



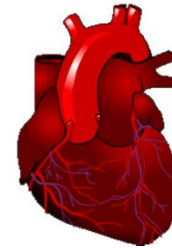
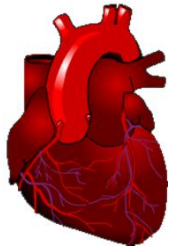
Systematic Anatomy

Locomotor system - Part 6

Muscles of abdomen

Muscles of the upper limb

腹部肌与上肢肌



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Muscles of abdomen
Muscles of the upper limb

Muscles of abdomen 腹肌

Anterolateral group 4
Posterior group 2

Anterolateral group

Obliquus externus abdominis 腹外斜肌

Obliquus internus abdominis 腹内斜肌

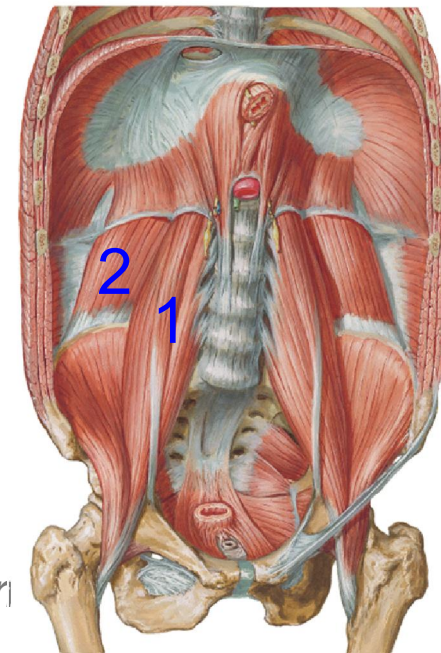
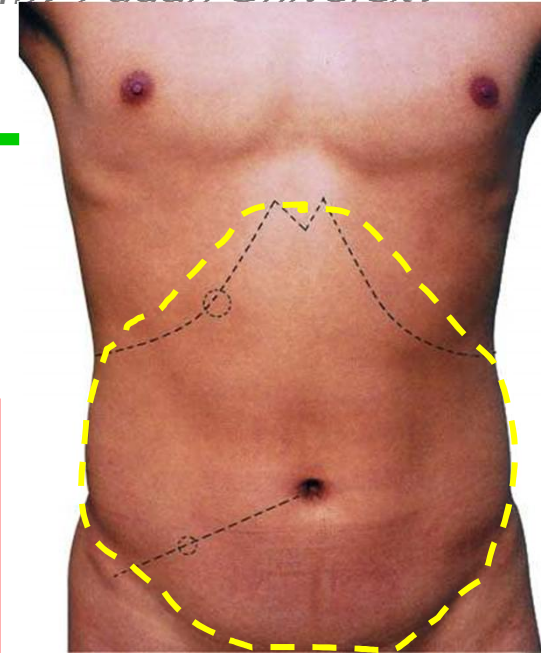
Transversus abdominis 腹横肌

Rectus abdominis 腹直肌

Posterior group

1.Psoas major 腰大肌

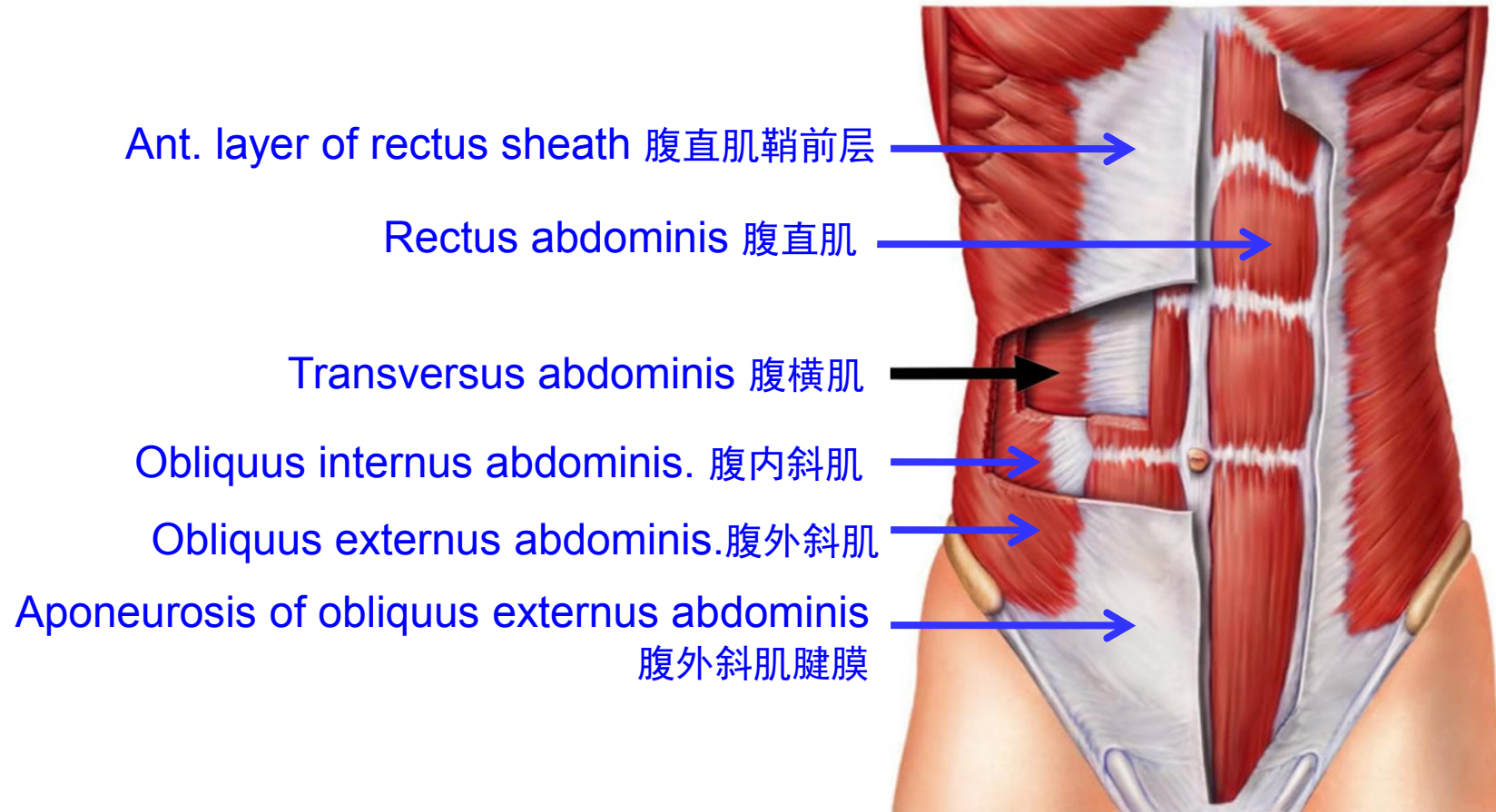
2.Lumbar quadrante m. 腰方肌



Muscles of abdomen 腹肌

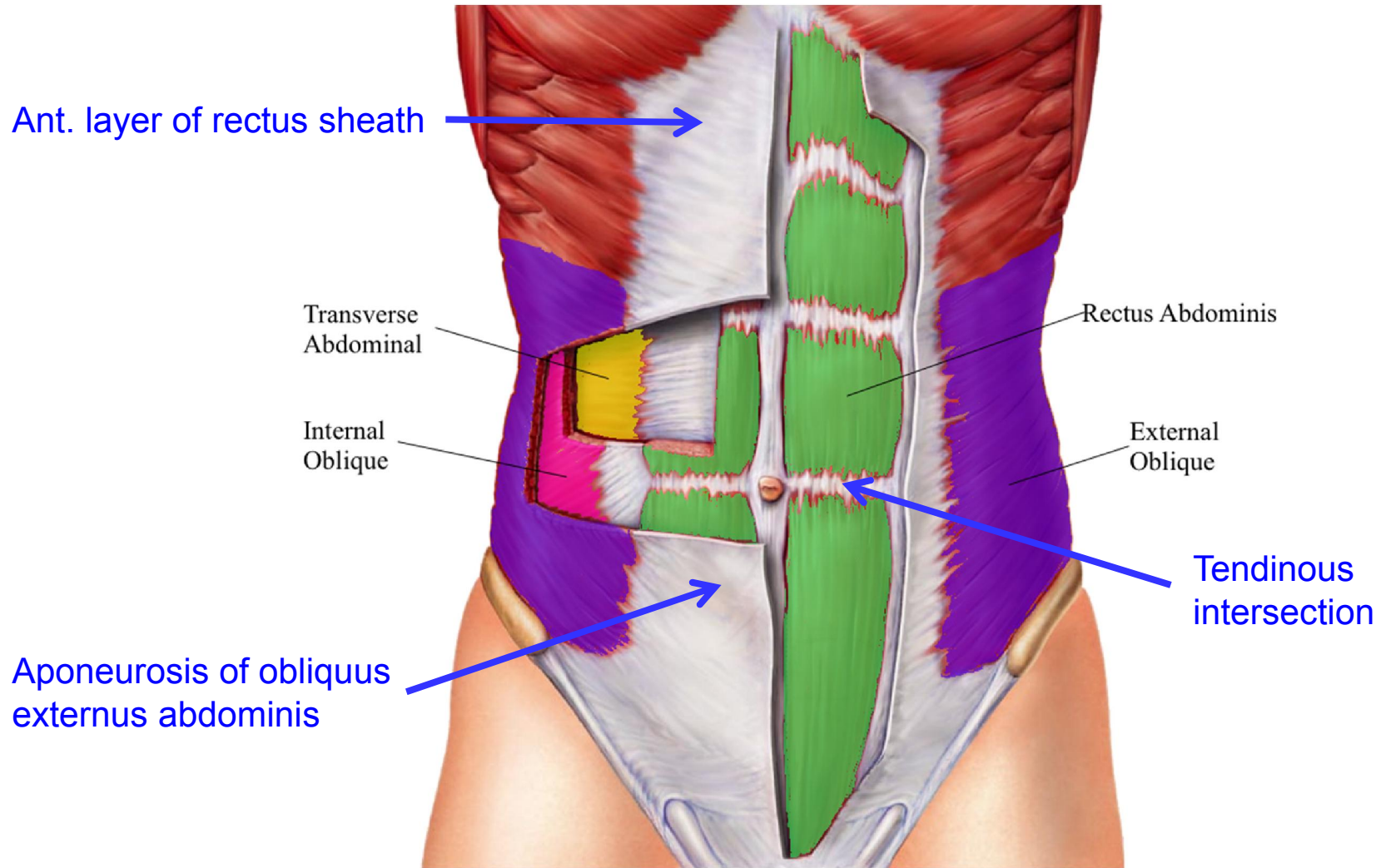
腹外斜肌	{	Obliquus externus abdominis Oblique external abdominal m. Ext.oblique m.of abdomen
腹内斜肌	{	Obliquus internus abdominis Oblique external abdominal m. Int.oblique m.of abdomen
腹横肌	{	Transversus abdominis Transverse abdominal m.
腹直肌		Rectus abdominis

Muscles of anterolateral abdominal walls 腹前外侧壁肌肉

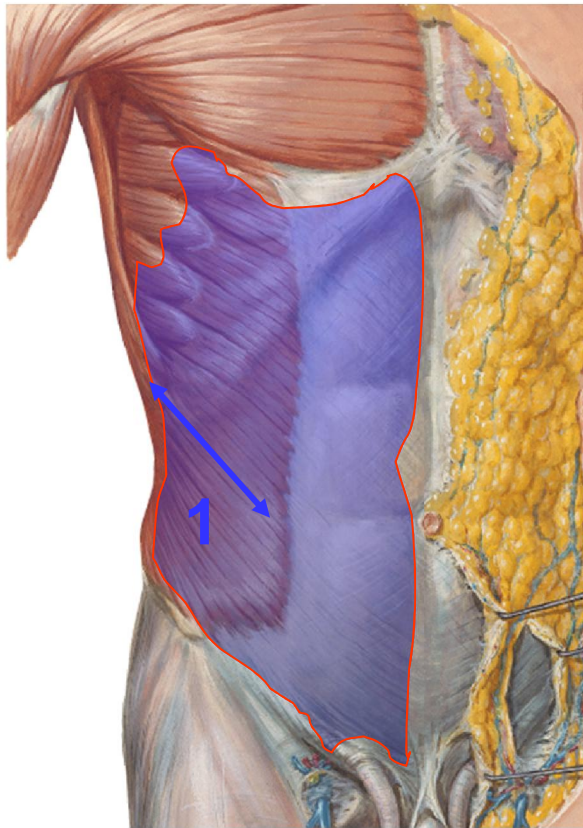


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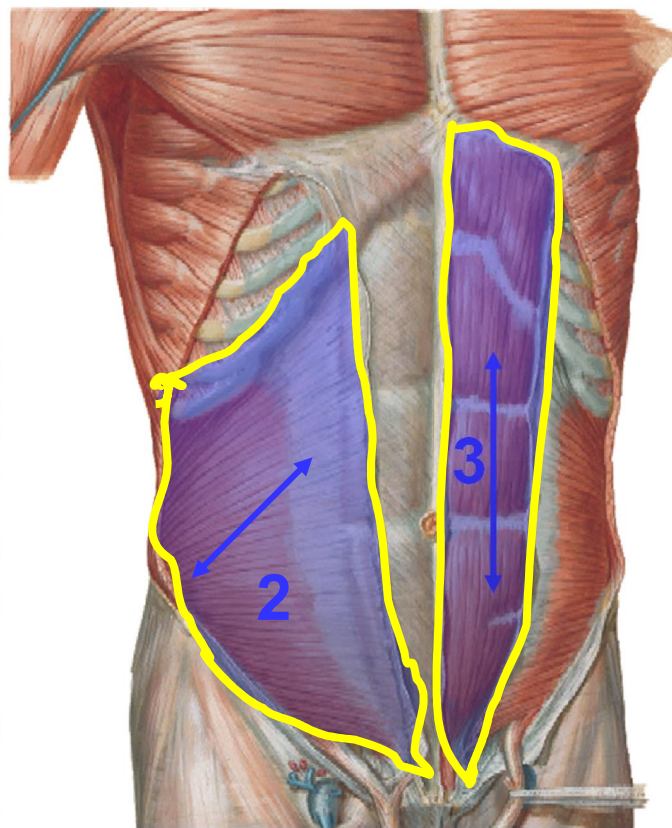
Different saying of some muscles



Muscle of the Anterolateral abdominal wall

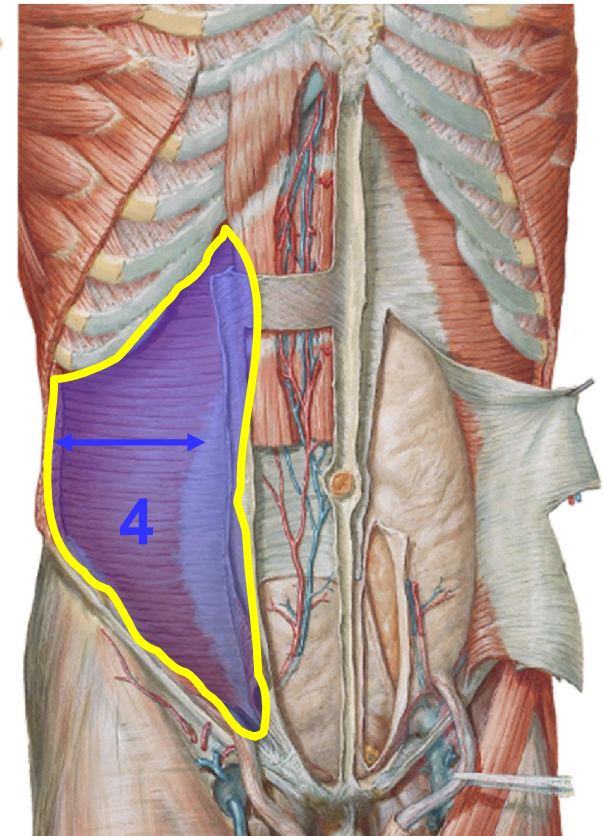


1-External oblique



2-Internal oblique

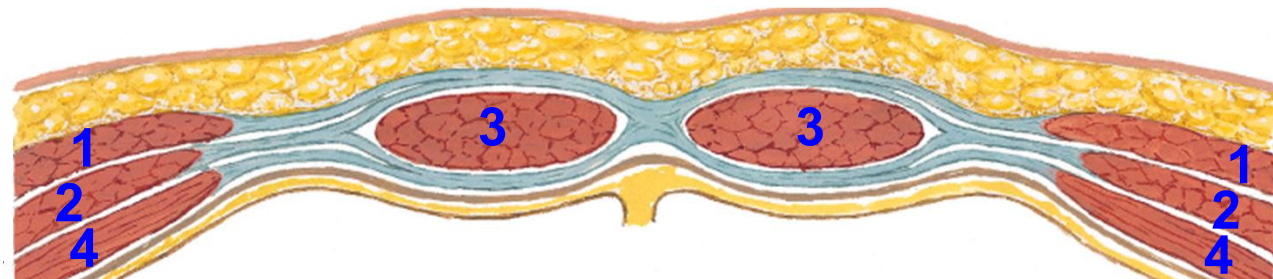
3-Rectus abdominis



4-Transversus abdominis

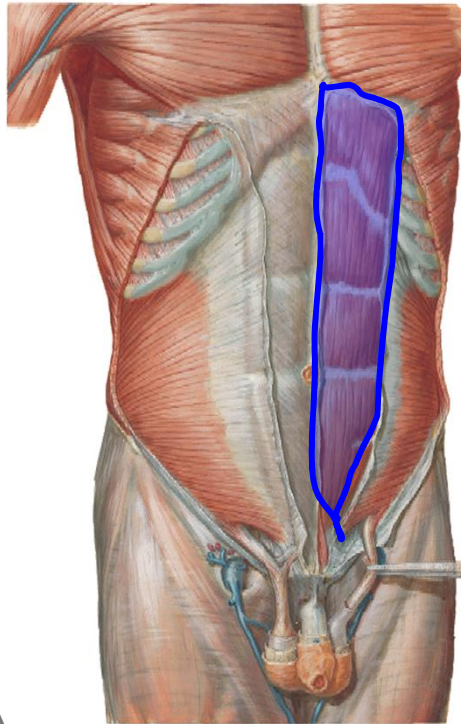
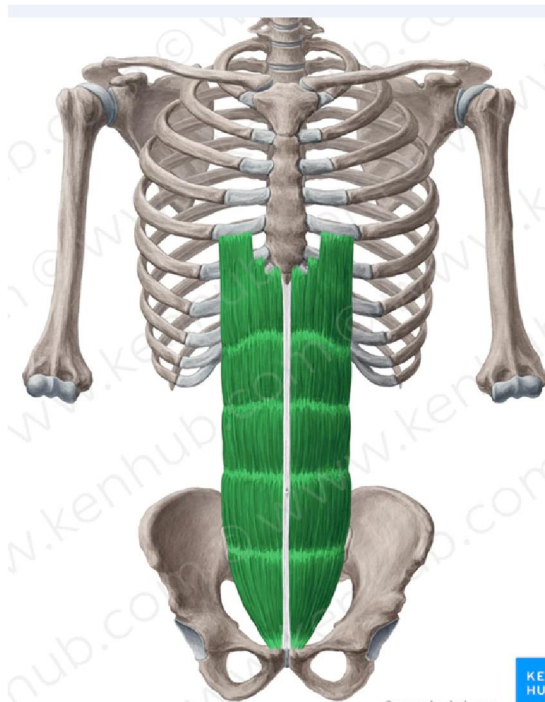
→ The direction of muscular fiber

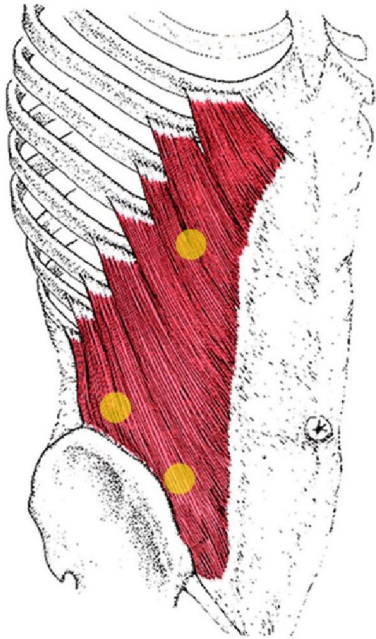
Anterolateral abdominal wall-H section



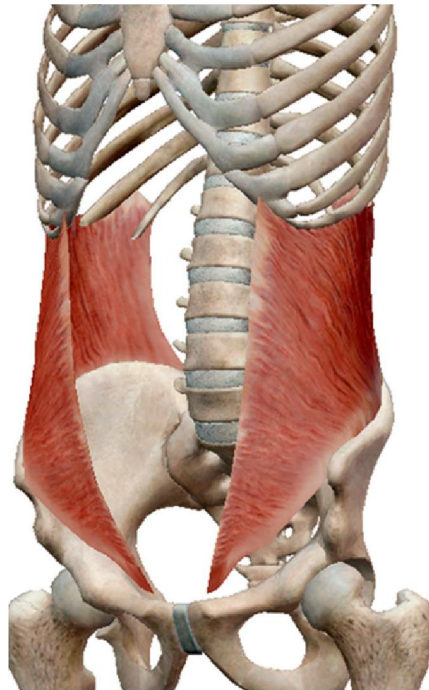
Rectus abdominis

- ◆ **Position:** lie on to either of ant. midline of abdomen
- ◆ **Origin:** pubic crest and symphysis
- ◆ **Insertion:** xiphoid process & 5-7th costal cartilages
- ◆ **Tendinous intersections** 3-4
- ◆ **linea semiluaris** (lat. border)





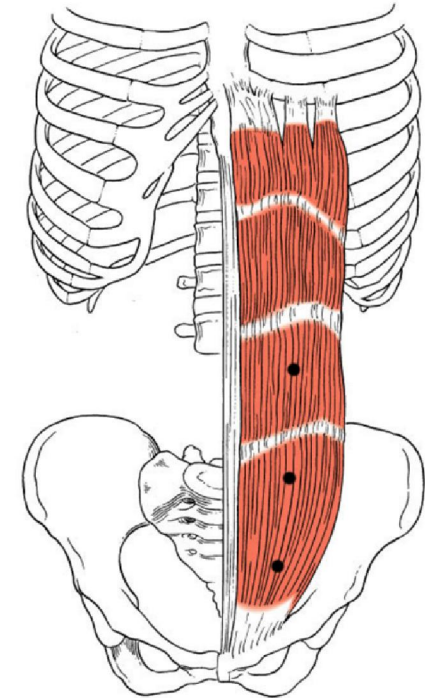
Obliquus
externus
Abdiminis
腹外斜肌



Obliquus
internus
Abdiminis
腹内斜肌



Transversus
abdominis
腹横肌



Rectus
Abdominis
腹直肌

Rectus abdominus and it's intersection 腱划

1-Linea alba 腹白线

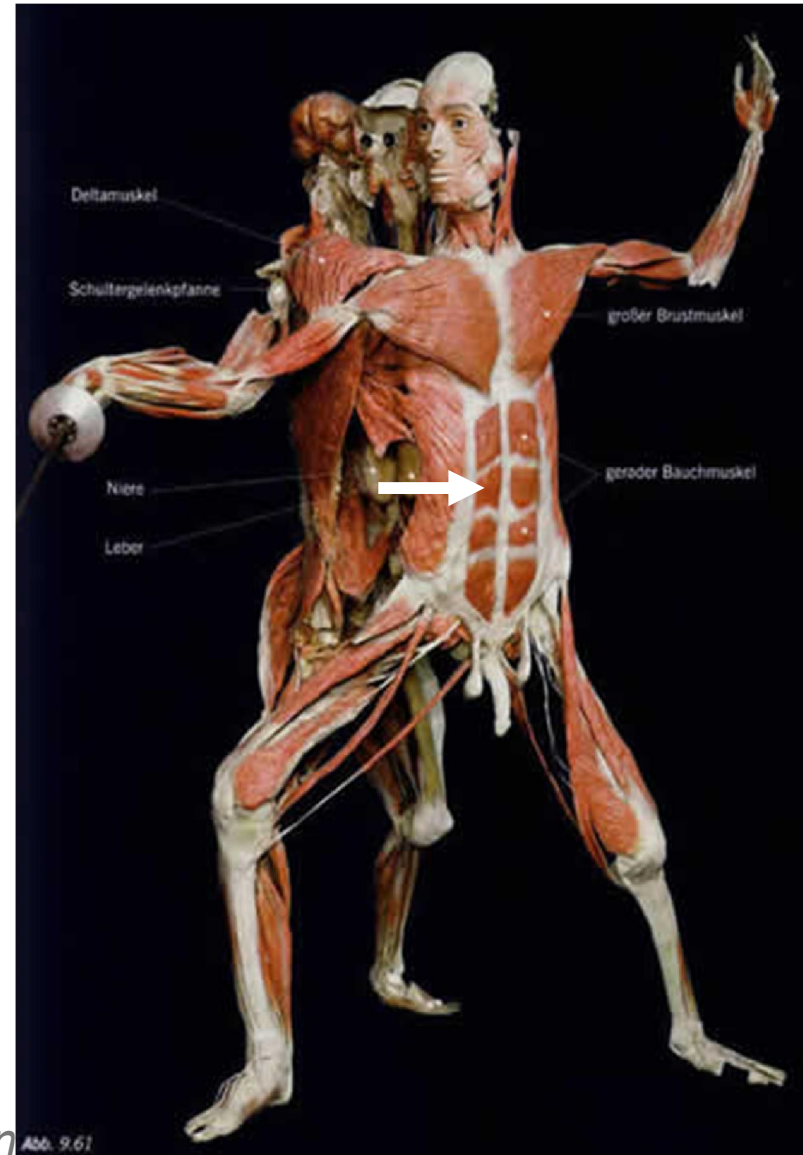
2-Rectus abdominis 腹直肌

3-Tendinous intersections 腱划

4-Linea semilunaris 半月线

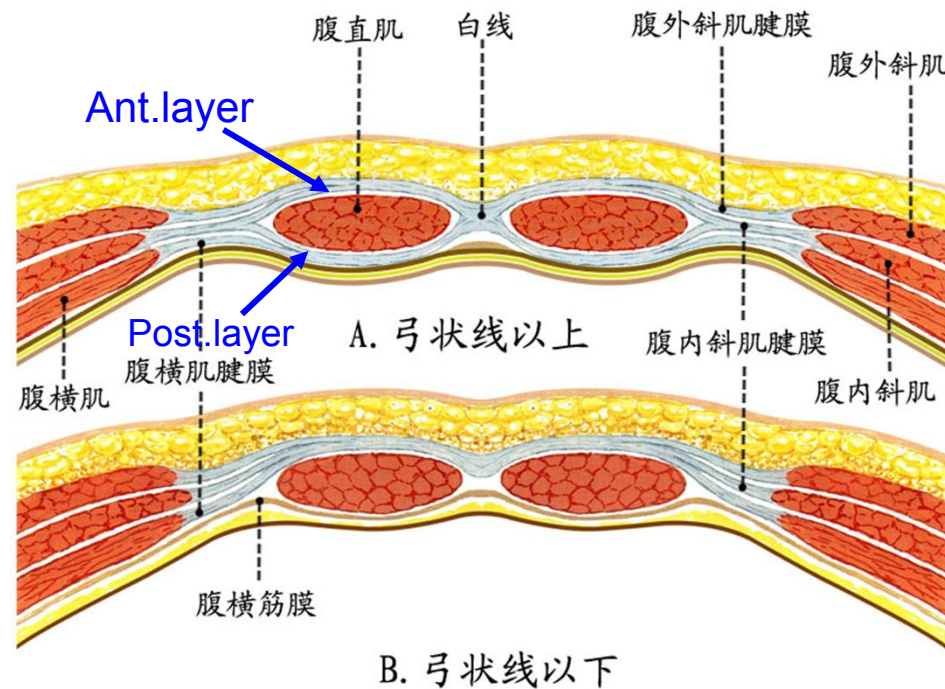
5-Umbilicus 脐 (between L3 ~ L4)

6-Inguinal lig. 腹股沟韧带



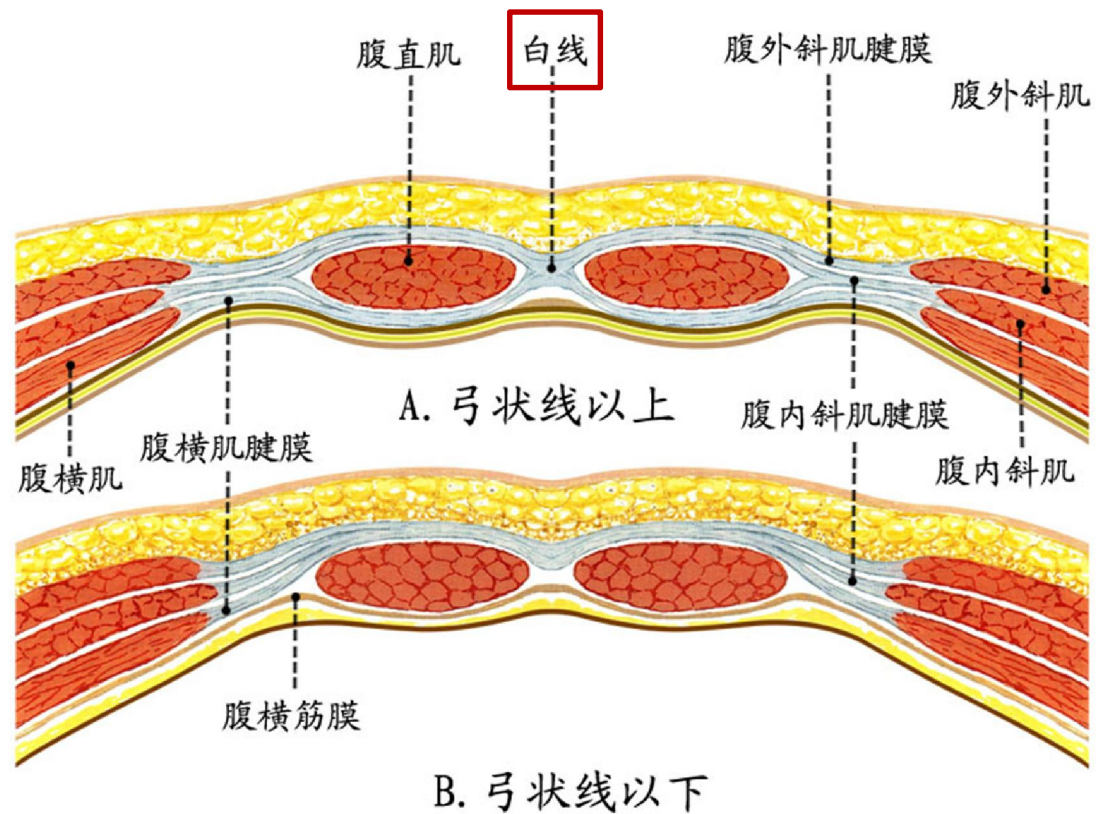
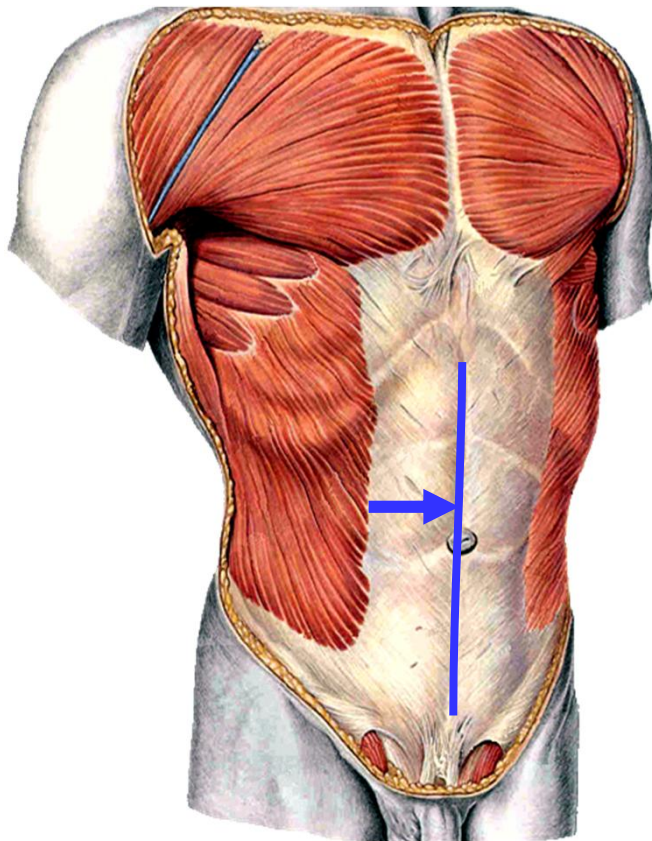
Sheath of rectus abdominis 腹直肌鞘

- ◆ It is a strong incomplete fibrous compartment of the rectus abdominis.
- ◆ Two layers - Anterior layer and posterior layer 前层和后层
- ◆ Absent in about 4-5cm below the umbilicus 脐, where aponeuroses of all three mm. form ant. Layer, the lower free border, named **arcuate line** 弓状线
- ◆ Below this line rectus abdominis in contact with transverse fascia 腹横筋膜

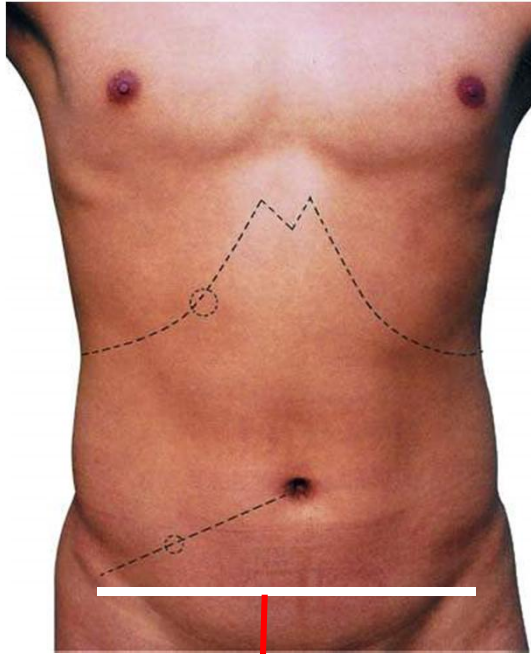


Linea alba 腹白线

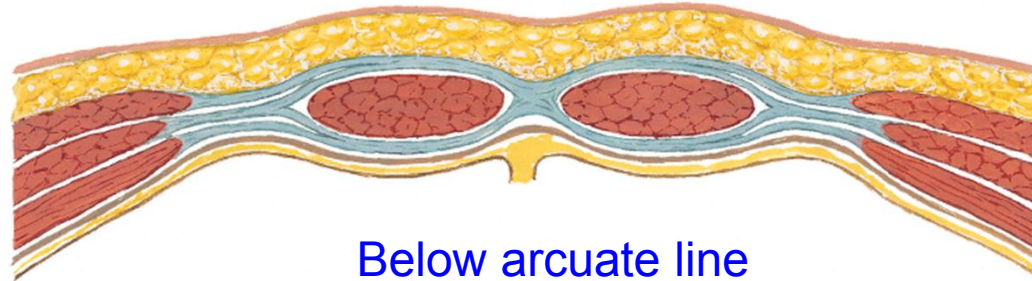
It is located on the anterior median line of the abdomen.
Tendinous raphe between right & left recti from xiphoid process 剑突 to pubic symphysis 耻骨联合



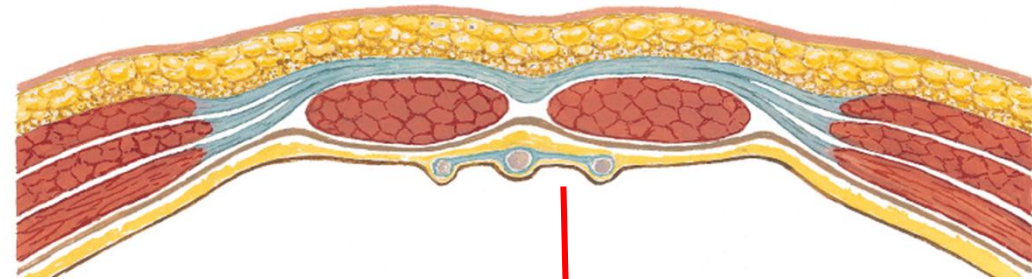
Rectus sheath-Cross section below arcuate line 弓状线



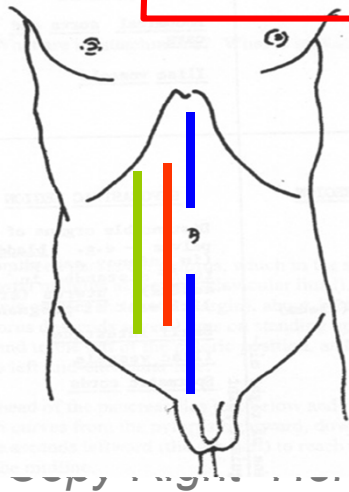
Above arcuate line



Below arcuate line

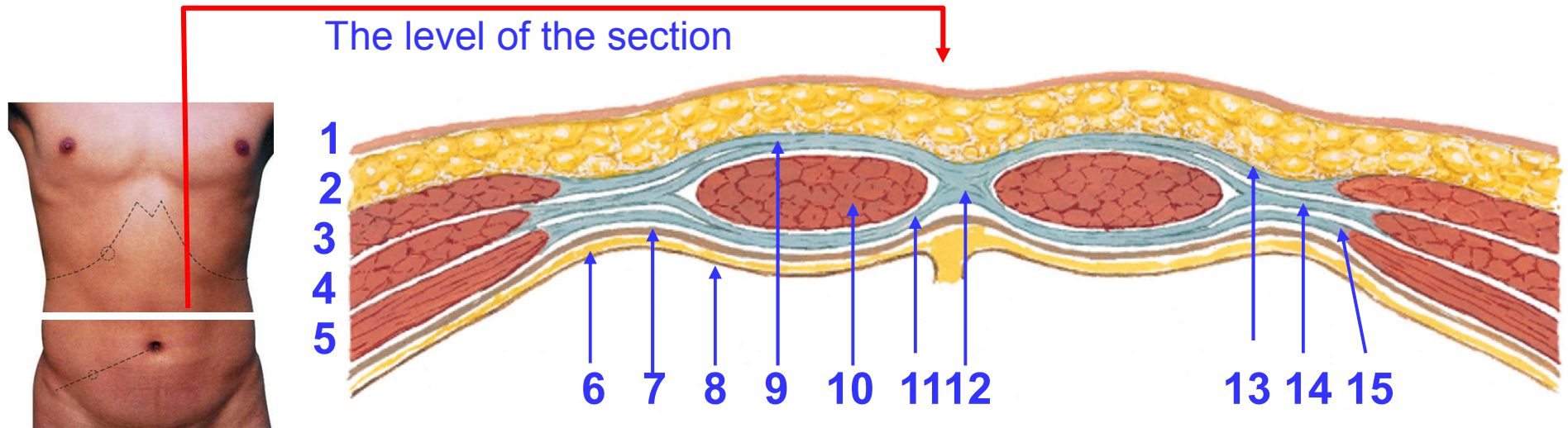


The level of the section



Attention: below arcuate line, no posterior layer of rectus sheath

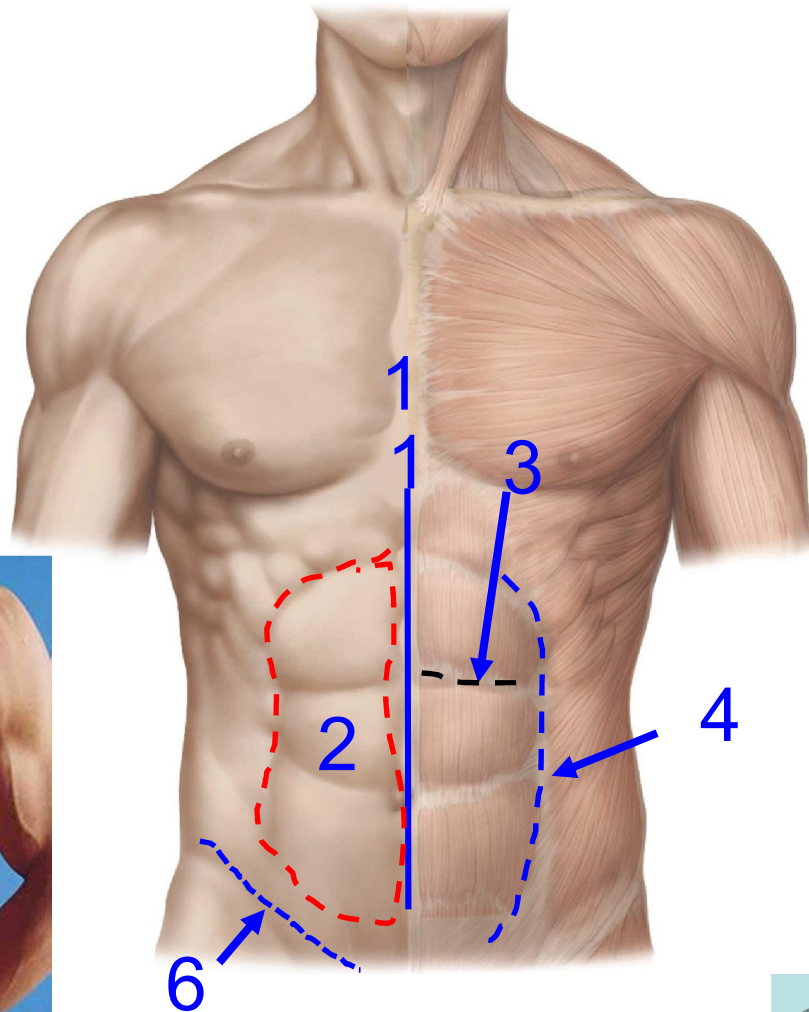
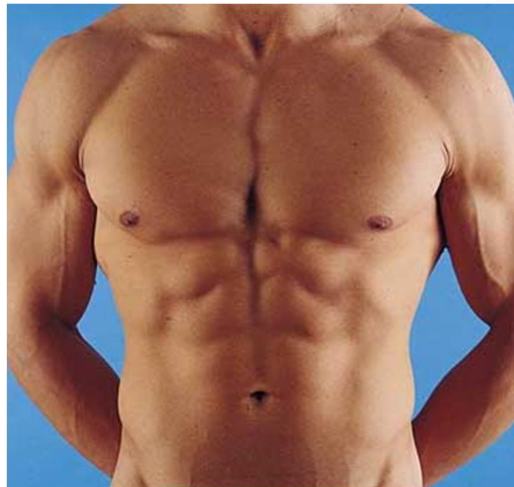
Rectus sheath -Cross section above arcuate line



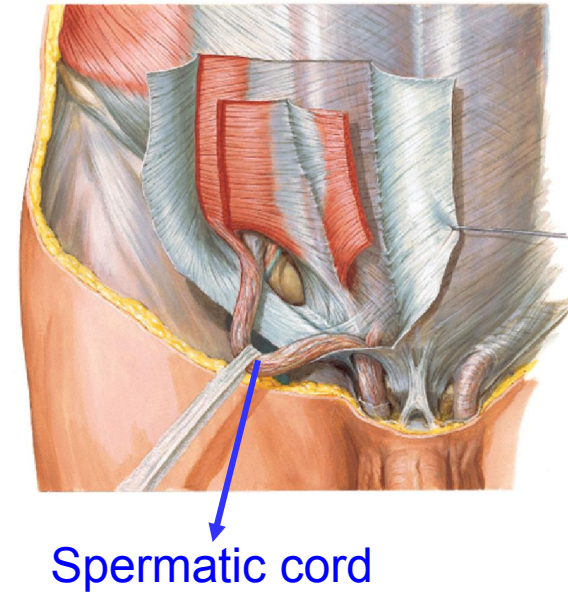
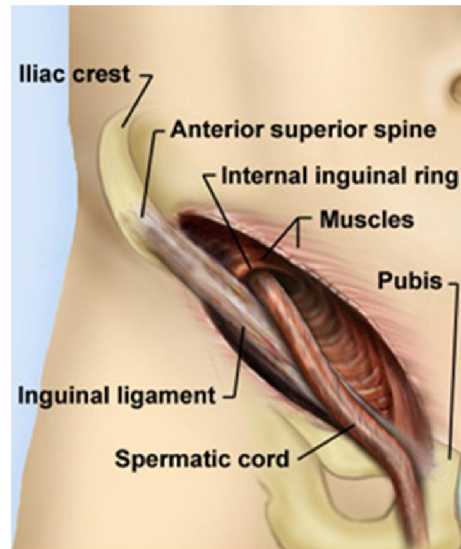
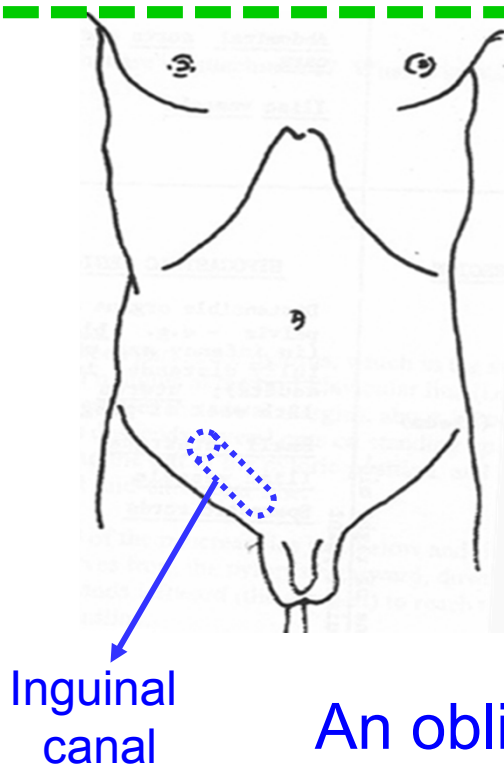
1. Skin 皮肤
2. Subcutaneous tissue 皮下
3. Obliquus externus abdominis.腹外斜肌
4. Obliquus internus abdominis.腹内斜肌
5. Transversus abdominis 腹横肌
6. Extraperitoneal fascia 腹外筋膜
7. Transverse fascia 腹横筋膜
8. Peritoneum 腹膜
9. Ant.layer of rectus sheath 腹直肌鞘前层
10. Rectus abdominis 腹直肌
11. Post.layer of rectus sheath 腹直肌鞘后层
12. Linea alba 腹白线
13. Aponeurosis 腱膜 of obliquus externus abdominis
14. Aponeurosis 腱膜 of obliquus internus abdominis
15. Aponeurosis 腱膜 of transversus abdominis

Landmarks & surface anatomy

- 1-Linea alba
- 2-Rectus abdominis
- 3-Tendinous intersections
- 4-Linea semilunaris
- 5-Umbilicus: at the level of L3 ~ L4
- 6-Inguinal lig.



Inguinal canal 腹股沟管



An oblique cleft or passage
4-5cm long in adult
in between muscles, aponeurosis and fascia
above the medial part of the inguinal ligament
Spermatic cord 精索 in male
Round lig. of uterus 子宫圆韧带 in female

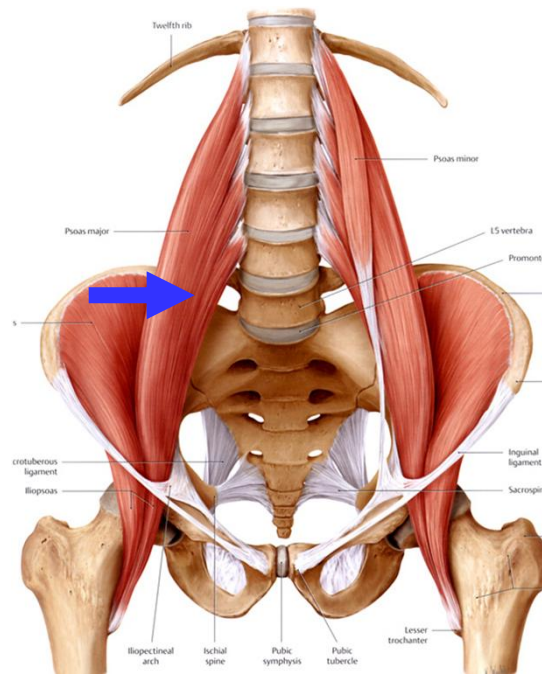
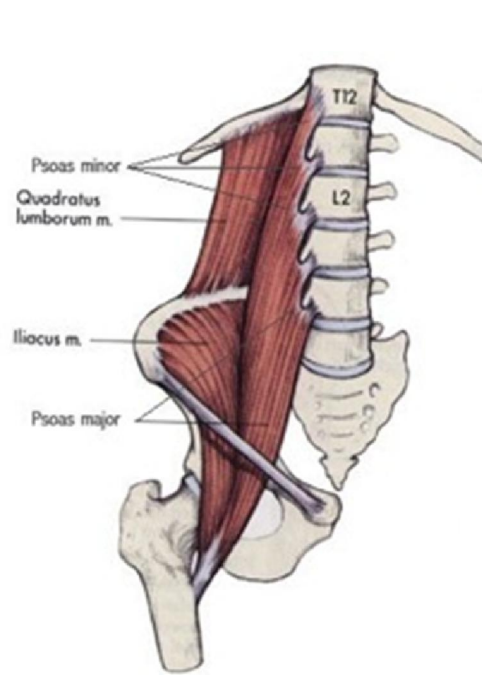
腹肌的起止点、作用

Group	Name	Origin	Insertion	Action
前外侧群	腹直肌	耻骨嵴	胸骨剑突、第5-7肋软骨	脊柱前屈增加腹压
	腹外斜肌	下8肋外面	白线、髂嵴、腹股沟韧带	增加腹压、脊柱前屈、侧屈、旋转
	腹内斜肌	胸腰筋膜、髂嵴、腹股沟韧带	白线	
	腹横肌	下6肋内面、胸腰筋膜，腹股沟韧带	白线	
后群	腰方肌	髂嵴	第12肋	降第12肋、脊柱腰部侧屈

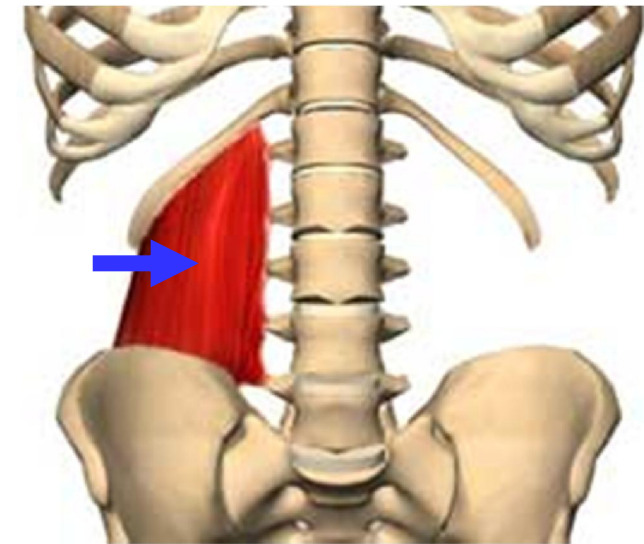
Common functions for about four pairs of muscles

- ◆ Support and compress the abdominal viscera
- ◆ Increase intra-abdominal pressure 腹内压, aid in - vomiting 呕吐, coughing 咳嗽, sneezing 喷嚏, defecation 排便。 urination 排尿 and childbirth or delivery 分娩.
- ◆ Depress ribs 降肋, assist in expiration 呼气.
- ◆ Flex 屈, lateral flex 侧曲, and rotate 旋转 vertebral column

Posterior group of abdominal muscle 腹后群肌



Psoas major



Lumbar quadrate m

Psoas major 腰大肌- introduce in lower limb m.

Lumbar quadrate muscle 腰方肌

A roughly quadrilateral thick muscle 较厚的方形肌肉

In between 12th rib and iliac crest 在髂嵴和12肋间

Fixes and lowers the 12th rib 固定和下拉12肋

Acting alone, bends the trunk toward the same side

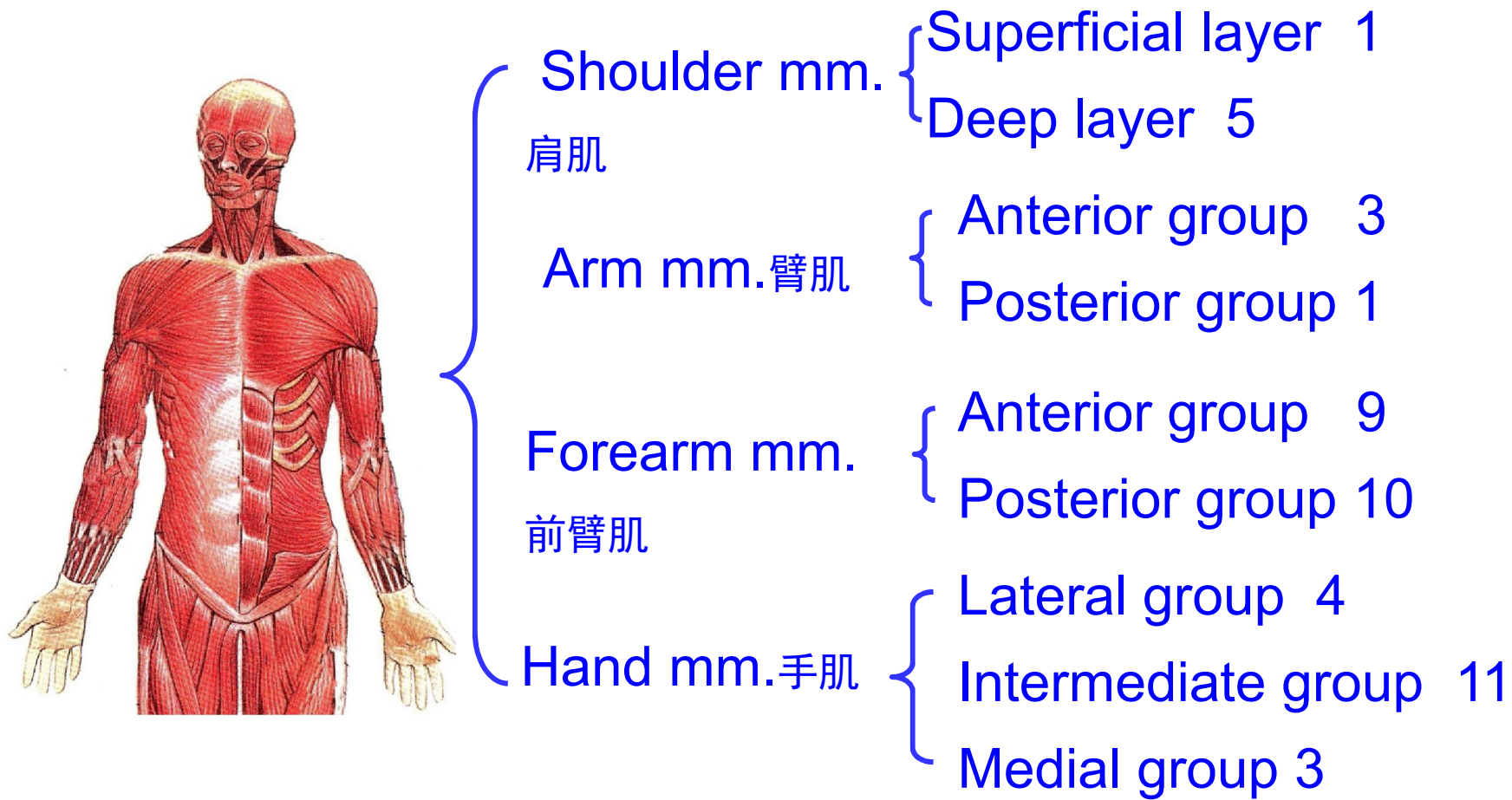
Copy Right- Hongqi ZHANG-Department of Anatomy-Fudan University

Muscles of upper limb 上肢肌



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Muscles of upper limb 上肢肌



Muscle of the shoulder-pectoral girdle 肩带肌

Superficial layer 1 Deltoid m.

Deep layer 5

1-Supraspinatus 冈上肌

2-Infraspinatus 冈下肌

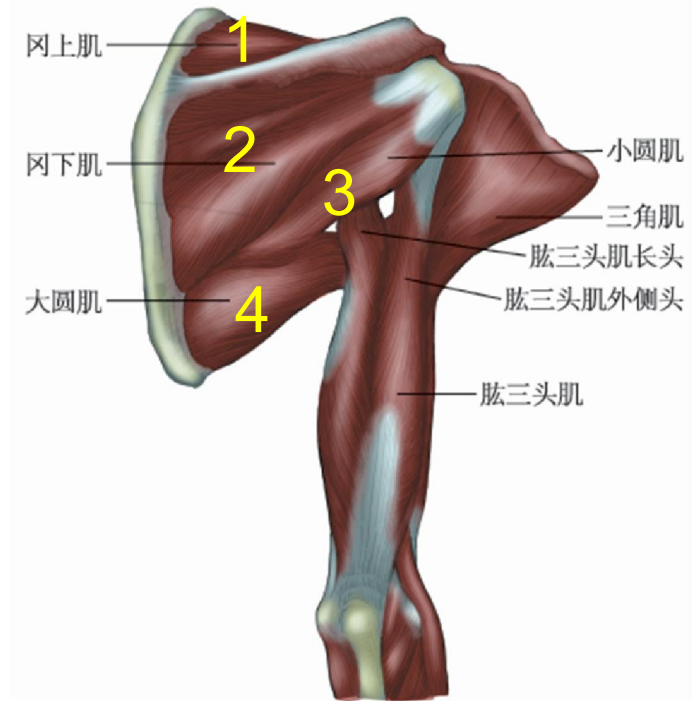
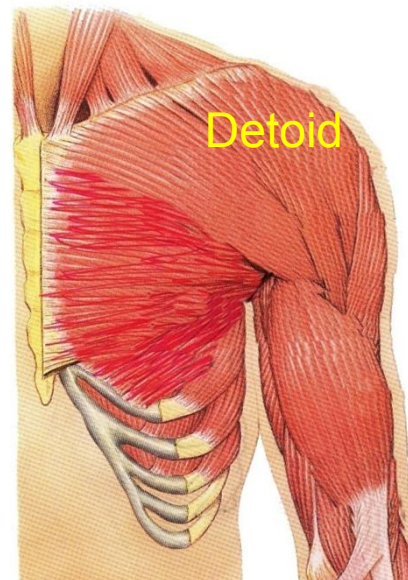
3-Teres minor 小圆肌

4-Teres major 大圆肌

5-Subscapularis 肩胛下肌

“肌腱袖”

Myotendinous cuff



肩胛下肌、冈上肌、冈下肌、小圆肌腱分别止于肩关节的前方、上方和后方。腱纤维与关节囊纤维相交织，形成“肌腱袖”

Ci **Deltoid** longqi ZHANG

Muscle of shoulder 肩肌



Deltoid 三角肌

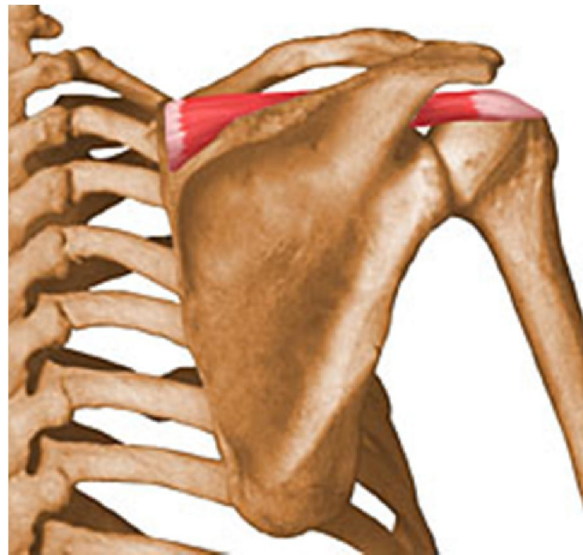
A thick powerful triangular muscle

To form the rounded contour of the shoulder

Origin: 锁骨外1/3, 肩峰及肩胛冈

Insertion: Deltoid tuberosity 三角肌粗隆

Action: 肩关节外展、前屈和旋内（前部肌束），
后伸和旋外（后部肌束）



Supraspinatus 冈上肌

In the supraspinous fossa 冈上窝 of scapula

Origin: scapula & scapular spine 肩胛骨的肩胛冈

Insertion: upper part of greater tubercle 肱骨大结节上部

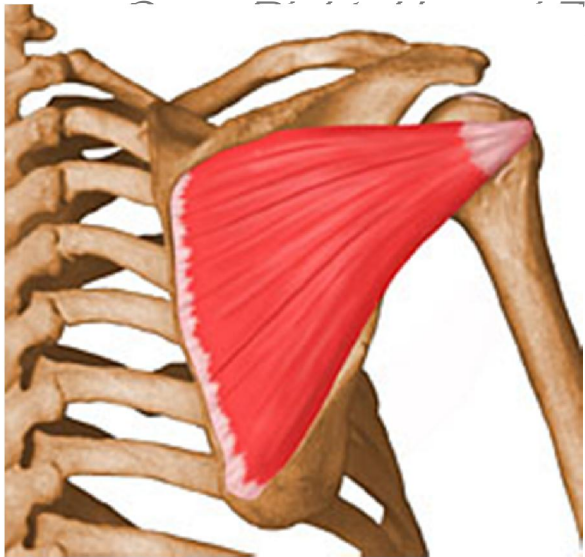
Action: abduct the shoulder joint 肩关节外展

Supraspinatus

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Muscle of the shoulder



Infraspinatus

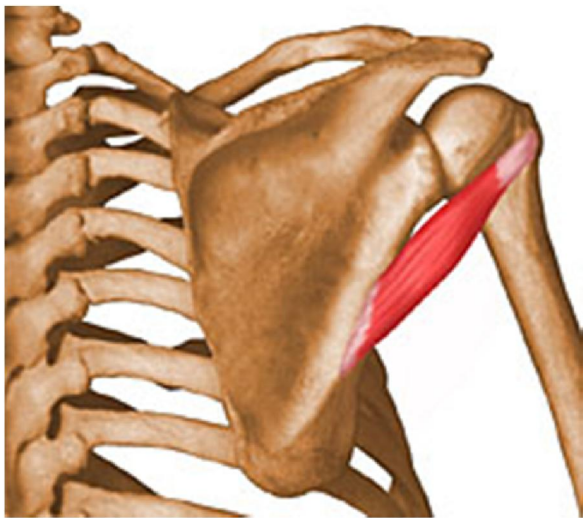
Infraspinatus 冈下肌

In the infraspinatus fossa 冈下窝 of scapula, triangular

Origin: Infraspinatus fossa of scapular 肩胛骨冈下窝.

Insertion: Mid. part of greater tubercle 大结节中部

Action: Rotate laterally shoulder joint 肩关节旋外



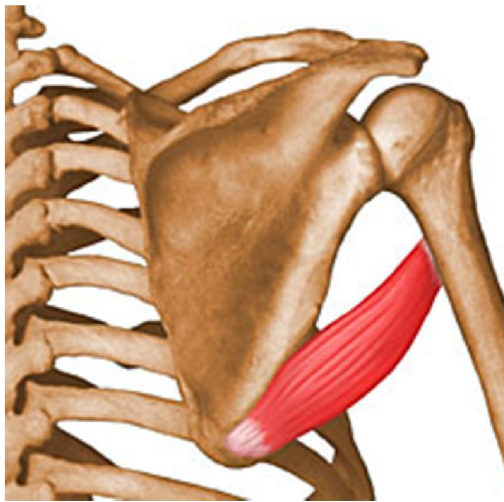
Teres minor 小圆肌

Origin: Lateral border of scapula 肩胛骨外侧缘背面.

Insertion: Lower part of greater tubercle 大结节下部

Action: Rotate laterally shoulder joint 肩关节旋外

Muscle of the shoulder



Teres major

Teres major 大圆肌

A thick round muscle below the teres major

Origin: back surface of scapula 肩胛骨下角背面

Insertion: crest of lesser tubercle 肱骨小结节嵴

Action: adduct & rotate medially shoulder joint

肩关节内收，旋内



Subscapularis

Subscapularis 肩胛下肌

A large thick triangular muscle, infrascapular fossa

Origin: subscapular fossa 肩胛下窝

Insertion: lesser tubercle of humerus 肱骨小结节

Action: adduct & rotate medially shoulder joint

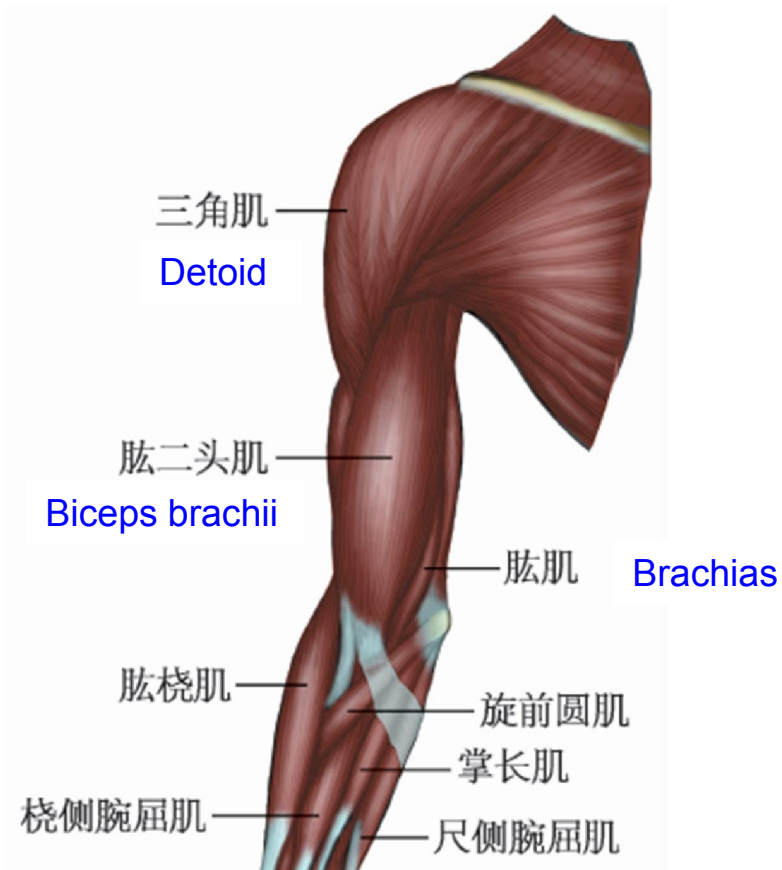
肩关节内收，旋内

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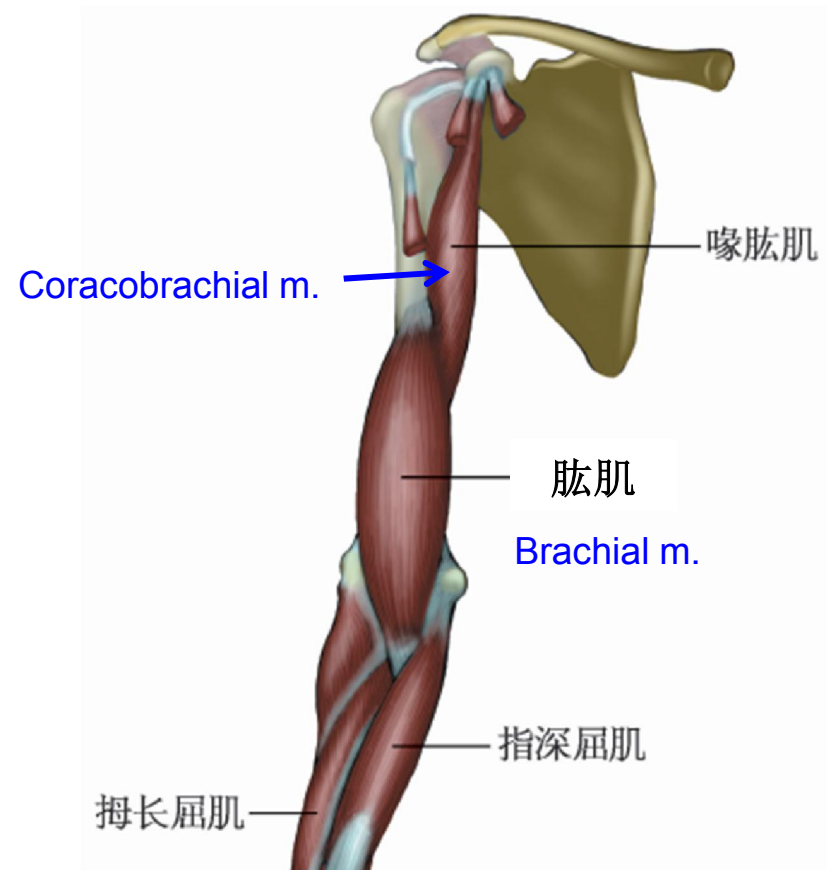
Anterior muscular group of arm

Superficial and deep layer, three muscles

Superficial layer



Deep layer





Biceps brachii

Biceps brachii 肱二头肌

Location: the ant. surface of the humerus

Origin: long head –articular glenoid 长头-孟上结节

short head – coracoid process 短头-喙突

Insertion: radial tuberosity 桡骨粗隆

Action: flex, shoulder & elbow joints and adduct shoulder joint

Coracobrachialis 喙肱肌

Origin: coracoid process 喙突

Insertion: med.side of mid.part of humerus

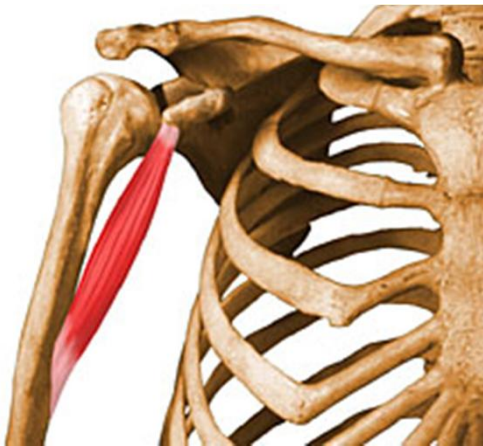
Action: flex & adduct shoulder joint

Brachialis 肱肌

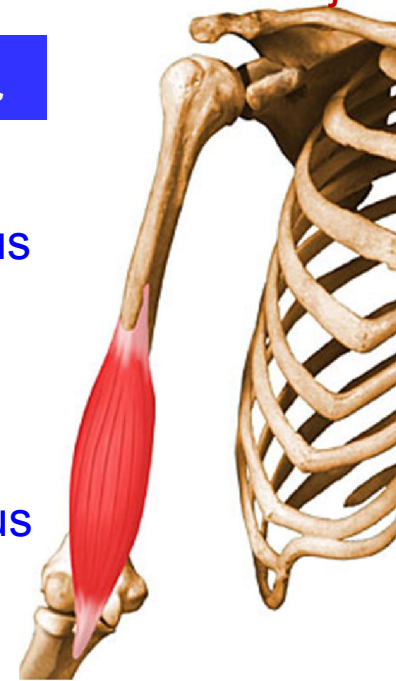
Origin: ant.surface of lower part of humerus

Insertion: ulnar tuberosity 尺骨粗隆

Action: flex the elbow joint 屈肘关节



Coracobrachial m



Brachial muscle

Post.muscular group of arm

Triceps brachii 肱三头肌

B - Lat. head

C - long head

D - Med. head (not show)

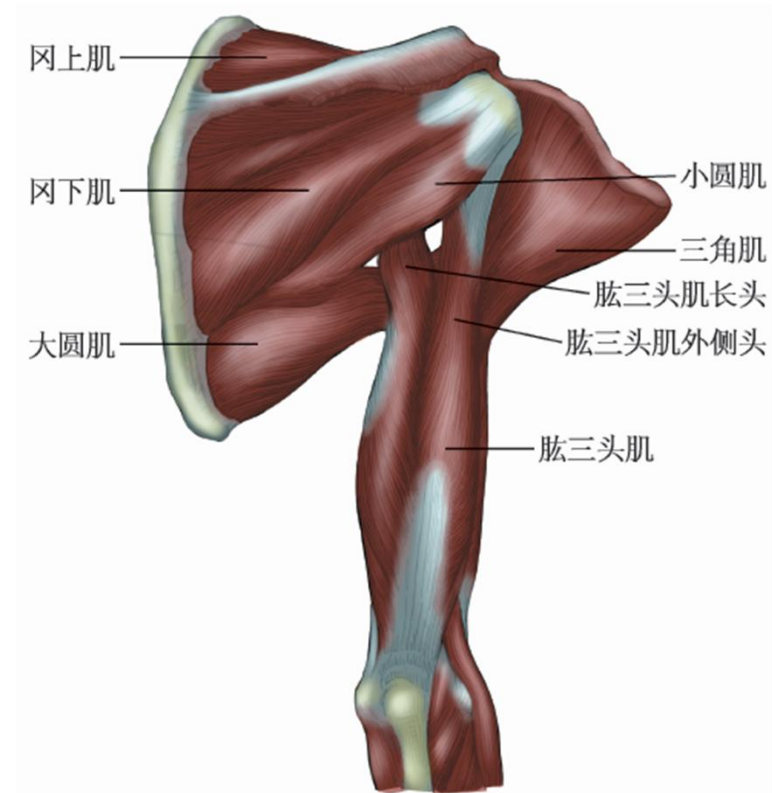
尺骨鹰嘴，肱骨内外上髁之间的关系：
伸肘时三点成一线
屈肘是三点呈等腰三角形
肘关节脱位时，三角形关系不存在
髁上骨折时，此三角关系不变

Origin: 长头-肩胛骨盂下结节

内外侧头-桡神经沟内下方的骨面，外侧头-桡神经沟外上方骨面。

Insertion: 尺骨鹰嘴。

Action: 伸肘，助肩关节内收，后伸。



Feature of ant. muscular group of forearm

- ◆ The most originate from medial epicondyle 大部分起自内上髁, attach to wrist and finger 止于手腕和手指.
- ◆ Brachioradial m. 肱桡肌. the landmark m. of the arm 标志肌
- ◆ Action: flex the elbow wrist ,finger & pronation 屈腕屈指旋前

Attention please:

Mastering the function and grouping of each group.

Especially:

Anterior group of forearm 前臂前群

Posterior group of forearm 前臂后群

Anterior muscular group of forearm 前臂前群

4 layers : 5-1-2-1 = 9

Superficial layer

From lateral to medial

1-Brachioradialis 肱桡肌

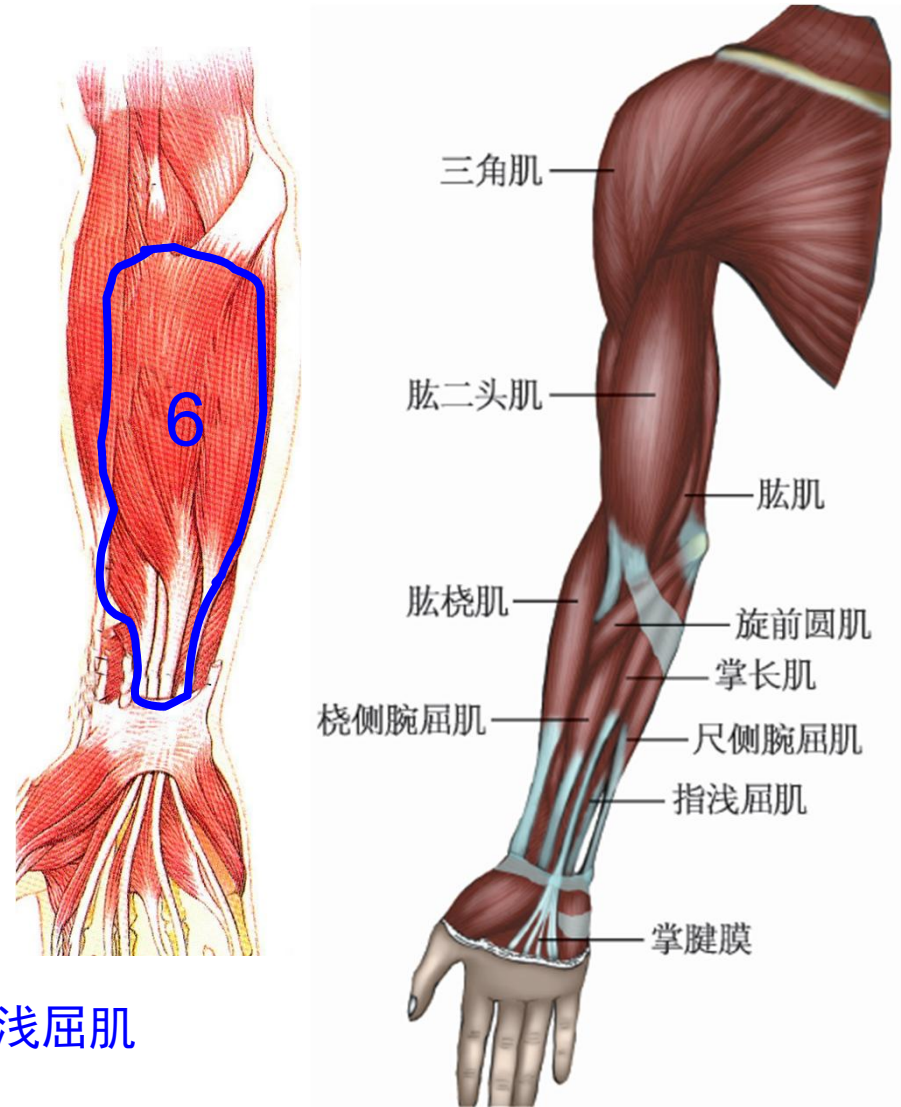
2-Pronator teres 旋前圆肌

3-Flexor carpi radialis 桡侧腕屈肌

4-Palmaris longus 掌长肌

5-Flexor carpi ulnaris 尺侧腕屈肌

6-Flexor digitorum superficialis 指浅屈肌



Anterior muscular group of forearm 前臂前群

Deep layer

7-Flexor digitorum profundus

指深屈肌

8-Flexor pollicis longus

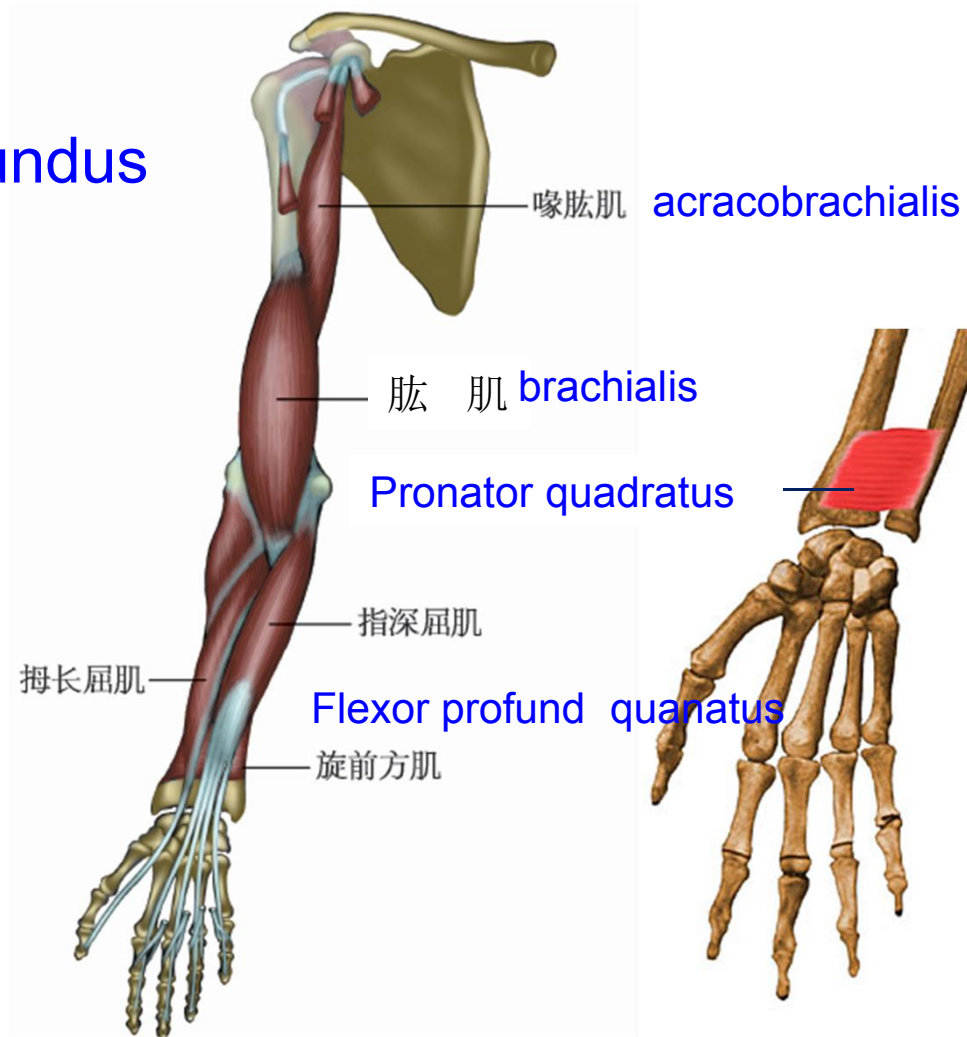
拇长屈肌

9-Pronator quadratus

旋前方肌

前臂前群肌歌诀

前臂前群桡向尺
肱桡旋前桡腕曲
掌长指浅尺屈腕
深为拇长深屈方



Feature of posterior muscular group of forearm

10 muscle in anterior muscular group of forearm

- ◆ Most muscles originate from lateral epicondyle ,
attach to wrist and finger.大部分起自外上髁, 止于手腕和指
- ◆ Usually recognize them according their insertions
可以根据止点辨认
- ◆ Their action: extends the wrist and finger
and supination 伸肘、伸腕、伸指、前臂旋后

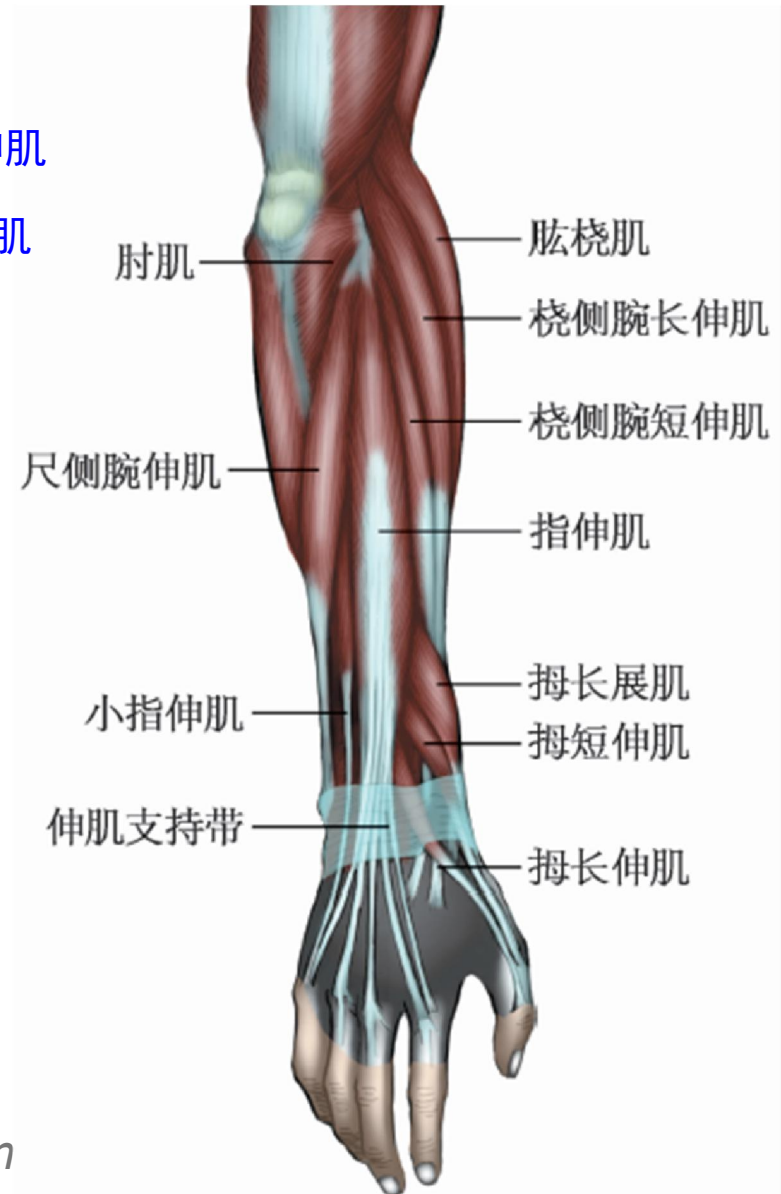
Posterior muscular group of forearm

Superficial layer 浅层

- 1 Extensor carpi radialis longus 桡侧腕长伸肌
- 2 Extensor carpi radialis brevis 桡侧腕短伸肌
- 3 Extensor digitorum 指伸肌
- 4 Extensor digiti minimi 小指伸肌
- 5 Extensor carpi ulnaris 尺侧腕伸肌

Deep layer 深层

- 6 Supinator 旋后肌
- 7 Abductor pollicis longus 拇长展肌
- 8 Extensor pollicis brevis 拇短伸肌
- 9 Extensor pollicis longus 拇长伸肌
- 10 Extensor indicis 示指伸肌



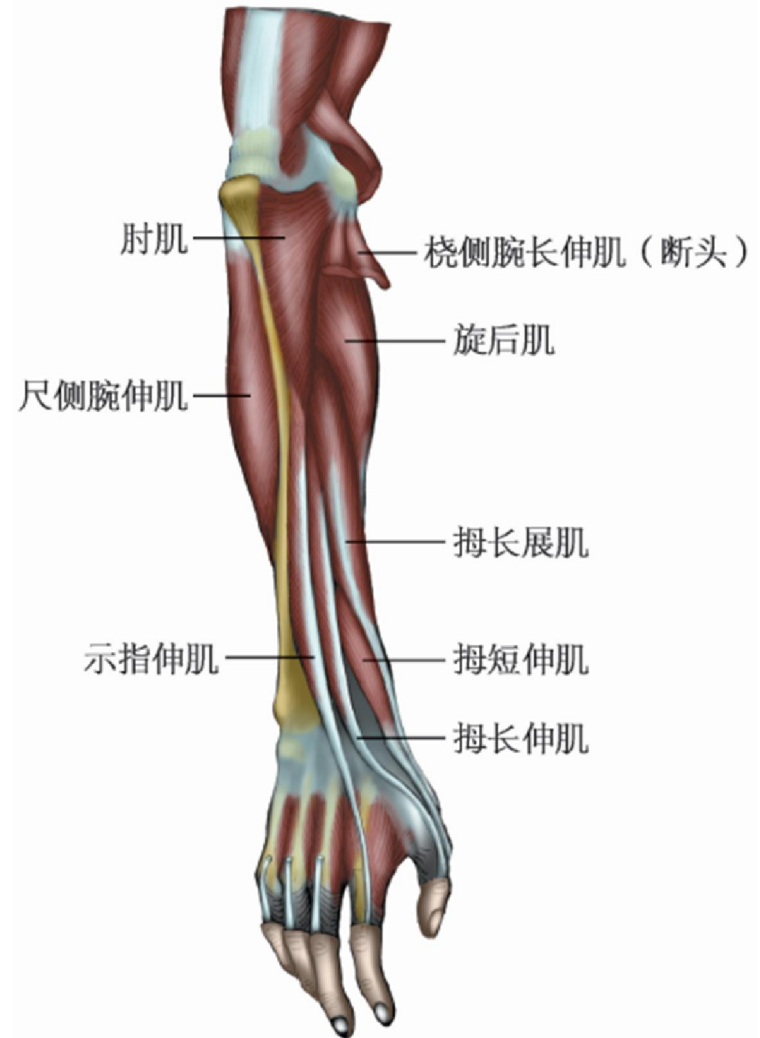
Posterior muscular group of forearm

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Posterior muscular group of forearm

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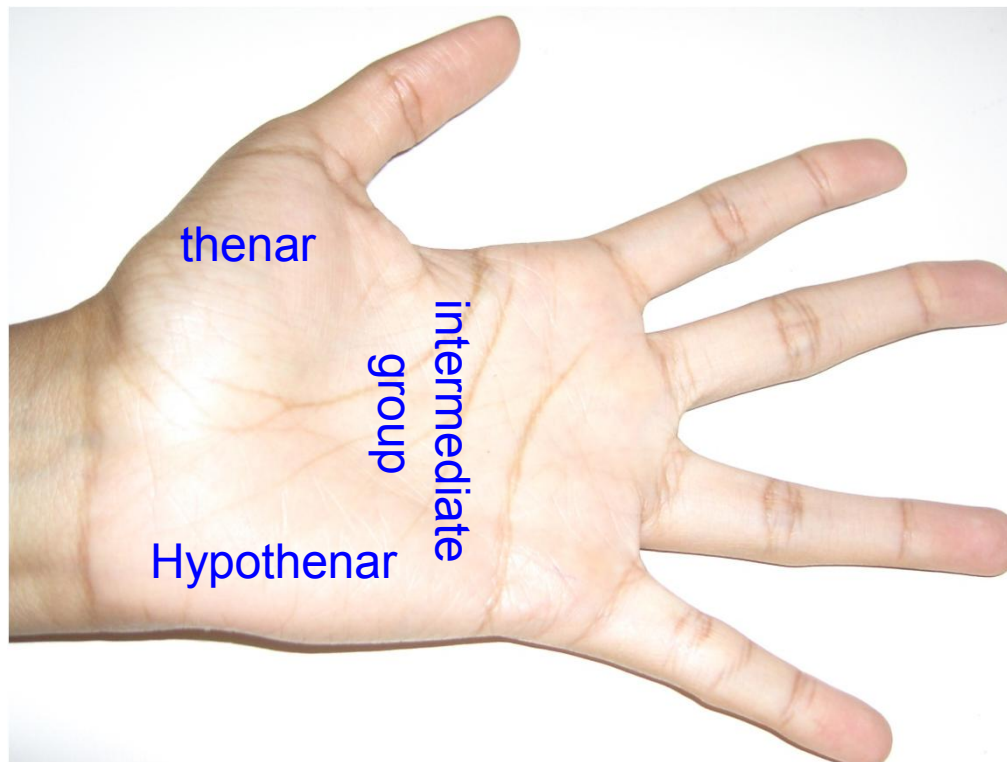
前臂后群肌歌诀
前臂后群桡向尺
腕长短伸指总伸
小伸尺伸与肘肌
两长夹短后食伸

Muscles of the hand

Thenar 鱼际 (lat. group) 4—movement of the thumb

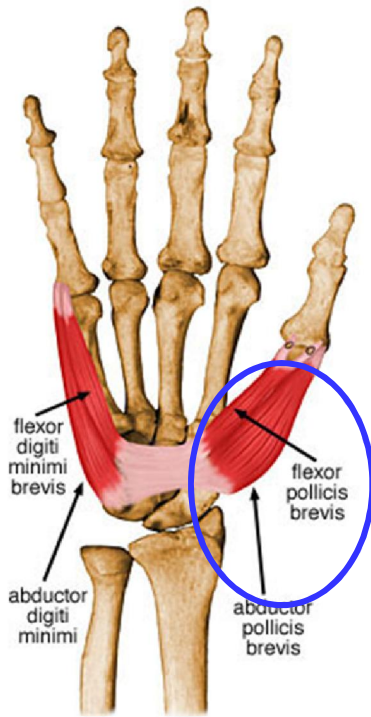
Intermediate group 中间群 11—movement of 2-5th fingers

Hypothenar 小鱼际 (med. group) 3— movement of 5th finger

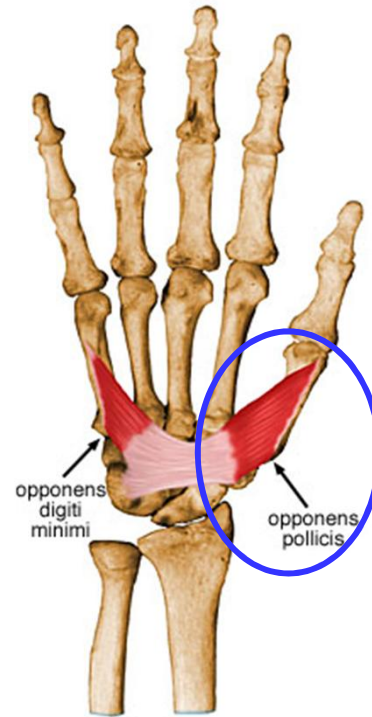


Muscles of the hand

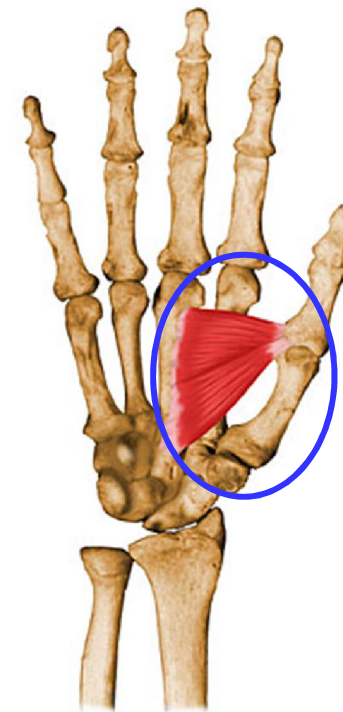
Thenar (lat. group) 4—movement of the thumb



Flexor pollicis brevis 拇短屈肌
Abductor pollicis brevis
拇短展肌

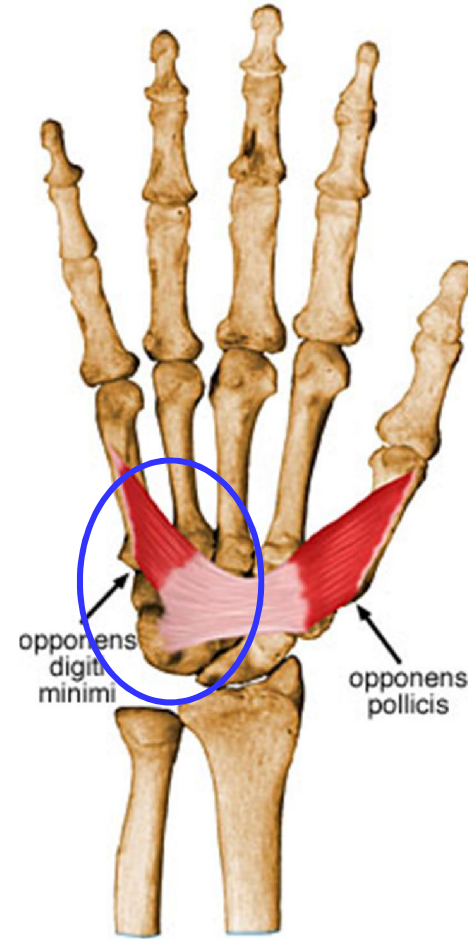
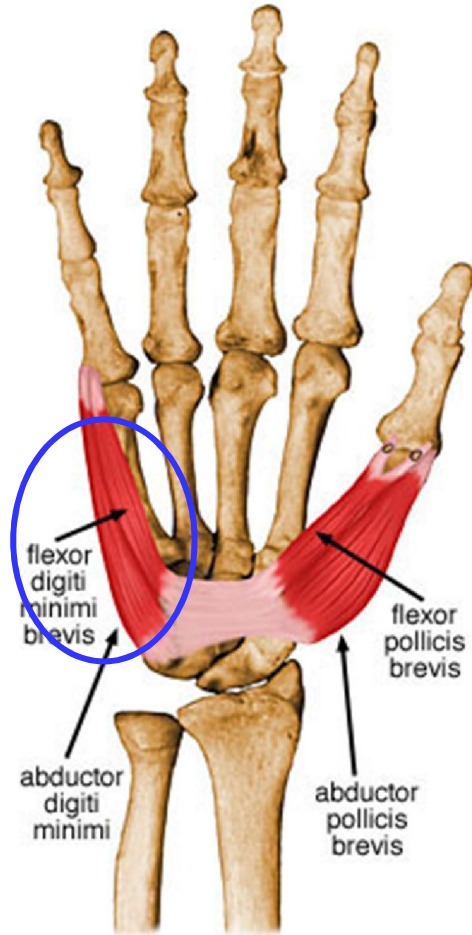


Opponens pollicis
拇对掌肌



Adductor pollicis
拇收肌

Hypothenar 3—movement of 5th finger

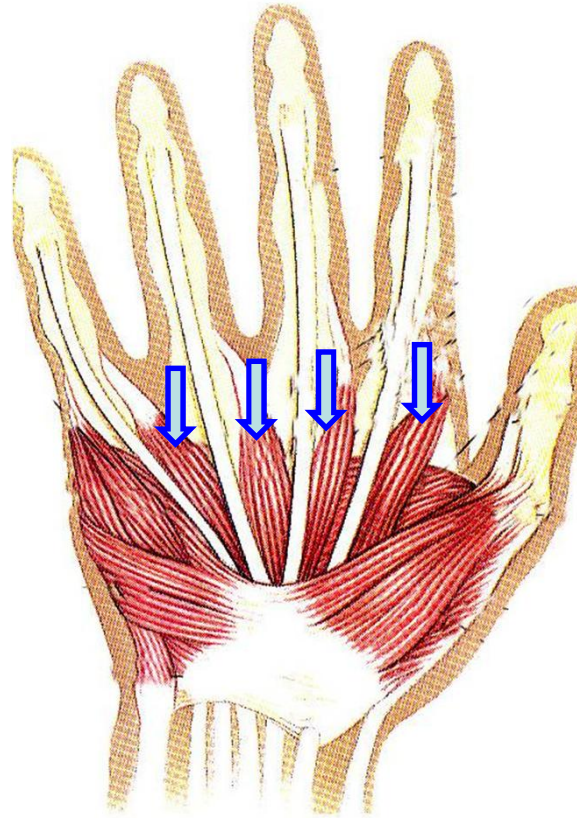


Flexor digiti minimi brevis 小指短屈肌

Opponens digiti minimi 小指对掌肌

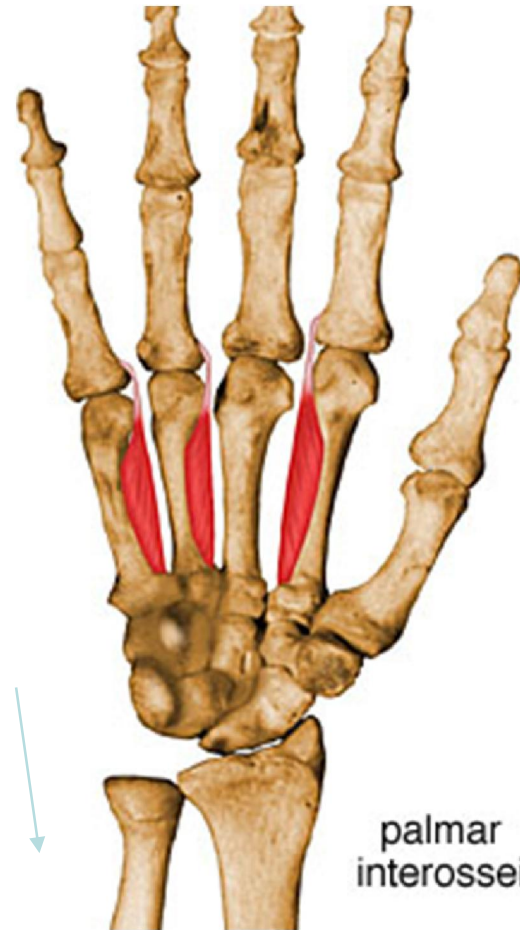
Adductor digiti minimi 小指收肌

Intermediate group 11 — movement of 2-4 finger



Lumbricales 蚓状肌 4

Action: Flexor the finger

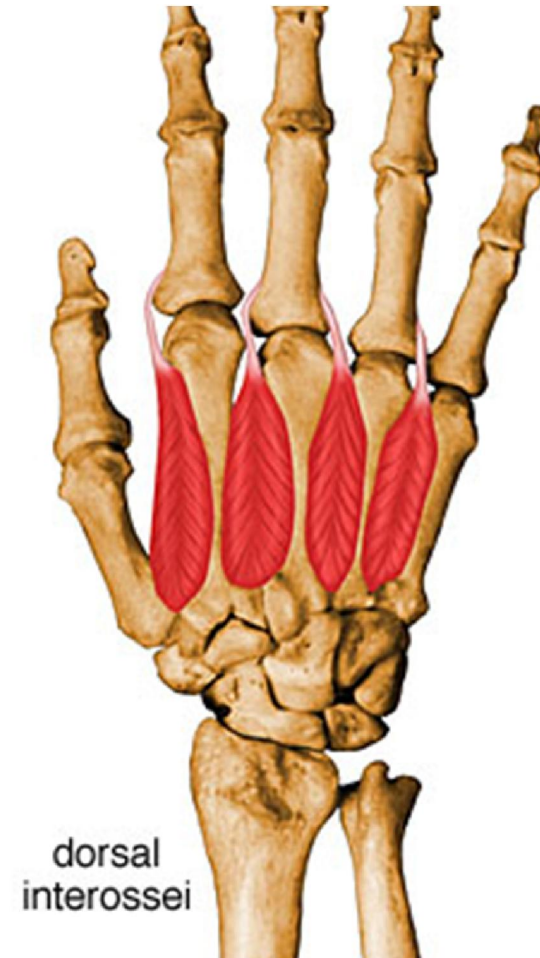


palmar
interossei

Palmar interossei 3

骨间掌侧肌

Action: Adductor



dorsal
interossei

Dorsal interossei 4

骨间背侧肌
(被面观)

Cc



G

HA



H

Ana



ersity



Extended



Flexed



Abducted



Adducted



Opposed to little finger



A



B



C



D



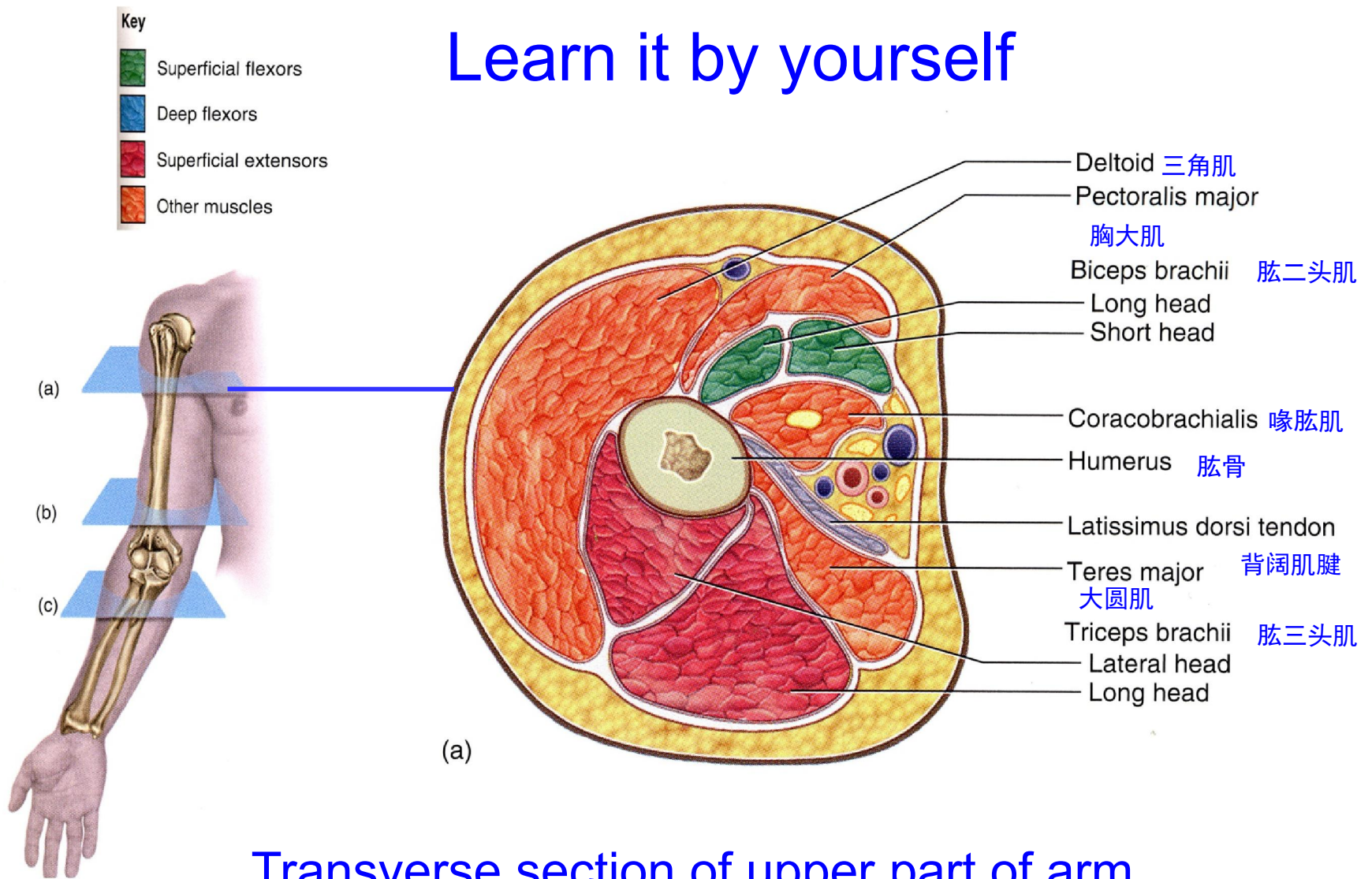
HA



F

ity

Learn it by yourself

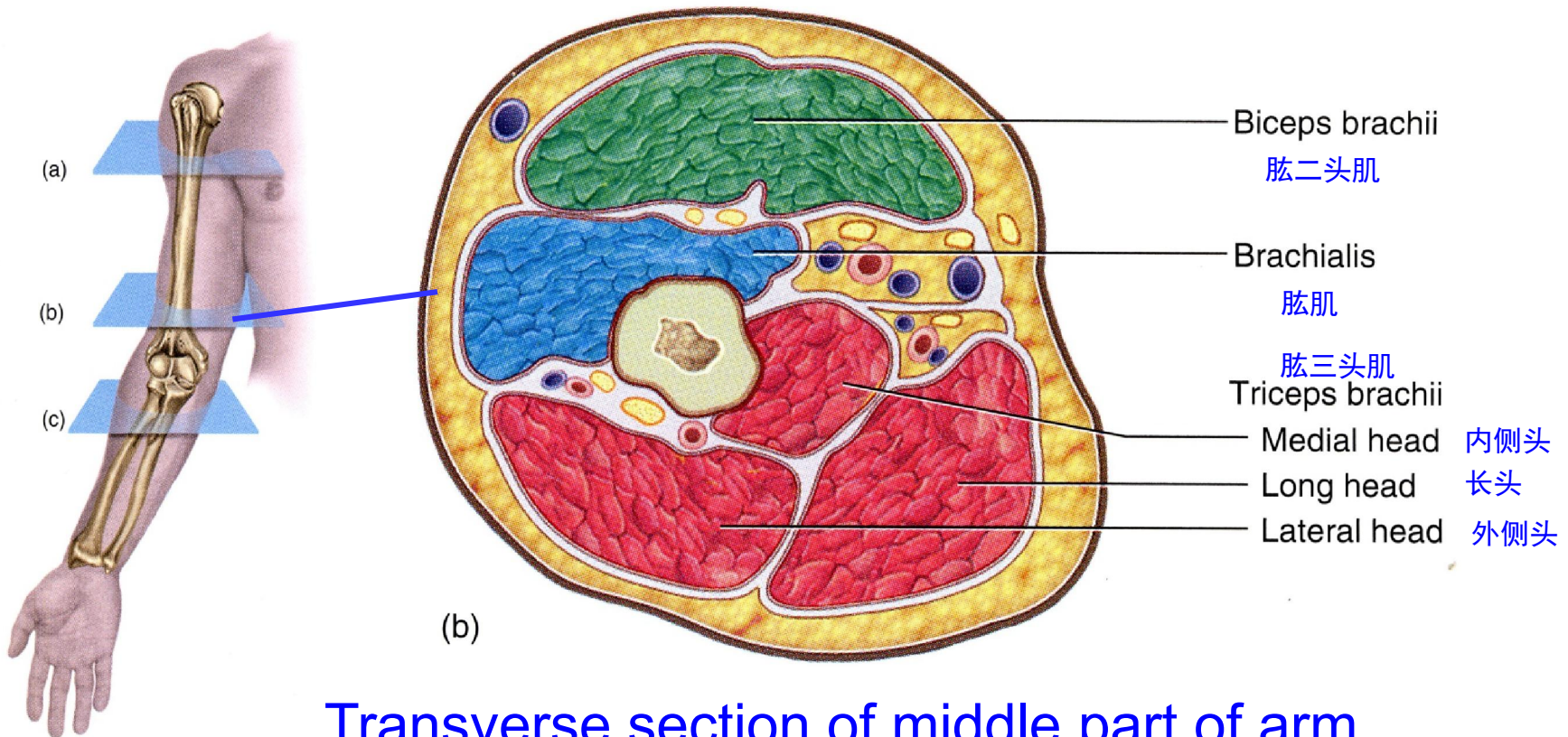


Transverse section of upper part of arm





Key

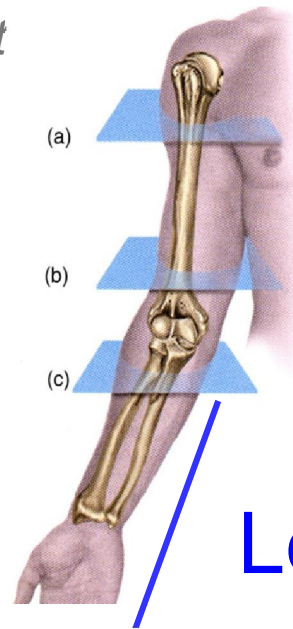
- Superficial flexors
- Deep flexors
- Superficial extensors
- Other muscles

Learn it by yourself



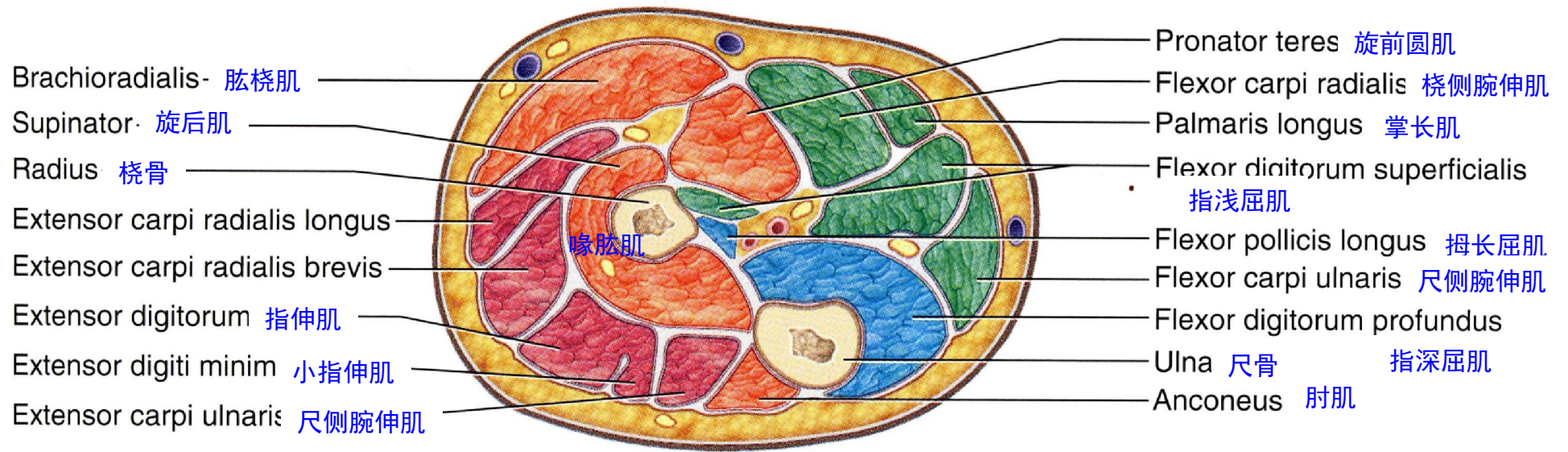
Transverse section of middle part of arm

-  Superficial flexors
-  Deep flexors
-  Superficial extensors
-  Other muscles



肱桡肌

Learn it by yourself



(c)

The important contents today

-
- ◆ Master the name, position and action of anterolateral group muscle in abdomen.
 - ◆ Master the name, position and action of shoulder muscle.
 - ◆ Master the name, location and function of the arm muscle.
 - ◆ Master the name and action of anterior and posterior group in forearm
 - ◆ Understand grouping of hand muscle.

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See you next time!

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