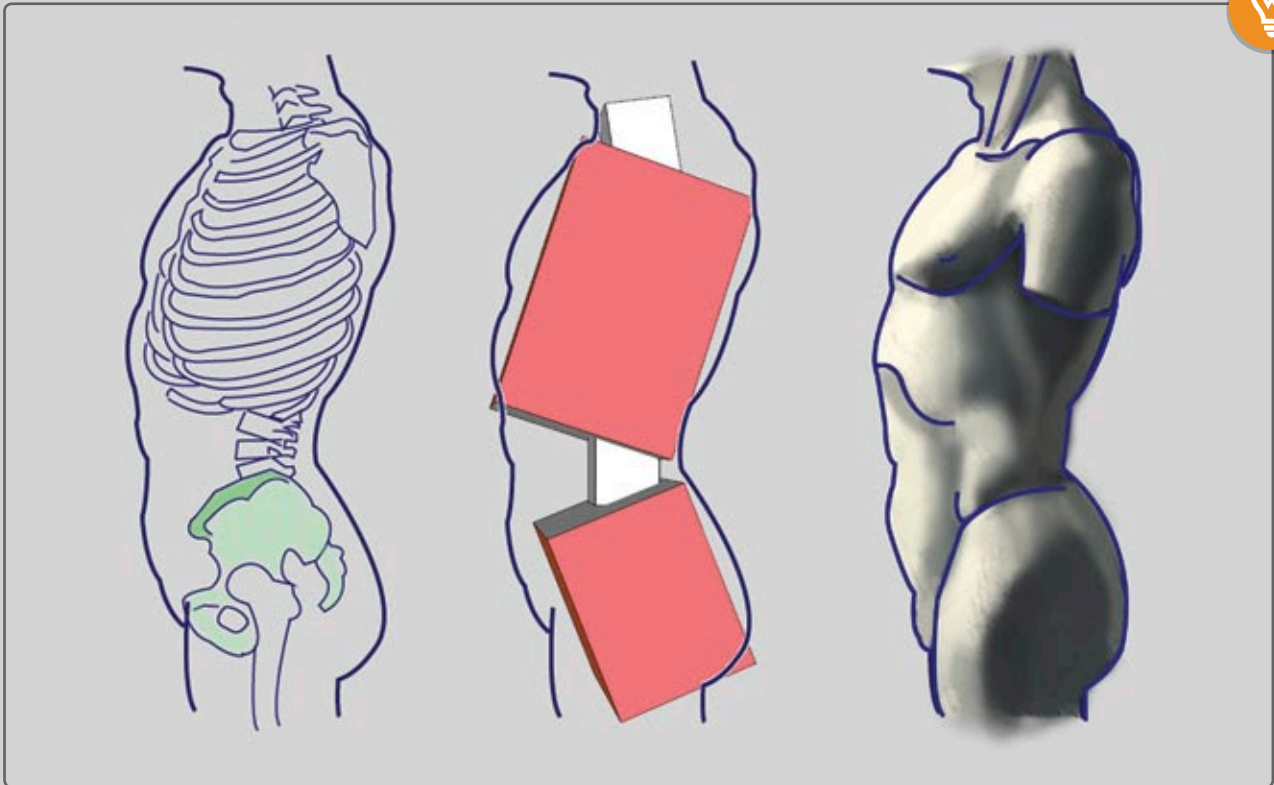
MUSCLES



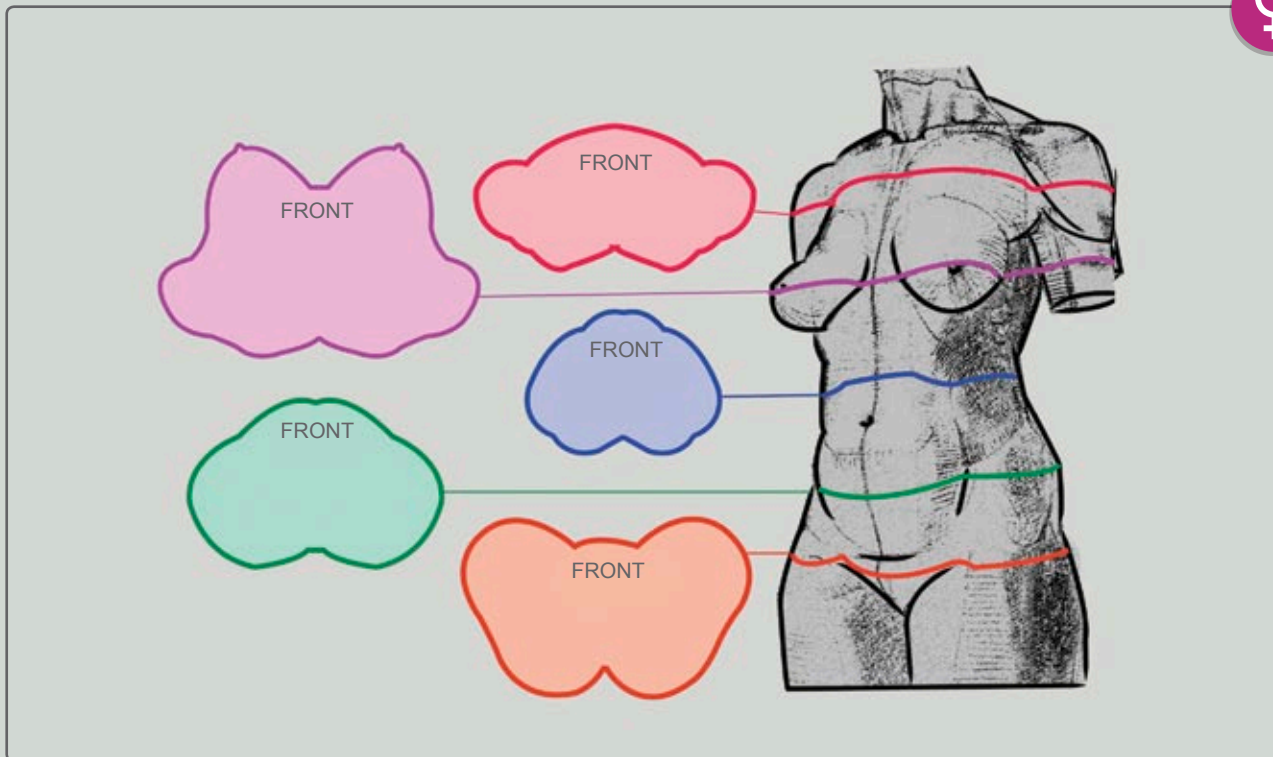
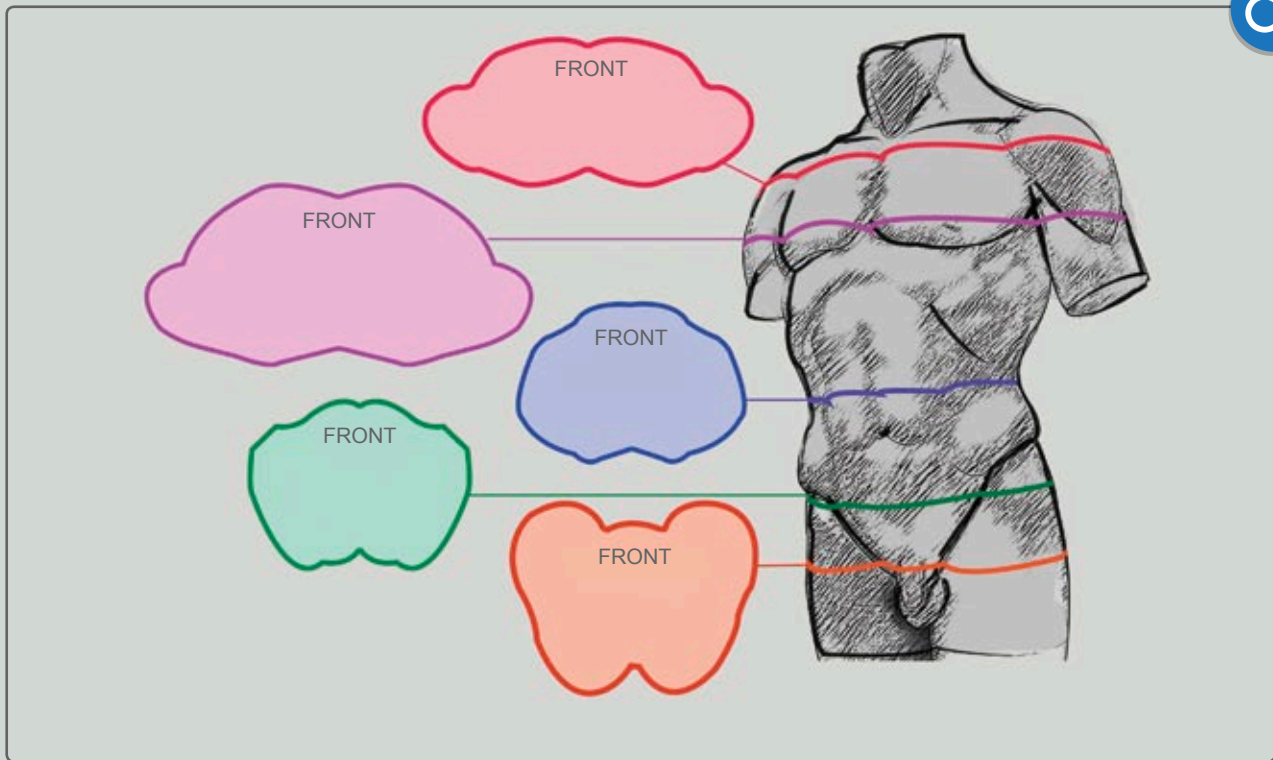
REALISTIC



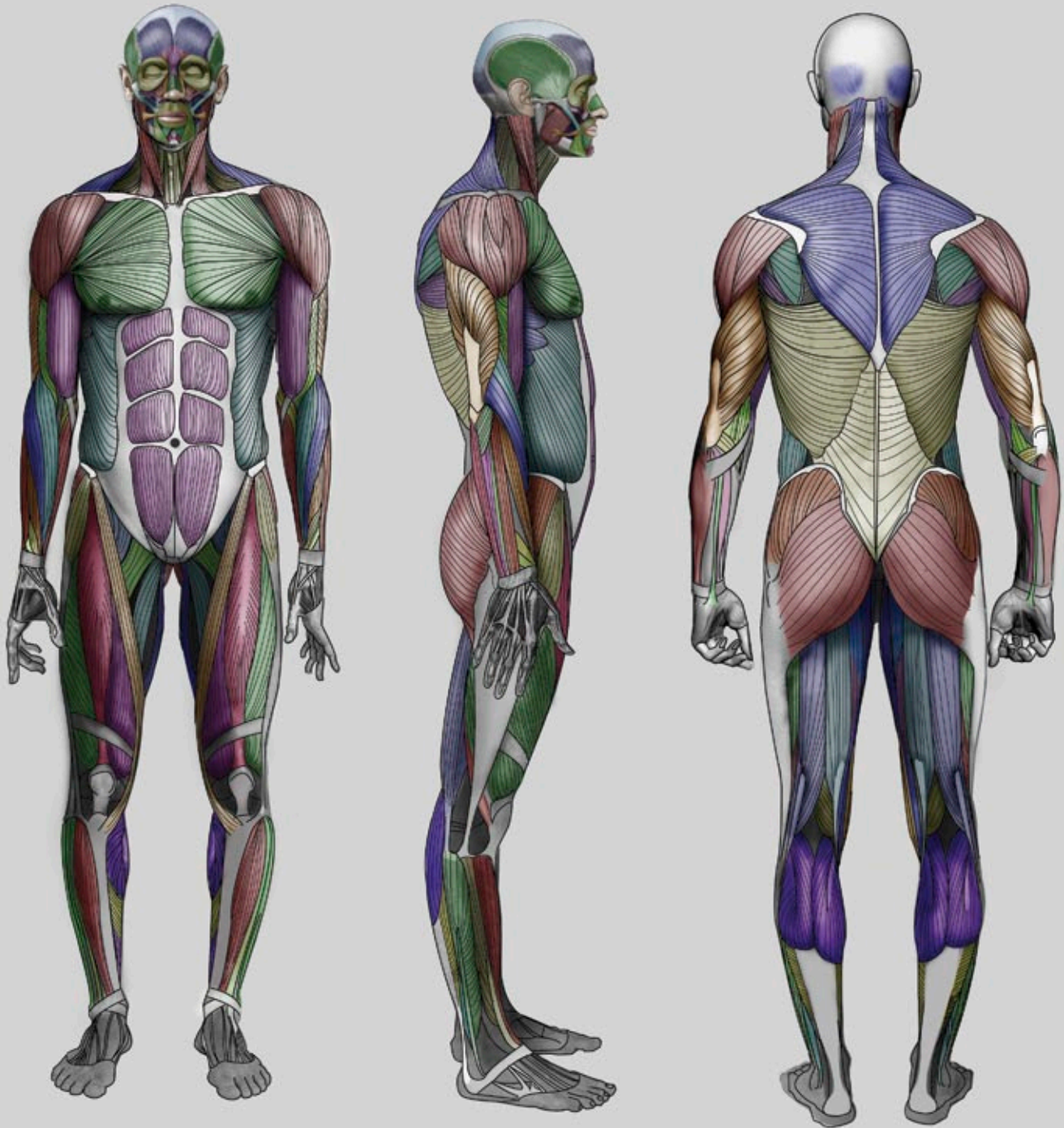
ANGULAR RELATIONSHIP OF MOVABLE MASSES OF TORSO



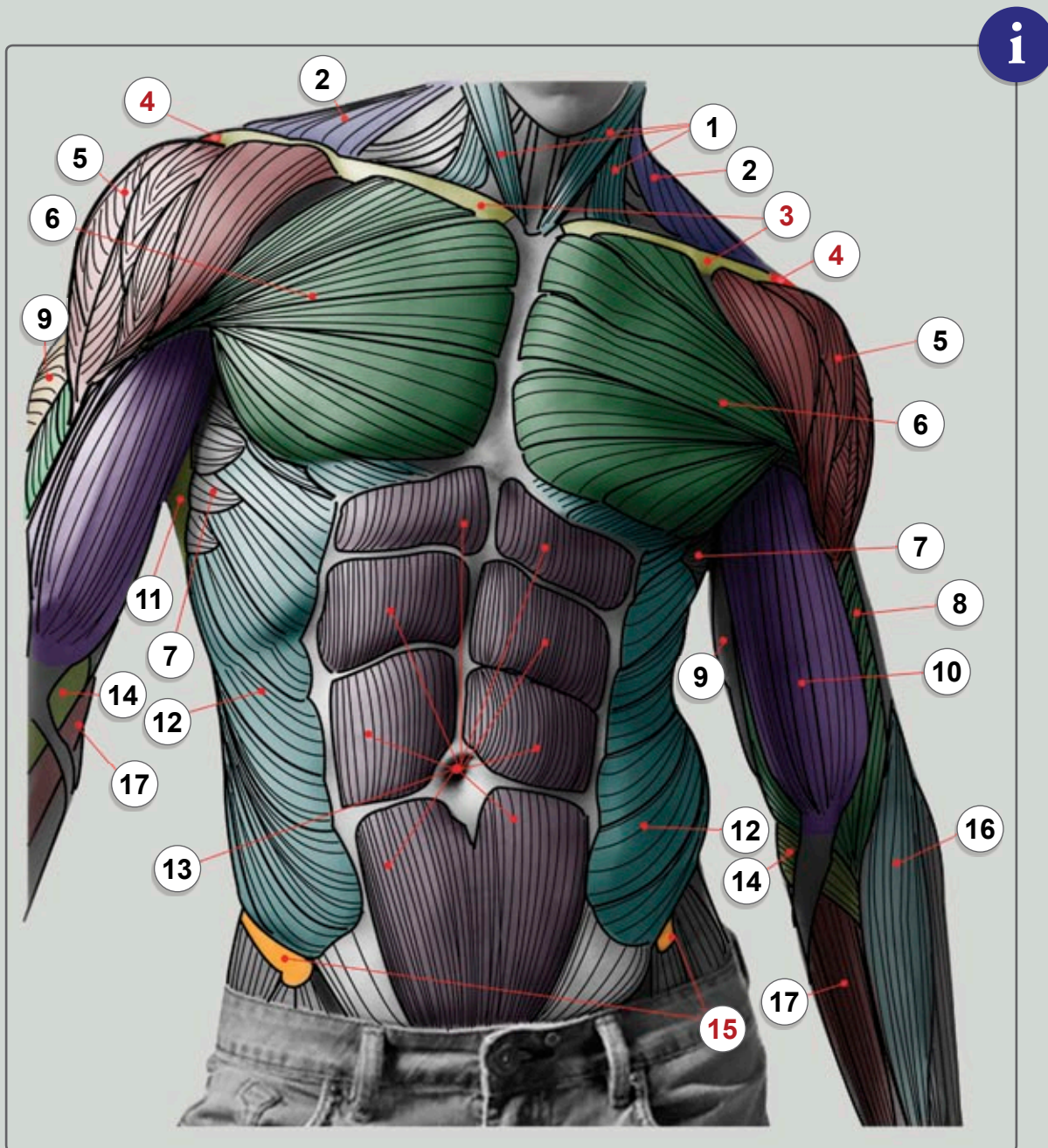
HORIZONTAL CROSS SECTIONS OF TORSO



ÉCORCHÉ



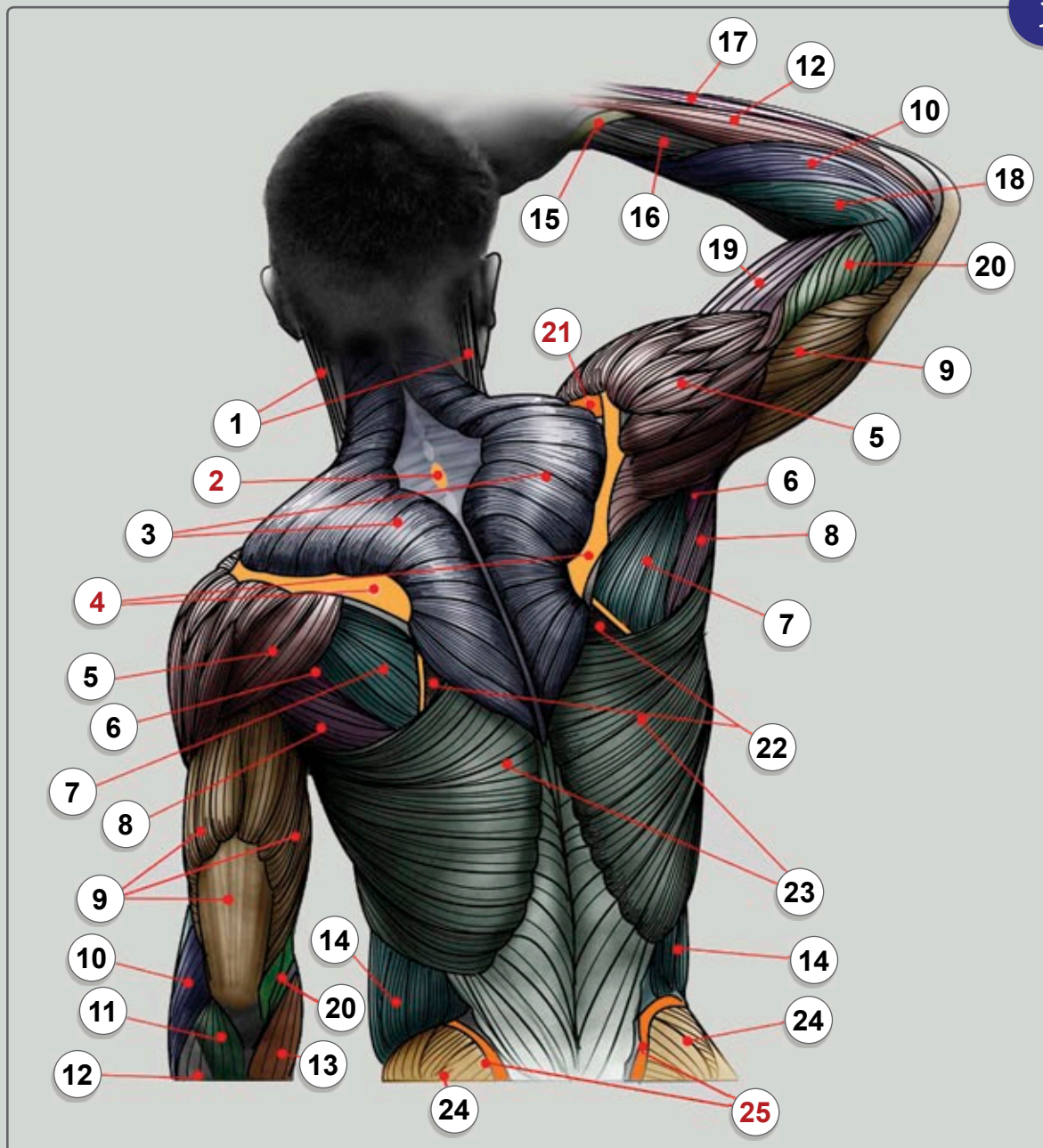
MAIN MUSCLES AND LANDMARK POINTS OF FRONTAL TORSO



- | | | |
|-----------------------|---------------------|----------------------------------|
| 1 STERNOCLEIDOMASTOID | 7 SERRATUS ANTERIOR | 13 RECTUS ABDOMINIS |
| 2 TRAPEZIUS | 8 BRACHIALIS | 14 PRONATOR TERES |
| 3 CLAVICLE | 9 TRICEPS BRACHII | 15 ANTERIOR SUPERIOR ILIAC SPINE |
| 4 SHOULDER BLADE | 10 BICEPS BRACHII | 16 BRACHIORADIALIS |
| 5 DELTOID | 11 LATISSIMUS DORSI | 17 FLEXOR CARPI RADIALIS |
| 6 PECTORALIS | 12 EXTERNAL OBLIQUE | |

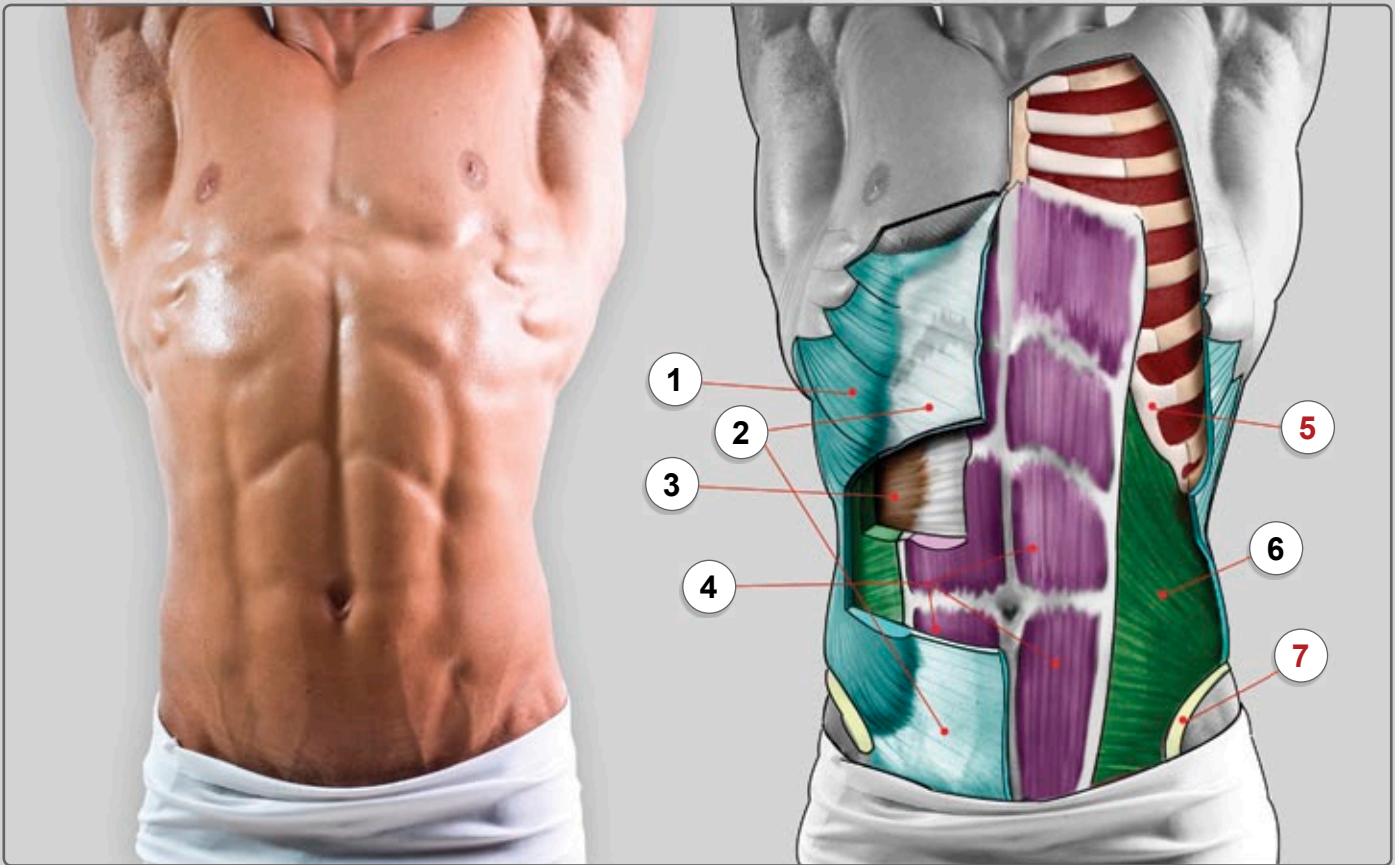
MAIN MUSCLES AND BONES OF THE BACK

i



- | | | |
|-----------------------|-----------------------------------|-----------------------------------|
| 1 STERNOCLEIDOMASTOID | 10 EXTENSOR CARPI RADIALIS LONGUS | 19 BICEPS BRACHII |
| 2 7TH VERTEBRAE | 11 ANCONEUS | 20 BRACHIALIS |
| 3 TRAPEZIUS | 12 EXTENSOR DIGITORUM | 21 CLAVICLE |
| 4 SPINE OF SCAPULA | 13 FLEXOR CARPI ULNARIS | 22 RHOMBOID MAJOR |
| 5 DELTOID | 14 EXTERNAL OBLIQUE | 23 LATISSIMUS DORSI |
| 6 TERES MINOR | 15 ABDUCTOR POLLICIS LONGUS | 24 GLUTEUS MAXIMUS |
| 7 INFRASPINATUS | 16 EXTENSOR CARPI RADIALIS BREVIS | 25 POSTERIOR SUPERIOR ILIAC SPINE |
| 8 TERES MAJOR | 17 EXTENSOR CARPI ULNARIS | |
| 9 TRICEPS BRACHII | 18 BRACHIORADIALIS | |

ABDOMINAL MUSCLES



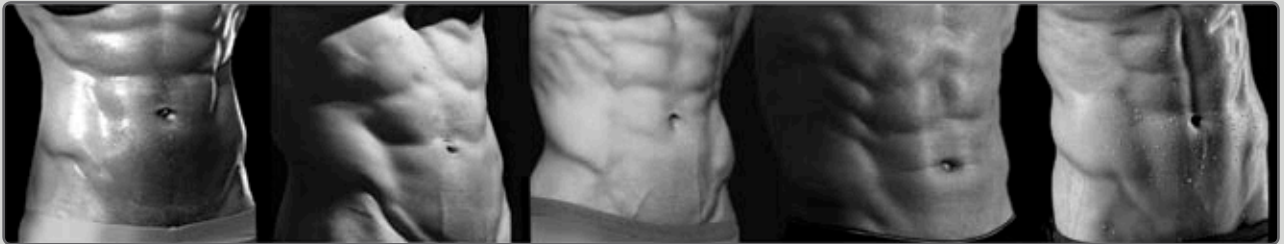
i

- 1 EXTERNAL OBLIQUE:** LOCATED ON SIDE AND FRONT OF ABDOMEN
- 2 APONEUROSIS OF EXTERNAL OBLIQUE:** BROAD, FLAT, TENDINOUS PORTION OF EXTERNAL OBLIQUE MUSCLE
- 3 TRANSVERSUS ABDOMINIS:** LOCATED UNDER OBLIQUES, IT IS THE DEEPEST OF ABDOMINAL MUSCLES AND WRAPS AROUND SPINE FOR PROTECTION AND STABILITY
- 4 RECTUS ABDOMINIS:** ALSO KNOWN AS “ABS” OR SIX-PACK – LOCATED ALONG FRONT OF THE ABDOMEN. THIS IS THE MOST WELL-KNOWN ABDOMINAL MUSCLE
- 5 RIB CAGE (THORACIC CAGE OR THORAX)**
- 6 INTERNAL ABDOMINAL OBLIQUE:** LOCATED UNDER EXTERNAL OBLIQUES AND RUNS IN THE OPPOSITE DIRECTION
- 7 WING OF ILIUM – COMMONLY CALLED “HIP BONE” (ILIAC CREST)**

IS A “SIX-PACK” REALLY AN “EIGHT-PACK”?



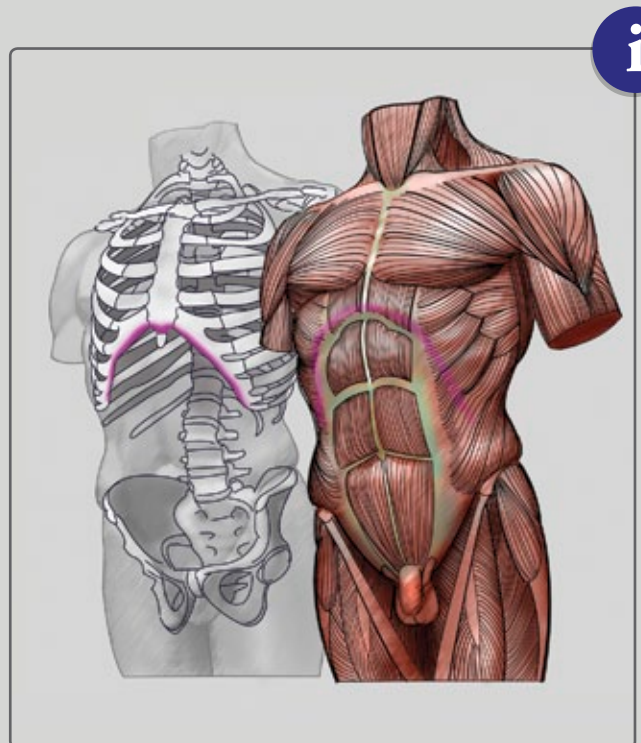
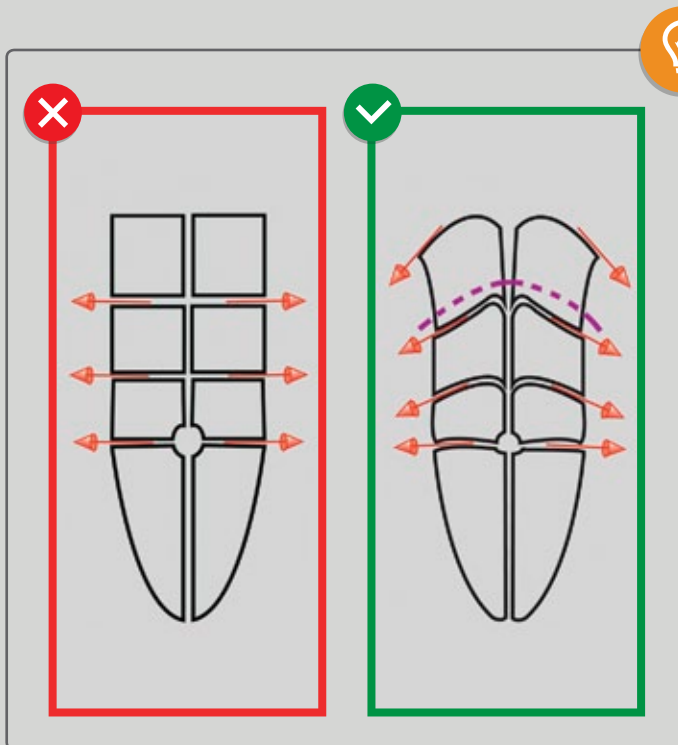
CLASSIC SCULPTURE



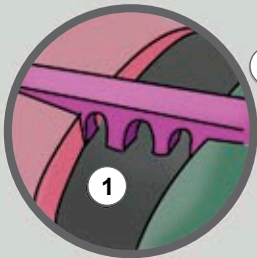
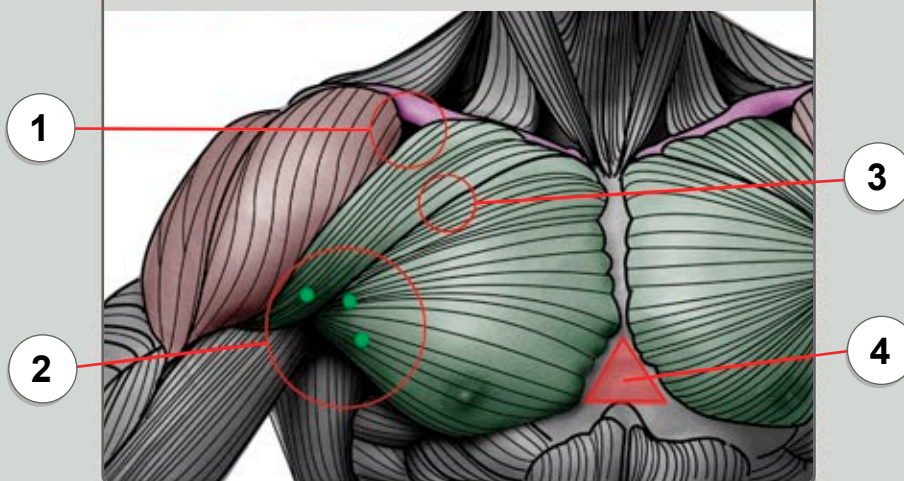
FITNESS



SKINLESS

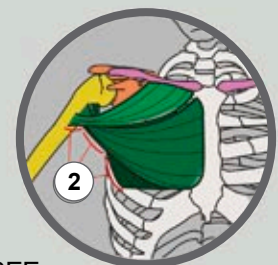


CHEST AND SHOULDER FEATURES



- 1 **COLLARBONE (CLAVICLE)** IS LIKE A BRIDGE OVER A VALLEY. UNDERNEATH THE COLLARBONE IS THE **INFRACLAVICULAR TRIANGLE (INFRACLAVICULAR FOSSA)**, WHICH IS A PIT BETWEEN **THE CHEST MUSCLE (PECTORALIS MAJOR)** AND **SHOULDER MUSCLE (DELTOID)**. THE **COLLARBONE (CLAVICLE)** IS ALWAYS VISIBLE.

- 2 EACH BODY ●●● OF **THE CHEST MUSCLE (PECTORALIS MAJOR)** HAS DIFFERENT INSERTIONS ON **THE HUMERUS**. FIBERS CHANGE DIRECTIONS, CROSSING OVER EACH OTHER AND CREATING **MULTIPLE MASSES ON THE EDGE OF THE ARMPIT**.

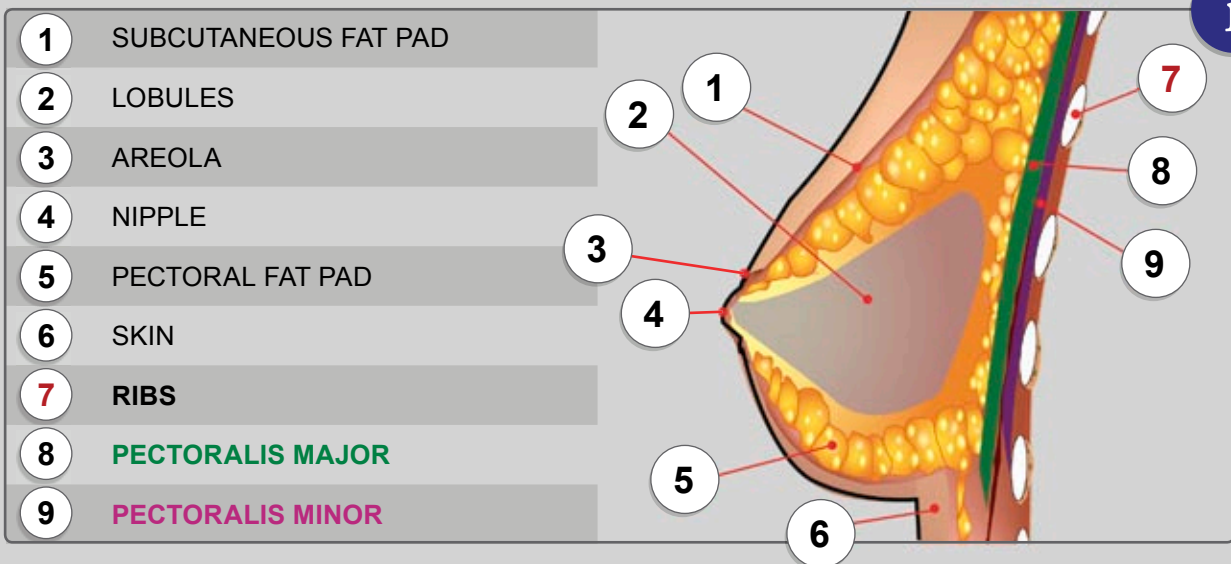
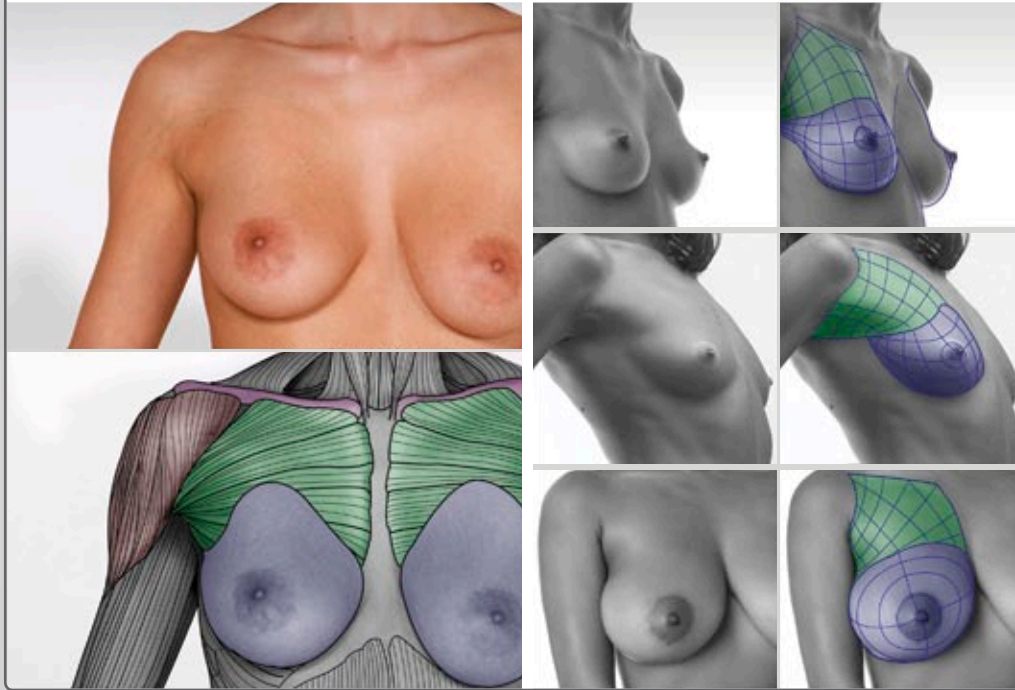


- 3 SOMETIMES IN VERY MUSCULAR INDIVIDUALS, YOU CAN SEE A SEPARATION BETWEEN THE **CLAVICULAR SECTION** AND **STERNAL SECTION** OF THE **CHEST MUSCLE (PECTORALIS MAJOR)**.
- 4 **BONY TRIANGLE** BETWEEN **CHEST MUSCLES** AND **ABDOMINAL SIX-PACK**.

FEMALE BREAST

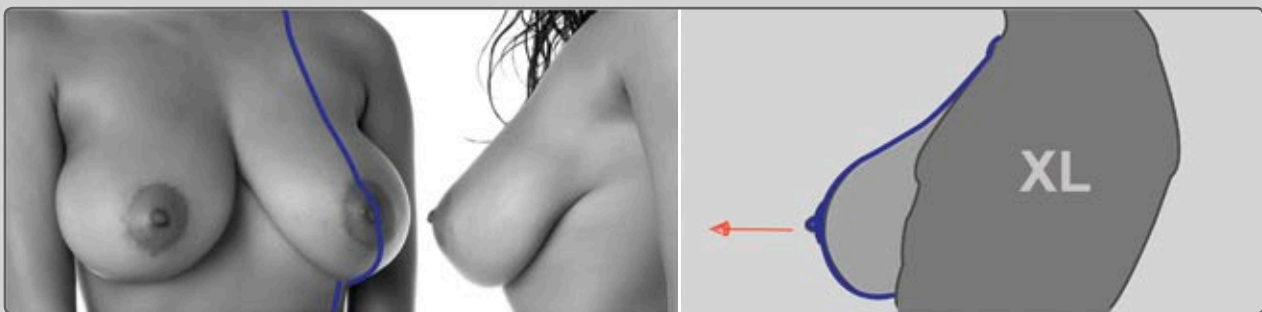
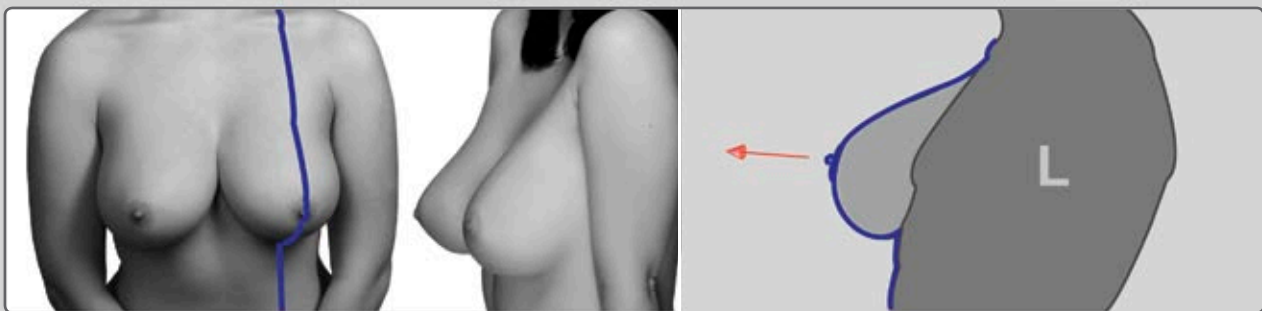
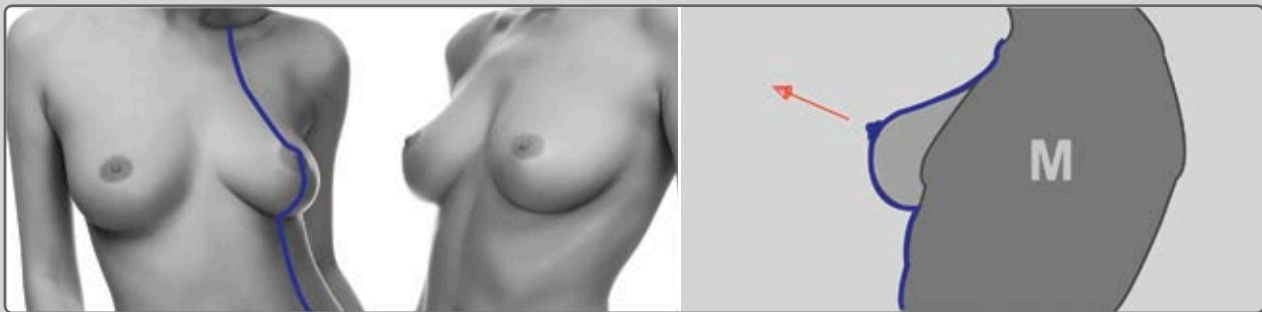


IMAGINING THE SEPARATION BETWEEN **BREASTS** AND **PECTORAL MUSCLES** MAY HELP YOU SCULPT THEM CORRECTLY.

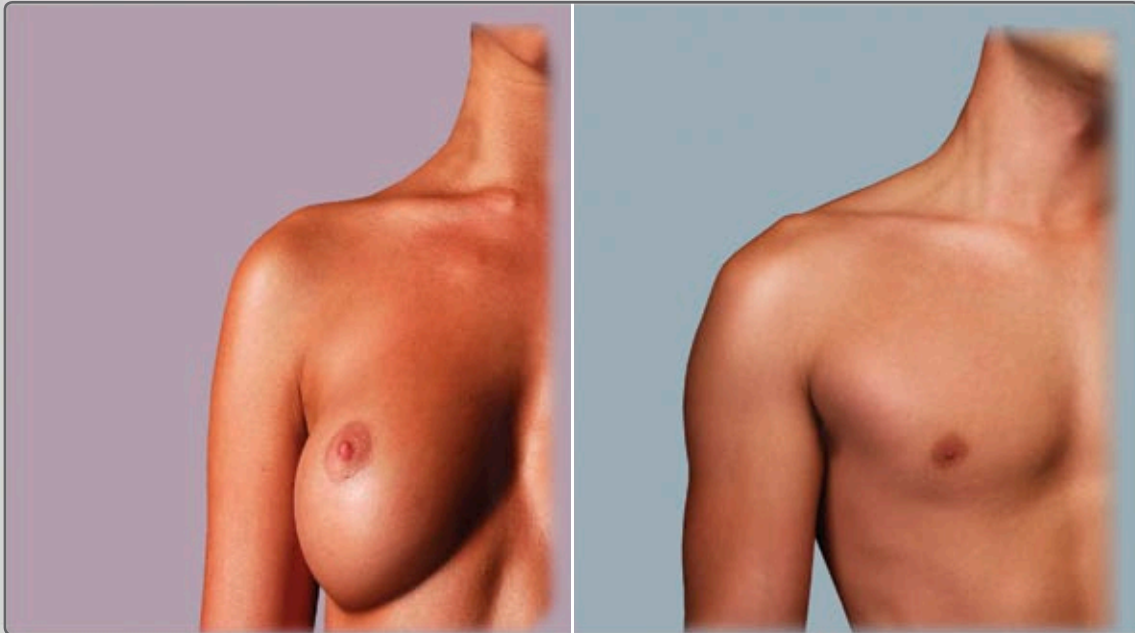


FEMALE BREAST ANGLES VARY DEPENDING ON SHAPE AND SIZE

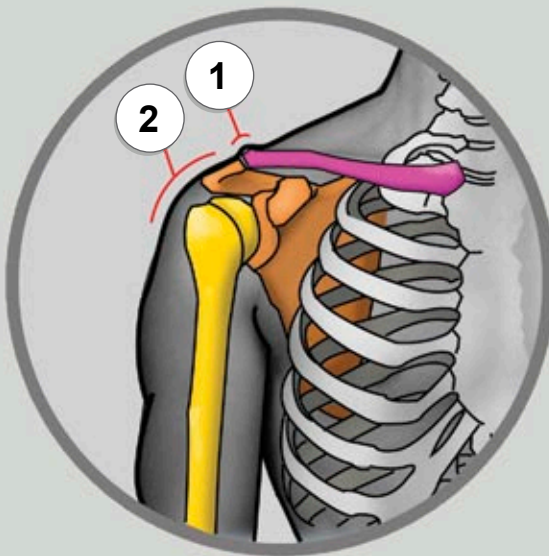
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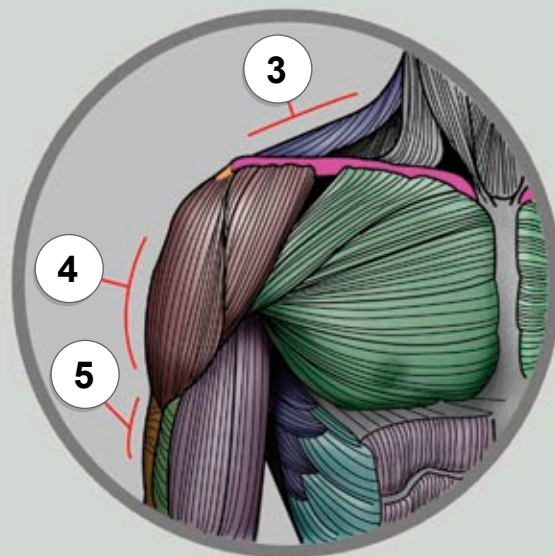
WHAT CREATES A SHOULDER'S SILHOUETTE?



BONES

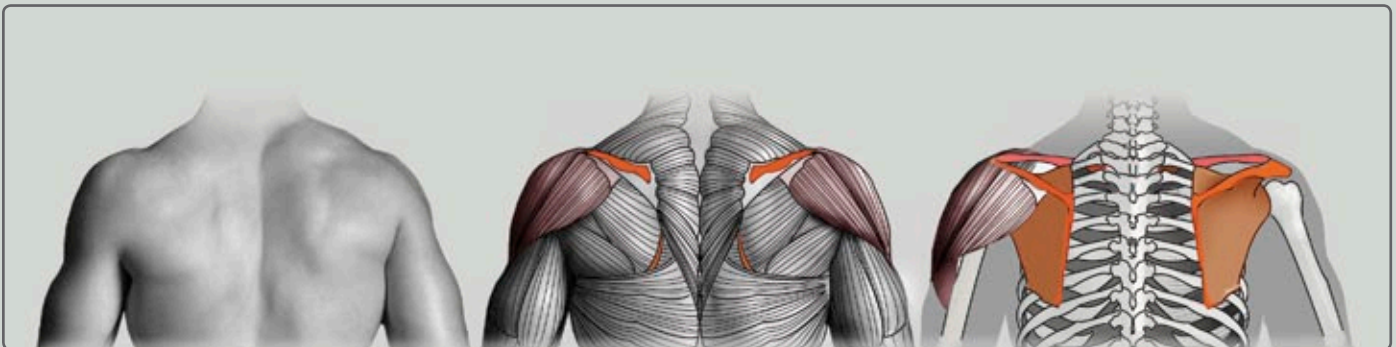
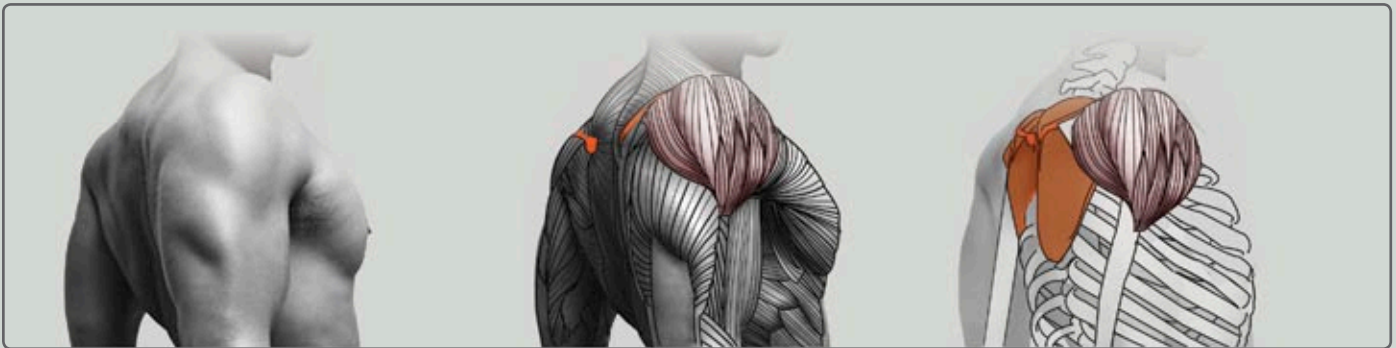
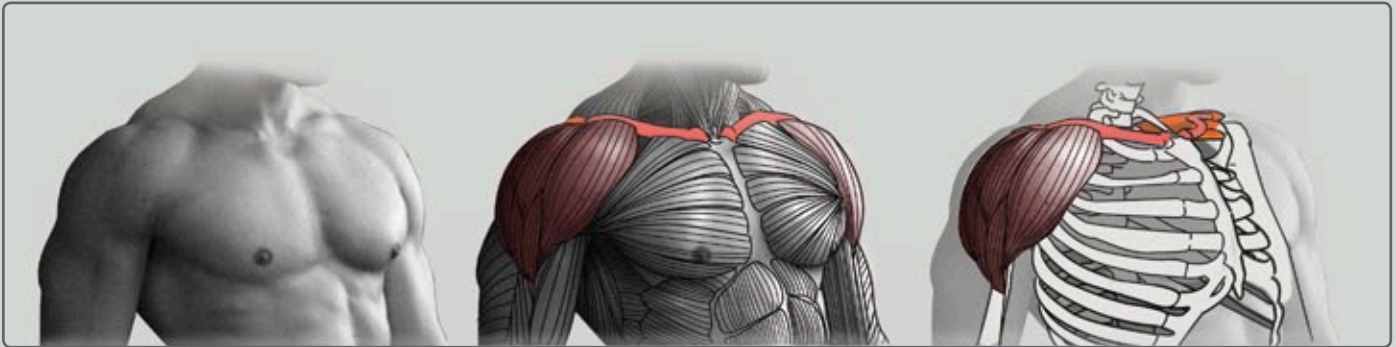
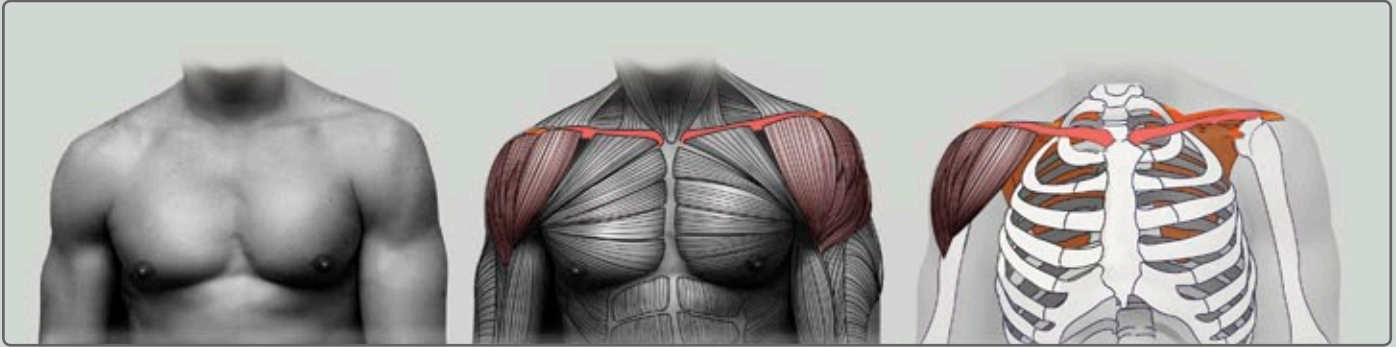


MUSCLES



- ① LATERAL END OF **CLAVICLE**
- ② HEAD OF **HUMERUS** PUSHES **SHOULDER MUSCLE (DELTOID)** OUTWARD.
- ③ **TRAPEZIUS**
- ④ LATERAL HEAD OF **SHOULDER MUSCLE (DELTOID)**
- ⑤ LATERAL HEAD OF **TRICEPS**

SHOULDER MUSCLE (DELTOID)



TRAPEZIUS MUSCLE

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ORIGIN: MEDIAL SUPERIOR NUCHAL LINE & EXTERNAL PROTUBERANCE OF THE SKULL

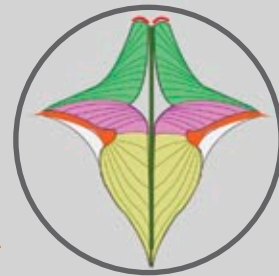
INSERTION: LATERAL CLAVICLE, ACROMION AND SPINE OF SCAPULA

ACTIONS:

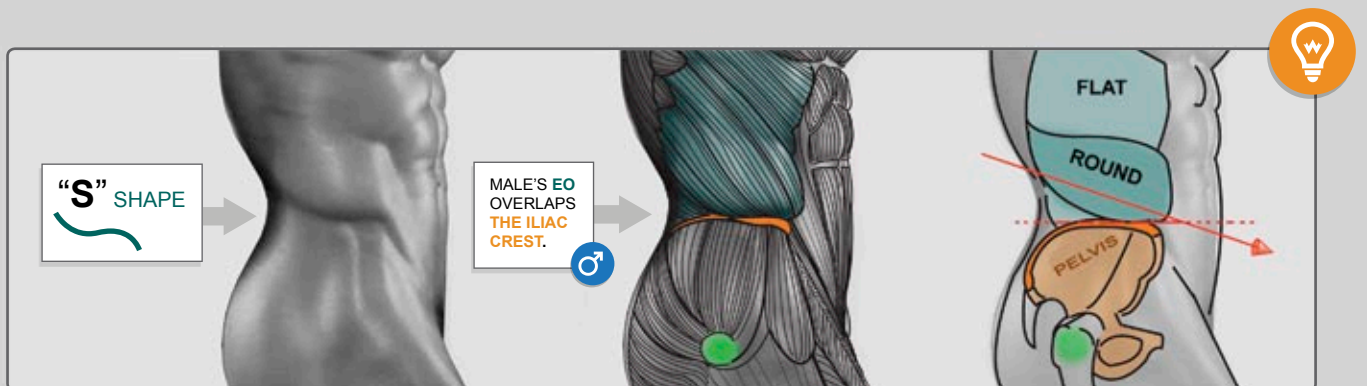
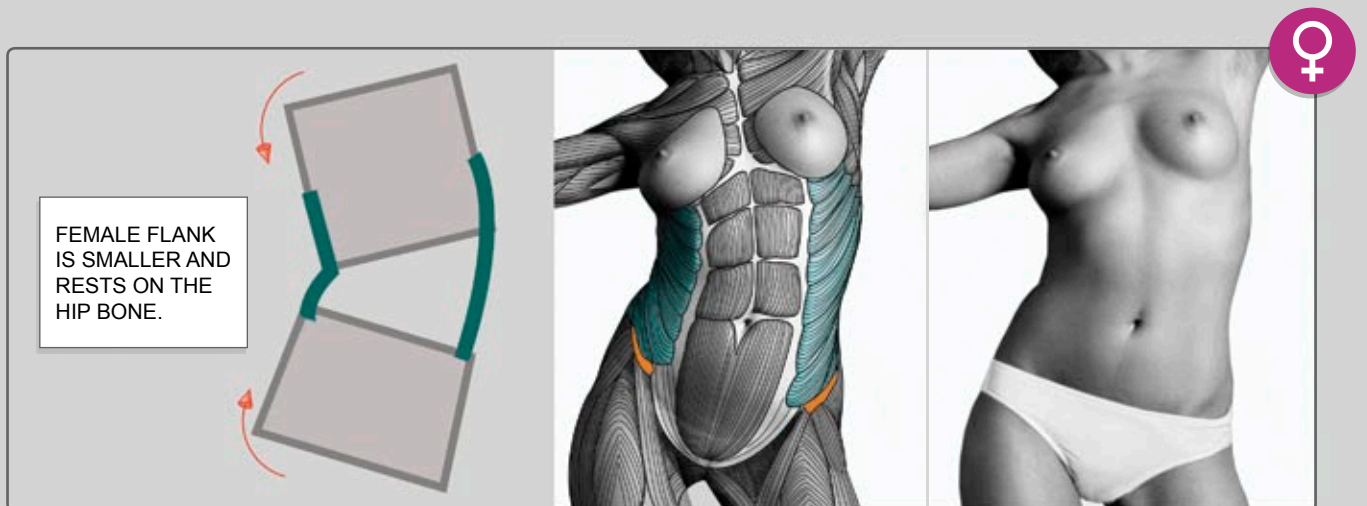
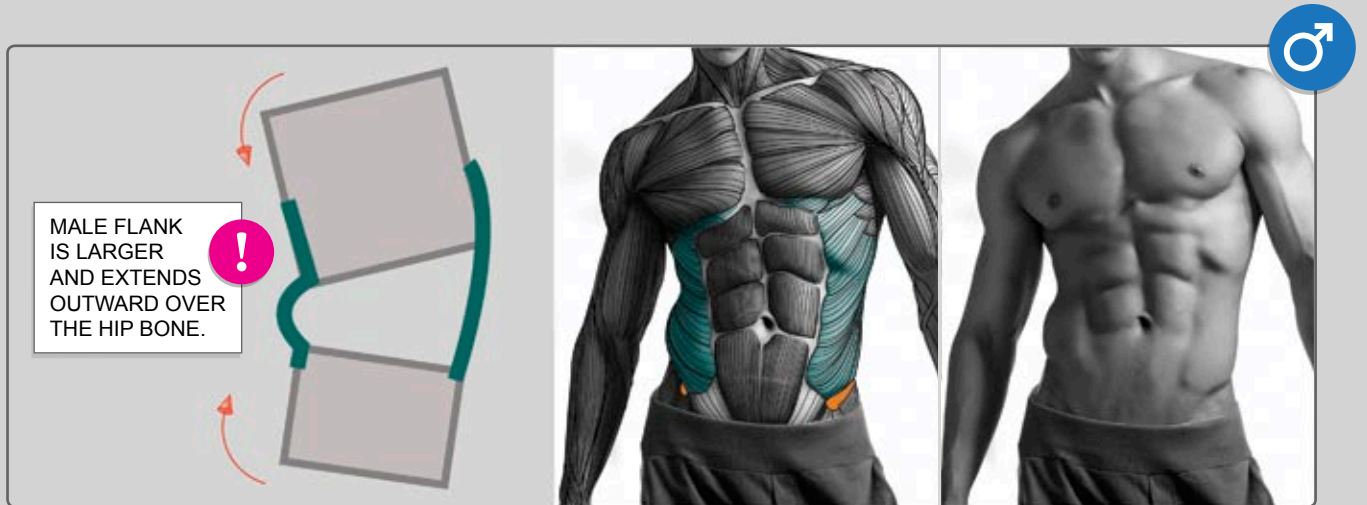
UPPER FIBERS: ELEVATE AND UPWARDLY ROTATE SCAPULA; EXTEND NECK

MIDDLE FIBERS: ADDUCT (RETRACT) SCAPULA

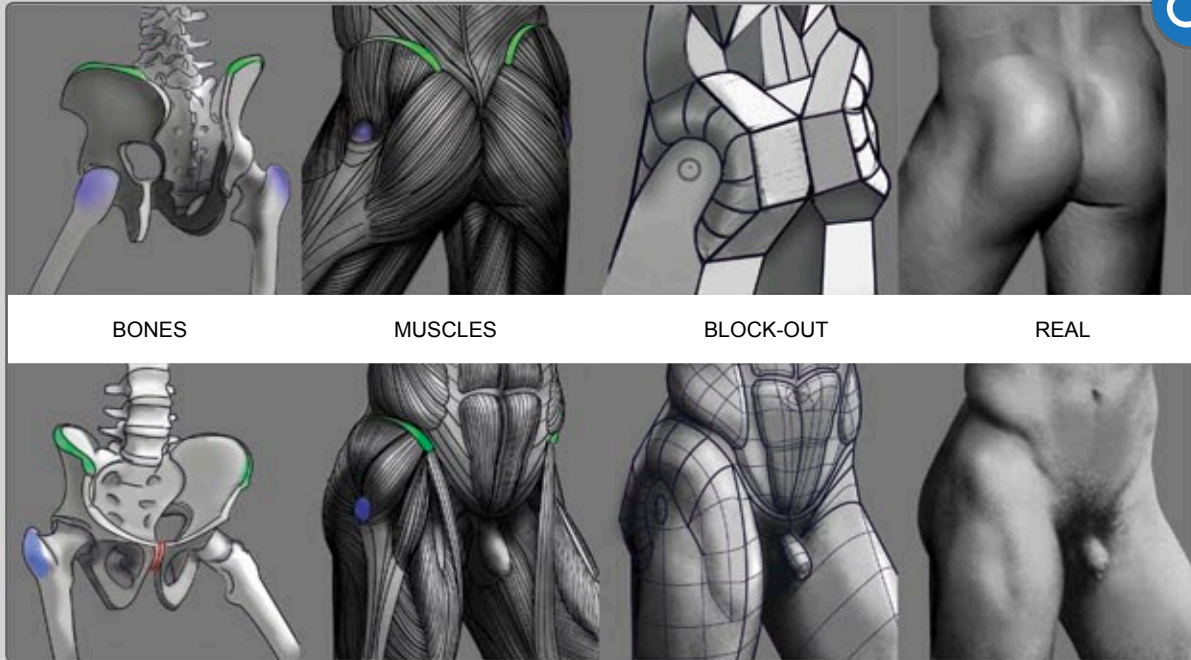
LOWER FIBERS: DEPRESS AND HELP UPPER FIBERS UPWARDLY ROTATE SCAPULA



ABDOMINAL EXTERNAL OBLIQUE MUSCLE (EO)



MALE AND FEMALE HIPs



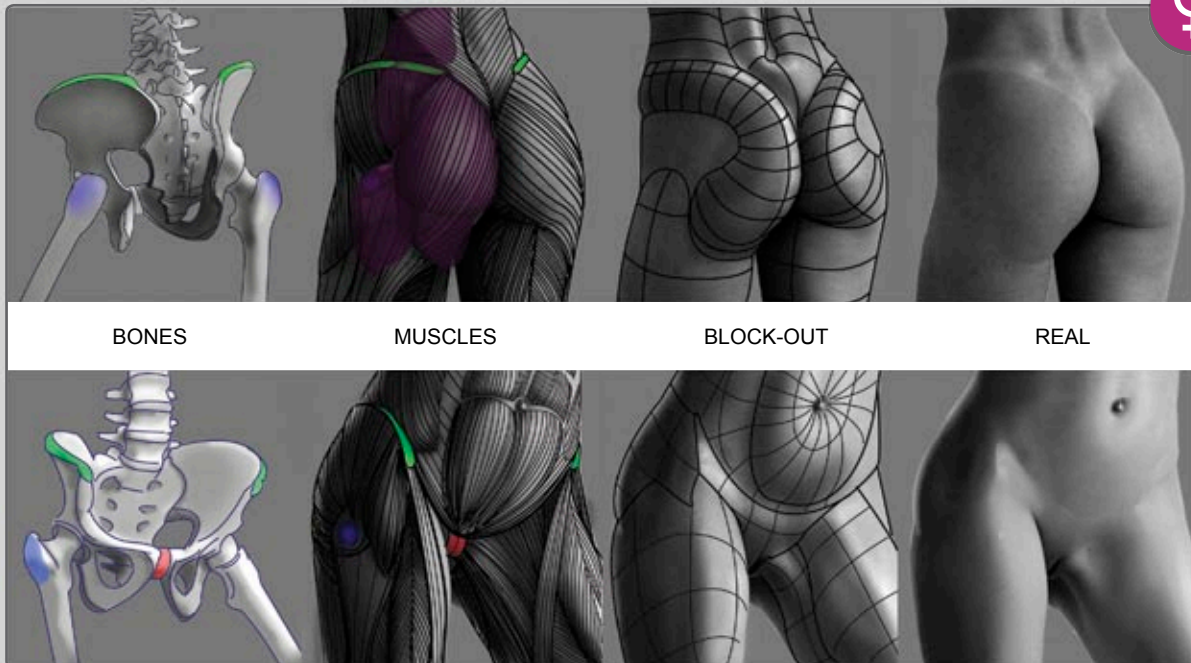
GREATER TROCHANTER



ILIAC CREST

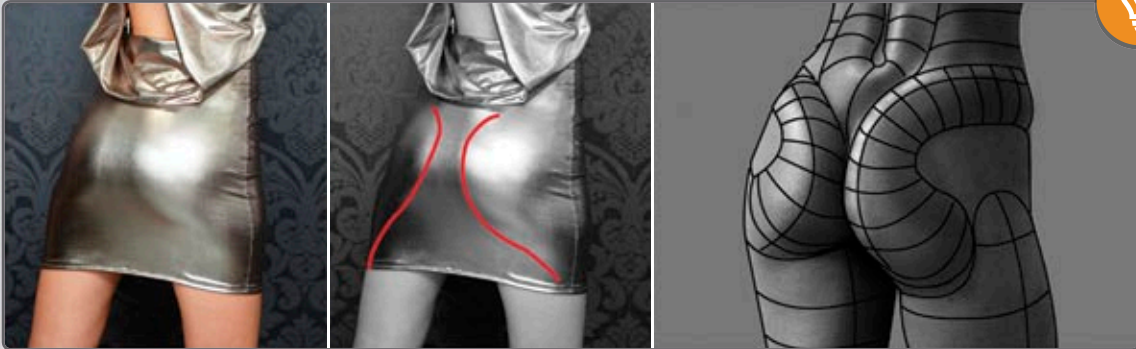


PUBIC SYMPHYSIS

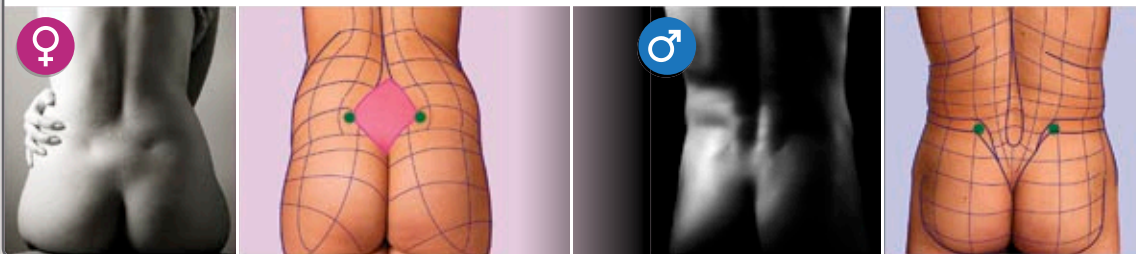


SUBCUTANEOUS **FAT PADS** UNDER THE SKIN GIVE FEMALE HIPs THEIR CURVY SHAPE.

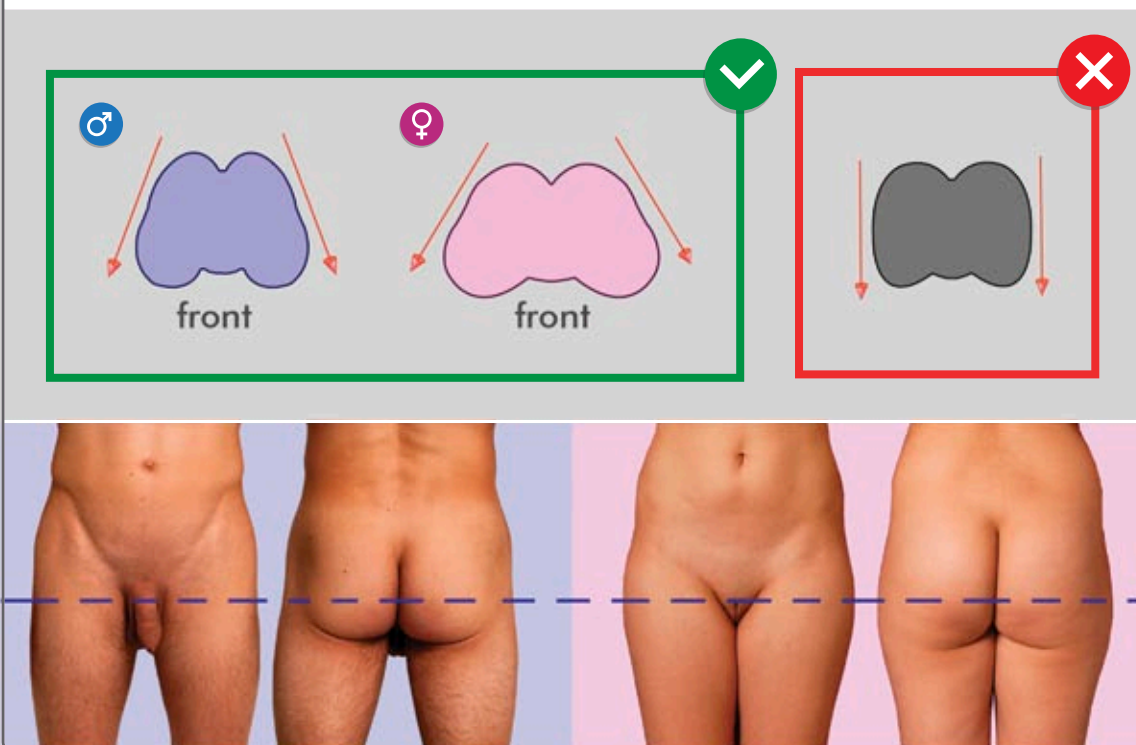
ALL ABOUT “BACKSIDES”



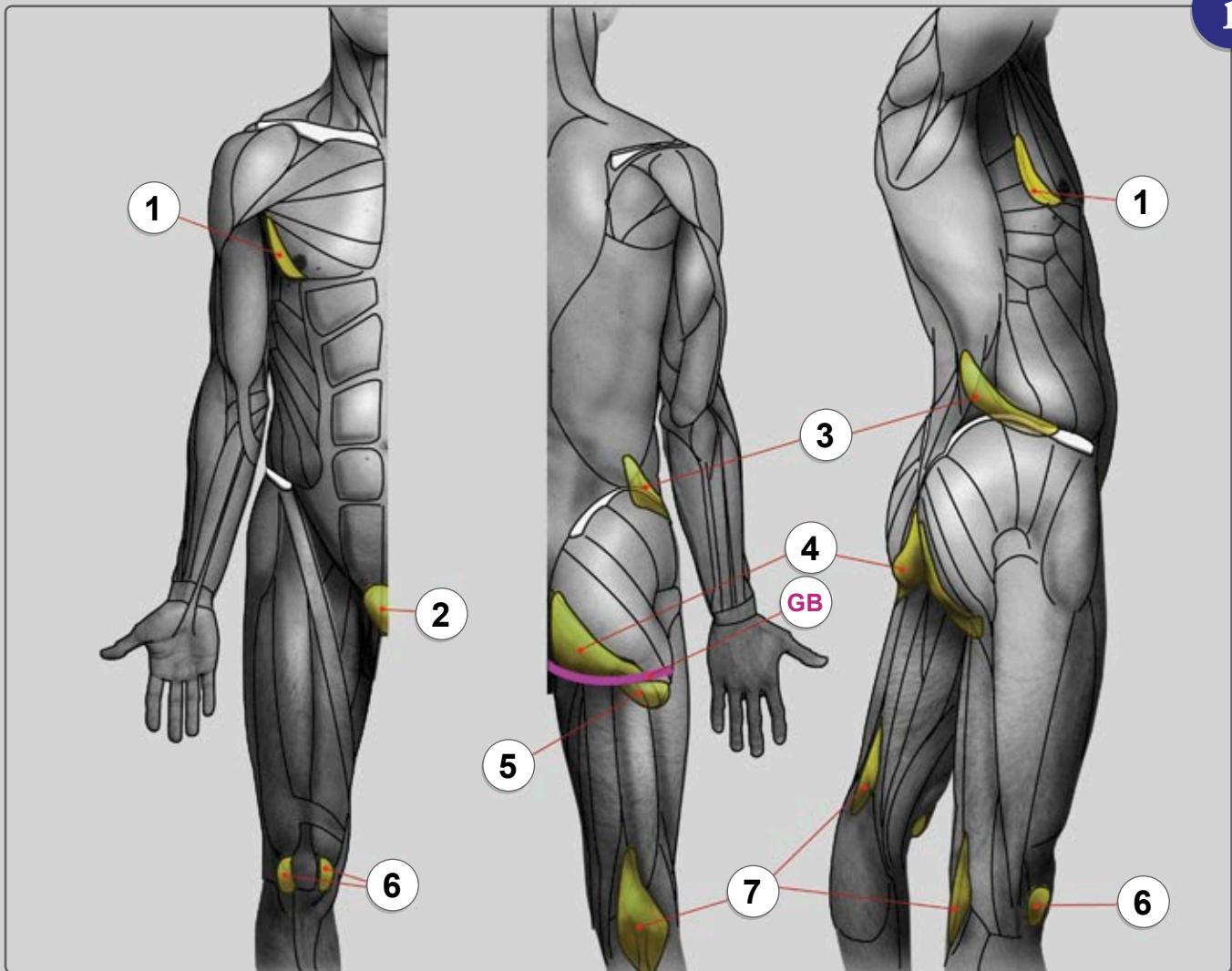
THE “RHOMBUS OF MICHAELIS” IS A FAT PAD THAT IS SOMETIMES VISIBLE ON THE LOWER BACK OF FEMALES.



HORIZONTAL CROSS SECTIONS OF MALE AND FEMALE PELVIS.



MALE SUBCUTANEOUS FAT PADS



1 PECTORAL FAT PAD

2 PUBIC FAT PAD

3 FLANK FAT PAD

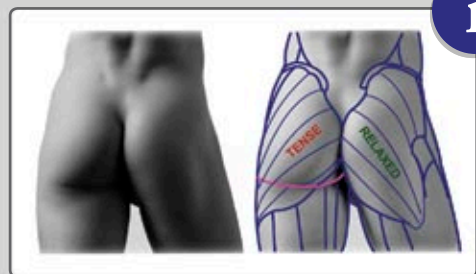
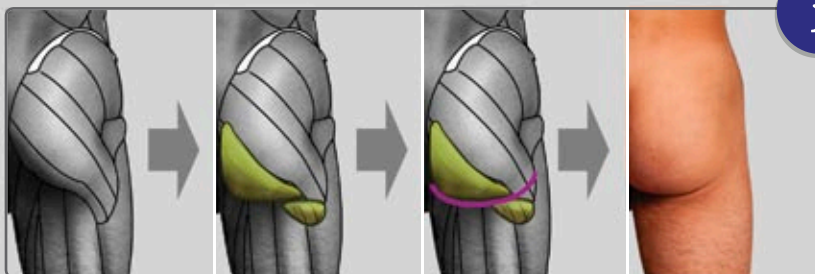
4 LATERAL GLUTEAL FAT PAD

5 INFERIOR GLUTEAL FAT EXTENSION

6 INFRAPATELLAR FAT PAD

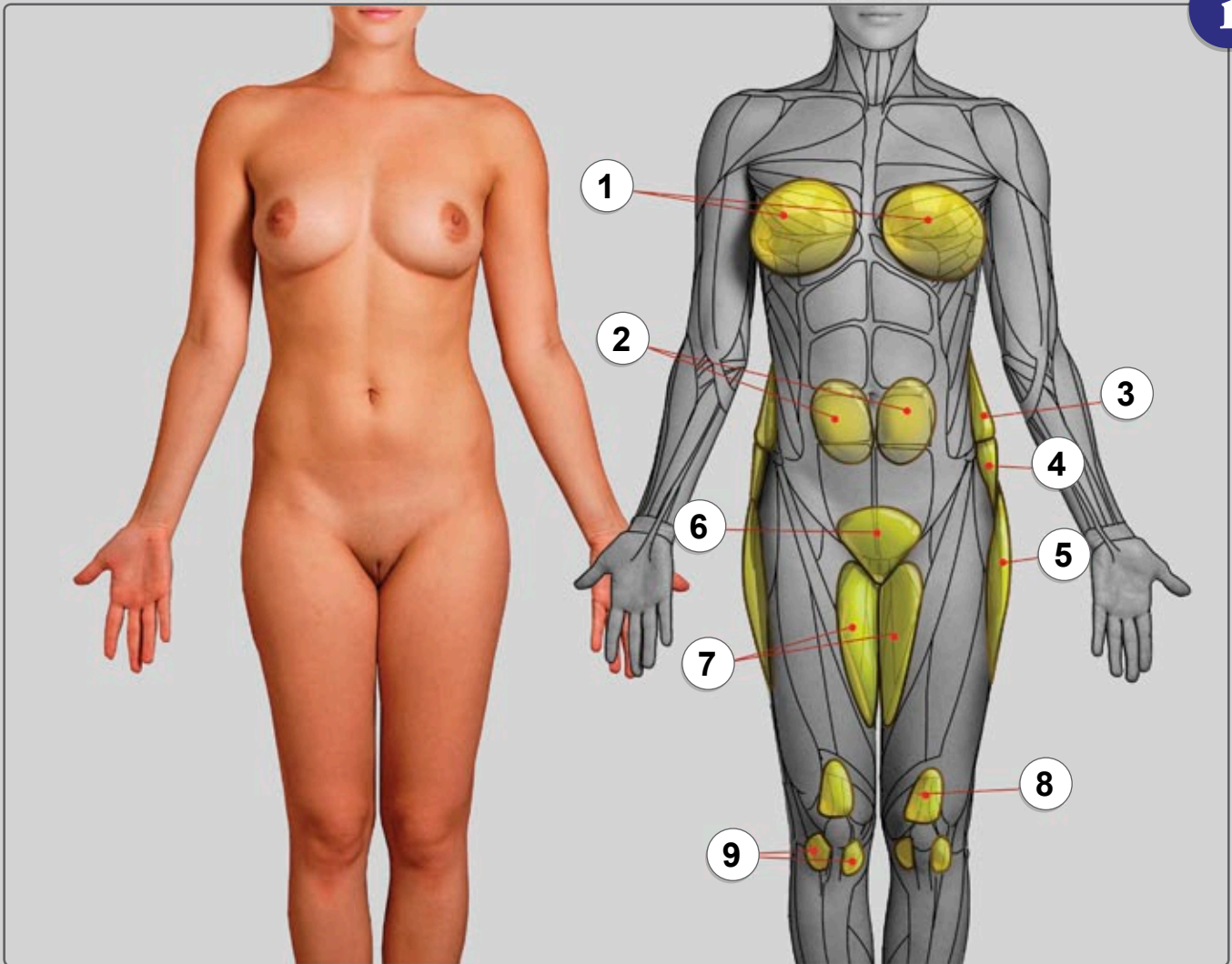
7 POPLITEAL FAT PAD

GB **GLUTEAL BAND** – CREATES SKIN FOLD. WHEN THE THIGH FLEXES, GLUTEAL FOLD DISAPPEARS.

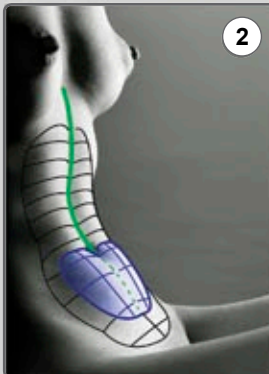


FEMALE SUBCUTANEOUS FAT PADS (FRONT VIEW)

i

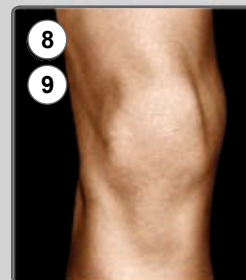
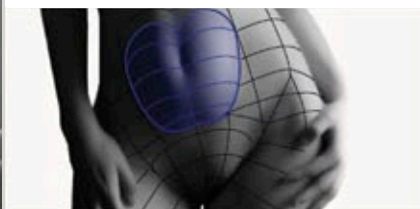


- | | | |
|--------------------------|---------------------------|--------------------------------|
| 1 BREAST FAT | 4 LATERAL GLUTEAL FAT PAD | 6 PUBIC FAT PAD |
| 2 ABDOMINAL WALL FAT PAD | 5 OUTER THIGH FAT PAD | 7 INNER THIGH FAT PAD |
| 3 FLANK FAT PAD | | 8 LOWER ANTERIOR THIGH FAT PAD |
| | | 9 INFRAPATELLAR FAT PAD |



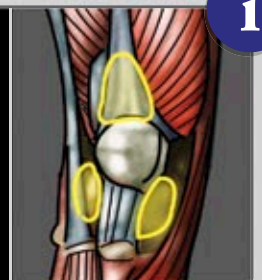
2

AS **ABDOMINAL WALL FAT PADS (AWFP)** GET LARGER, THAT PART OF **THE LINEA ALBA** WHICH CONTINUES UNDER THE NAVEL, WILL BE LESS PRONOUNCED, BECAUSE ARE COVERED BY A THICKER LAYER OF FAT. WHEN THERE IS SOME EXCESS BELLY FAT, **THE AWFP** APPEARS "APPLE" SHAPED.



8

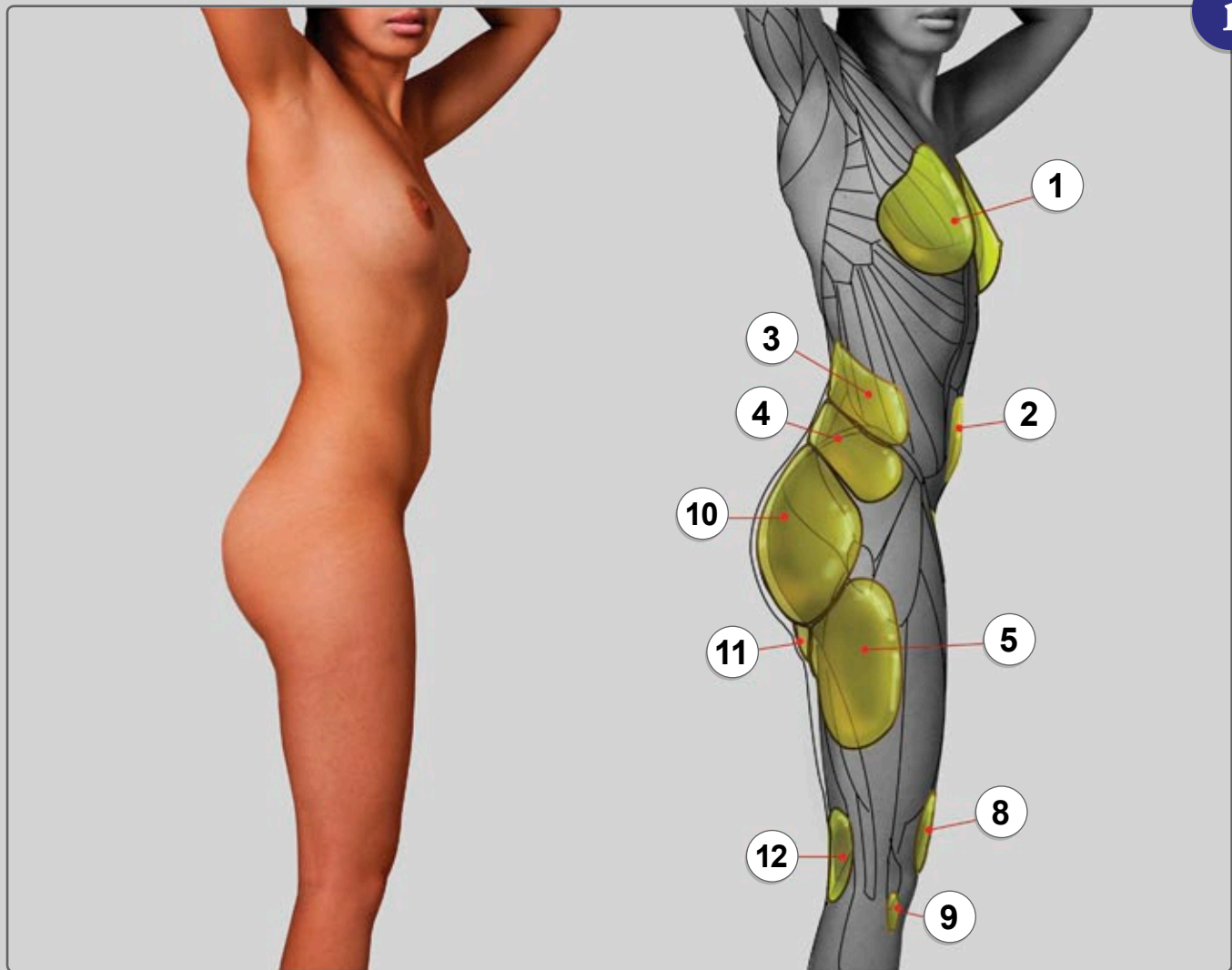
9



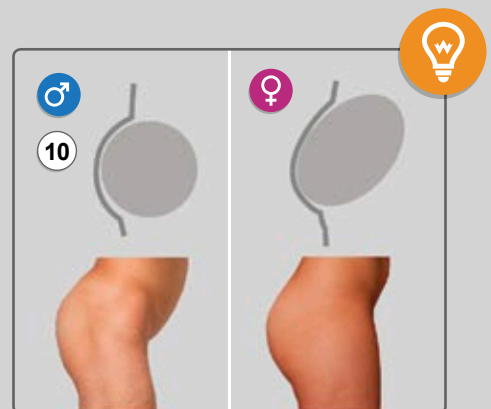
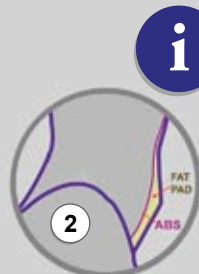
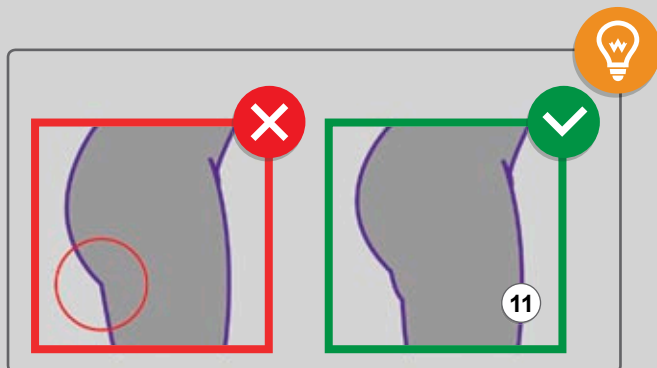
i

RIGHT KNEE

FEMALE SUBCUTANEOUS FAT PADS (SIDE VIEW)

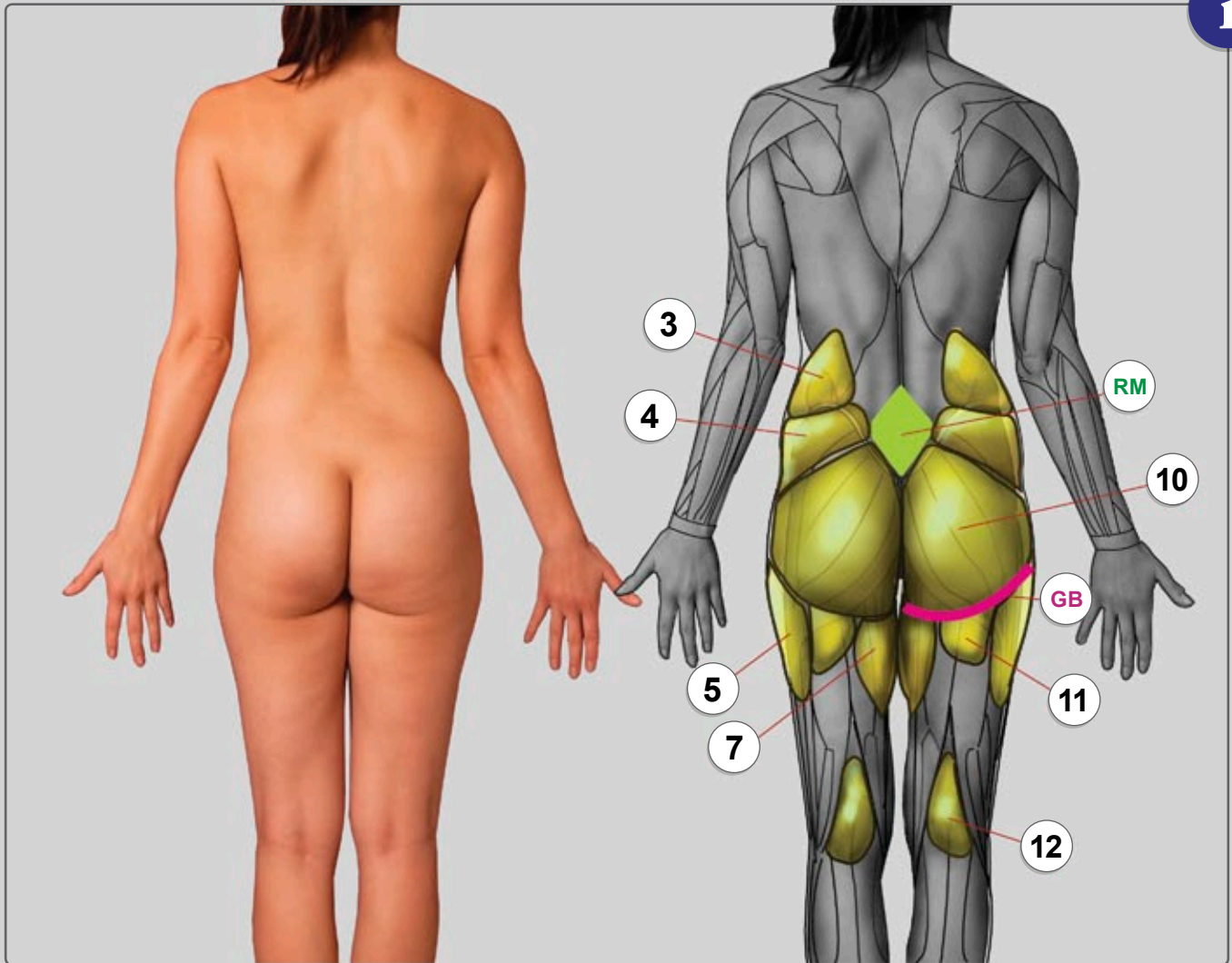


- | | | |
|---------------------------|--------------------------------|-----------------------------------|
| 1 BREAST FAT | 5 OUTER THIGH FAT PAD | 11 INFERIOR GLUTEAL FAT EXTENSION |
| 2 ABDOMINAL FAT PAD | 8 LOWER ANTERIOR THIGH FAT PAD | 12 POPLITEAL FAT PAD |
| 3 FLANK FAT PAD | 9 INFRAPATELLAR FAT PAD | |
| 4 LATERAL GLUTEAL FAT PAD | 10 POSTERIOR GLUTEAL FAT PAD | |



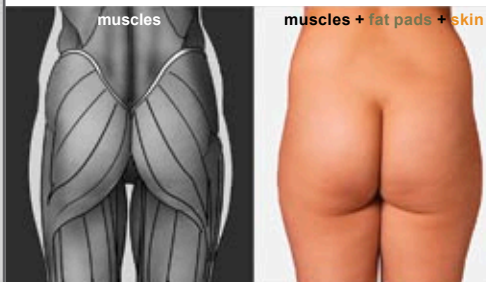
FEMALE SUBCUTANEOUS FAT PADS (BACK VIEW)

i



- | | | |
|---------------------------|---------------------------|--|
| 3 FLANK FAT PAD | 5 OUTER THIGH FAT PAD | 10 POSTERIOR GLUTEAL FAT PAD |
| 4 LATERAL GLUTEAL FAT PAD | 7 INNER THIGH FAT PAD | 11 INFERIOR GLUTEAL FAT EXTENSION |
| 12 POPLITEAL FAT PAD | RM "RHOMBUS OF MICHAELIS" | GB GLUTEAL BAND – CREATES SKIN FOLD. WHEN THE THIGH IS FLEXED, GLUTEAL FOLD DISAPPEARS |

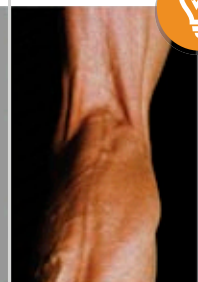
FEMALES HAVE MORE AND MUCH THICKER SUBCUTANEOUS FAT PADS THAN MALES. THIS IS WHY "TYPICAL FEMALE CURVES" APPEAR.



WHEN THE LEG IS STRAIGHT, POPLITEAL FAT PAD POPS OUT!

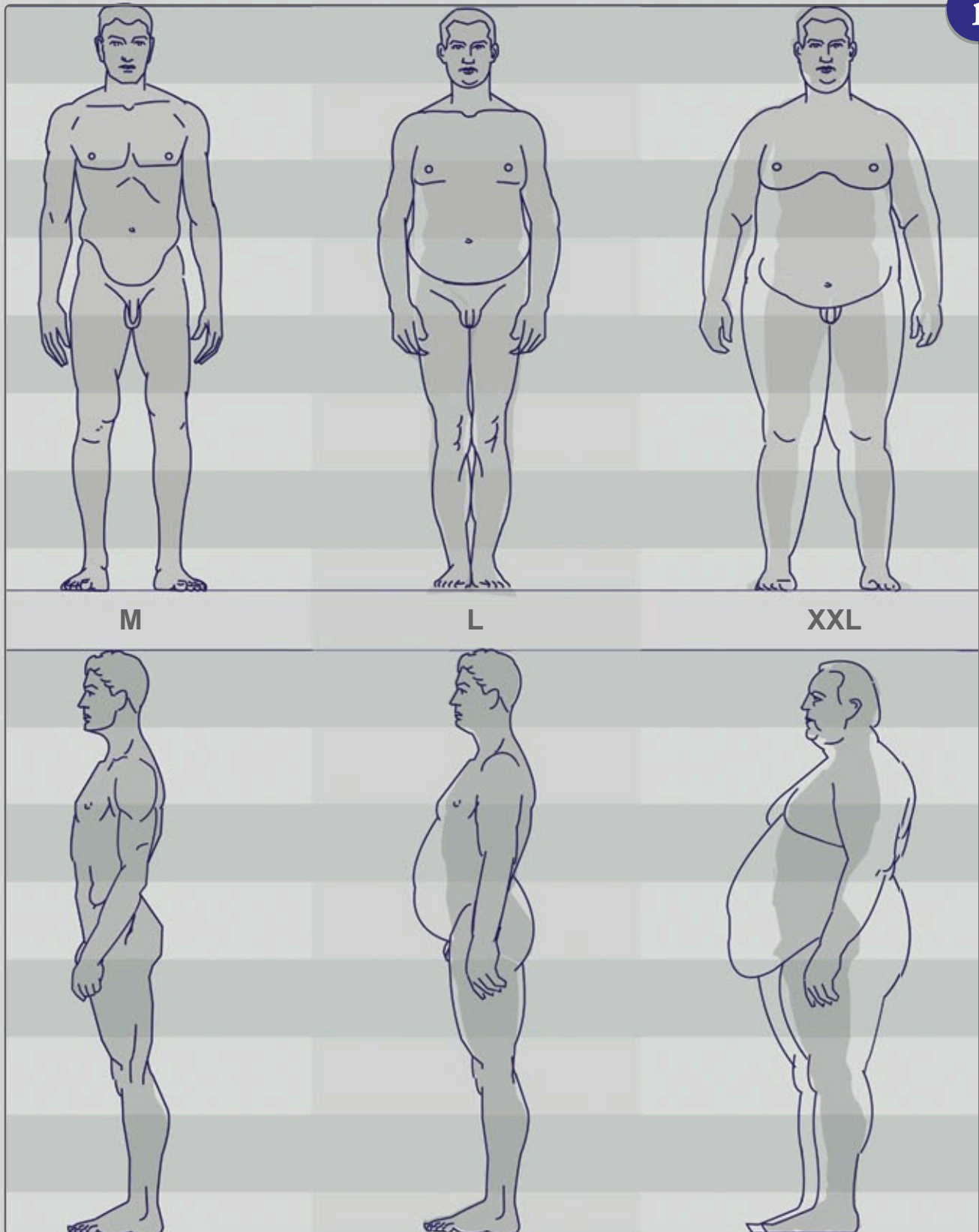


EXTREMELY FATLESS (DRY) BODY CASE.



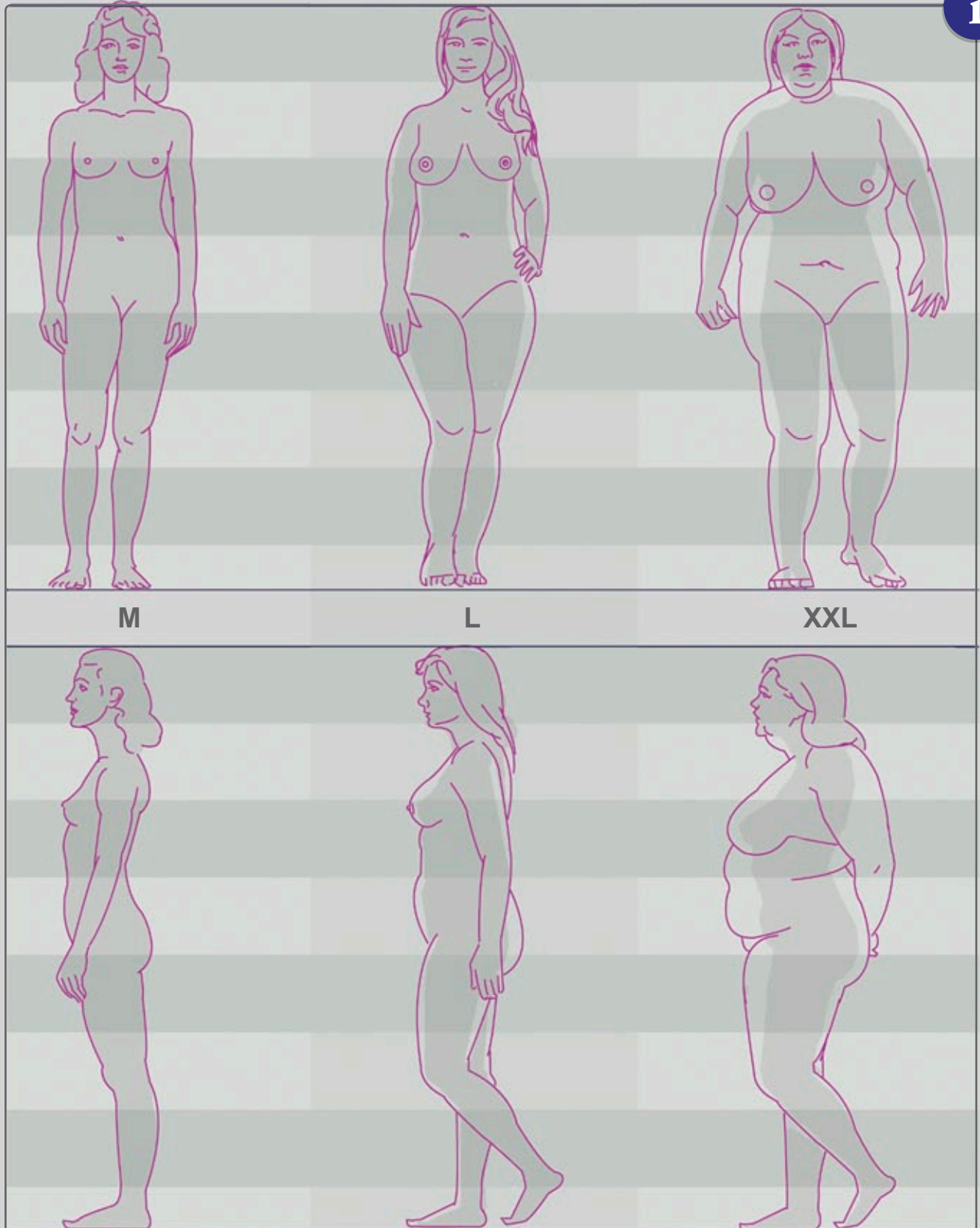
PROPORTIONAL CHANGES OF AN OBESE MALE: 7.5 HEAD UNITS

i

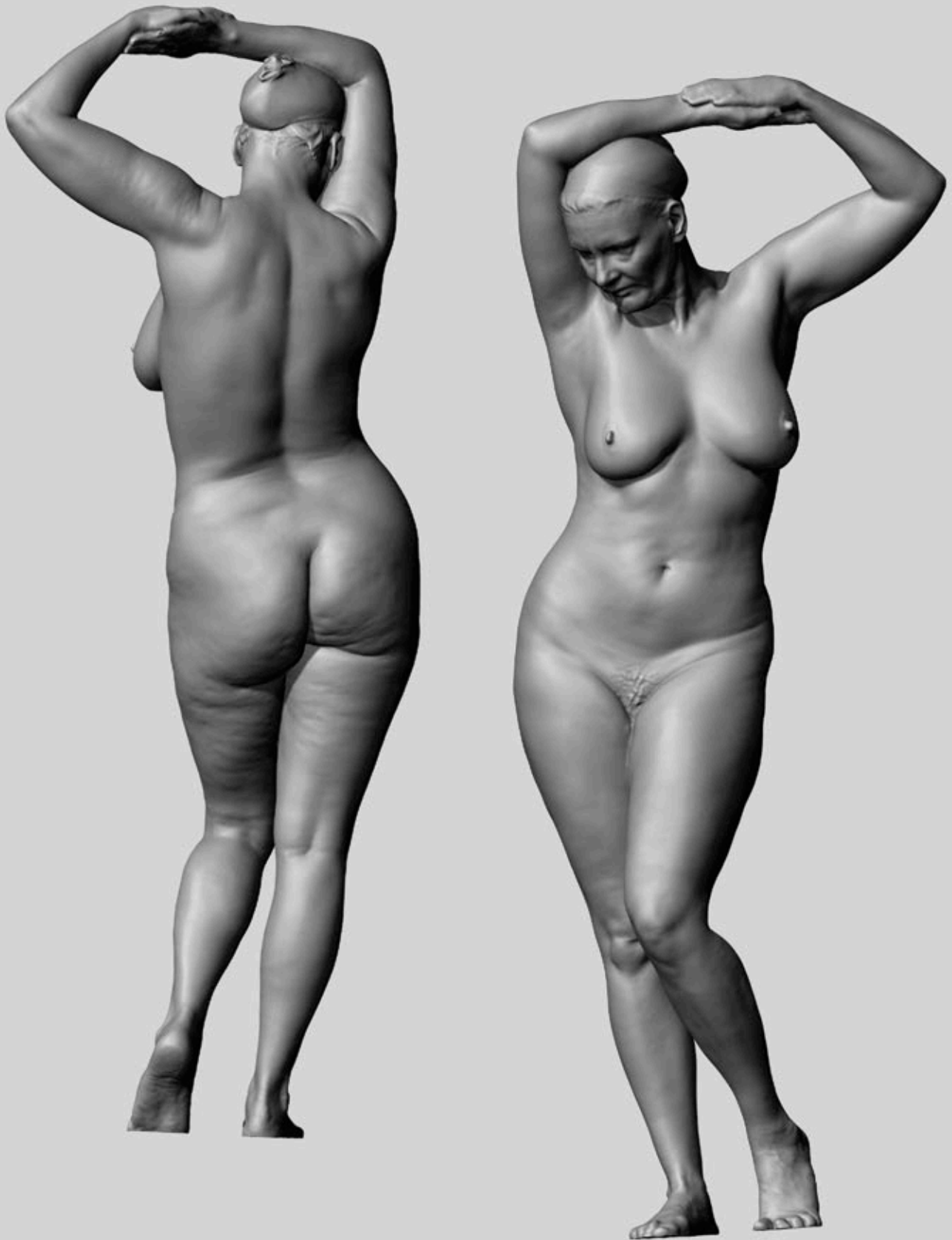


PROPORTIONAL CHANGES OF AN OBESE FEMALE: 7.5 HEAD UNITS

i



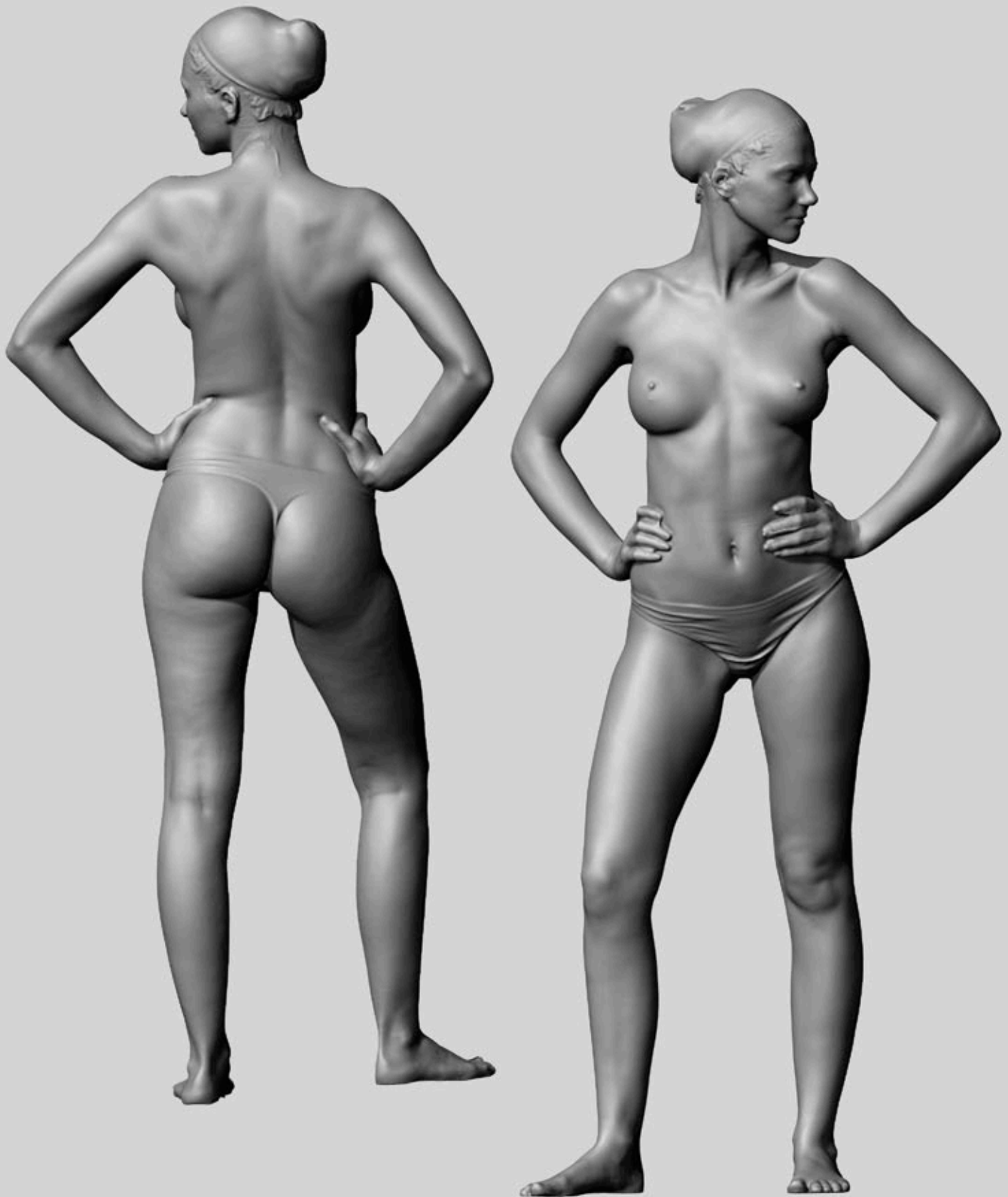
3D SCAN OF MIDDLE-AGED WOMAN



3D SCAN OF YOUNG FEMALE



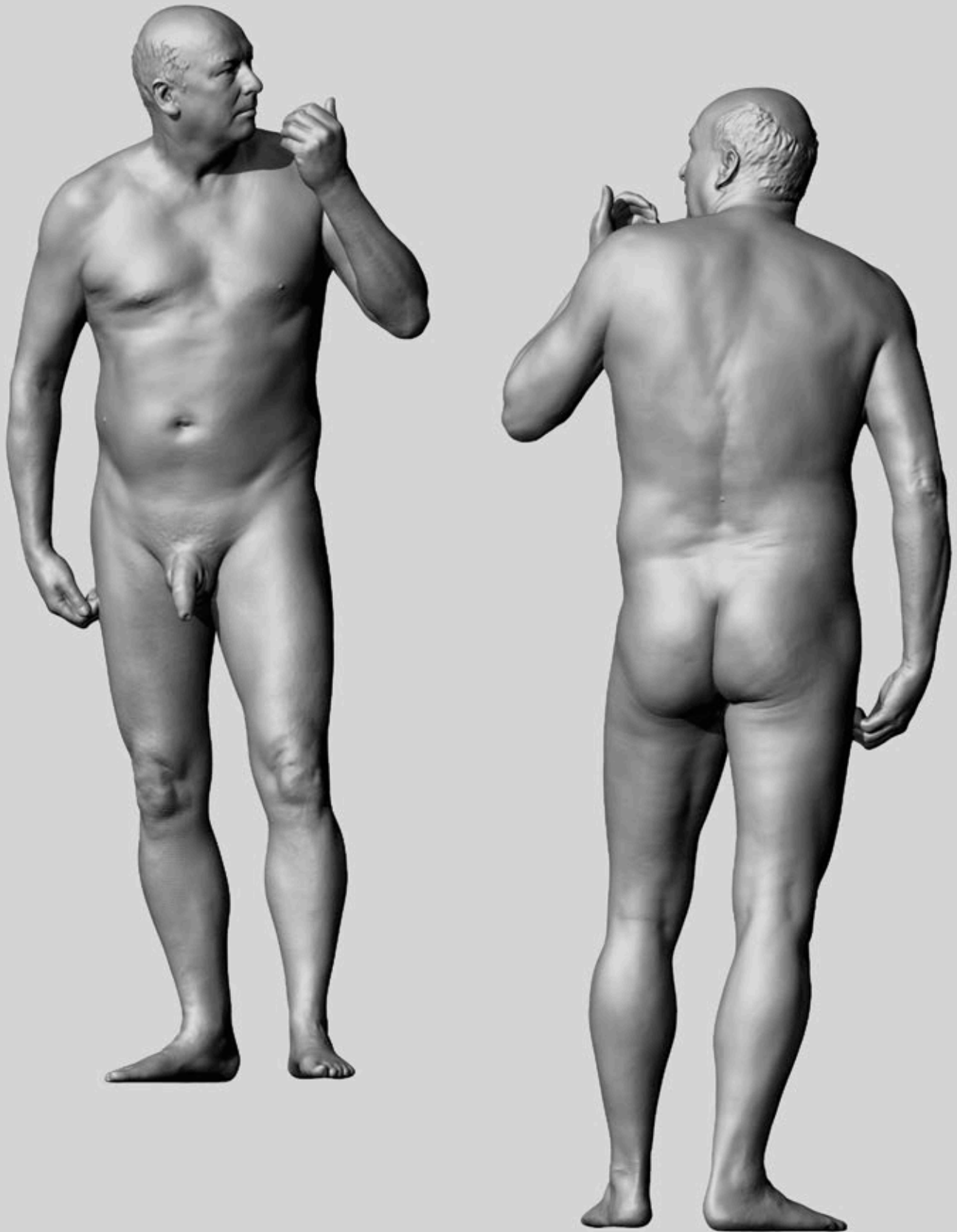
3D SCAN OF YOUNG FEMALE



3D SCAN OF YOUNG MAN



3D SCAN OF MIDDLE-AGED MAN



ARMS AT SIDES



3/4



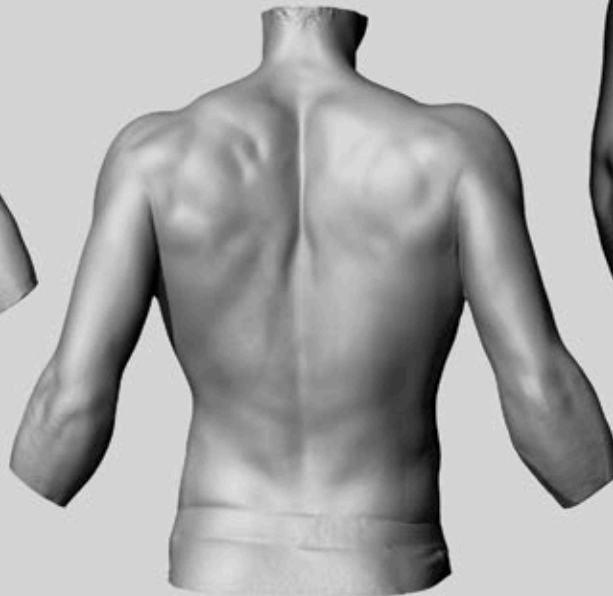
LEFT SIDE



3/4



FRONT



BACK



RIGHT SIDE

ARMS HELD STRAIGHT OUT TO SIDES



3/4



LEFT SIDE



3/4



FRONT

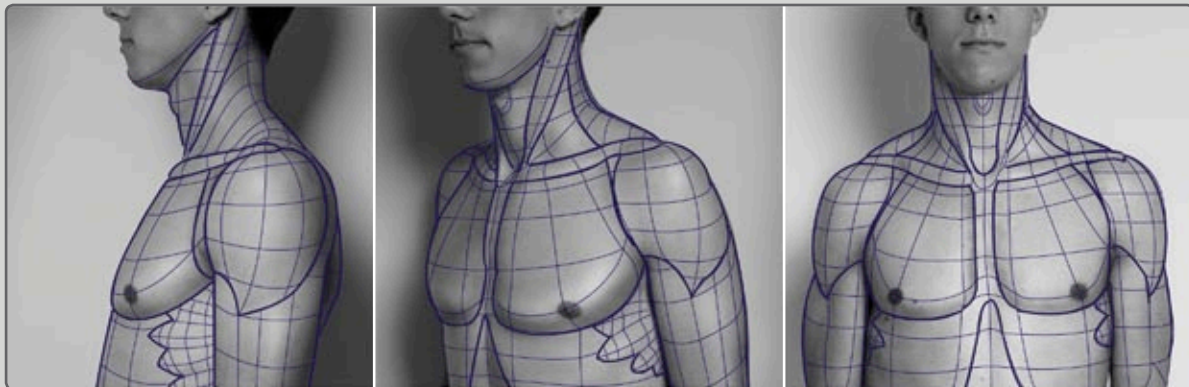
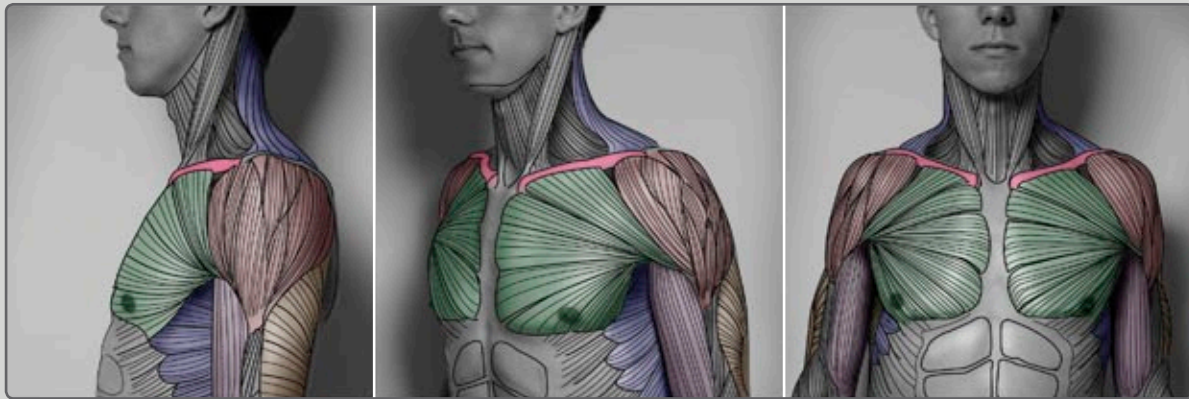
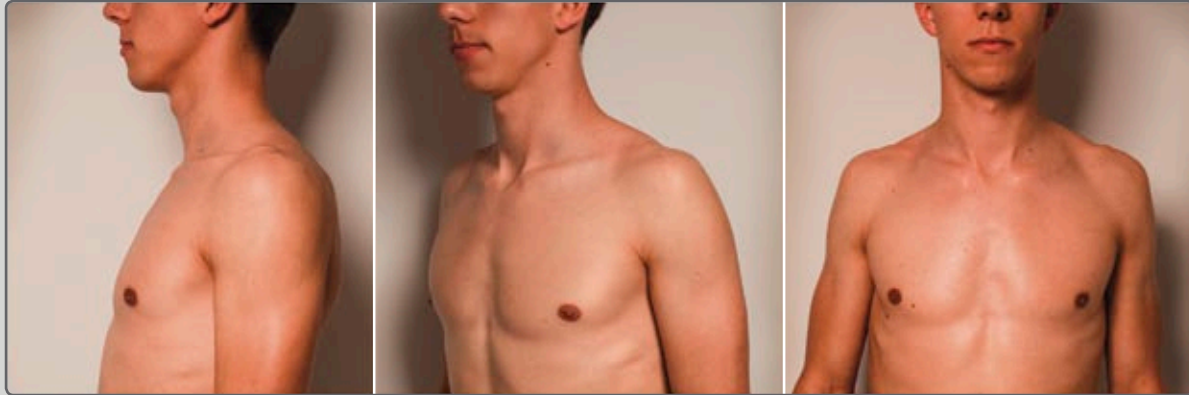


BACK

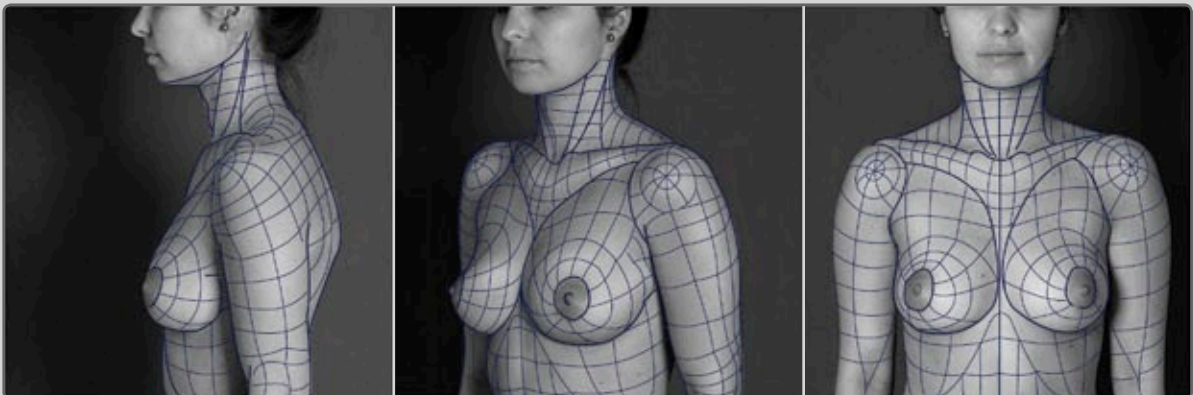
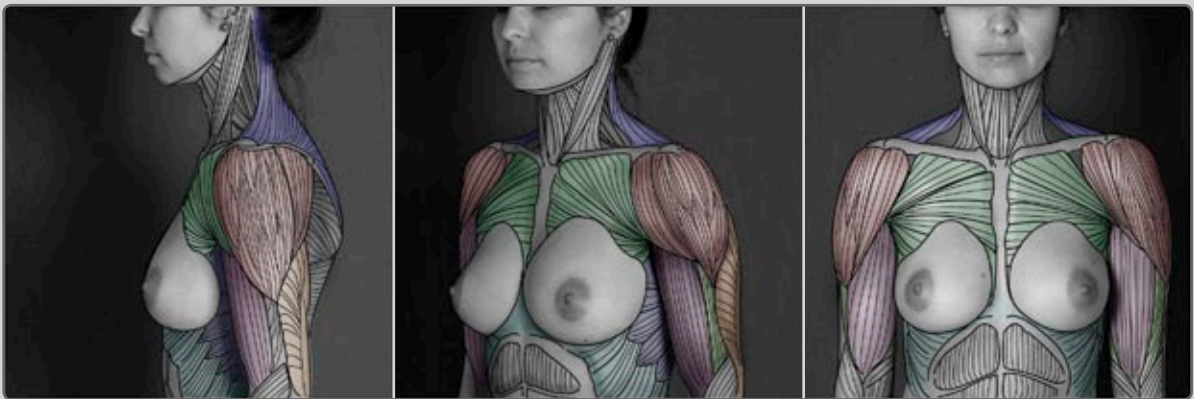
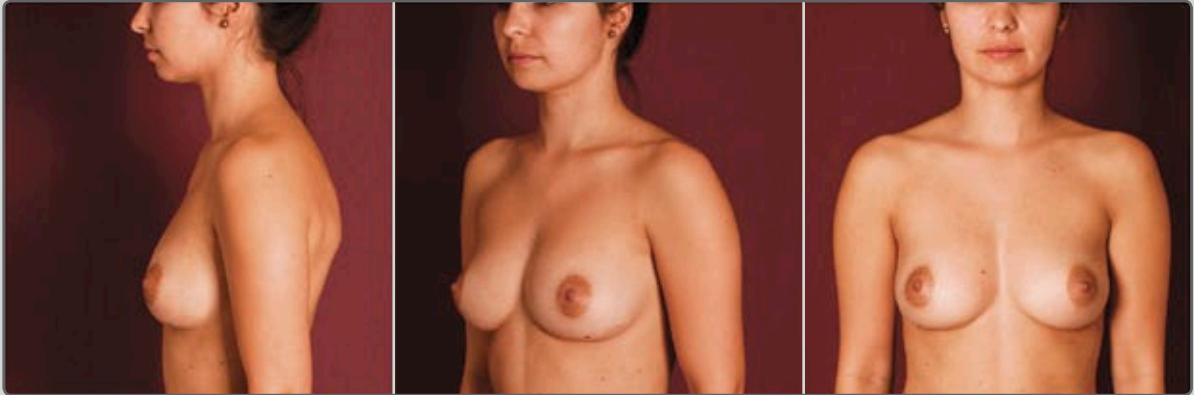


RIGHT SIDE

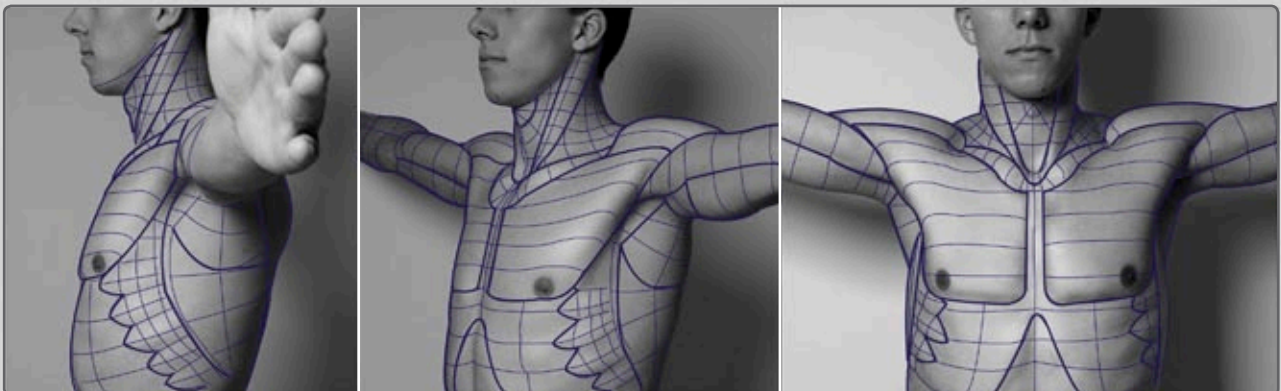
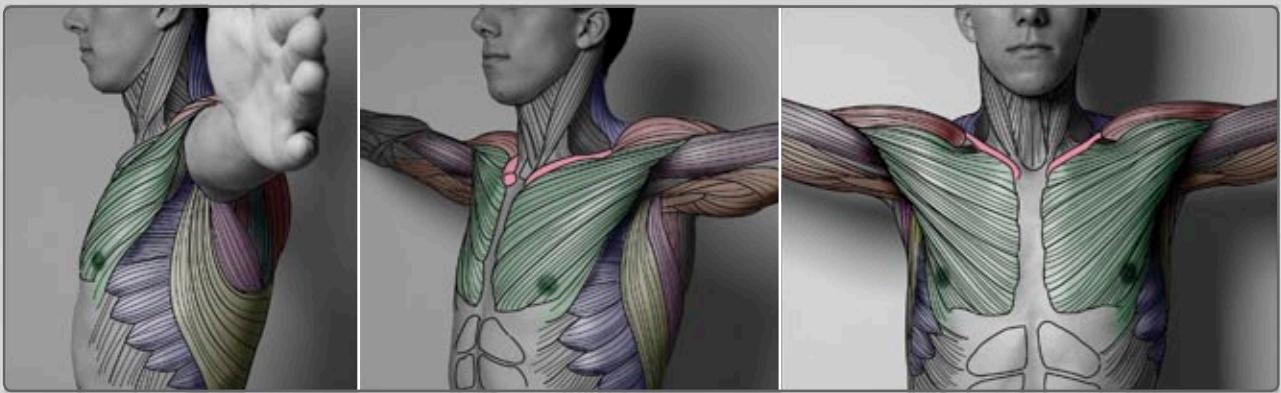
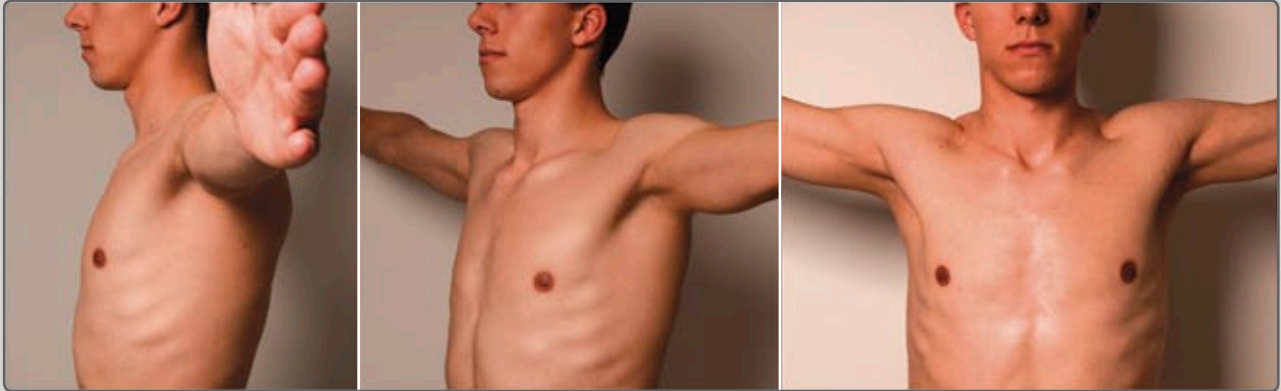
ARMS HANGING NATURALLY – MALE



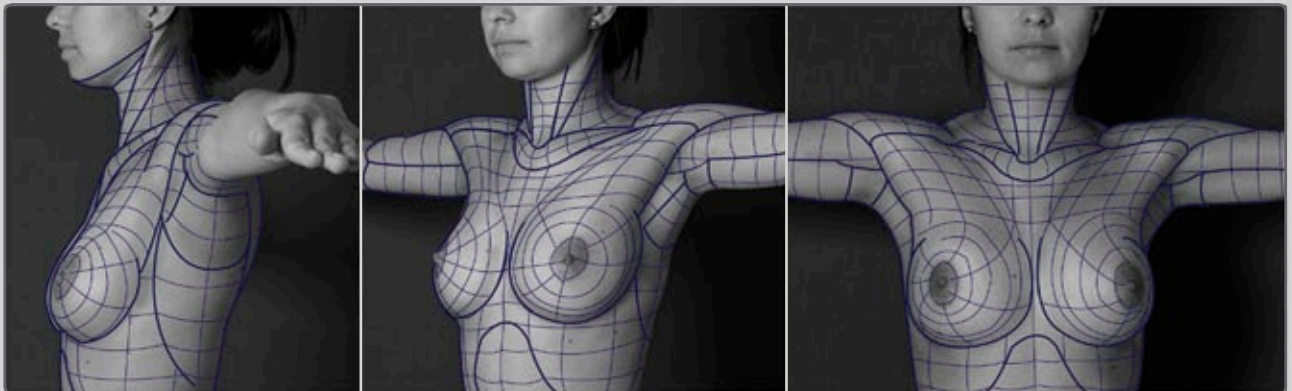
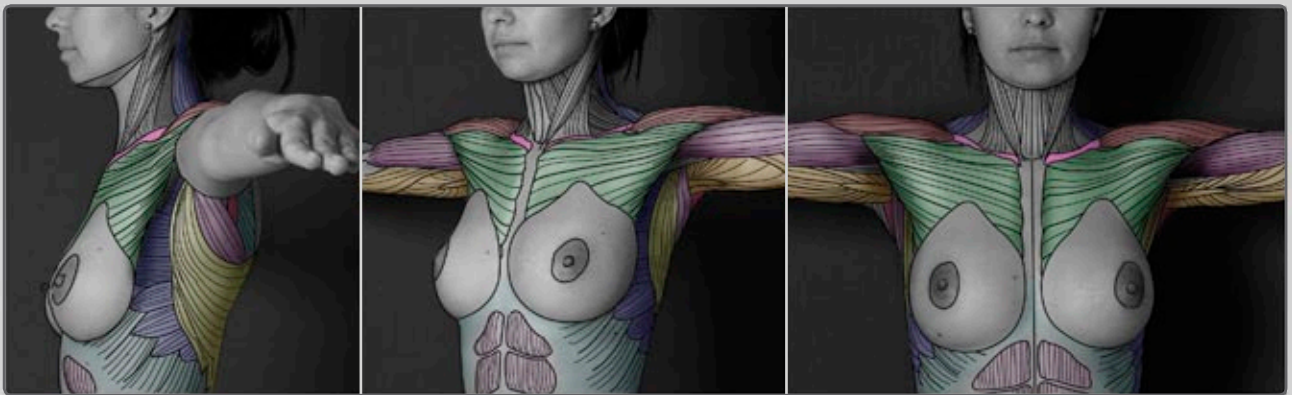
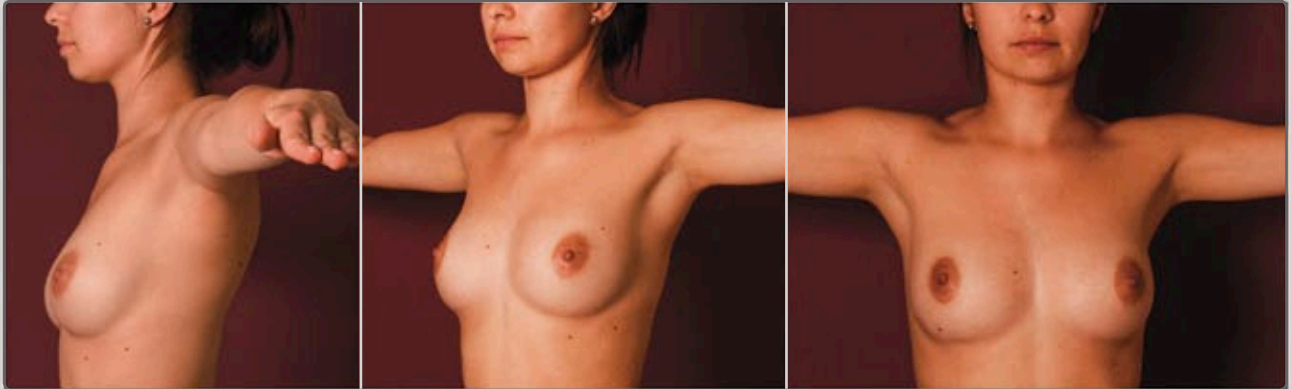
ARMS HANGING NATURALLY – FEMALE

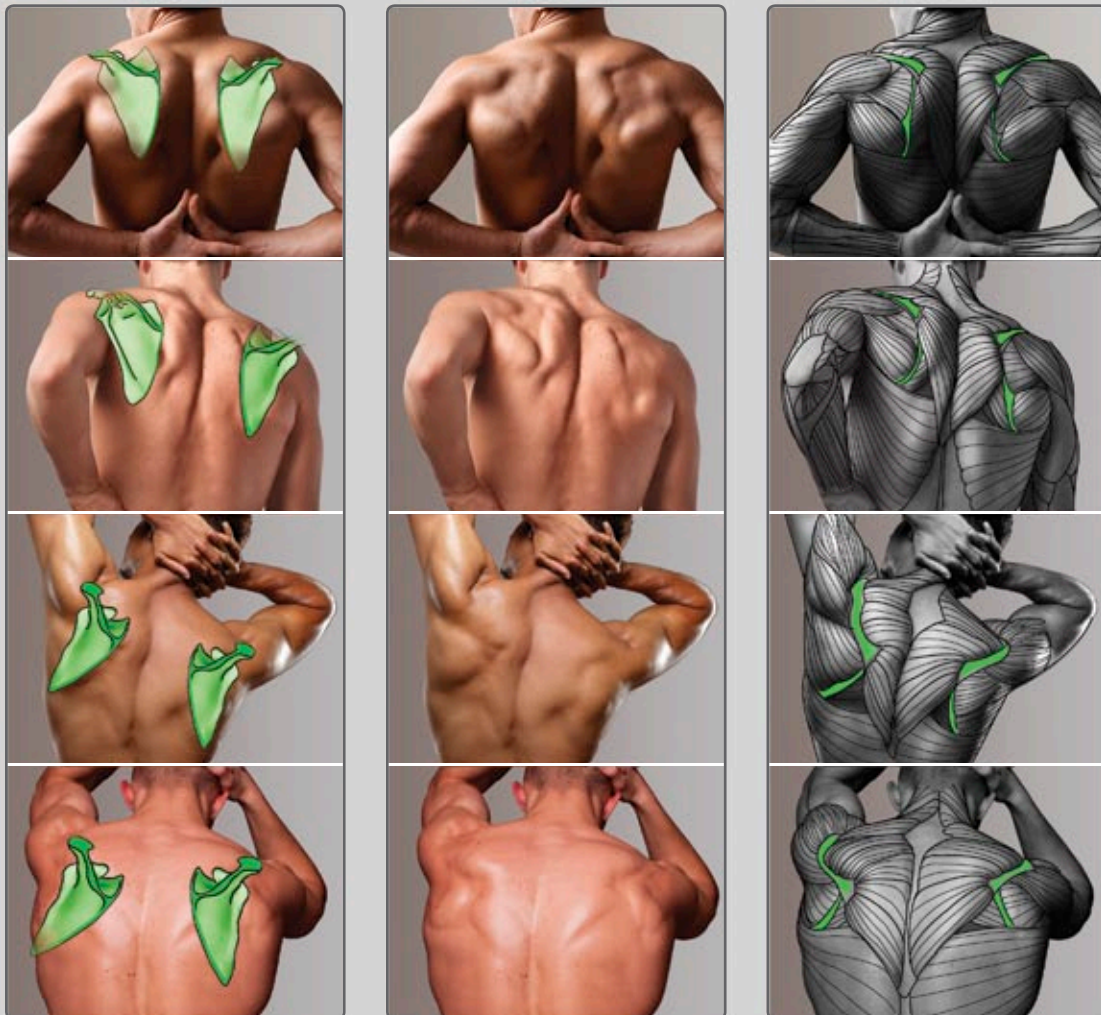


ARMS HELD STRAIGHT OUT TO SIDES – MALE

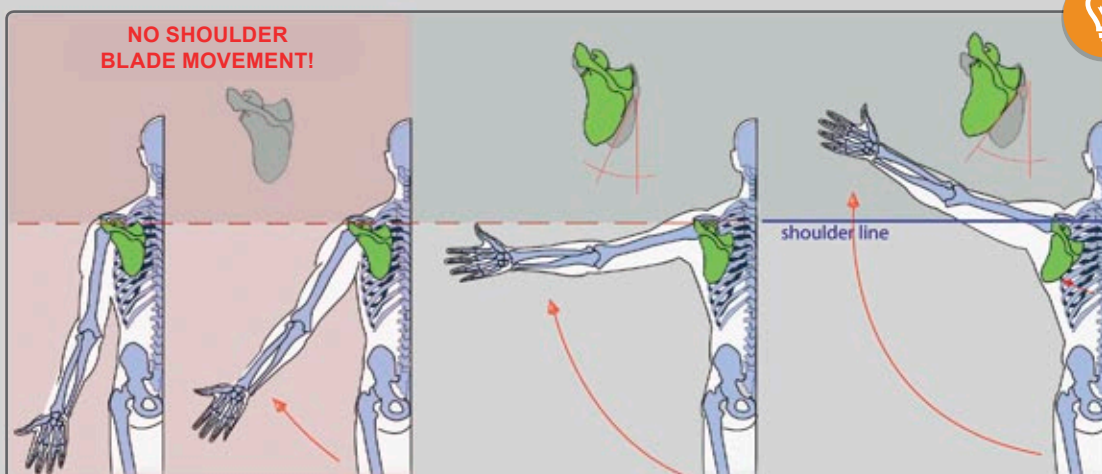


ARMS HELD STRAIGHT OUT TO SIDES – FEMALE



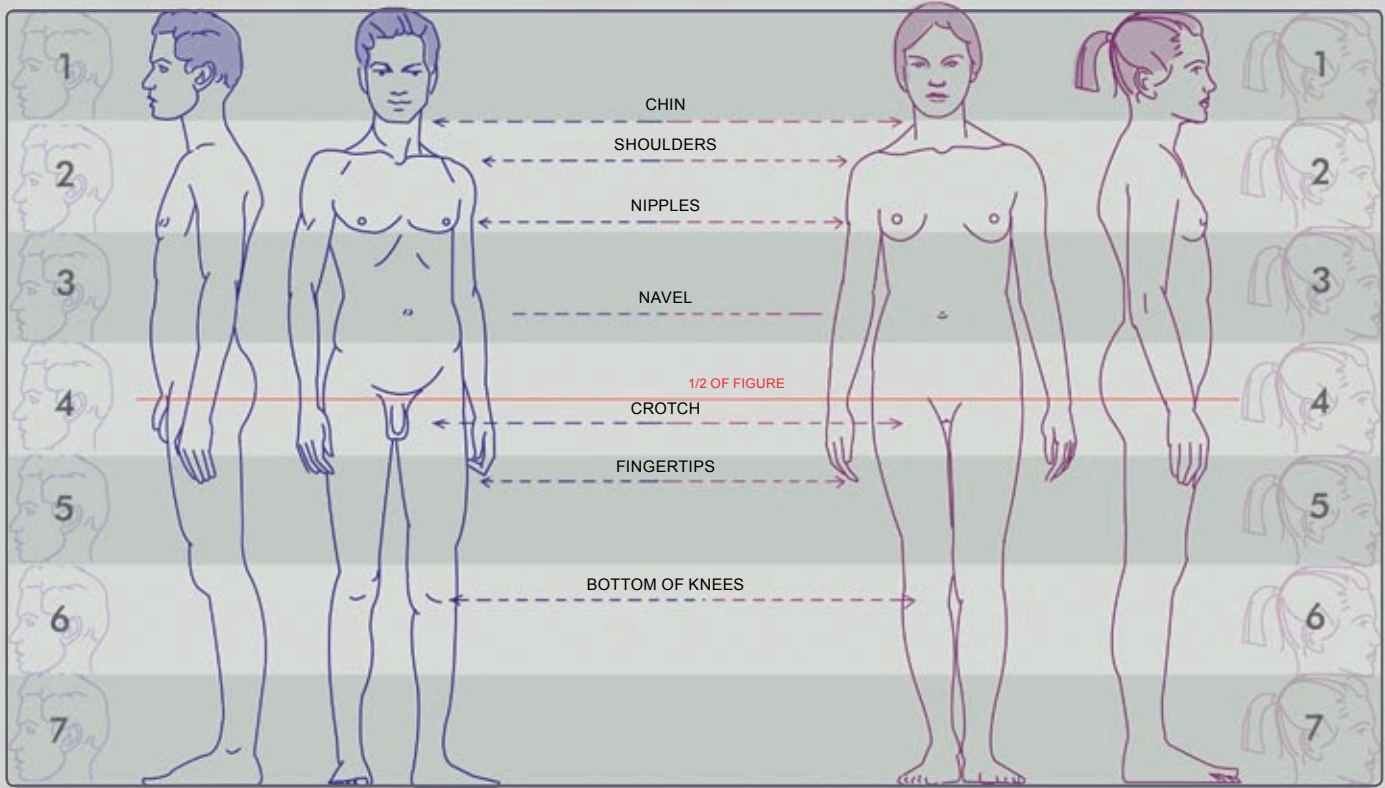


ROTATION OF THE SHOULDER BLADE

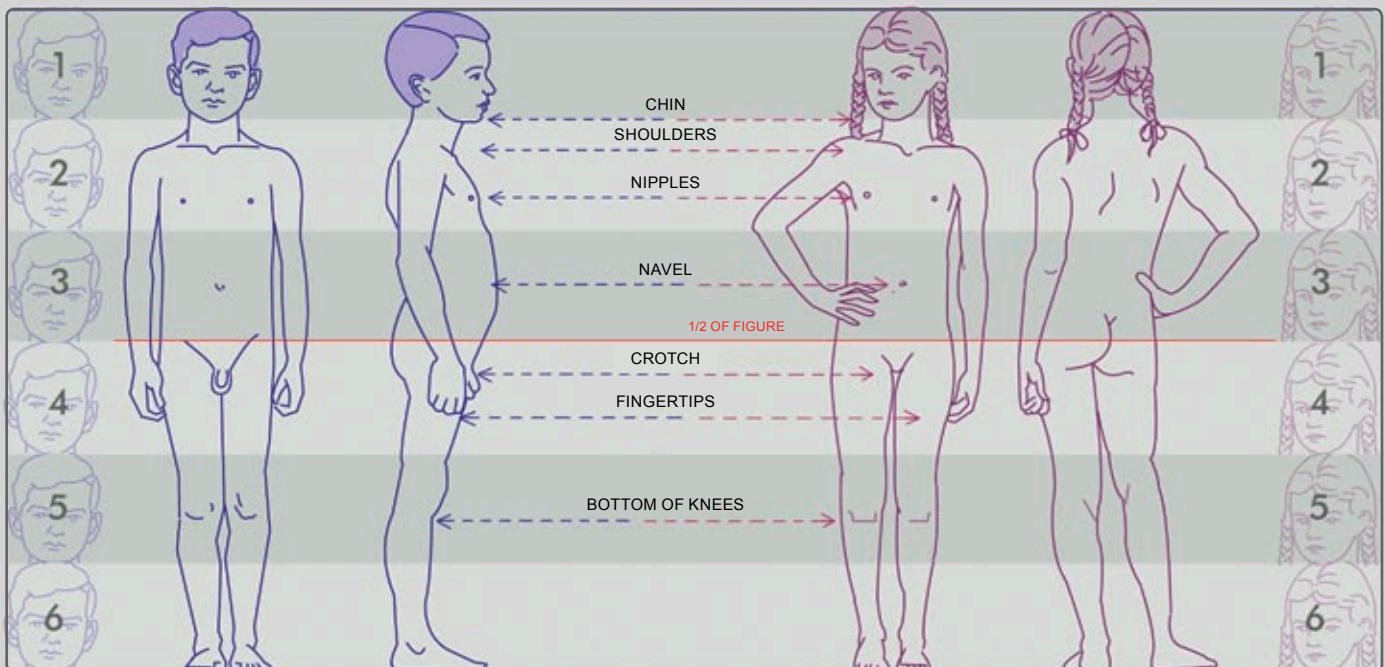


PROPORTIONS OF TEENAGER AND CHILD

TEENAGER PROPORTIONS - 7 HEAD UNITS

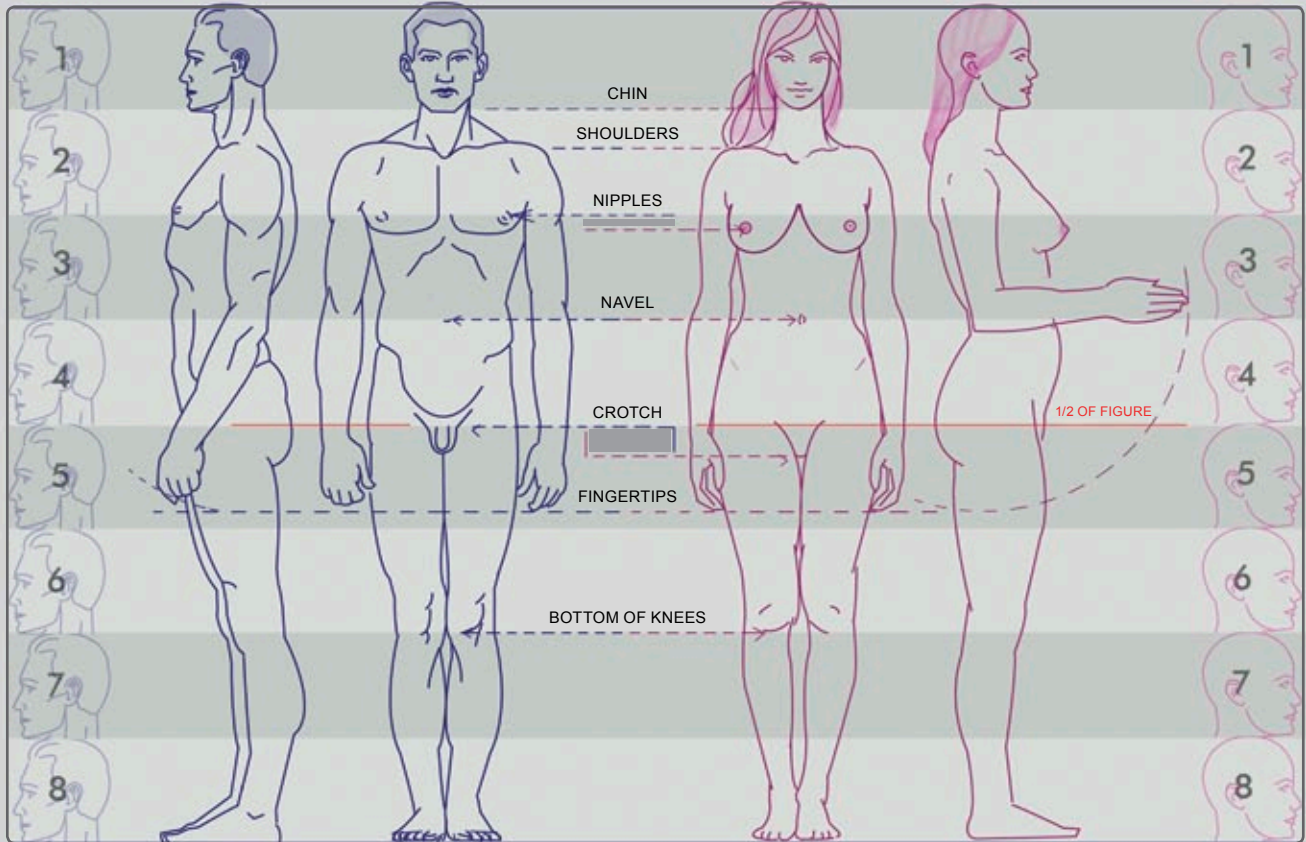


CHILD PROPORTIONS (AGES 8 - 12) - 6 HEAD UNITS

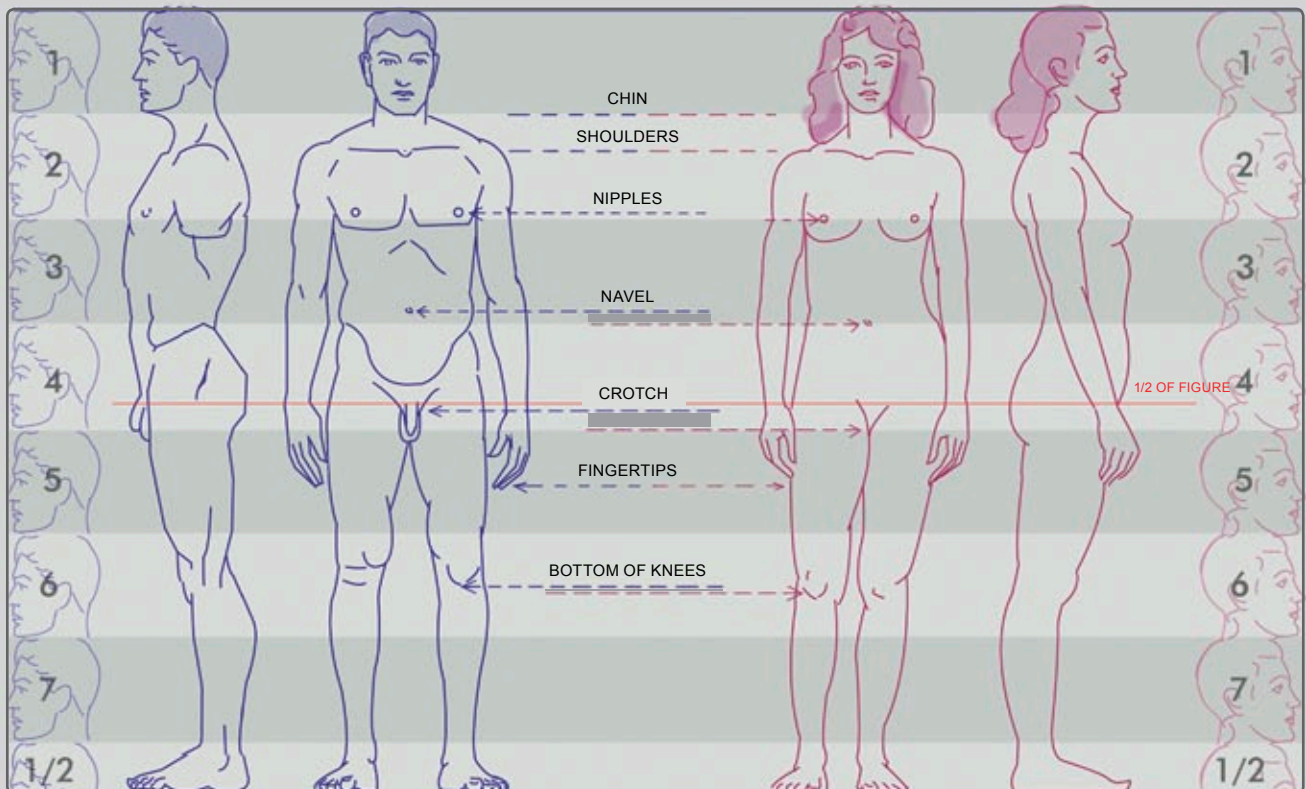


PROPORTIONS OF ADULT MALE AND FEMALE

IDEALIZED ADULT PROPORTIONS - 8 HEAD UNITS

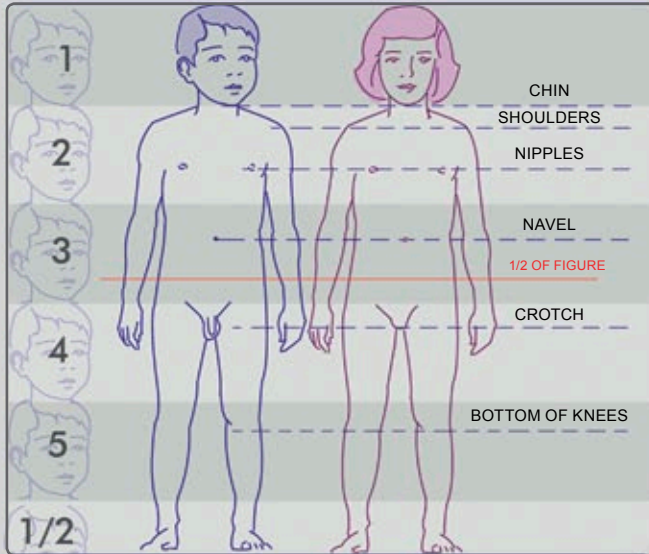


REALISTIC ADULT PROPORTIONS - 7.5 HEAD UNITS

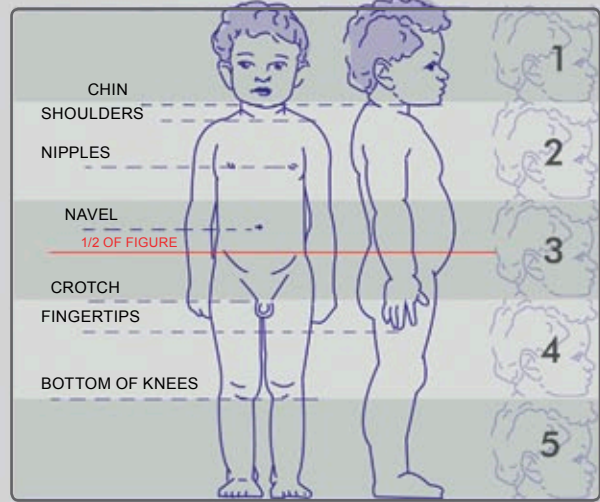


PROPORTIONS OF CHILD, TODDLER, NEWBORN AND SENIOR

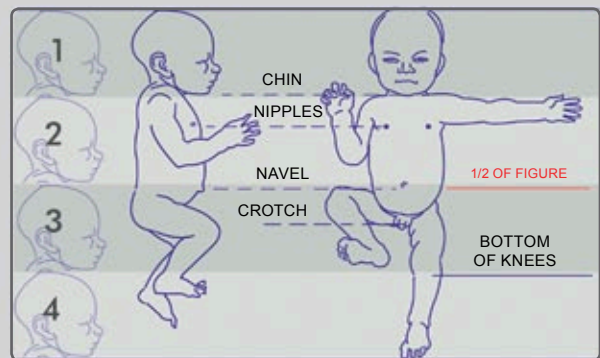
CHILD: **5.5 HEAD UNITS**



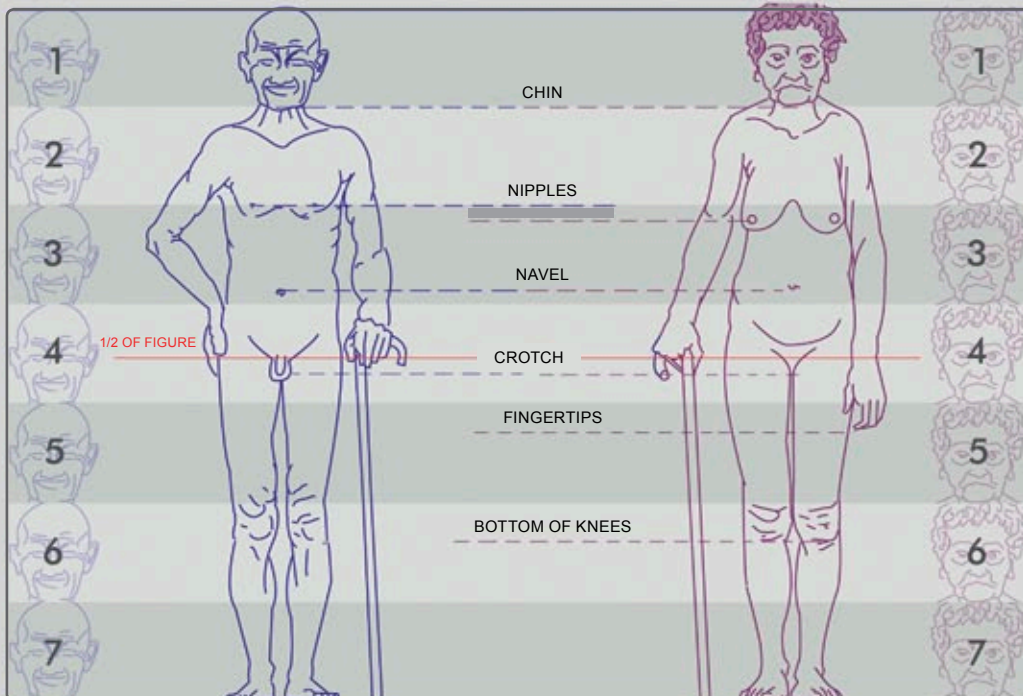
TODDLER: **5 HEAD UNITS**



NEWBORN: **4 HEAD UNITS**

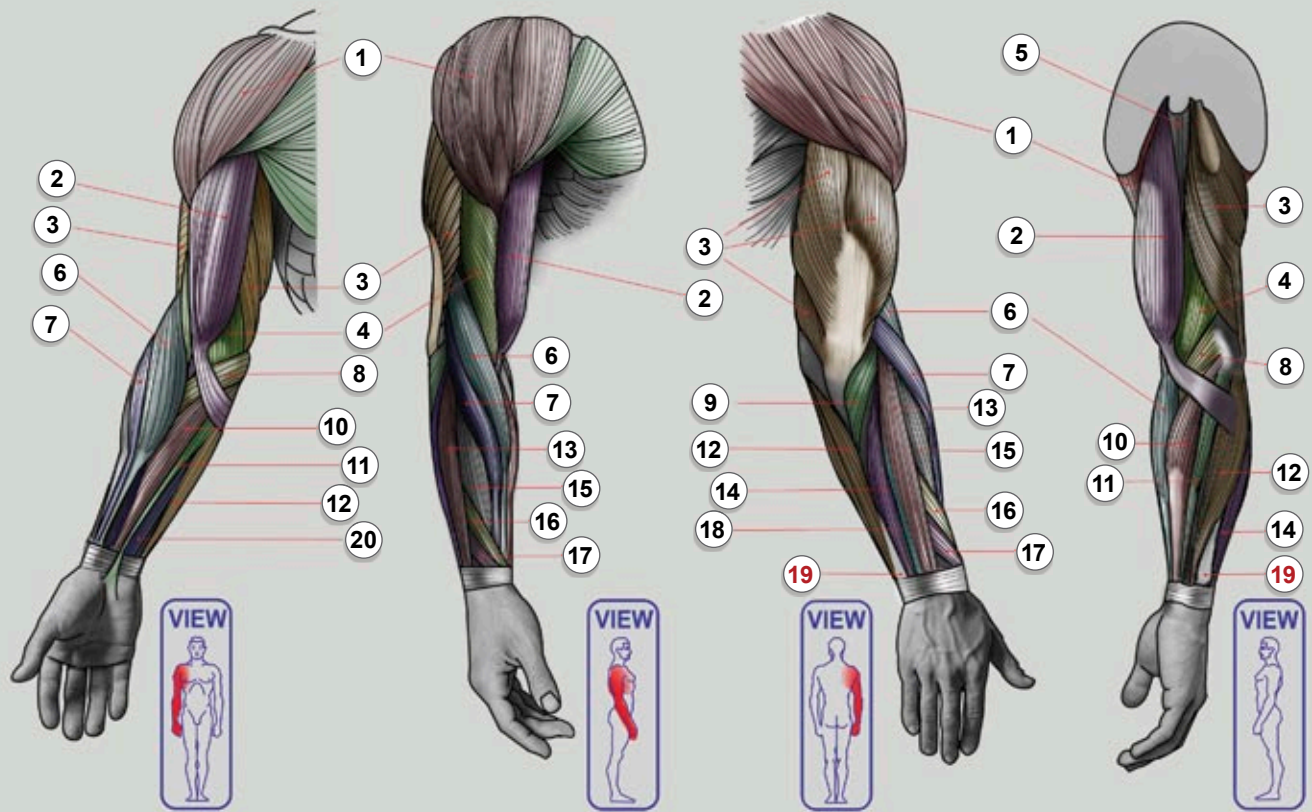


SENIOR: **7 HEAD UNITS**





MAJOR MUSCLES OF UPPER LIMB



- | | |
|----------------------------------|-----------------------------------|
| 1 SHOULDER MUSCLE (deltoid) | 11 PALMARIS LONGUS |
| 2 BICEPS BRACHII | 12 FLEXOR CARPI ULNARIS |
| 3 TRICEPS BRACHII | 13 EXTENSOR DIGITORUM |
| 4 BRACHIALIS | 14 EXTENSOR CARPI ULNARIS |
| 5 CORACOBRACHIALIS | 15 EXTENSOR CARPI RADIALIS BREVIS |
| 6 BRACHIORADIALIS | 16 ABDUCTOR POLLICIS LONGUS |
| 7 EXTENSOR CARPI RADIALIS LONGUS | 17 EXTENSOR POLLICIS BREVIS |
| 8 PRONATOR TERES | 18 EXTENSOR DIGITI MINIMI |
| 9 ANCONEUS | 19 THE HEAD OF ULNA BONE |
| 10 FLEXOR CARPI RADIALIS | 20 FLEXOR DIGITORUM SUPERFICIALIS |

SUPINATION AND PRONATION

i

IN THE POSITION OF THE ARM CALLED **SUPINATION**, THE **RADIUS** AND **ULNA** ARE PARALLEL, THE PALM OF THE HAND FACES FORWARD OR UPWARD, AND THE THUMB IS AWAY FROM THE BODY. IN THE POSITION CALLED **PRONATION**, THE **RADIUS** AND **ULNA** ARE CROSSED, THE PALM FACES TO THE REAR OR DOWNWARD, AND THE THUMB IS TOWARD THE BODY.

SUPINATION – LIKE YOU'RE A WAITER CARRYING SOUP.

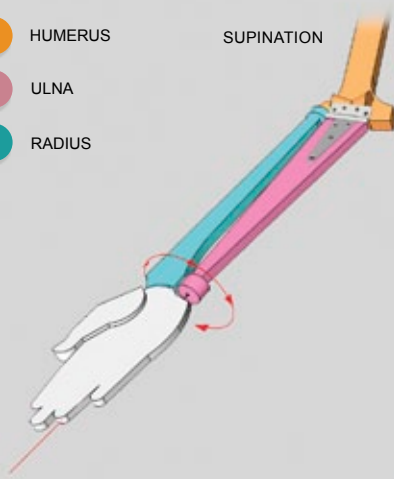


PRONATION – LIKE YOU'RE A PRO BASKETBALL PLAYER.

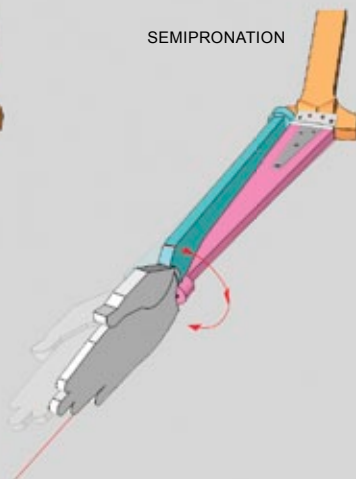


NOTE THAT PRONATION OF THE FOREARM DOES NOT INVOLVE ROTATION OF THE UPPER-ARM FROM THE SHOULDER JOINT!

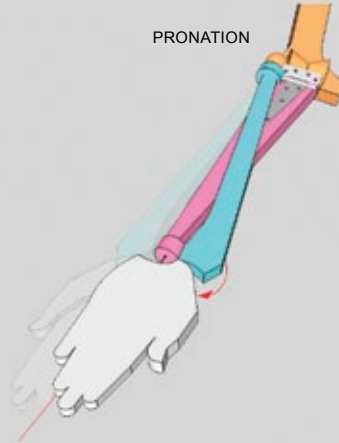
- HUMERUS
- ULNA
- RADIUS



SUPINATION



SEMI PRONATION

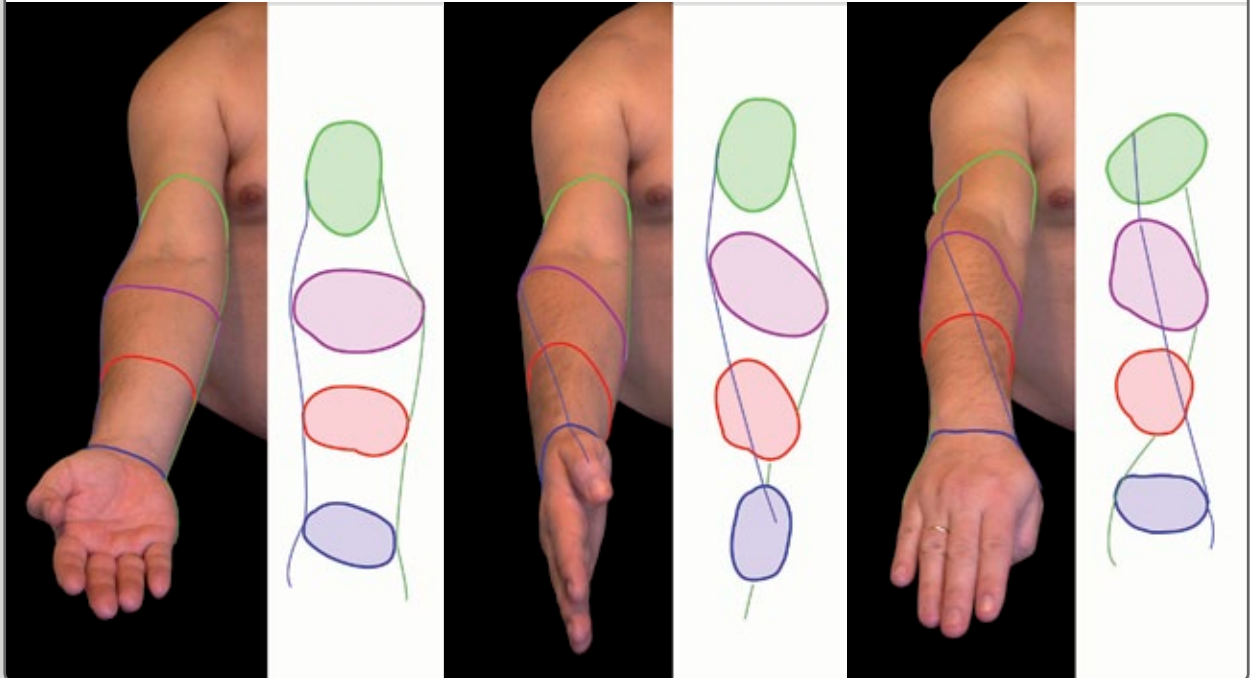


PRONATION

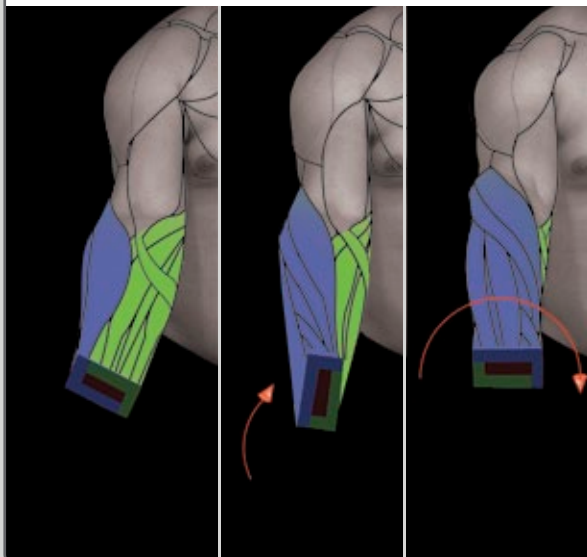
DURING **PRONATION**, **RADIUS** ROLLS AROUND **THE ULNA**

PRONATION AND FORM CHANGES

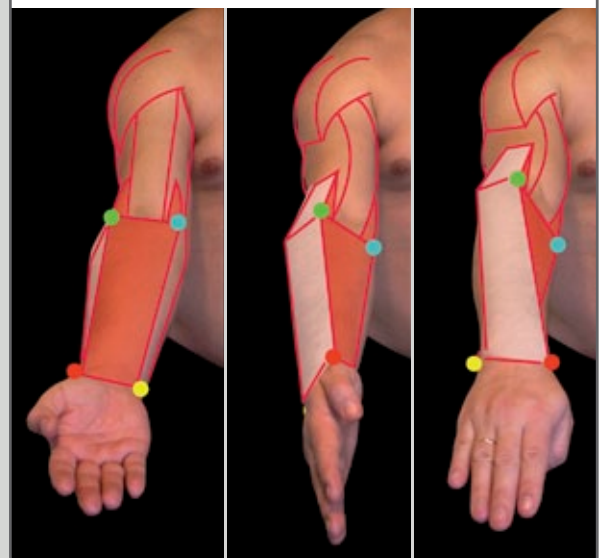
CROSS SECTIONS OF ARM DURING PRONATION



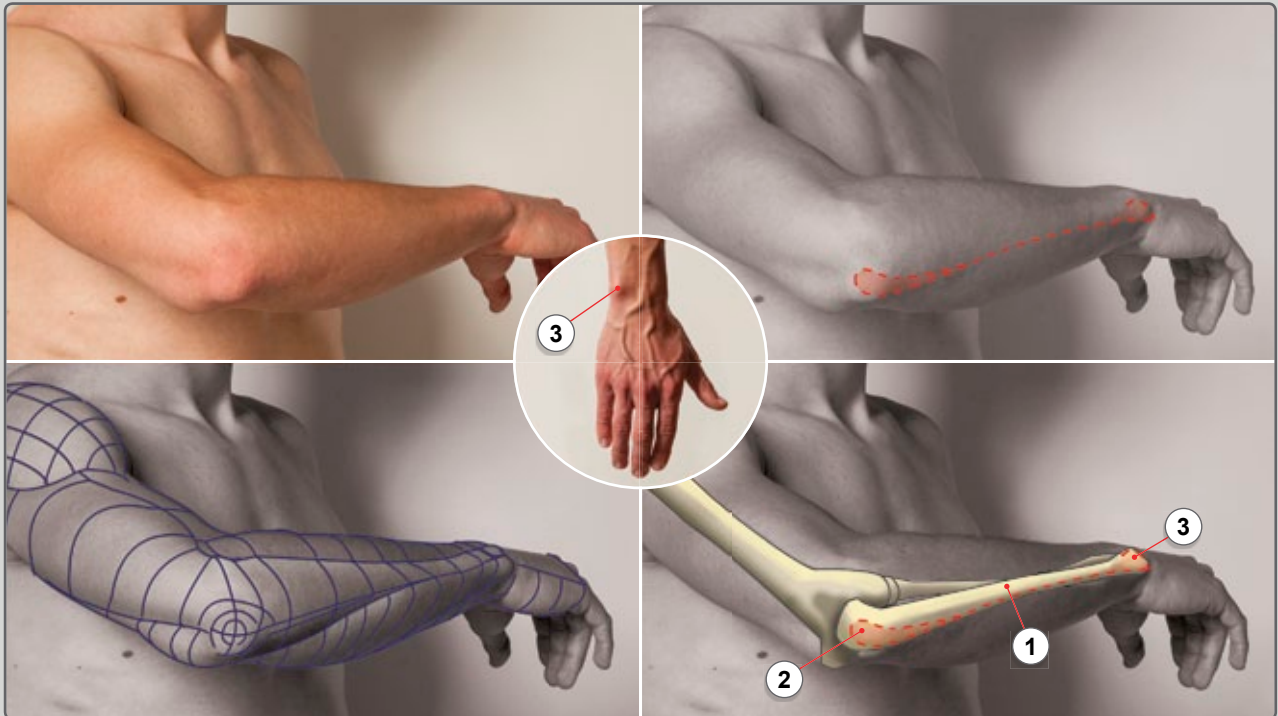
FLEXORS AND **EXTENSORS**



THIS IS AN EXAMPLE OF HOW IMPORTANT IT IS TO KNOW THE ORIGIN AND INSERTION POINTS OF MUSCLES.



THE BODY OF THE ULNA

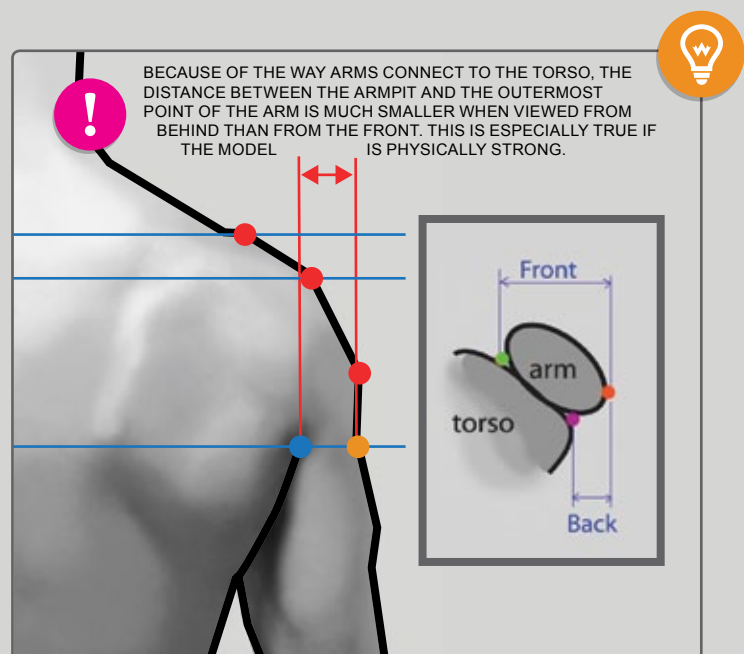
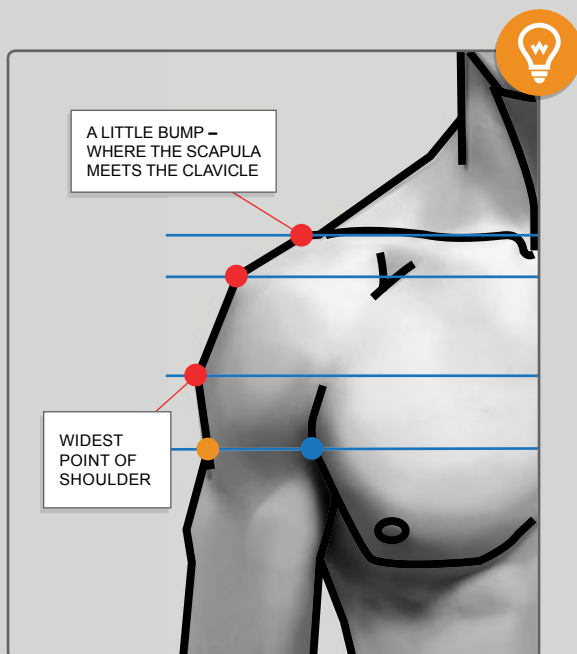
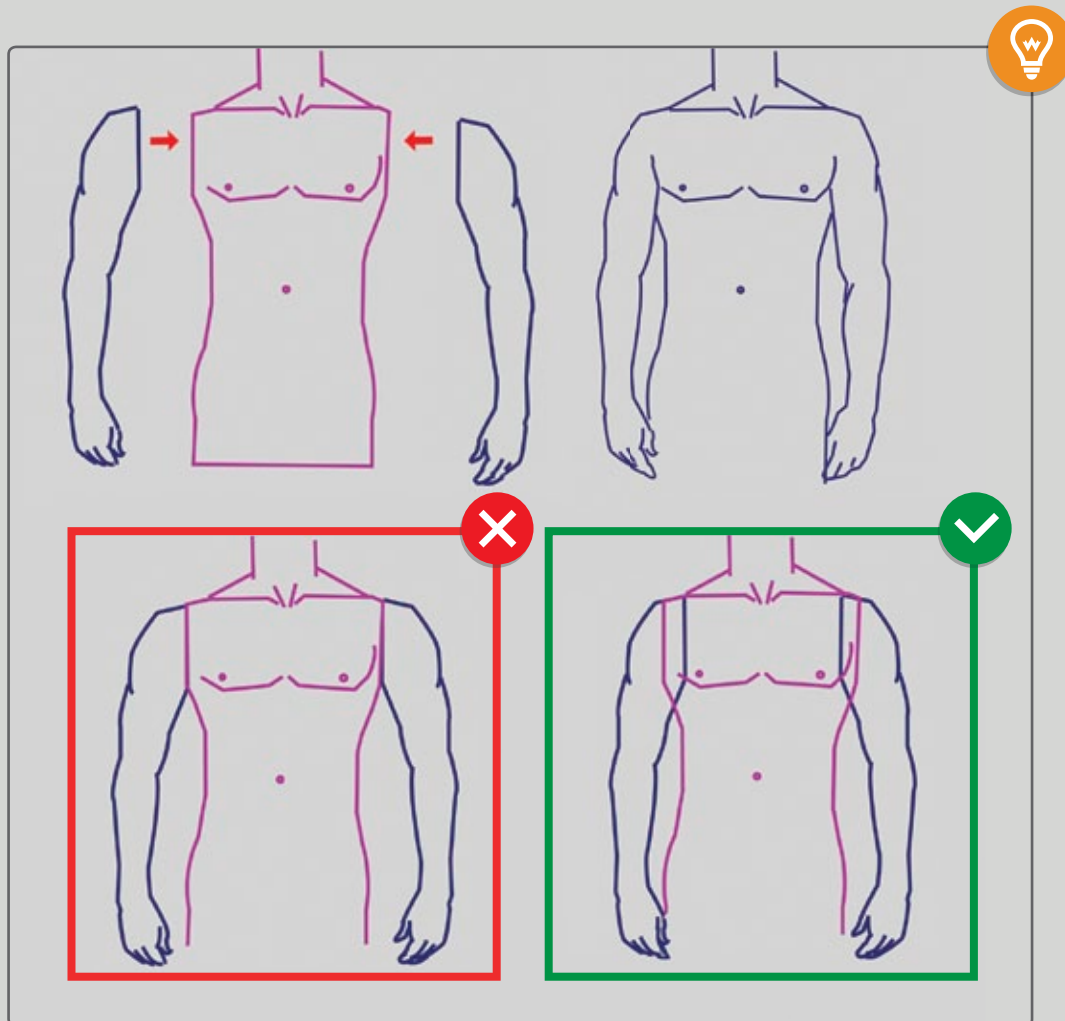


i

THE BODY OF **THE ULNA** ① IS AN IMPORTANT LANDMARK. WHEREVER YOU TURN THE HAND, THE ULNA ALWAYS EXTENDS FROM **THE ELBOW** ② TO LITTLE FINGER SIDE OF THE HAND, WHERE IT IS VISIBLE AS **A BUMP** ③ IT IS ALWAYS VISIBLE AS A RIDGE OR FURROW. BOTH ENDS OF THE BONE ARE NOT COVERED BY MUSCLES, ONLY BY THIN LAYER OF SKIN.



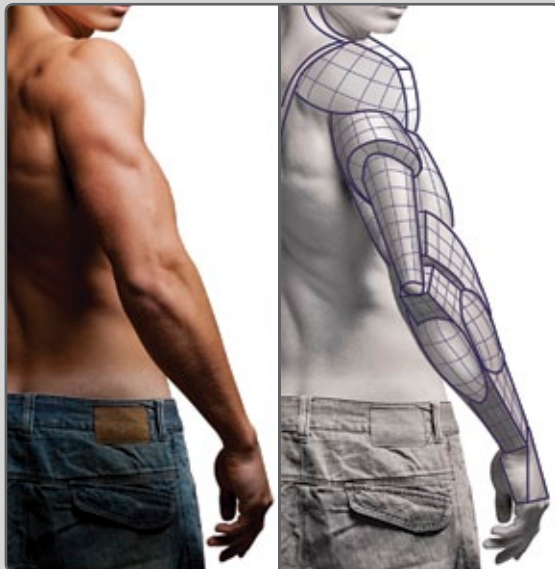
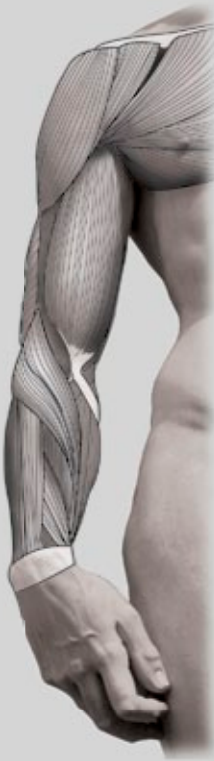
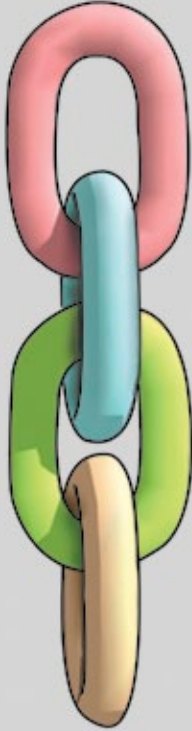
HOW ARMS CONNECT TO THE BODY



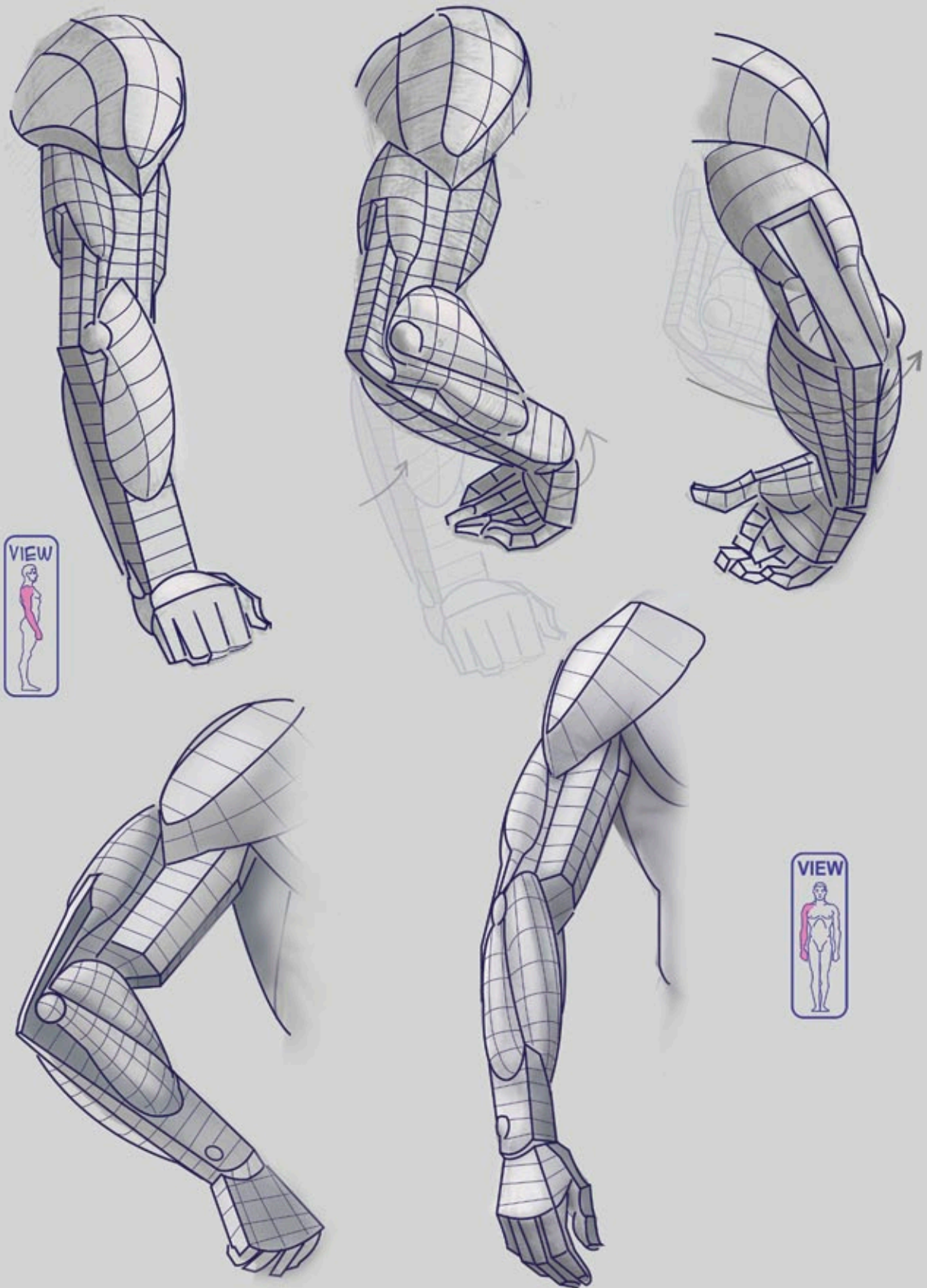
BLOCKING OUT A SEMIPRONATED ARM



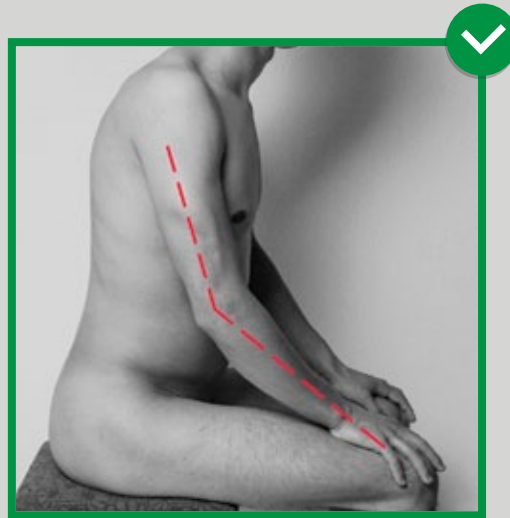
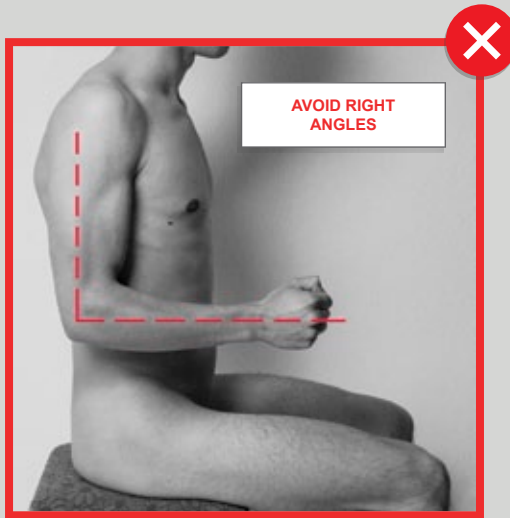
JUST LIKE A CHAIN



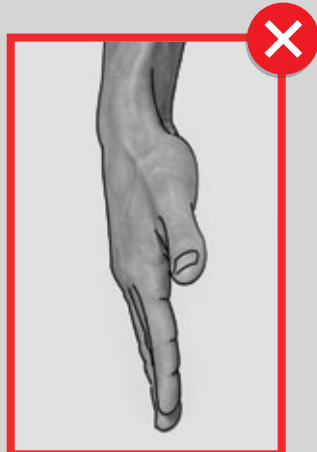
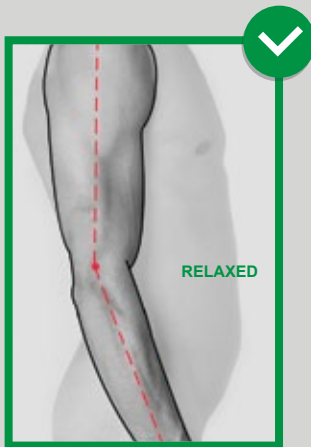
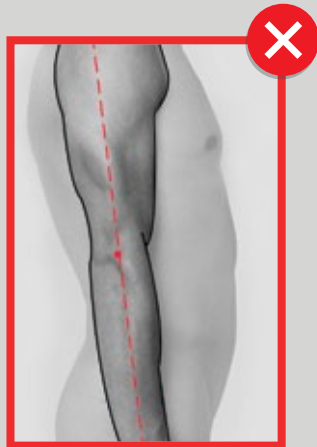
BLOCKING OUT AN ARM



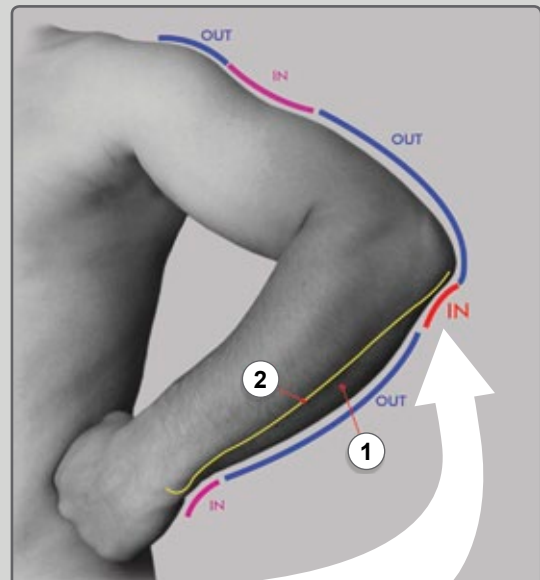
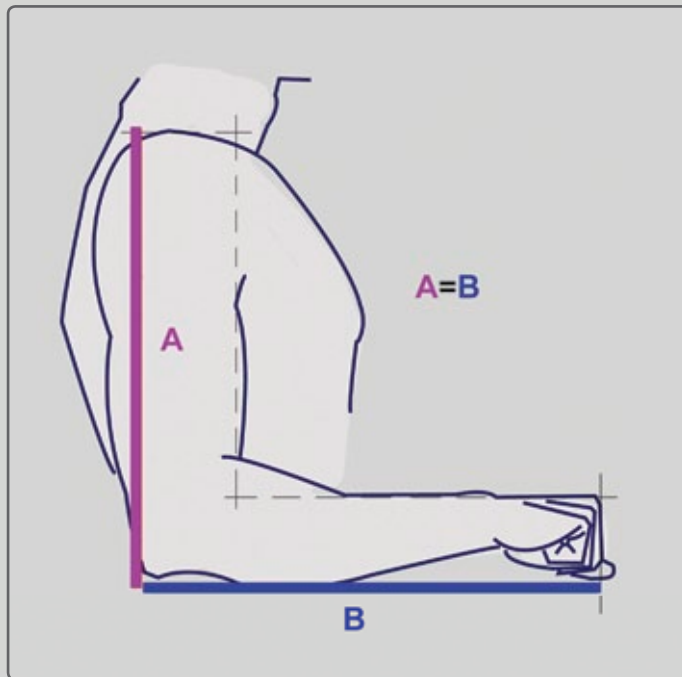
HOW DO YOU MAKE ARMS AND HANDS LOOK LESS STIFF?



DON'T MAKE ARMS OR HANDS STRAIGHT WITHOUT SPECIAL REASON.

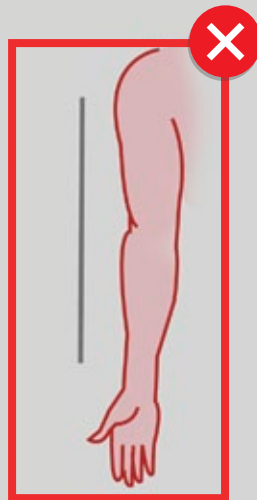


HANDY TIPS



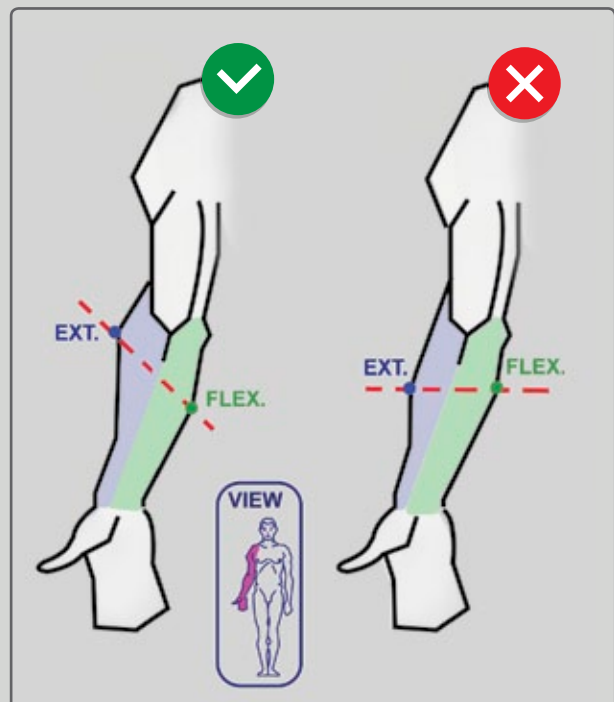
BODY SILHOUETTE APPEARS TO BEND **INWARD** RIGHT BELOW THE ELBOW DUE TO THE FLEXOR CARPI ULNARIS MUSCLE **POPPING OUTWARD**.

ULNA BONE **REMAINS STRAIGHT**.



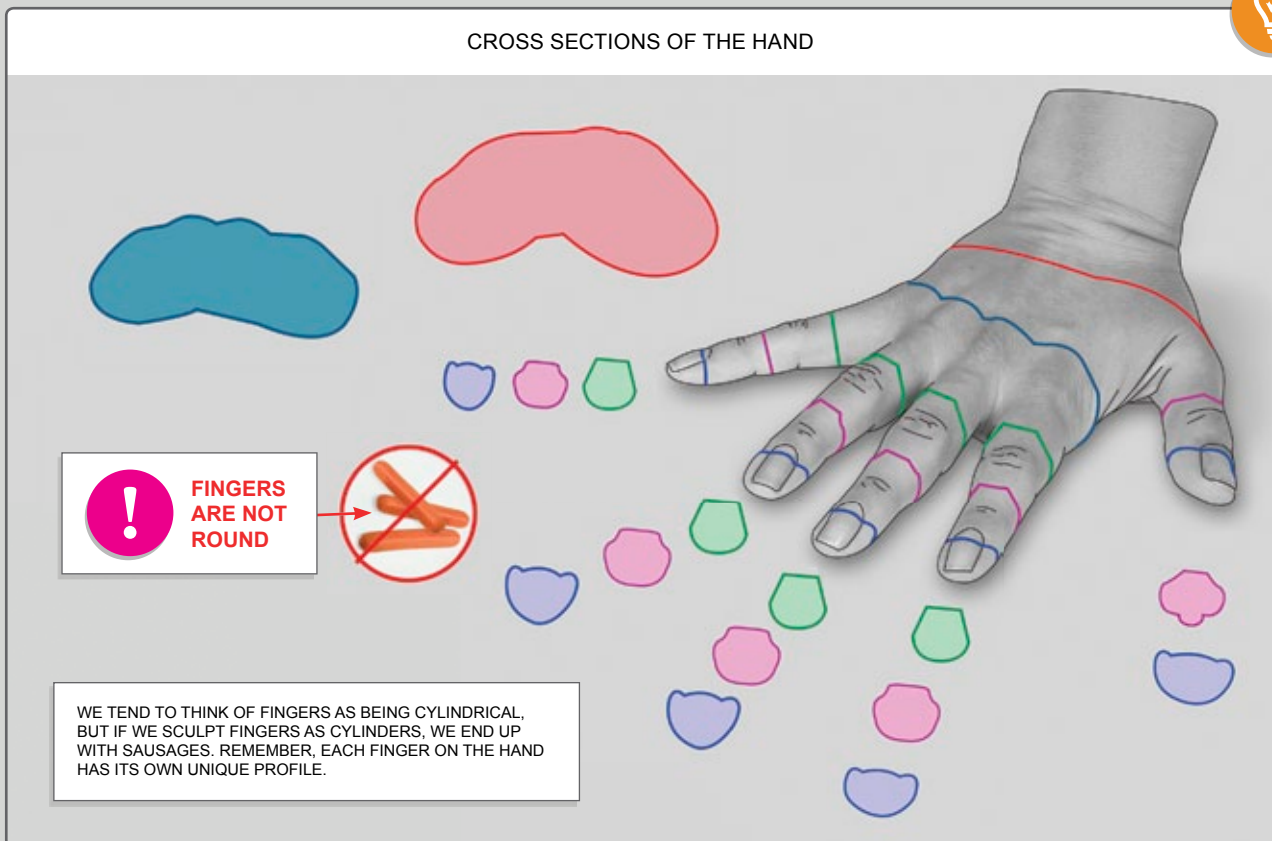
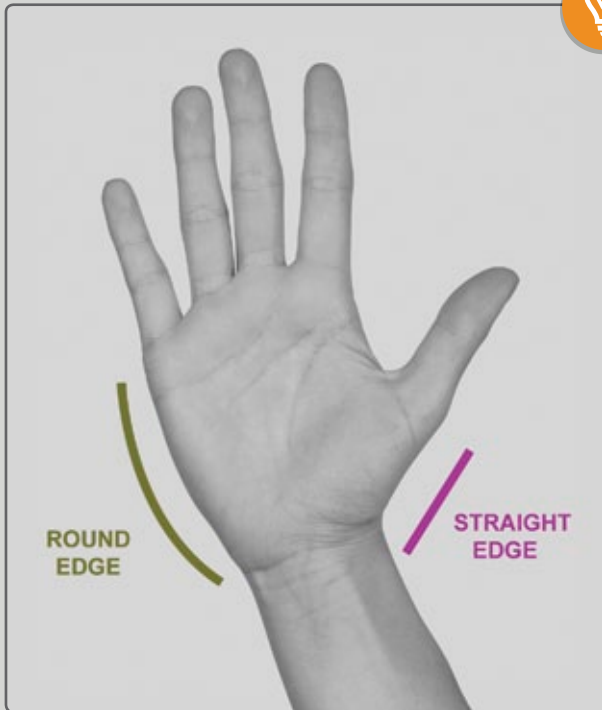
WHEN ARMS ARE HELD OUT AT THE SIDES WITH PALMS FACING FORWARD (SUPINATION), FOREARM AND HAND ARE ABOUT 5 TO 15 DEGREES AWAY FROM THE BODY. THIS IS CALLED "THE CARRYING ANGLE".

FEMALE ARMS HAVE A GREATER C.A.



THE HIGHEST POINT OF **THE EXTENSOR MUSCLES** IS LOCATED HIGHER THAN THE TOP POINT OF **THE FLEXOR MUSCLES**.

SHAPES OF THE HAND



IDEALIZED HAND PROPORTIONS

SIZE OF AN ADULT'S HAND



MAKE SURE YOU ARE MODELING THE HAND LARGE ENOUGH.

IDEALLY, HAND IS THE SAME SIZE AS FACE (FROM TIP OF CHIN TO HAIRLINE).

BABY

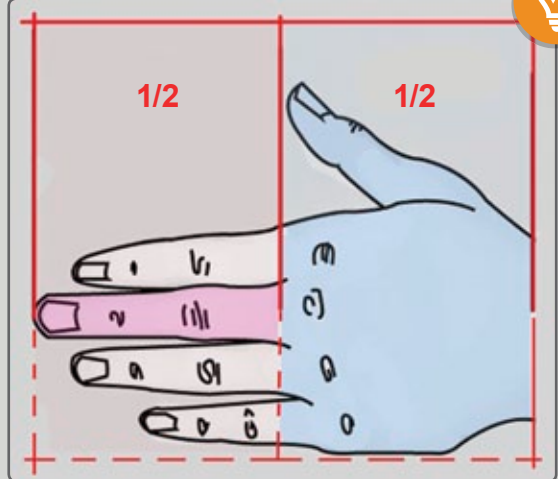


LENGTH OF HAND IS THE DISTANCE FROM CHIN TO EYEBROW LINE.

TEEN

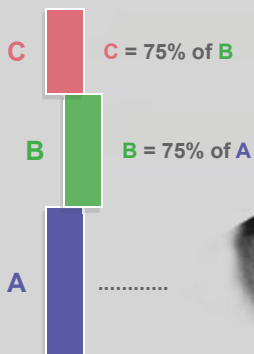


LENGTH OF HAND IS THE DISTANCE FROM CHIN TO THE MIDDLE OF FOREHEAD.

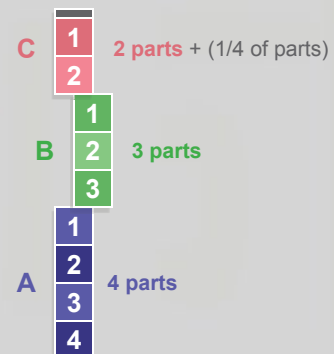


THERE ARE TWO METHODS YOU CAN USE TO CALCULATE FINGER LENGTH.

1st METHOD



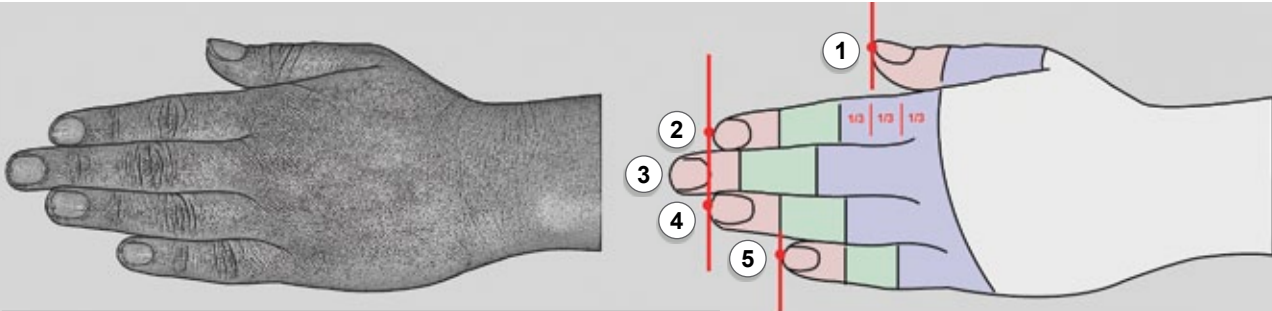
2nd METHOD (9+1/4 parts)



HAND

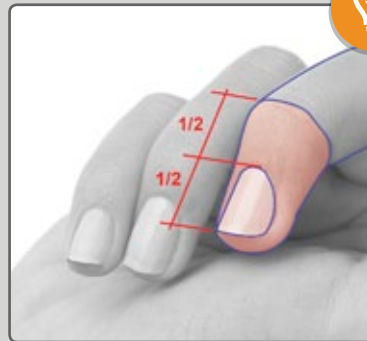
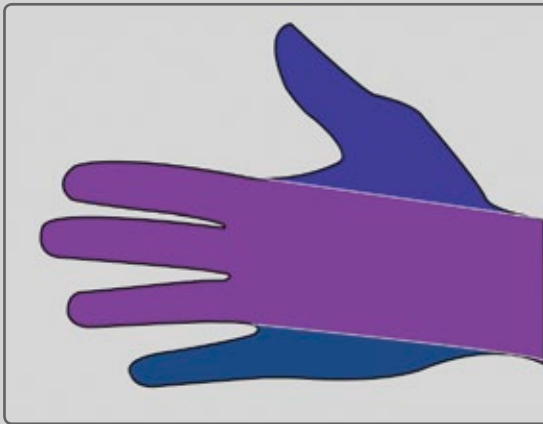
i

FINGER LENGTHS OF AN IDEALIZED HAND

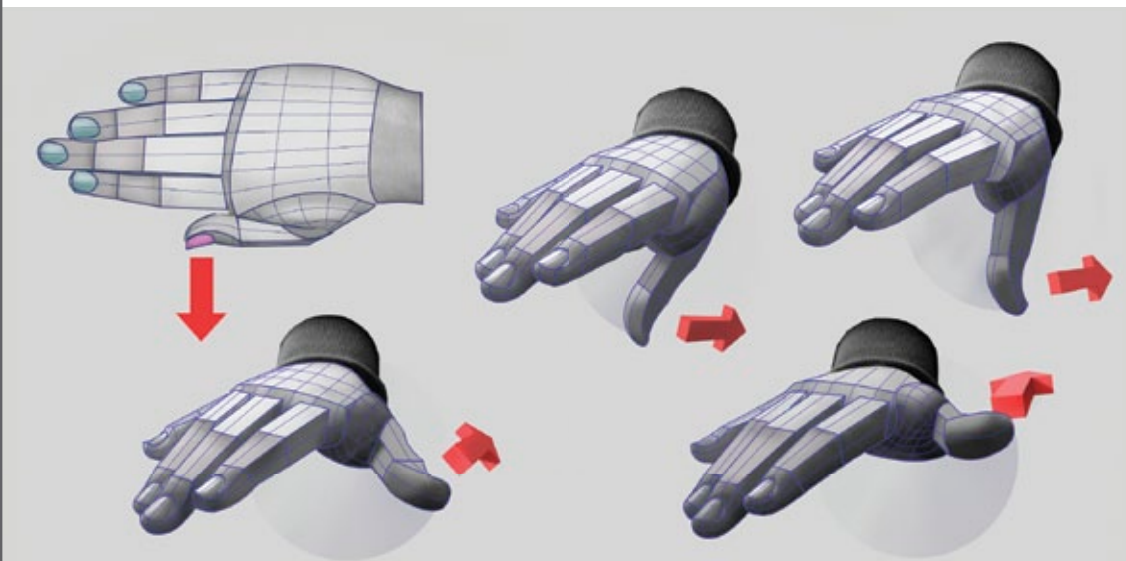


- ① THUMB DOES NOT POSSESS A MIDDLE (INTERMEDIATE) PHALANX!
- ② ③ ④ ⑤ FINGERS CONSIST OF 3 PHALANGES: PROXIMAL, MIDDLE AND DISTAL.

② = ④

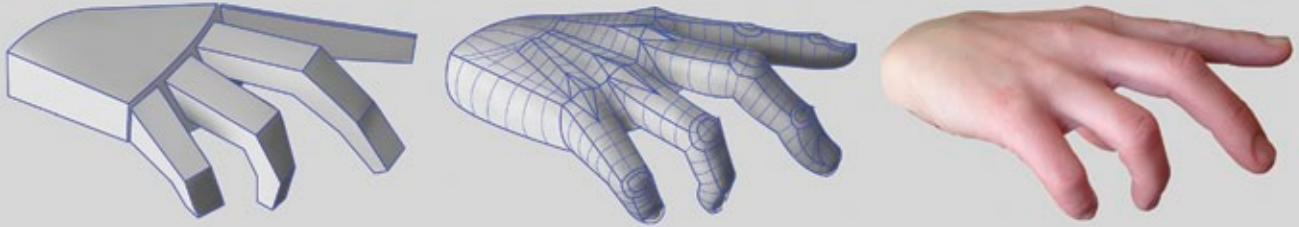


THUMB NAIL FACES A DIFFERENT DIRECTION THAN OTHER NAILS.

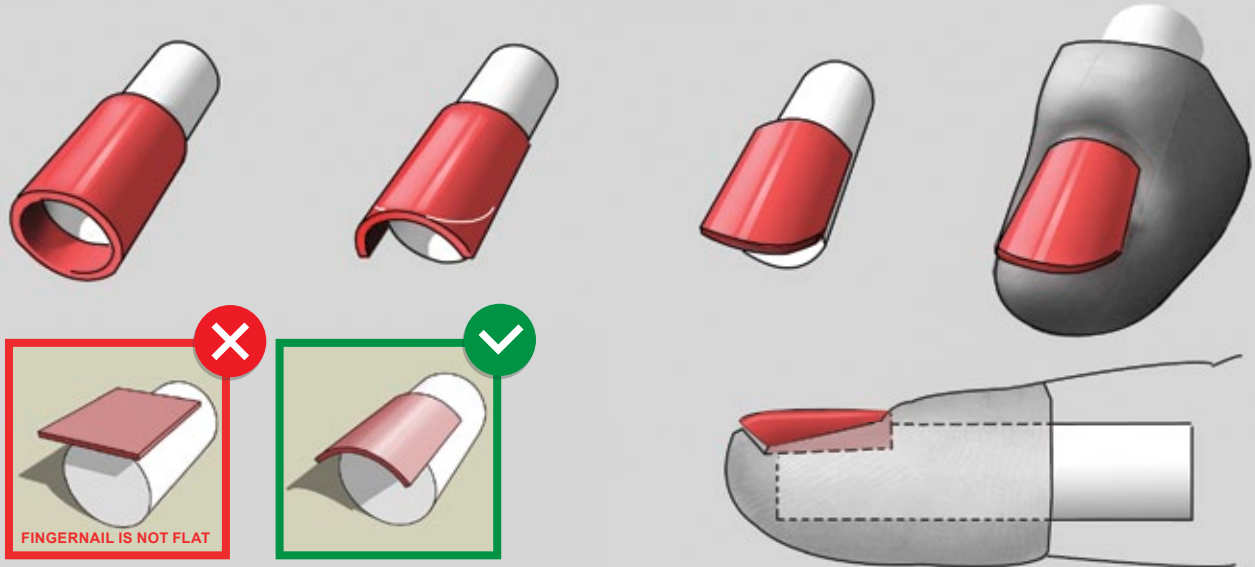


SHAPING HAND AND FINGERS

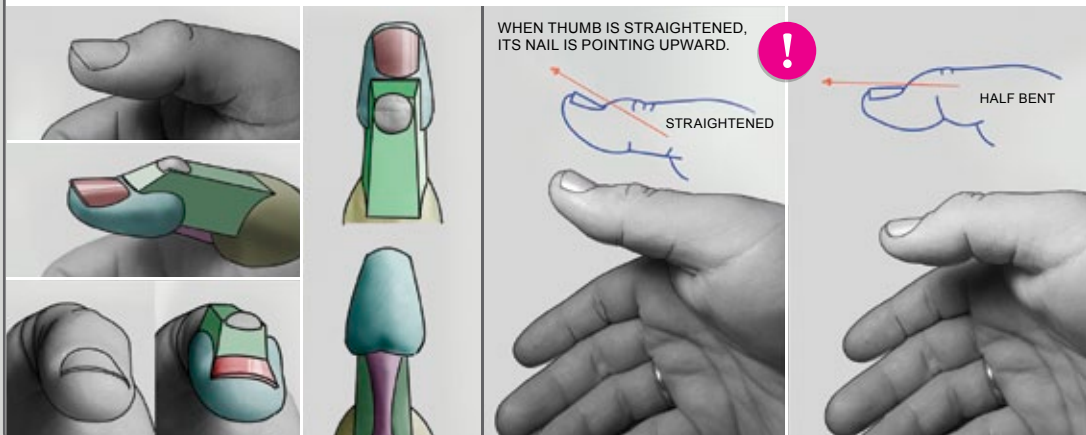
IT IS MUCH EASIER TO BEGIN MODELING FINGERS FROM SIMPLE SQUARE FORMS.



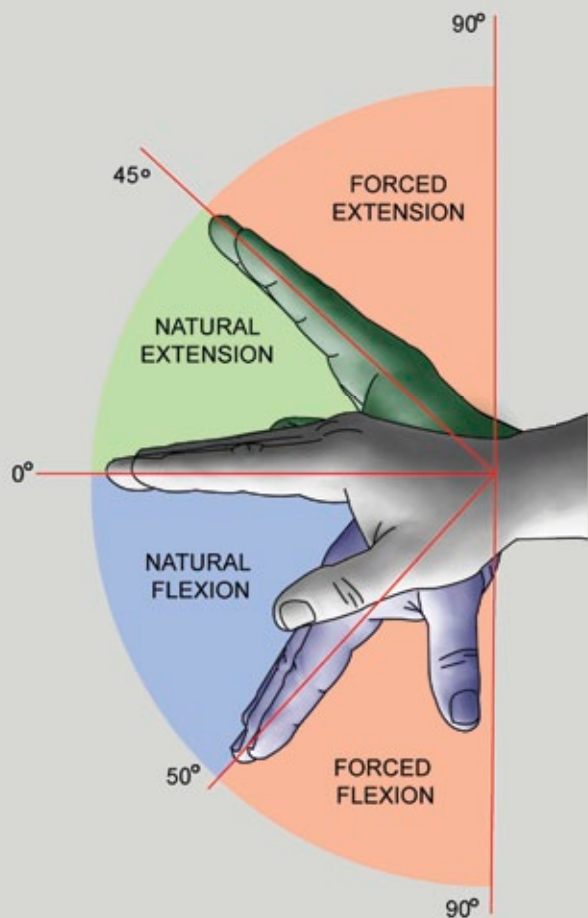
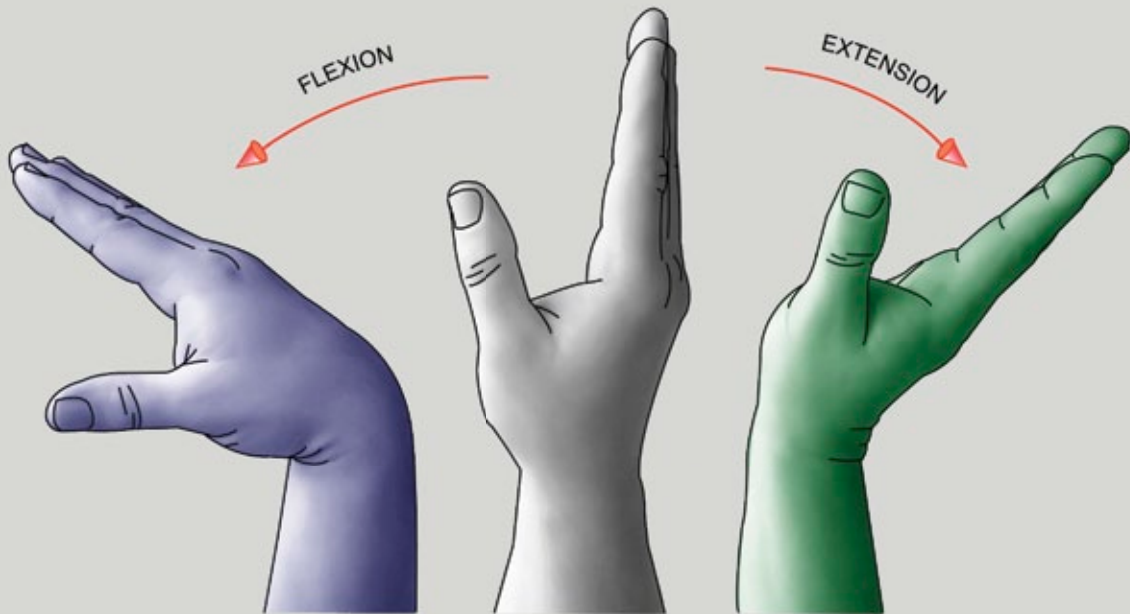
FINGERNAIL



THUMB IS SHAPED DIFFERENTLY THAN OTHER FINGERS.



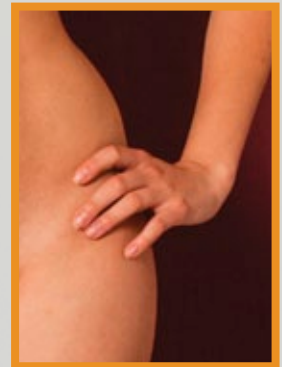
WRIST POSITIONS



EXTENSION



FORCED EXTENSION



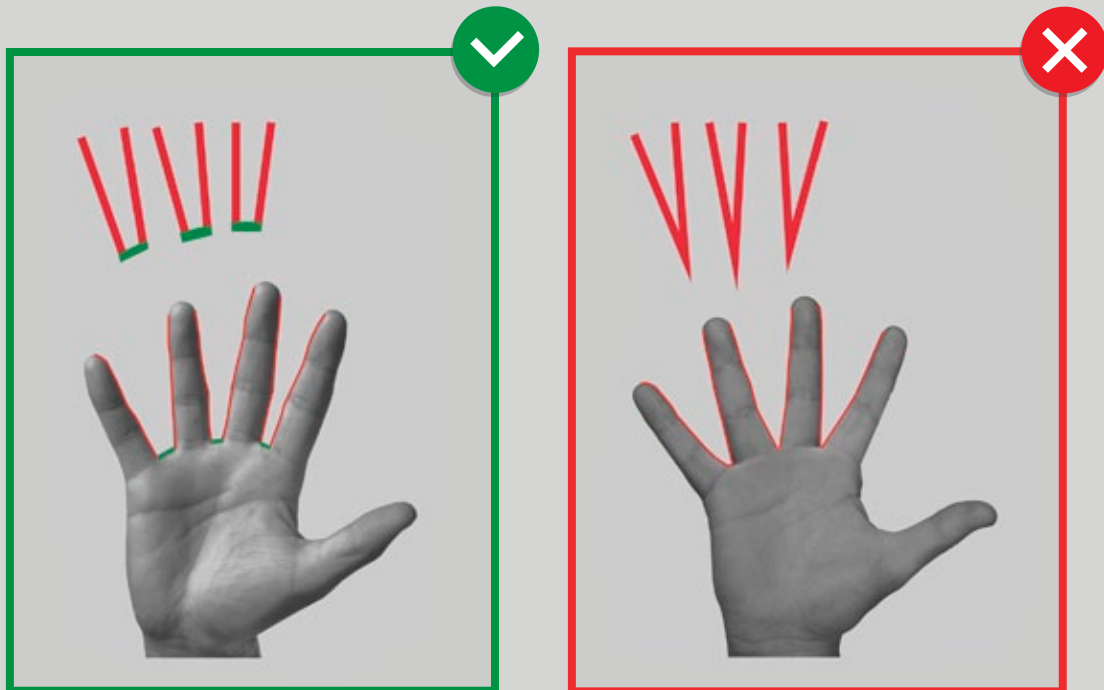
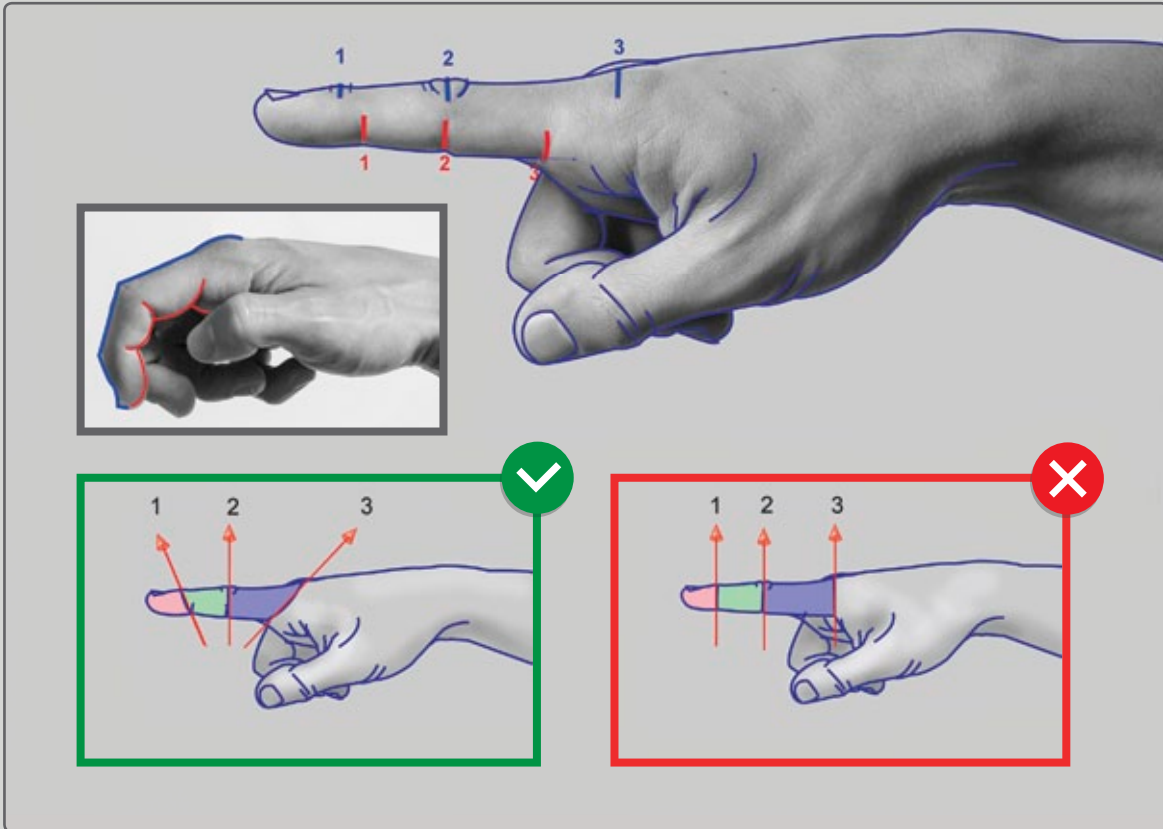
FLEXION



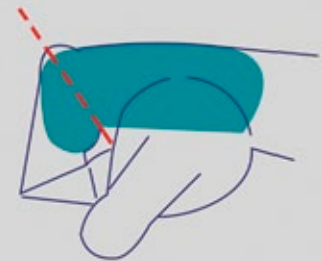
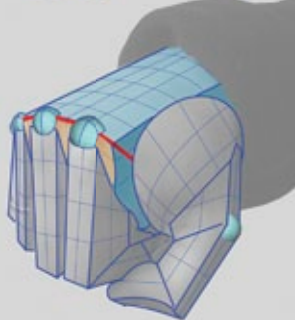
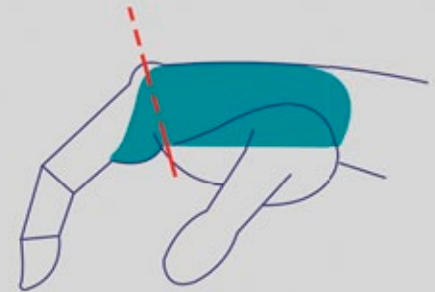
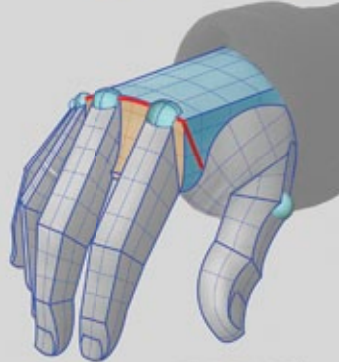
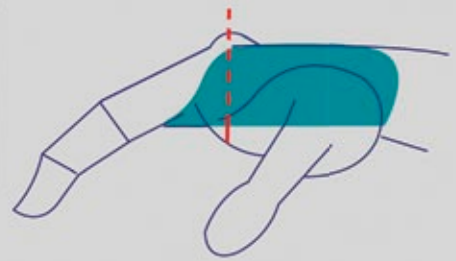
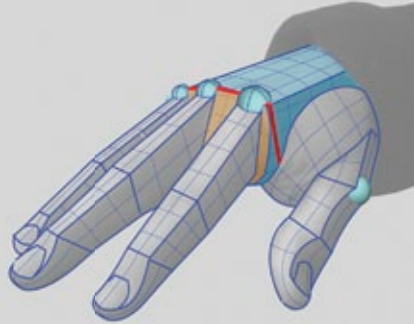
FORCED FLEXION



CREASES AND GAPS OF FINGERS

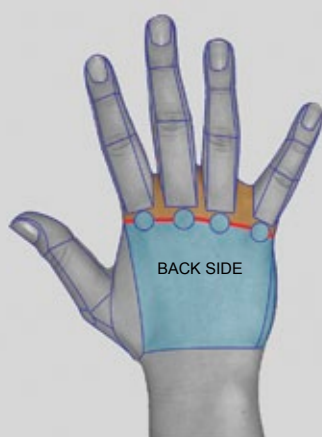


BENDING AND CONNECTION LINE OF FINGERS

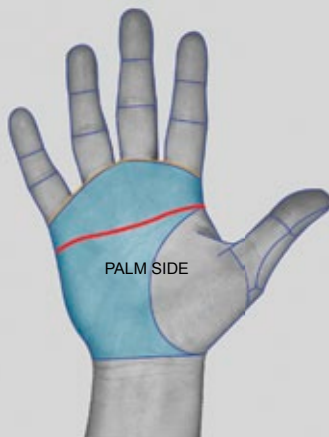


FINGERS ARE SHORTER FROM PALM SIDE OF THE HAND.

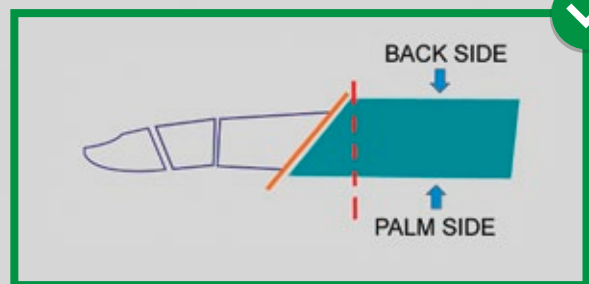
CREASE LINE ON THE PALM DOES NOT MATCH UP WITH **CONNECTION LINE** WHERE FINGERS JOIN **THE BODY OF THE HAND**.



BACK SIDE

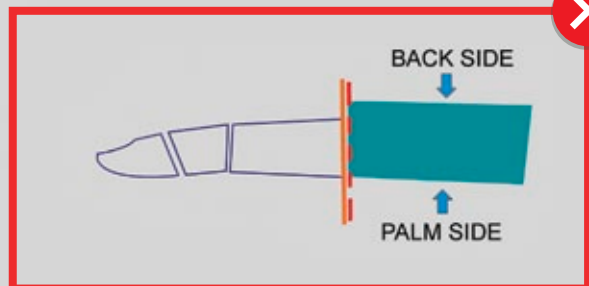


PALM SIDE



BACK SIDE

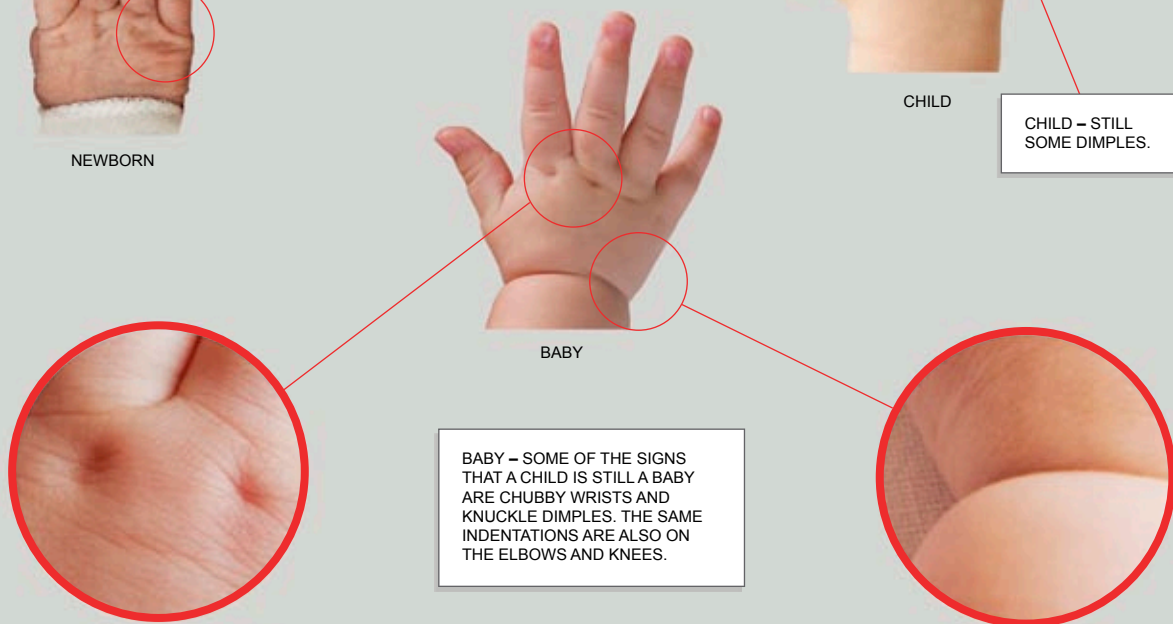
PALM SIDE



BACK SIDE

PALM SIDE

HOW HANDS AGE

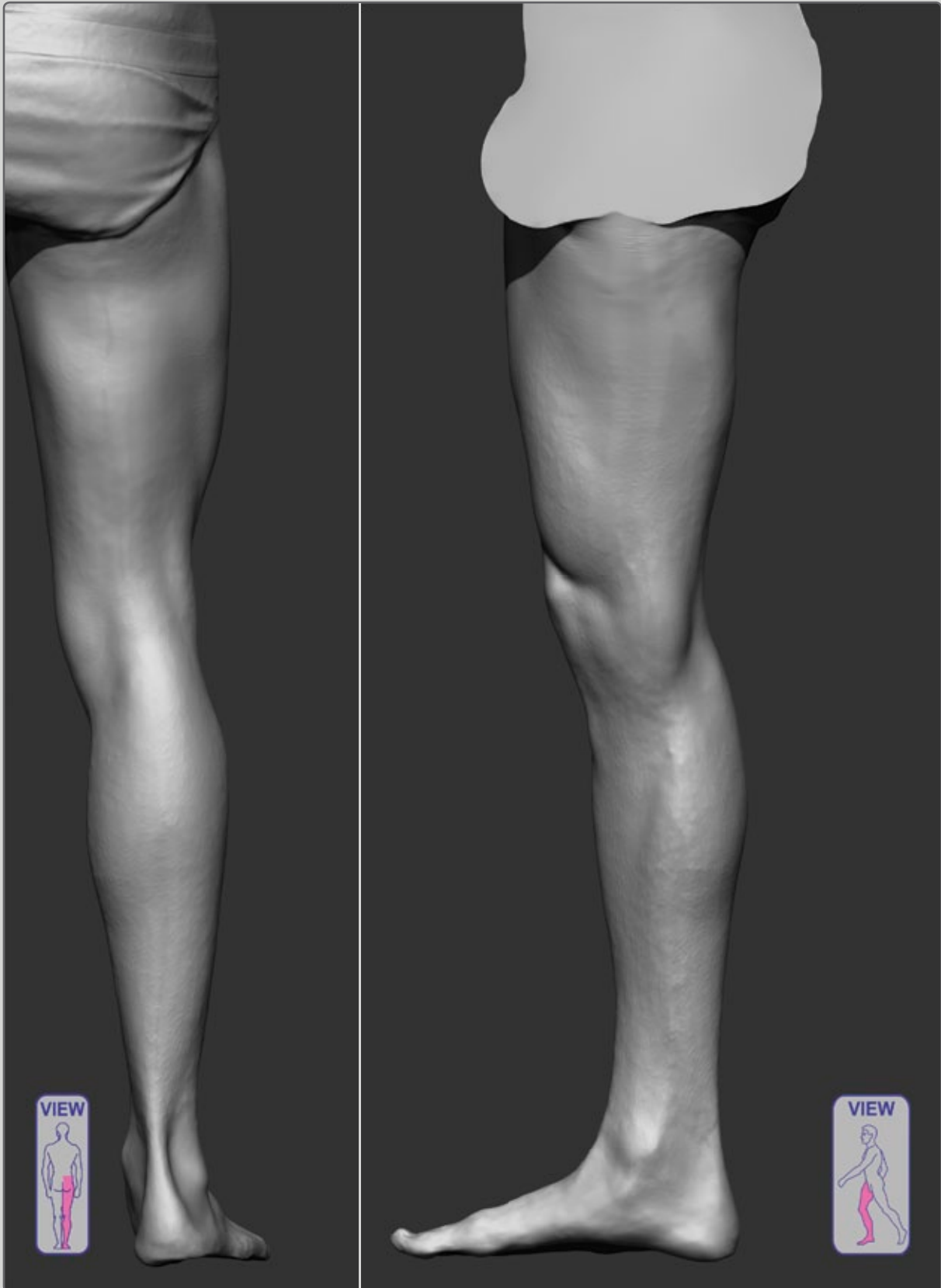




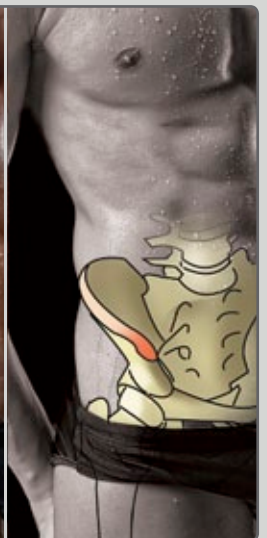
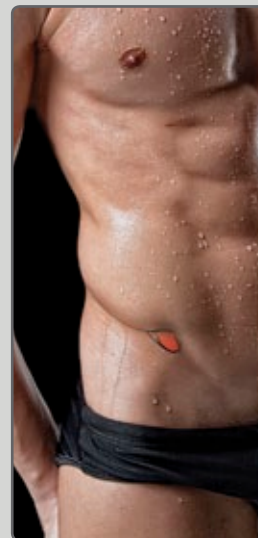
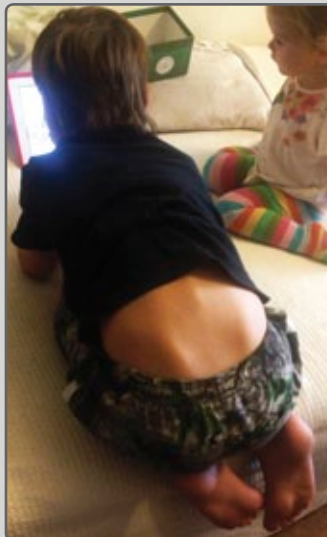
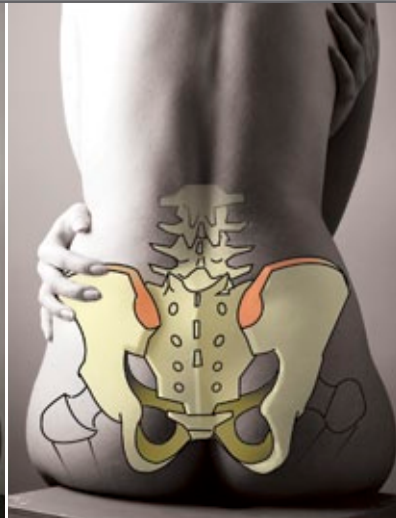
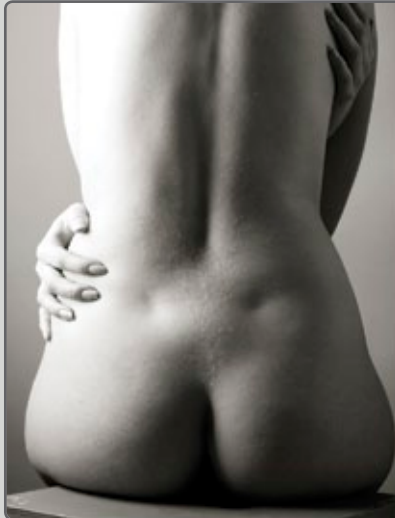
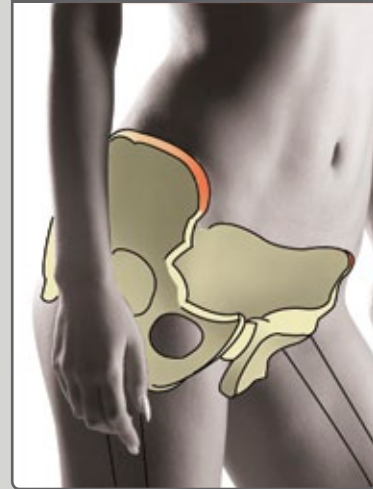
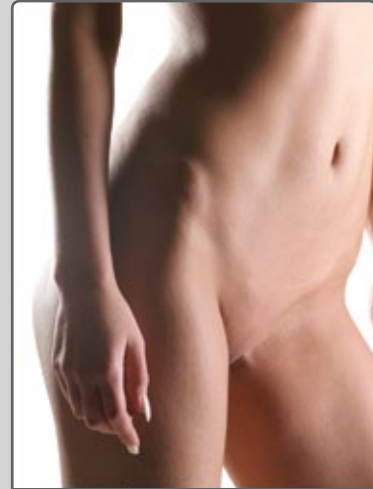
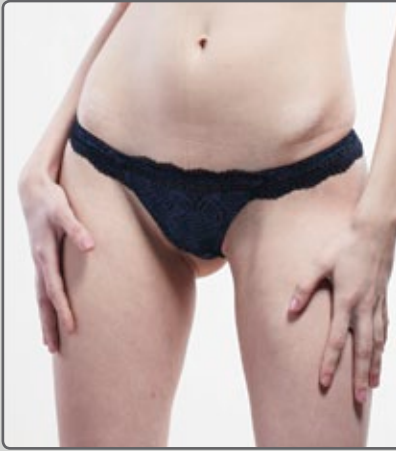
3D SCAN OF RIGHT LEG



3D SCAN OF RIGHT LEG

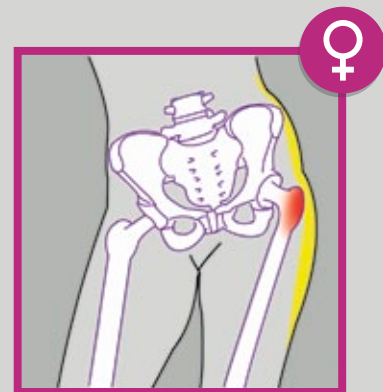
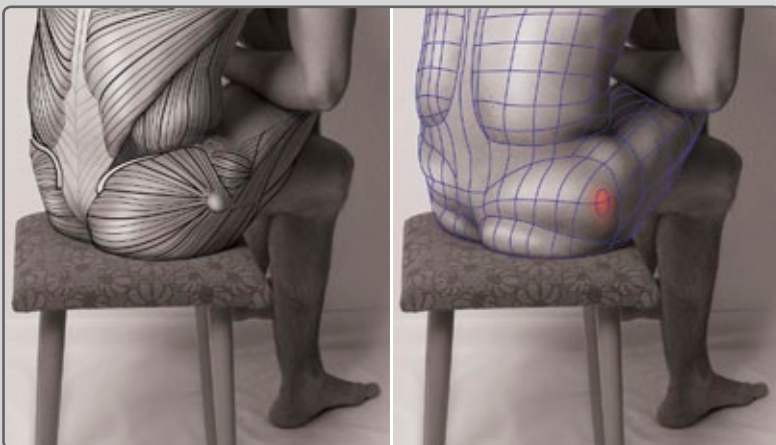
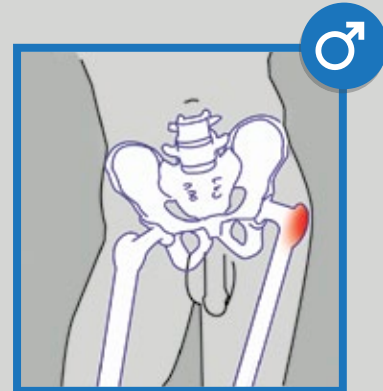
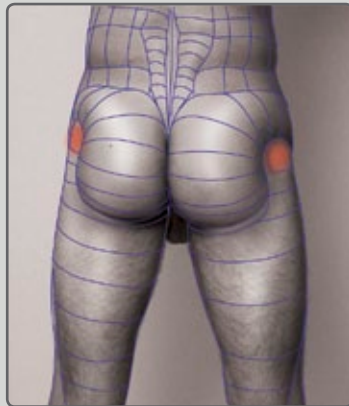
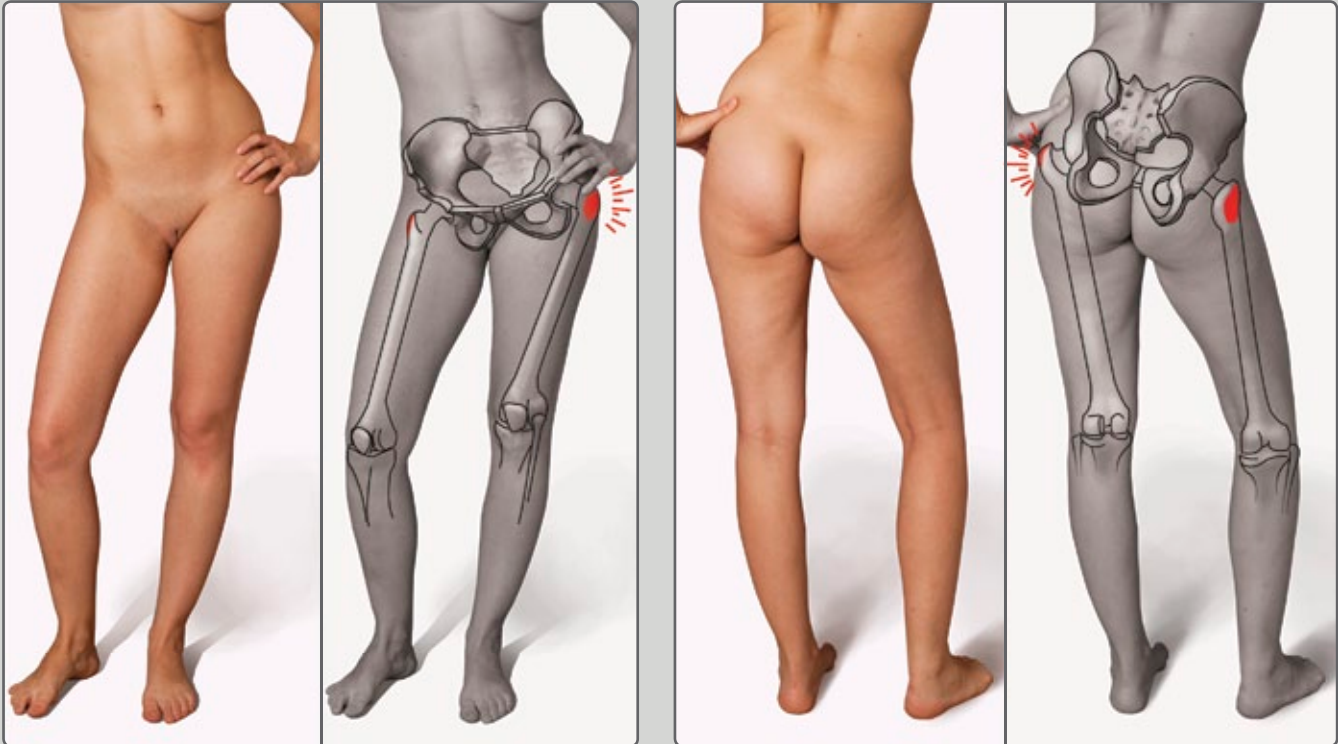


BONY LANDMARKS OF PELVIS



BONY LANDMARKS OF LOWER LIMB

GREATER TROCHANTER



IN FEMALE HIPs, **SUBCUTANEOUS FAT** COVERS **GT** AT THE TOP OF FEMUR AND THEREFORE MAKES IT LESS PROMINENT.

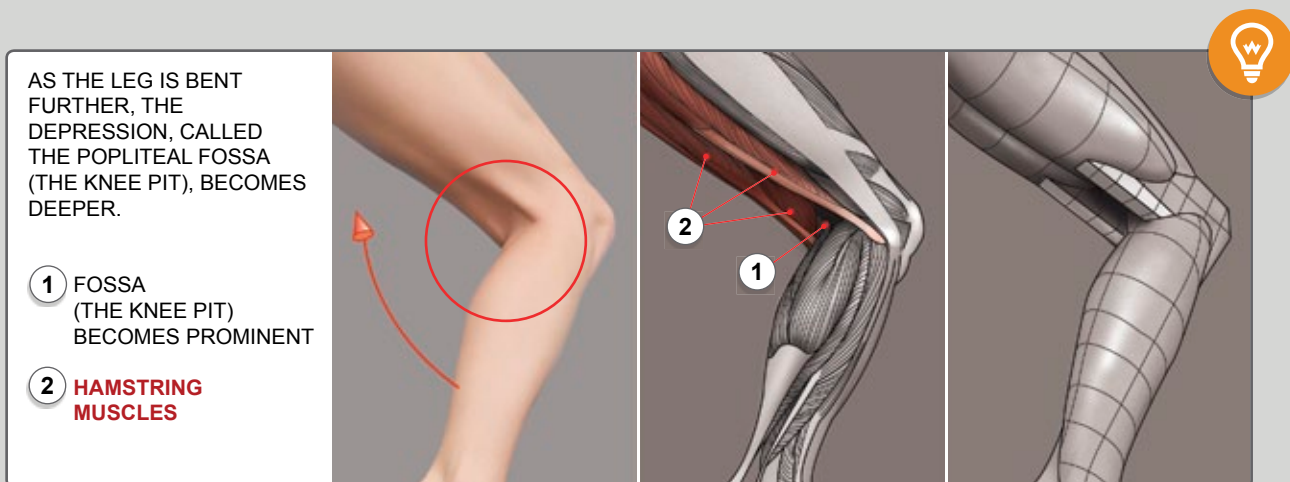
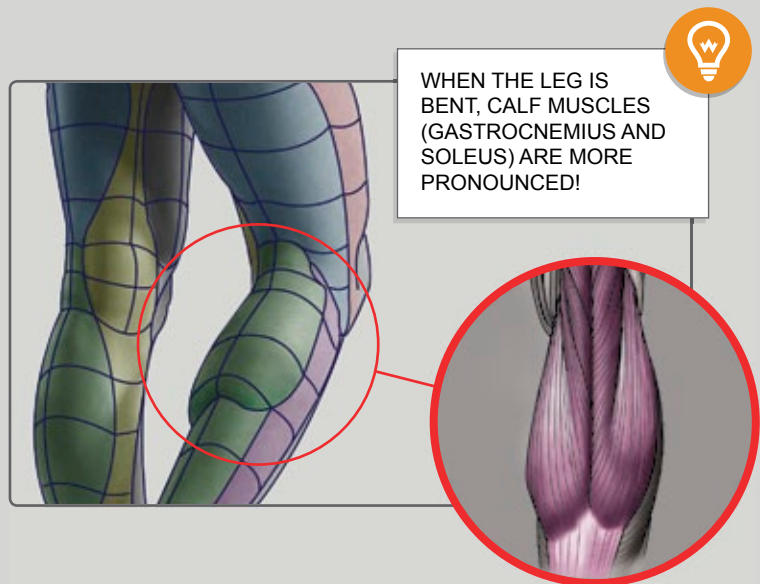
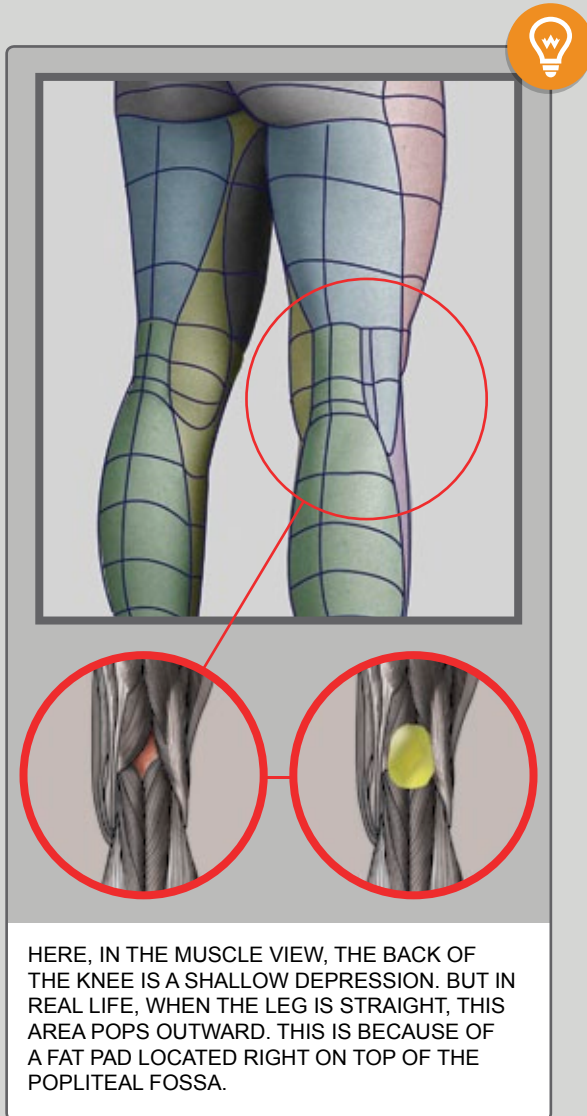
MALE LEG SHAPES



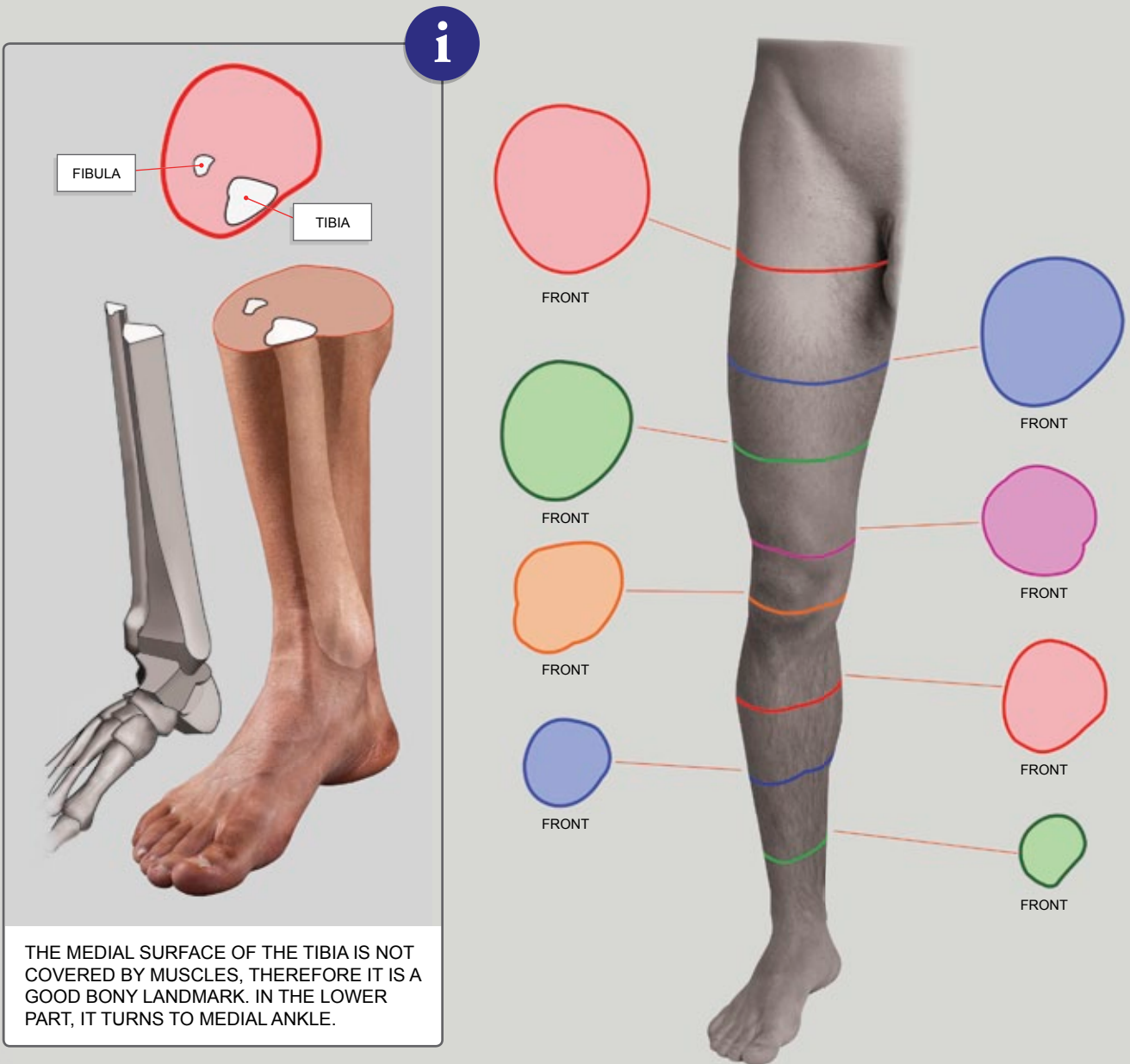
CALVES



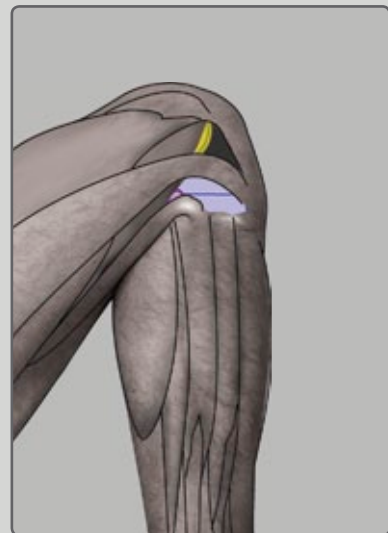
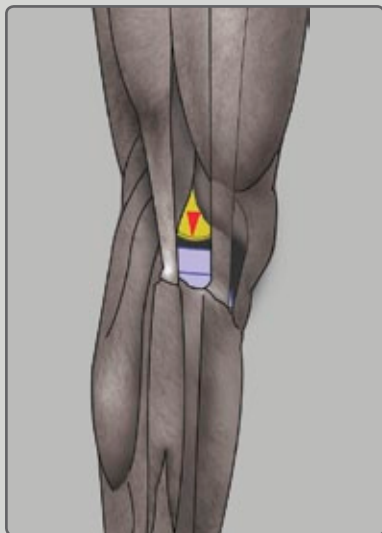
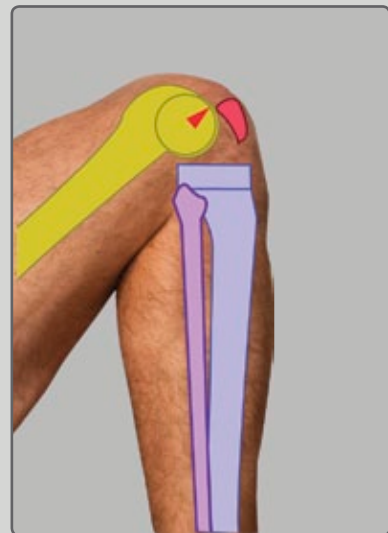
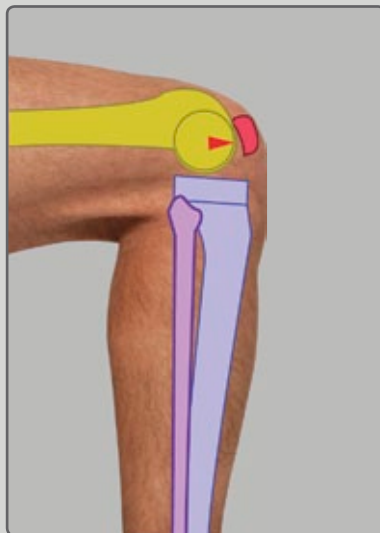
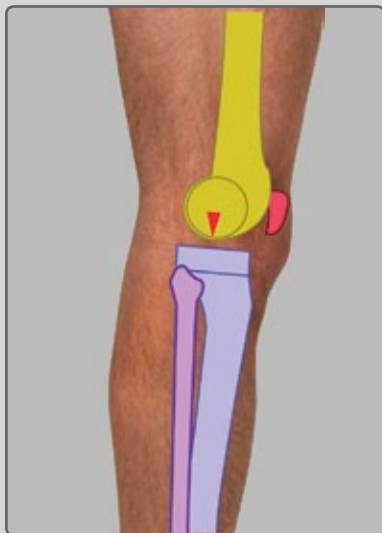
TIPS FOR BACKSIDE OF LEGS



CROSS SECTION OF THE LOWER LIMB

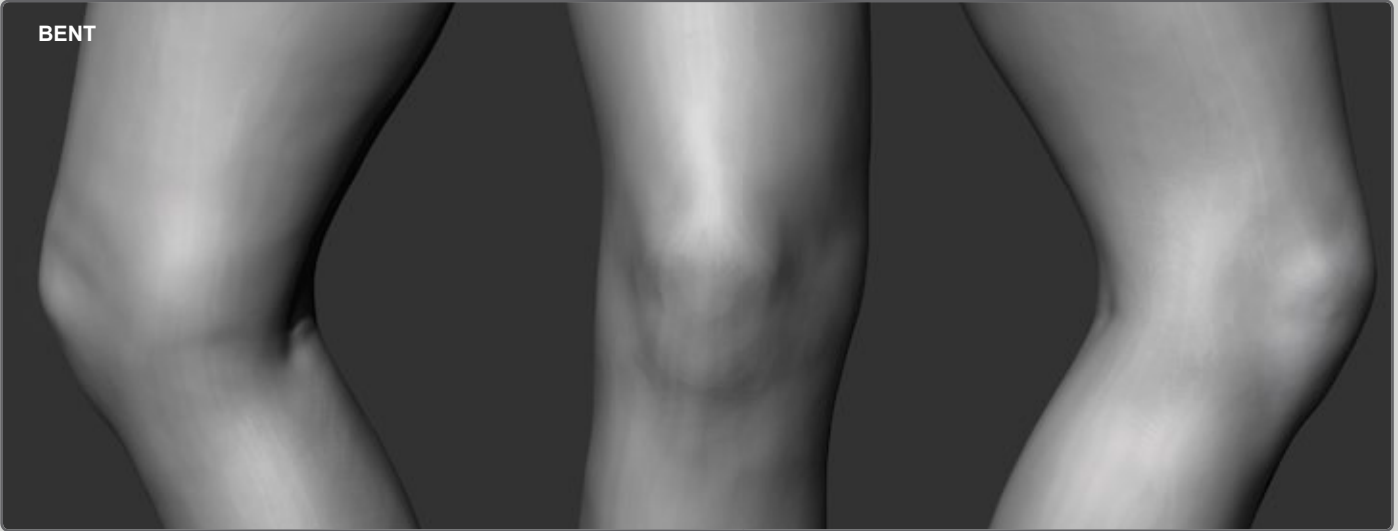


KNEE MECHANICS

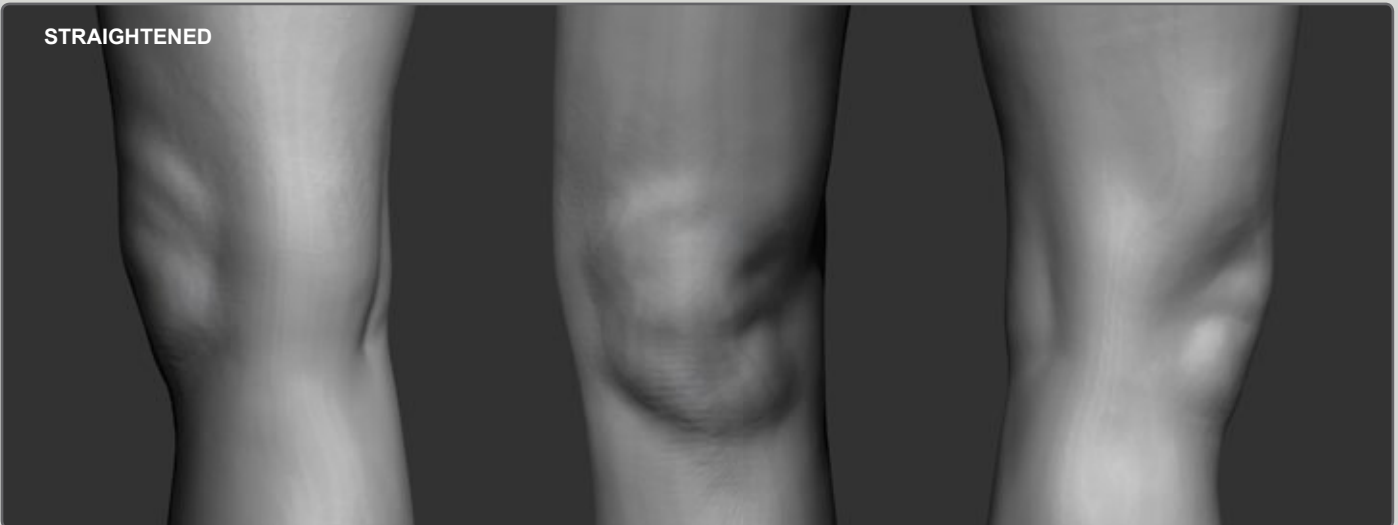


3D SCAN OF RIGHT KNEE

BENT



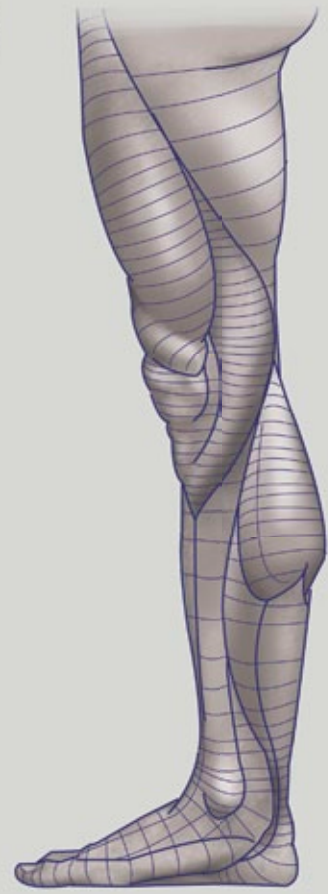
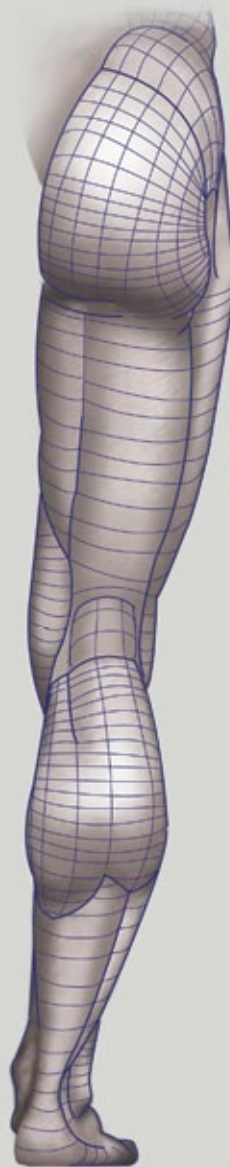
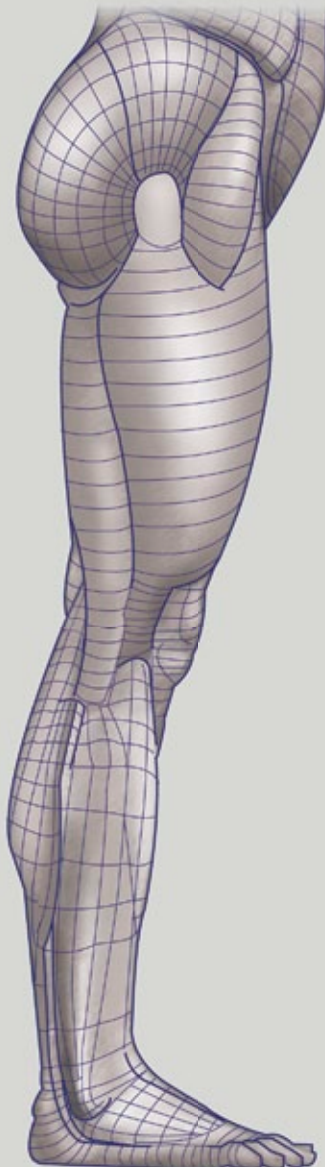
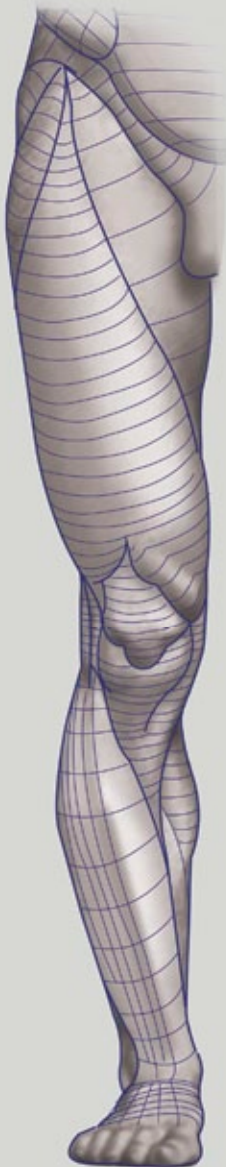
STRAIGHTENED



FEMALE LEGS

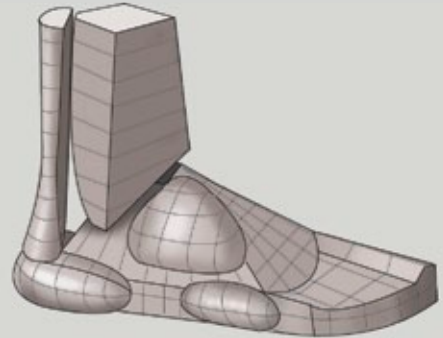


LEG SHAPES VIEWED FROM ALL SIDES

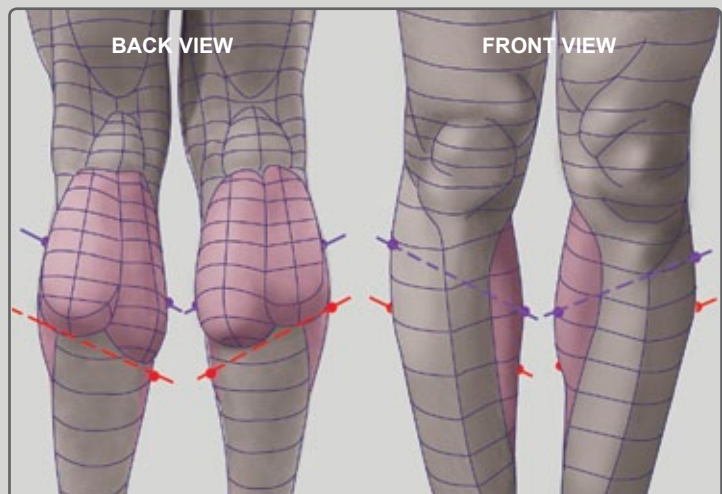


ADDITIONAL SHAPES OF THE LEG AND FOOT

HEEL IS MOSTLY SHAPED BY **FAT PAD**.



THE INNER ANKLE CURVE IS HIGHER THAN THE OUTER ANKLE CURVE.



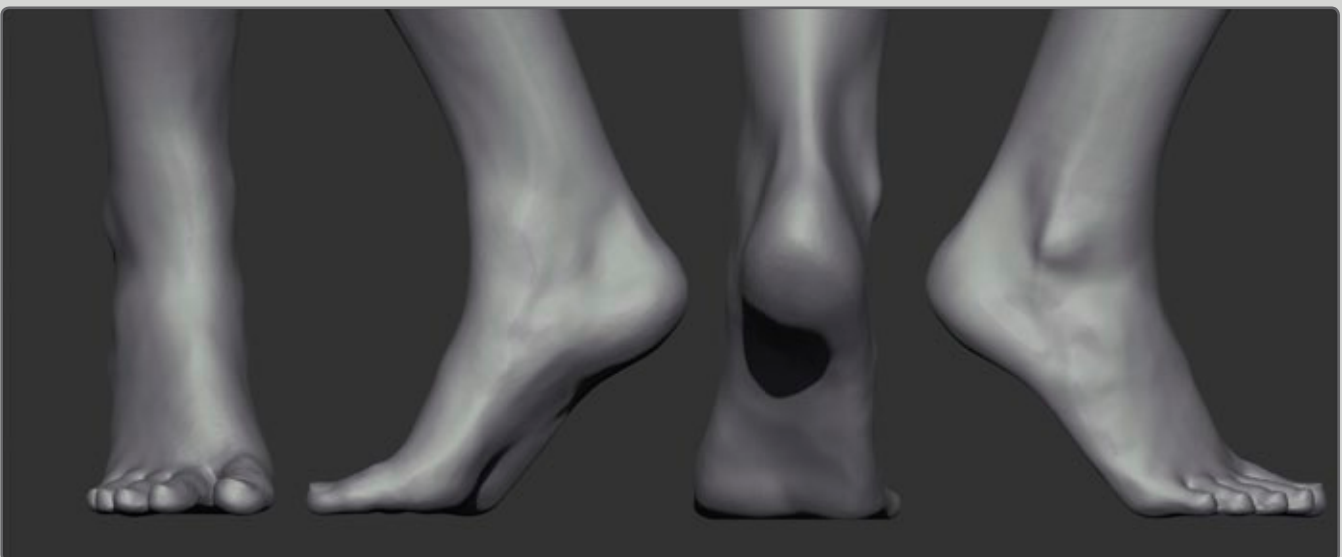
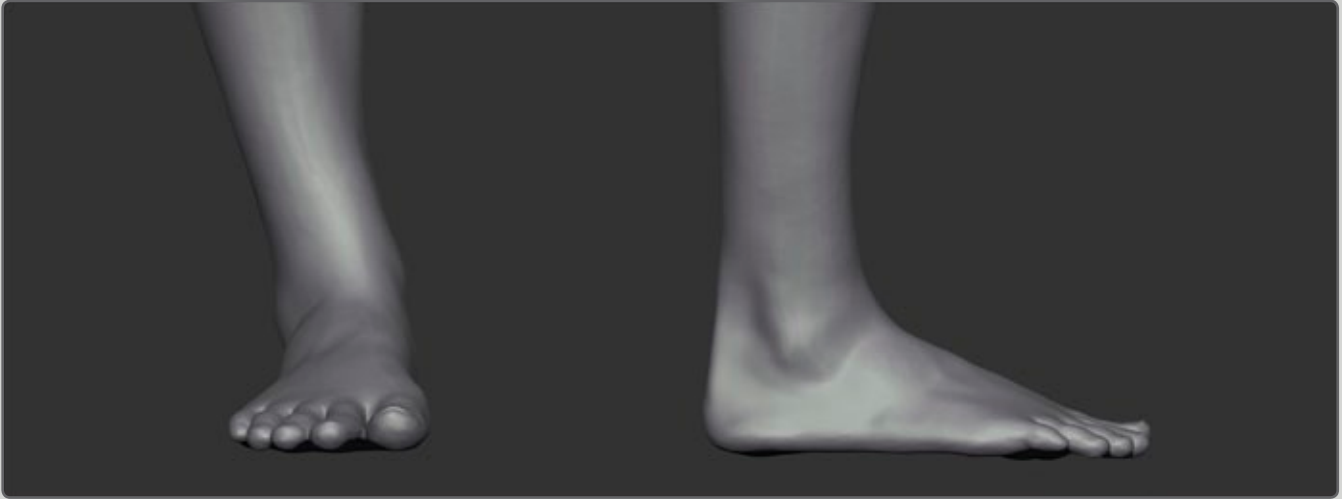
INNER PORTIONS OF THE CALF MUSCLES ARE LOCATED LOWER AND SHAPES ARE MORE ROUND AND MASSIVE THAN THE OUTER PORTION.

FOOT SHAPES



RIGHT FOOT

3D SCAN OF RIGHT FOOT



BABY FEET

