

ANATOMICAL DIAGRAMS FOR MEDICAL STUDENTS



GET KNOWLEDGE THAT EVERY ASPIRING PHYSICIAN NEEDS

AMERICA'S
NAVY

A GLOBAL FORCE FOR GOOD.™



MEDICINE CAN BE YOUR PASSION – AND YOUR MISSION



A GLOBAL FORCE FOR GOOD.™

Navy Medicine does more than provide world-class health care to servicemembers and their families. It also routinely brings hope and healing to patients in need around the globe.

Think about why you want to be a physician. Besides the respect and pay you know you'll earn. Besides the independence and impact you know you'll have. At the heart of it all is the desire to improve the lives of those around you. To make the world a better place. To give back.

Nowhere is such a promising future more possible than in the world of Navy Medicine.

Consider starting – and distinguishing – your medical career in America's Navy

As a Navy Physician and Medical Officer in the Navy Medical Corps, you can pursue your true passion for helping others. Here you can:

- Practice patient-focused medicine in any of more than 30 specialty/subspecialty areas – without the business-related hassles found in civilian practice
- Gain unrivaled experience – which includes the chance to take part in humanitarian efforts
- Be affiliated with a world-class health-care network – after receiving financial assistance that can help pay for medical school

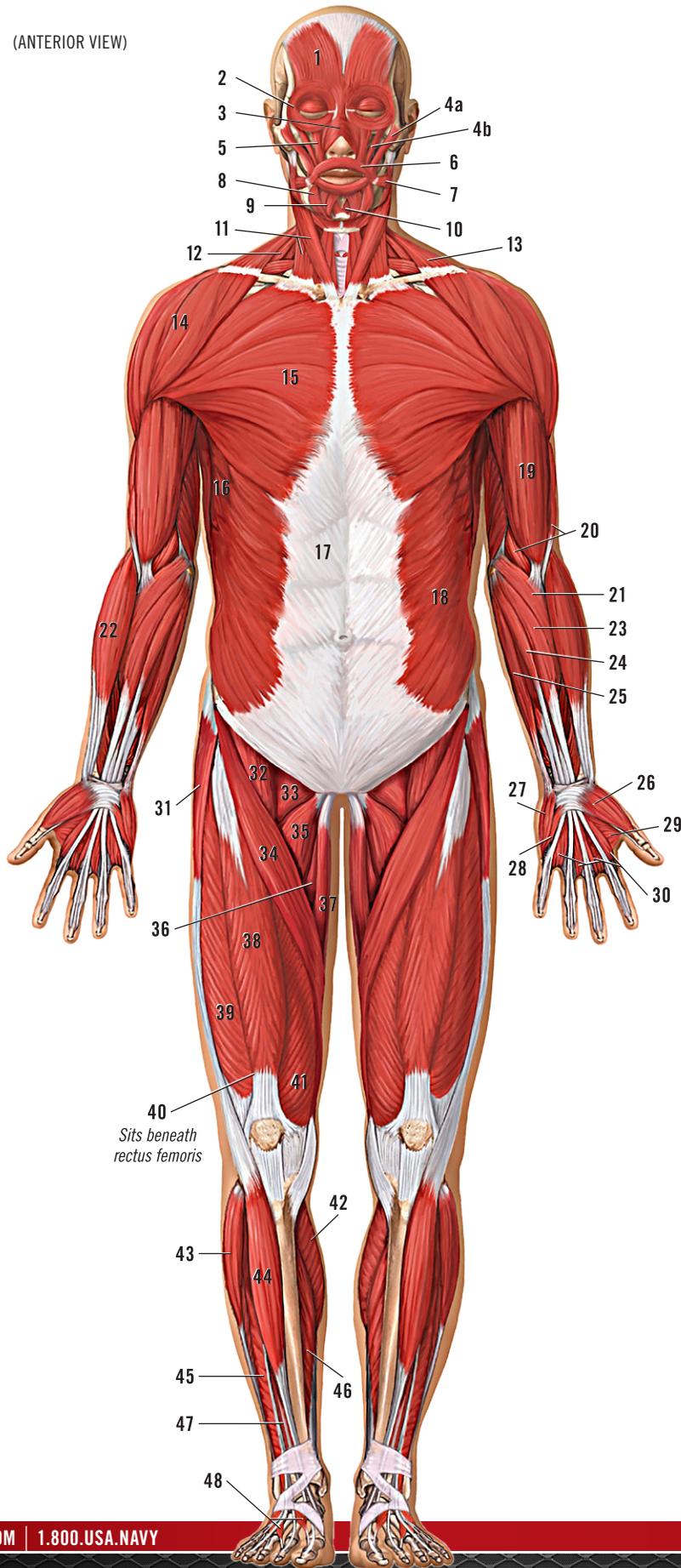
First things first: study hard and finish your medical degree

For now, focus on your studies. Use the diagrams. Share them. Or feel free to pass them on. It's the least we can do to help you gain the knowledge that you will need as a physician.

And remember: America's Navy can not only help you to be the best physician you can be, but it can also help fund your medical education through available scholarship programs right now. At any accredited medical school that you are accepted to or currently attending. And there's no service commitment until after you graduate.

MUSCULAR SYSTEM

(ANTERIOR VIEW)



Got it memorized?

Cover the labels and quiz yourself.

1. Frontalis
2. Orbicularis oculi
3. Nasalis
- 4a. Zygomaticus major
- 4b. Zygomaticus minor
5. Levator labii superioris
6. Orbicularis oris
7. Risorius
8. Depressor anguli oris
9. Depressor labii inferioris
10. Mentalis
11. Sternocleidomastoid
12. Scalene
13. Trapezius
14. Deltoid
15. Pectoralis major
16. Serratus anterior
17. Rectus abdominis
18. Obliquus externus
19. Biceps brachii
20. Brachialis
21. Pronator teres
22. Brachioradialis
23. Flexor carpi radialis
24. Palmaris longus
25. Flexor carpi ulnaris
26. Adductor pollicis brevis
27. Opponens digiti minimi
28. Adductor digiti minimi
29. Adductor pollicis
30. Lumbricales
31. Tensor fasciae latae
32. Iliopsoas
33. Pectineus
34. Sartorius
35. Adductor longus
36. Adductor magnus
37. Gracilis
38. Rectus femoris
39. Vastus lateralis
40. Vastus intermedius
41. Vastus medialis
42. Gastrocnemius: medial head
43. Peroneus longus
44. Tibialis anterior
45. Extensor digitorum longus
46. Soleus
47. Peroneus tertius
48. Digitorum brevis

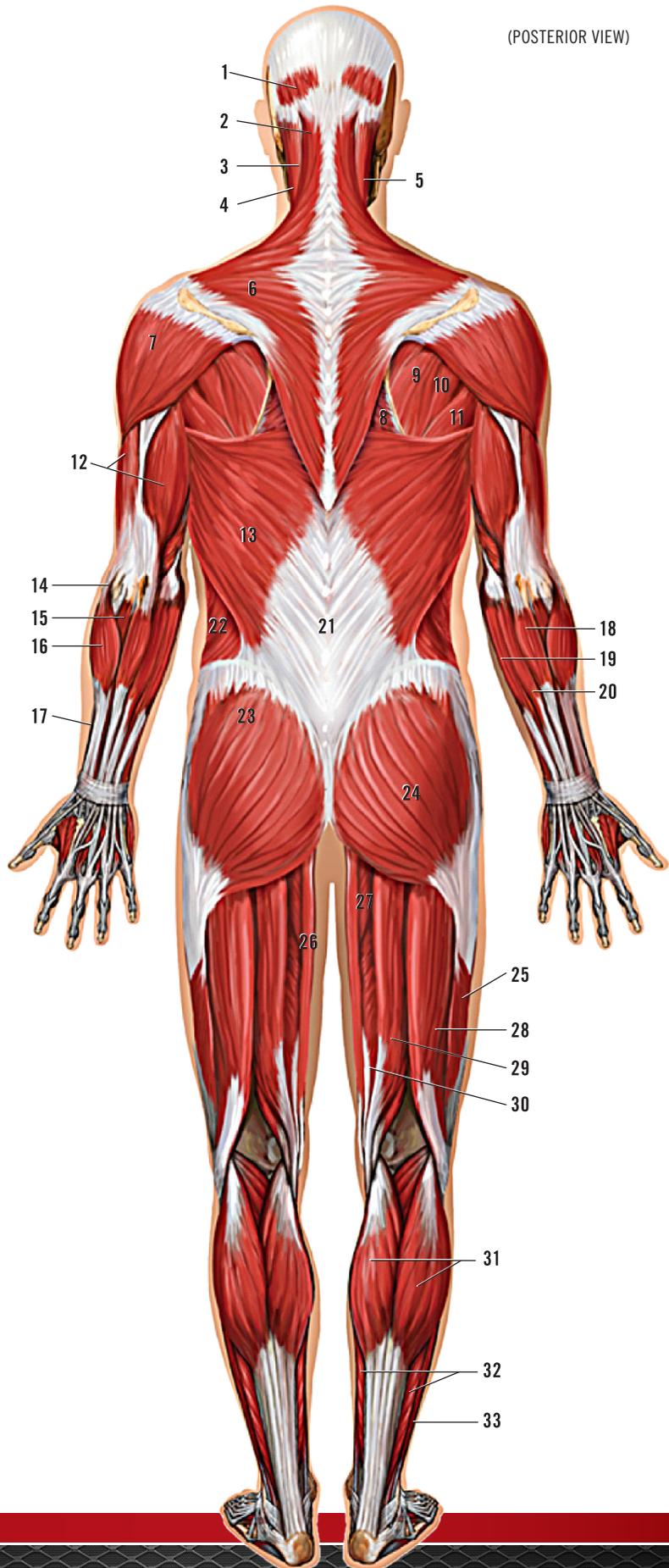
MUSCULAR SYSTEM

(POSTERIOR VIEW)

Got it memorized?

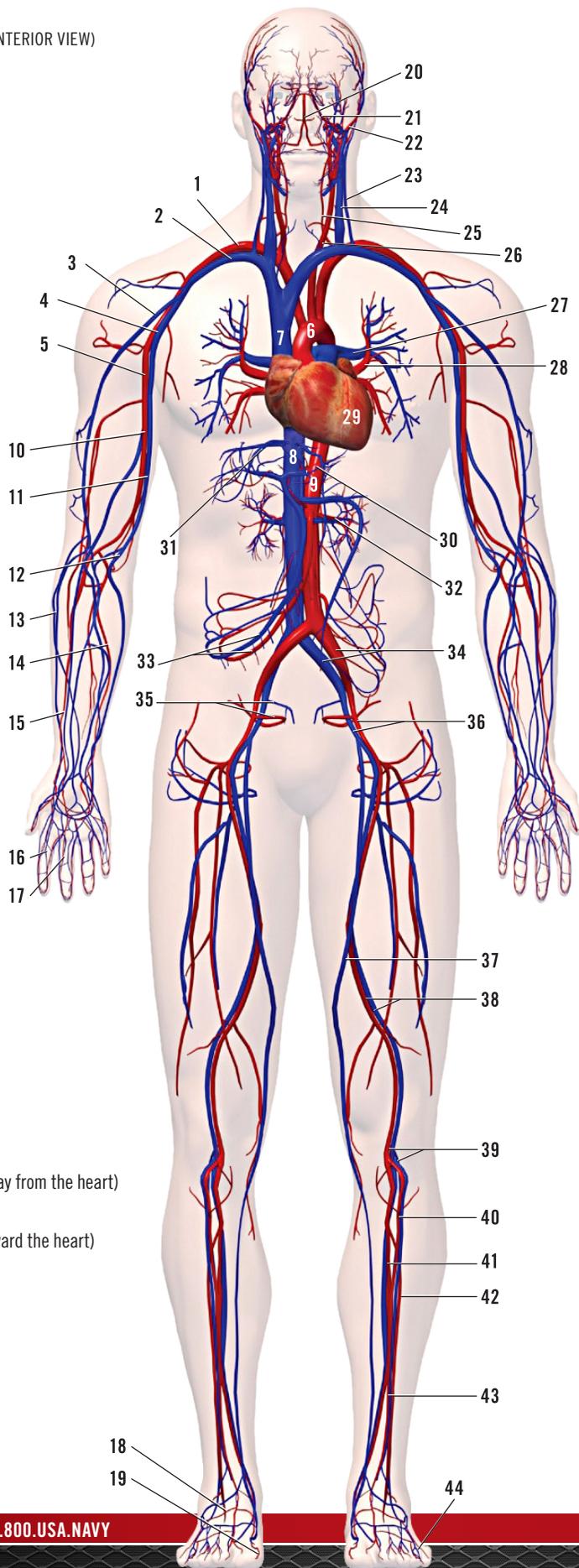
Cover the labels and quiz yourself.

1. Occipitalis
2. Semispinalis capitis
(sits beneath Trapezius muscle)
3. Splenius capitis
(sits beneath Trapezius muscle)
4. Levator scapulae
(sits beneath Trapezius muscle)
5. Sternocleidomastoid
6. Trapezius
7. Deltoid
8. Rhomboideus major
9. Infraspinatus
10. Teres minor
11. Teres major
12. Triceps brachii
13. Latissimus dorsi
14. Brachioradialis
15. Anconeus
16. Extensor carpi radialis longus
17. Extensor carpi radialis brevis
18. Extensor digitorum communis
19. Flexor carpi ulnaris
20. Extensor carpi ulnaris
21. Erector spinae *(runs the length of the spine)*
22. Obliquus internus and externus
23. Gluteus medius and gluteus minimus *(underneath gluteus medius)*
24. Gluteus maximus
25. Vastus lateralis
26. Gracilis
27. Adductor magnus
28. Biceps femoris
29. Semitendinosus
30. Semimembranosus
31. Gastrocnemius
32. Soleus
33. Peroneus longus



GENERAL VASCULAR SYSTEM

(ANTERIOR VIEW)



Got it memorized?

Cover the labels and quiz yourself.

1. Subclavian *a.*
2. Subclavian *v.*
3. Cephalic *v.*
4. Axillary *v.*
5. Axillary *a.*
6. Aorta
7. Superior vena cava
8. Inferior vena cava
9. Descending thoracic aorta
10. Brachial *a.*
11. Basilic *v.*
12. Median cubital *v.*
13. Cephalic *v.*
14. Ulnar *a.*
15. Radial *a.*
16. Palmar digital *v.*
17. Digital *a.*
18. Arcuate *a.*
19. Dorsal digital *a.*
20. Basilar *a.*
21. Internal carotid *a.*
22. External carotid *a.*
23. External jugular *v.*
24. Internal jugular *v.*
25. Vertebral *a.*
26. Common carotid *a.*
27. Pulmonary *v.*
28. Pulmonary *a.*
29. Heart
30. Celiac trunk
31. Hepatic portal *v.*
32. Renal *a.* and *v.*
33. Gonadal *a.* and *v.*
34. Common iliac *a.* and *v.* left
35. Internal iliac *a.* and *v.* right
36. External iliac *a.* and *v.* left
37. Great saphenous *v.*
38. Femoral *a.* and *v.* left
39. Popliteal *a.* and *v.* left
40. Small saphenous *v.*
41. Anterior tibial *a.*
42. Posterior tibial *a.*
43. Peroneal *a.*
44. Dorsal digital *v.*

ARTERIES

(Blood flows away from the heart)

VEINS

(Blood flows toward the heart)

KEY

- a.* = artery
- v.* = vein

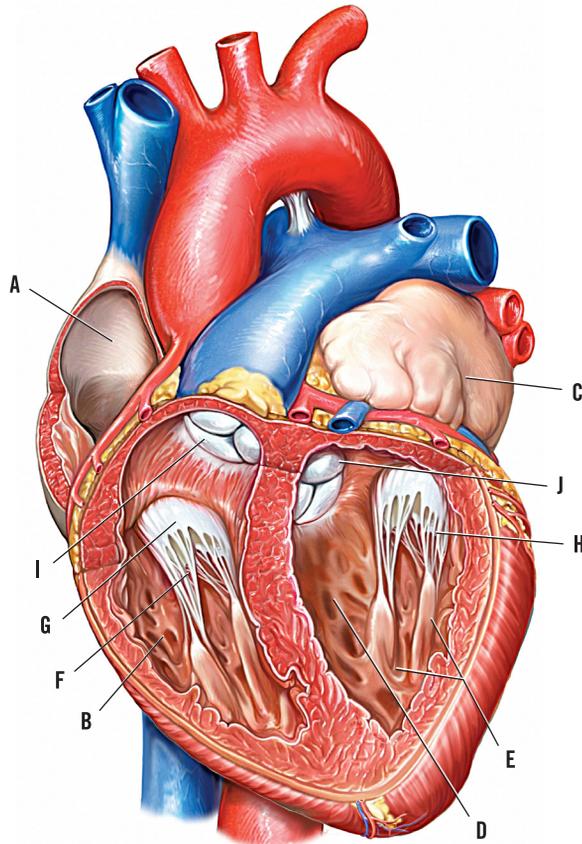
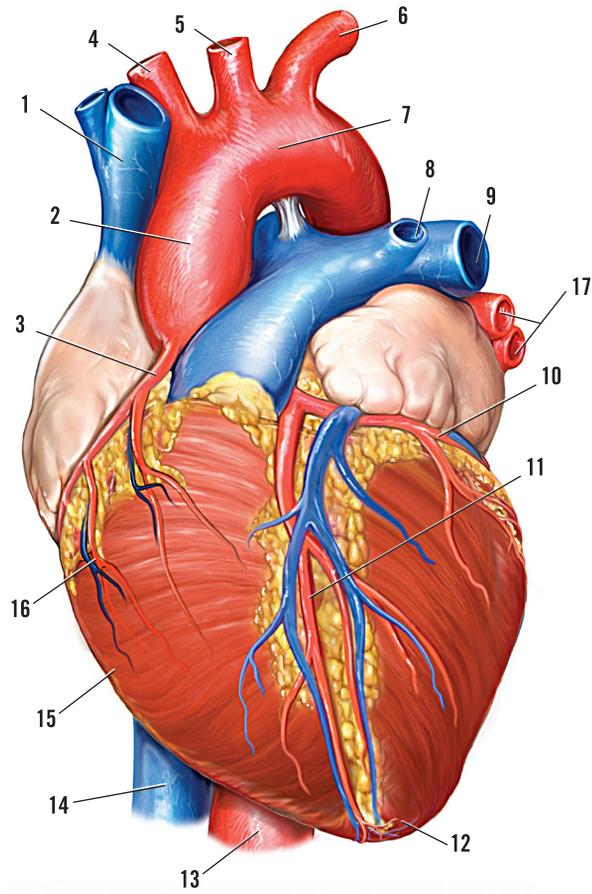
HEART

Got it memorized?

Cover the labels and quiz yourself.

1. Superior vena cava
2. Ascending aorta *a.*
3. Coronary right *a.*
4. Subclavian right *a.*
5. Common carotid left *a.*
6. Subclavian left *a.*
7. Aortic arch
8. Pulmonary right *v.*
9. Pulmonary left *v.*
10. Left circumflex *a.*
11. Left anterior descending
12. Apex of the heart
13. Descending aorta *a.*
14. Inferior vena cava
15. Cardiac muscle
16. Marginal branches *a.*
17. Pulmonary superior/inferior *a.*

- A. Right atrium
- B. Right ventricle
- C. Left atrium
- D. Left ventricle
- E. Papillary muscles
- F. Chordae tendineae
- G. Tricuspid valve
- H. Mitral valve
- I. Pulmonary valve
- J. Aortic valve

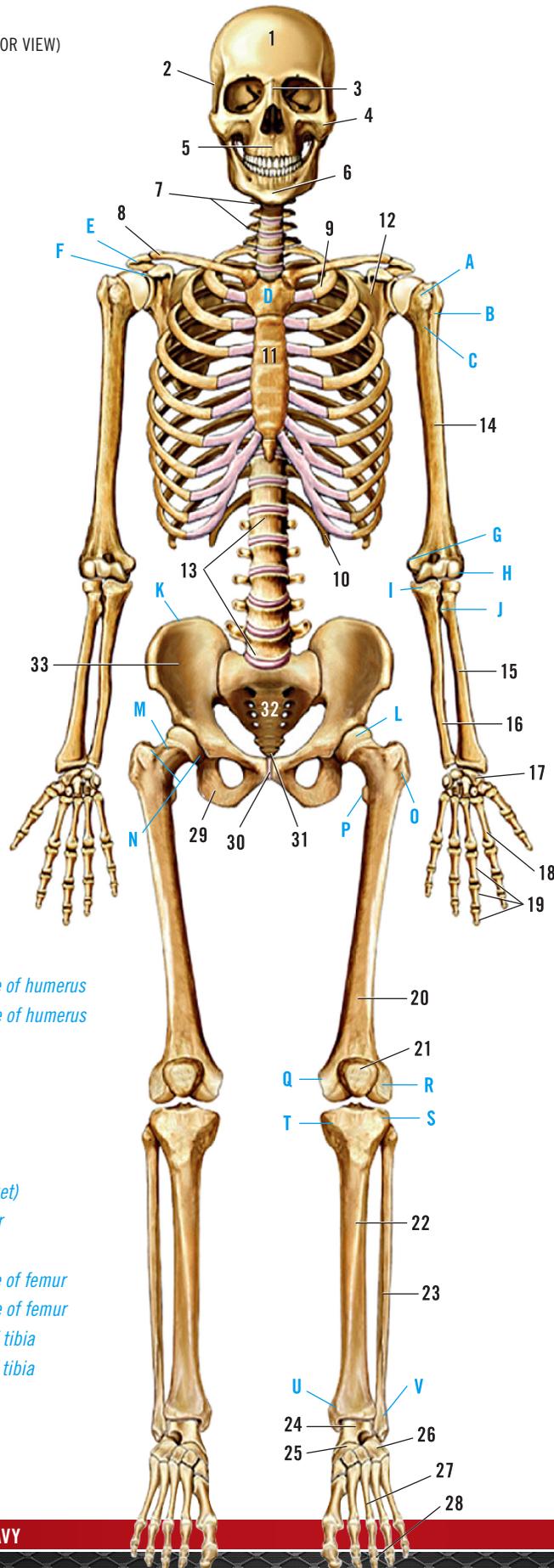


KEY:

- a.* = artery
- v.* = vein

SKELETAL SYSTEM

(ANTERIOR VIEW)



BONE FEATURES

- A. Lesser tubercle
- B. Greater tubercle
- C. Bicipital groove
- D. Manubrium
- E. Acromion
- F. Coracoid process
- G. Medial epicondyle of humerus
- H. Lateral epicondyle of humerus
- I. Coronoid process
- J. Tuberosity
- K. Iliac crest
- L. Head
- M. Neck
- N. Acetabulum (socket)
- O. Greater trochanter
- P. Lesser trochanter
- Q. Medial epicondyle of femur
- R. Lateral epicondyle of femur
- S. Lateral condyle of tibia
- T. Medial condyle of tibia
- U. Medial malleolus
- V. Lateral malleolus

Got it memorized?

Cover the labels and quiz yourself.

1. Frontal
2. Temporal
3. Nasal
4. Zygomatic
5. Maxilla
6. Mandible
7. Cervical vertebrae (1–7)
8. Clavicle
9. 1st rib:
True ribs (1–7)
False ribs (8–10)
10. 12th rib:
False ribs (11–12) Floating ribs
11. Sternum
12. Scapula
13. Lumbar vertebrae (1–5)
14. Humerus
15. Radius
16. Ulna
17. Carpals
18. Metacarpals
19. Phalanges
20. Femur
21. Patella (kneecap)
22. Tibia
23. Fibula
24. Talus
25. Navicular
26. Cuboid
27. Metatarsals
28. Phalanges
29. Ischium
30. Pubic symphysis
31. Coccyx
32. Sacrum
33. Ilium

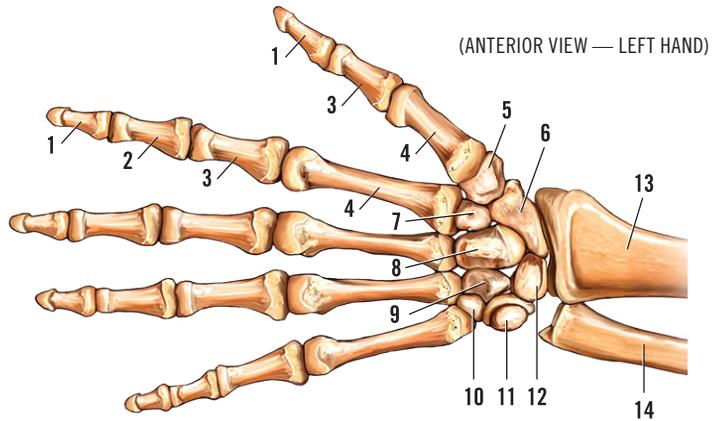
SKELETAL SYSTEM

Got it memorized?

Cover the labels and quiz yourself.

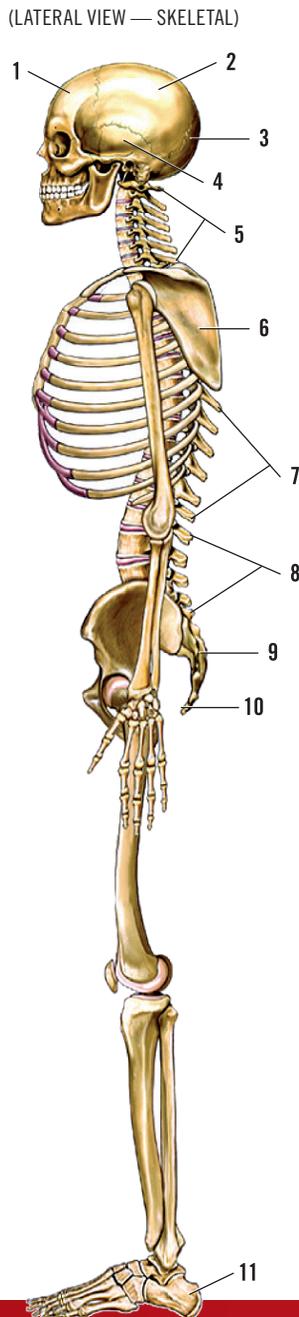
HANDS

1. Distal phalanges
2. Middle phalanges
3. Proximal phalanges
4. Metacarpal bones
5. Trapezium
6. Scaphoid
7. Trapezoid
8. Capitate
9. Hamate
10. Pisiform
11. Triquetral
12. Lunate
13. Radius
14. Ulna



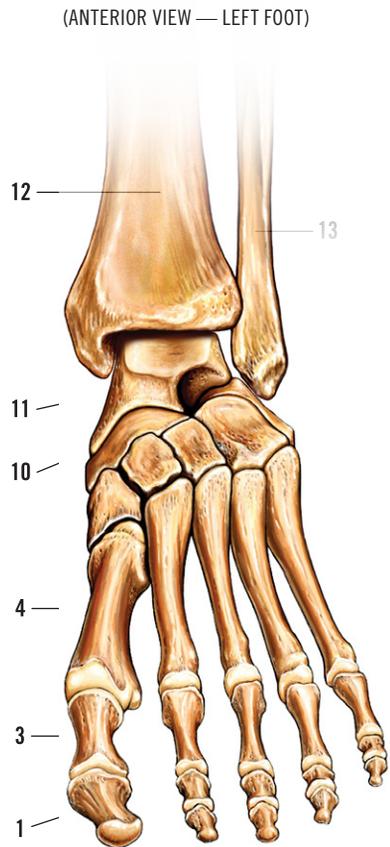
LATERAL VIEW SKELETAL

1. Frontal
2. Parietal
3. Occipital
4. Temporal
5. Cervical vertebrae (1-7)
6. Scapula
7. Thoracic vertebrae 1-12)
8. Lumbar vertebrae (1-5)
9. Sacrum
10. Coccyx
11. Calcaneus



FEET

1. Distal phalanges
2. Middle phalanges
3. Proximal phalanges
4. Metatarsals
5. Medial cuneiform
6. Intermediate cuneiform
7. Lateral cuneiform
8. Cuboid
9. Calcaneus
10. Navicular
11. Talus
12. Tibia
13. Fibula



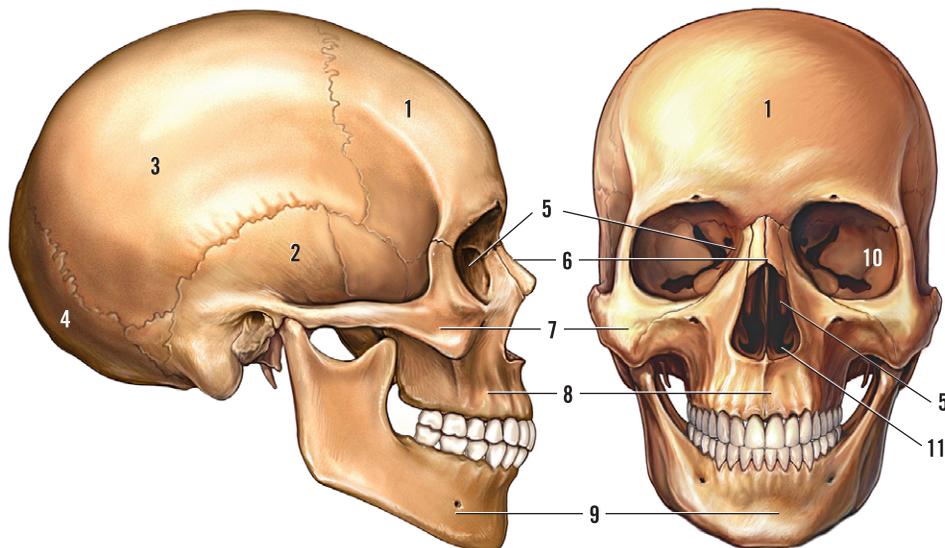
SKULL AND BRAIN

Got it memorized?

Cover the labels and quiz yourself.

(LATERAL VIEW)

(ANTERIOR VIEW)



SKULL BONES

- | | |
|--------------|--------------|
| 1. Frontal | 7. Zygomatic |
| 2. Temporal | 8. Maxilla |
| 3. Parietal | 9. Mandible |
| 4. Occipital | 10. Sphenoid |
| 5. Lacrimal | 11. Vomer |
| 6. Nasal | |

BRAIN

- | | |
|-------------------|----------------------|
| 1. Frontal lobe | 5. Cerebellum |
| 2. Temporal lobe | 6. Medulla oblongata |
| 3. Parietal lobe | 7. Corpus Callosum |
| 4. Occipital lobe | |

Frontal Lobe of the Cerebrum — the top, front regions of each of the cerebral hemispheres. They are used for reasoning, emotions, judgment and voluntary movement.

Temporal Lobe of the Cerebrum — the region at the lower side of each cerebral hemisphere. It contains centers of hearing and memory (located at the sides of the head).

Parietal Lobe of the Cerebrum — the middle lobe of each cerebral hemisphere between the frontal and occipital lobes. It contains important sensory centers (located at the upper rear of the head).

Pituitary Gland — a gland attached to the base of the brain (located between the pons and the corpus callosum) that secretes hormones.

Occipital Lobe of the Cerebrum — the region at the back of each cerebral hemisphere that contains the centers of vision and reading ability (located at the back of the head).

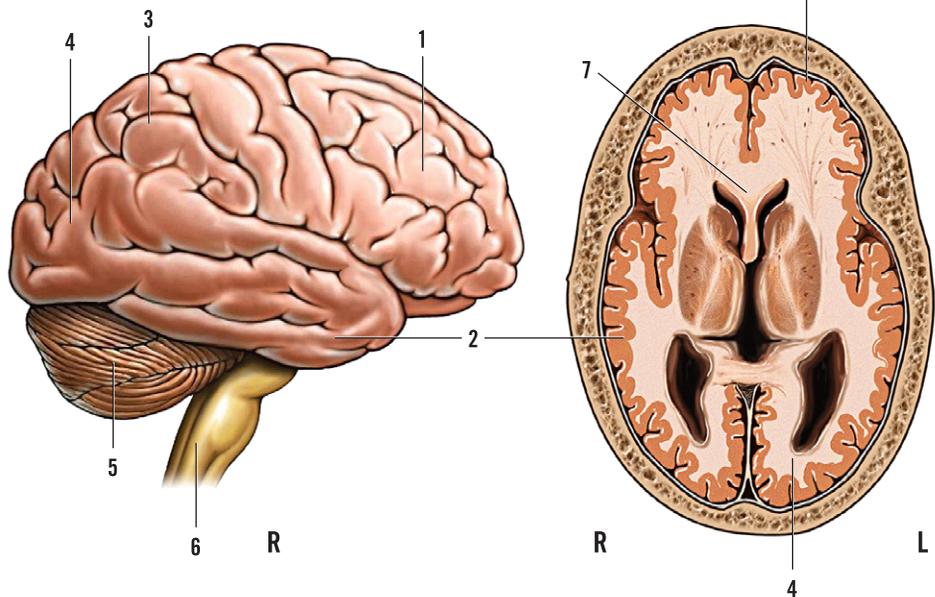
Cerebellum — the part of the brain below the back of the cerebrum. It regulates balance, posture, movement and muscle coordination.

Corpus Callosum — a large bundle of nerve fibers that connect the left and right cerebral hemispheres. In the lateral section, it looks a bit like a “C” on its side.

Medulla Oblongata — the lowest section of the brainstem (top end of the spinal cord). It controls automatic functions including heartbeat, breathing, etc.

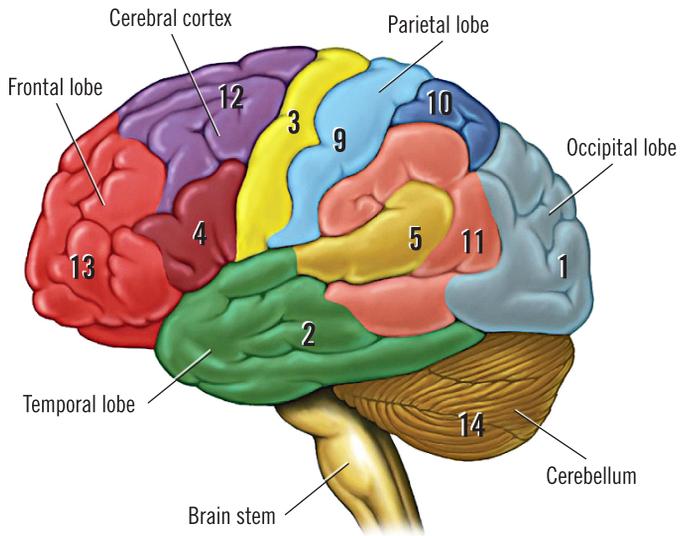
(LATERAL VIEW)

(TOP SLICE VIEW)

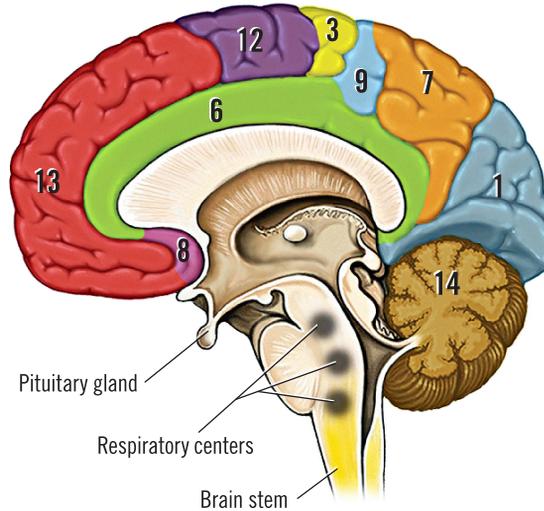


FUNCTIONAL AREAS OF THE BRAIN

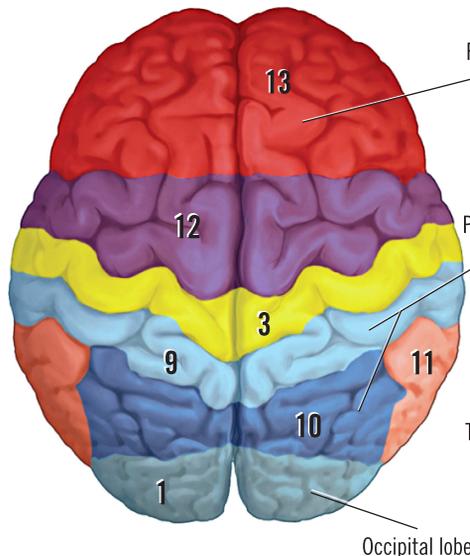
(LATERAL VIEW)



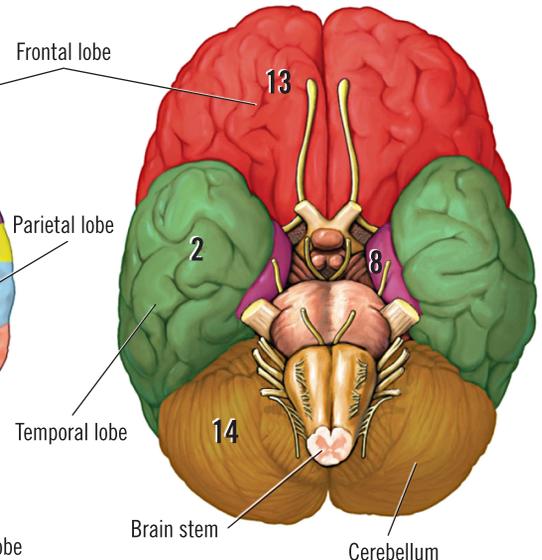
(SAGITTAL VIEW)



(SUPERIOR VIEW)



(INFERIOR VIEW)



Got it memorized?

Cover the labels and quiz yourself.

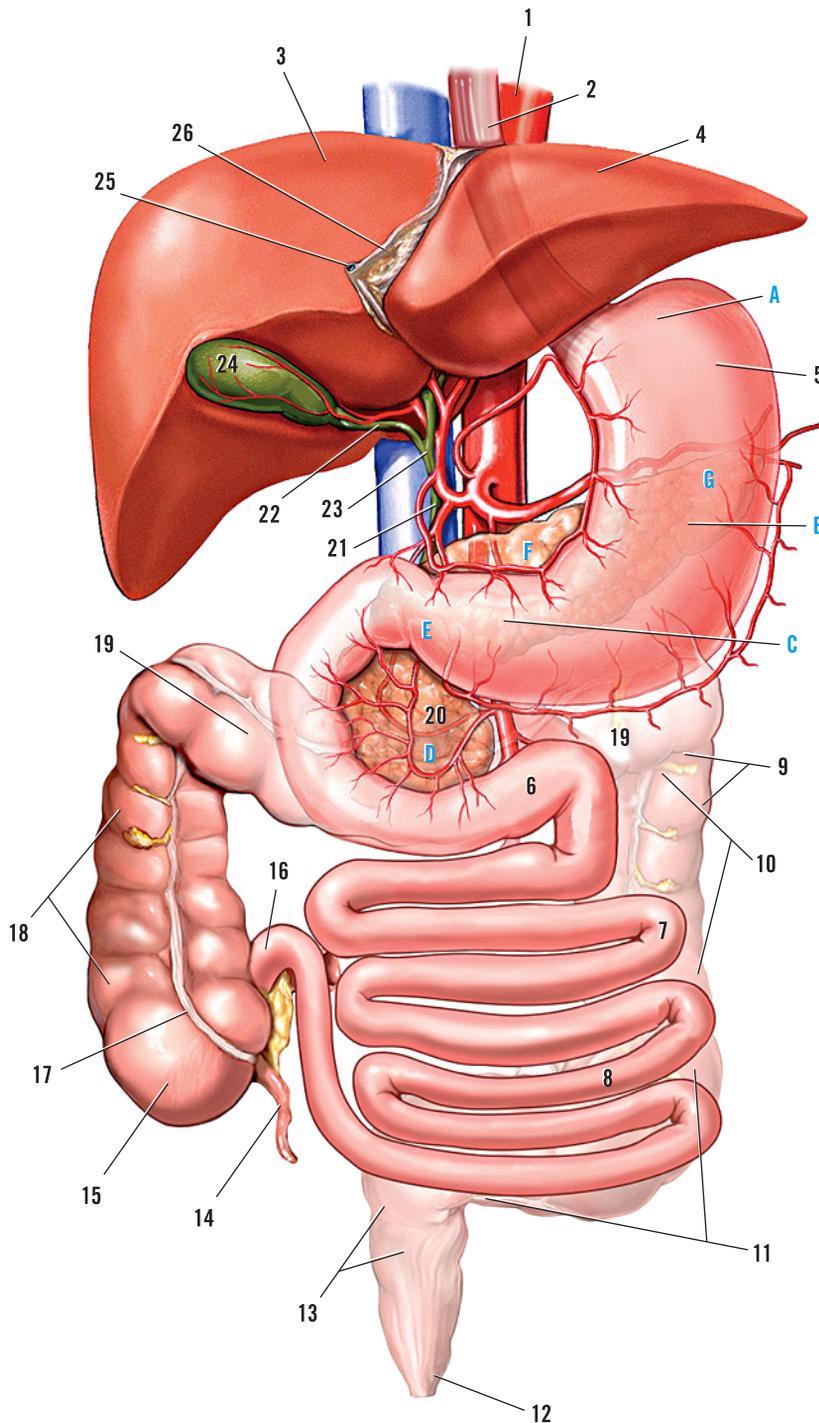
1. **Visual Area:**
Sight
Image recognition
Image perception
2. **Association Area:**
Short-term memory
Equilibrium
Emotion
3. **Motor Function Area:**
Initiation of voluntary muscles
4. **Broca's Area:**
Muscles of speech
5. **Auditory Area:**
Hearing
6. **Emotional Area:**
Pain
Hunger
"Fight or flight" response
7. **Sensory Association Area**
8. **Olfactory Area:**
Smelling
9. **Sensory Area:**
Sensation from muscles and skin
10. **Somatosensory Association Area:**
Evaluation of weight, texture, temperature, etc., for object recognition
11. **Wernicke's Area:**
Written and spoken language comprehension
12. **Motor Function Area:**
Eye movement and orientation
13. **Higher Mental Functions:**
Concentration
Planning
Judgment
Emotional expression
Creativity
Inhibitions
14. **Motor Functions:**
Coordination of movement
Balance and equilibrium
Posture

Functional Area of the Cerebellum

DIGESTIVE SYSTEM

Got it memorized?

Cover the labels and quiz yourself.



1. Descending thoracic aorta
2. Esophagus
3. Liver (right lobe)
4. Liver (left lobe)
5. Stomach:
 - A. Fundus
 - B. Body
 - C. Pyloric Antrum
6. Duodenum
7. Jejunum
8. Ileum
9. Haustra
10. Descending colon
11. Sigmoid colon
12. Anus
13. Rectum
14. Vermiform appendix
15. Cecum
16. Ileocecal valve
17. Taenia coli
18. Ascending colon
19. Transverse colon
20. Pancreas (*behind stomach*):
 - D. Head
 - E. Neck
 - F. Body
 - G. Tail
21. Common bile duct
22. Cystic duct
23. Common hepatic duct
24. Gallbladder
25. Round ligament of liver
26. Falciform ligament

BRACHIAL PLEXUS

Got it memorized?

Cover the labels and quiz yourself.

The brachial plexus is divided into **Roots, Trunks, Divisions, Cords** and **Branches**.

There are five “terminal” branches and numerous other “pre-terminal” or “collateral” branches that leave the plexus at various points along its length.

The five roots are the five anterior rami of the spinal nerves, after they have given off their segmental supply to the muscles of the neck.

These roots merge to form three **trunks**:

1. **Superior or upper (C5-C6)**
2. **Middle (C7)**
3. **Inferior or lower (C8-T1)**

Each trunk then splits in two, to form six **divisions**:

- anterior divisions of the upper, middle and lower trunks
- posterior divisions of the upper, middle and lower trunks

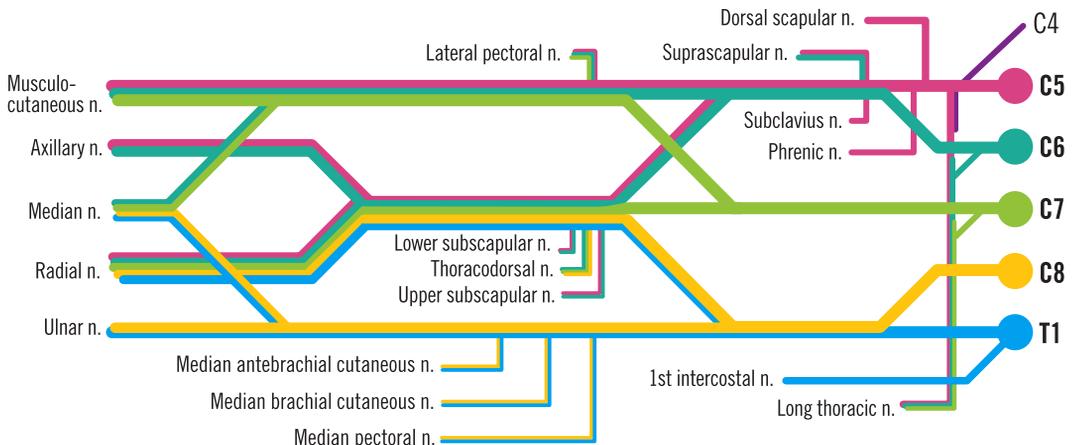
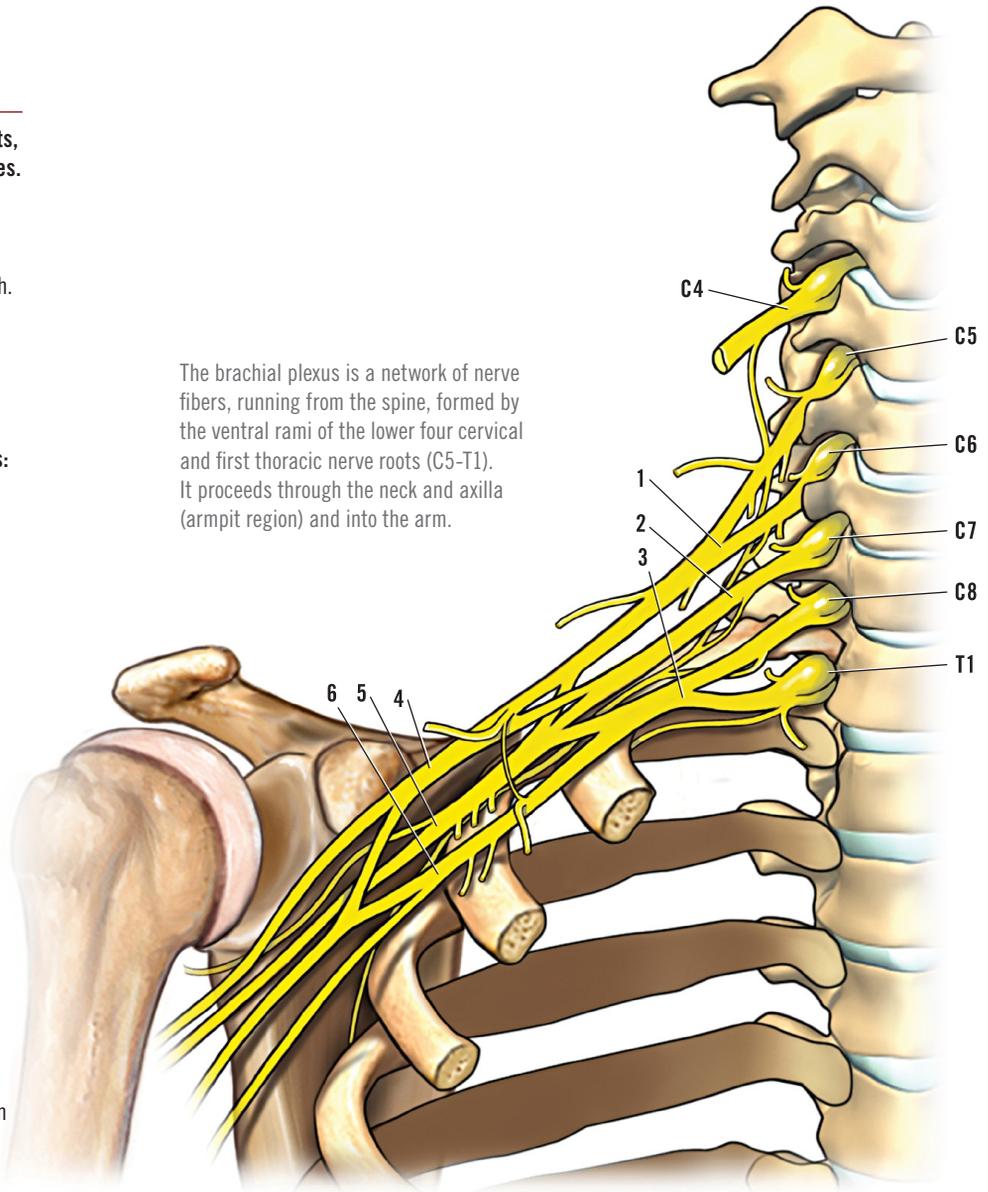
These six divisions will regroup to become the three **cords**. The cords are named by their position with respect to the axillary artery:

4. **Lateral cord** arises from the anterior divisions of the upper and middle trunks (C5-C7)
5. **Posterior cord** is formed from the three posterior divisions of the trunks (C5-T1)
6. **Medial cord** is simply a continuation of the anterior division of the lower trunk (C8-T1)

The branches are listed below.

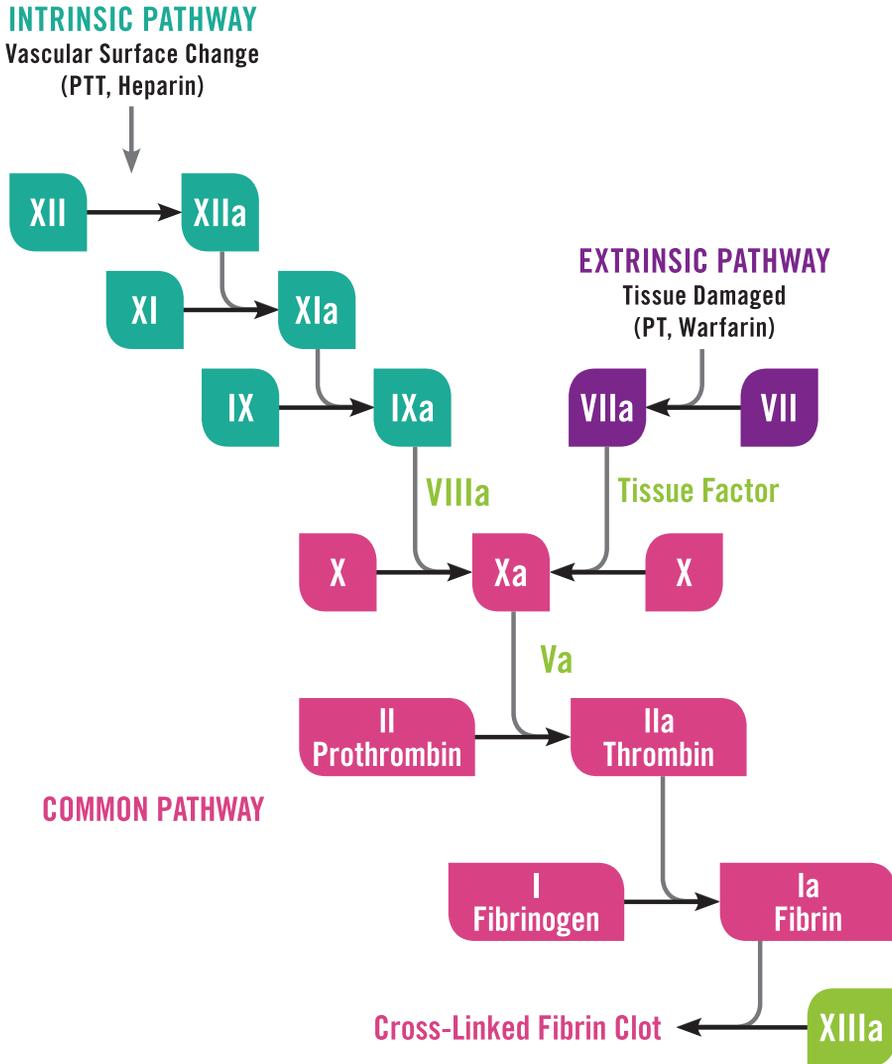
Most branch from the cords, but a few branch directly from earlier structures. The five on the left are considered “terminal branches.”

The brachial plexus is a network of nerve fibers, running from the spine, formed by the ventral rami of the lower four cervical and first thoracic nerve roots (C5-T1). It proceeds through the neck and axilla (armpit region) and into the arm.



KEY
n. = nerve

CLOTTING CASCADE



Got it memorized?

Cover the labels and quiz yourself.

This pathway begins with trauma to the blood vessel, exposure of blood to collagen in a damaged vascular wall, or exposure of the blood to a wettable surface such as glass. In response to these stimuli, two events occur.

First, Factor XII (aka Hageman Factor) is converted from its inactive form (zymogen) to an active form, Factor XIIa. Second, platelets are activated. Activated Factor XII is actually a protease which enzymatically activates Factor XI to Factor XIa ('a' at the end of factor name denotes an activated enzymatic factor).

This reaction requires the presence of high molecular weight kininogen and prekallekrein. Activated Factor XI is also a protease, but its function is to convert Factor IX to Factor IXa. Also a protease, Factor IXa then converts Factor X to Factor Xa.

This activation of Factor X is also greatly accelerated by Factor VIIIa. Deficiencies in either Factor VIII or Factor IX lead to bleeding diatheses known as Hemophilia A and Hemophilia B, respectively. Activated Factor X functions as a protease to convert the inactive molecule prothrombin to the active thrombin.

This step requires the presence of Factor Va. Thrombin then cleaves fibrinogen to fibrin, which then polymerizes to form fibrin strands.

DERMATOME MAP

Got it memorized?

Cover the labels and quiz yourself.

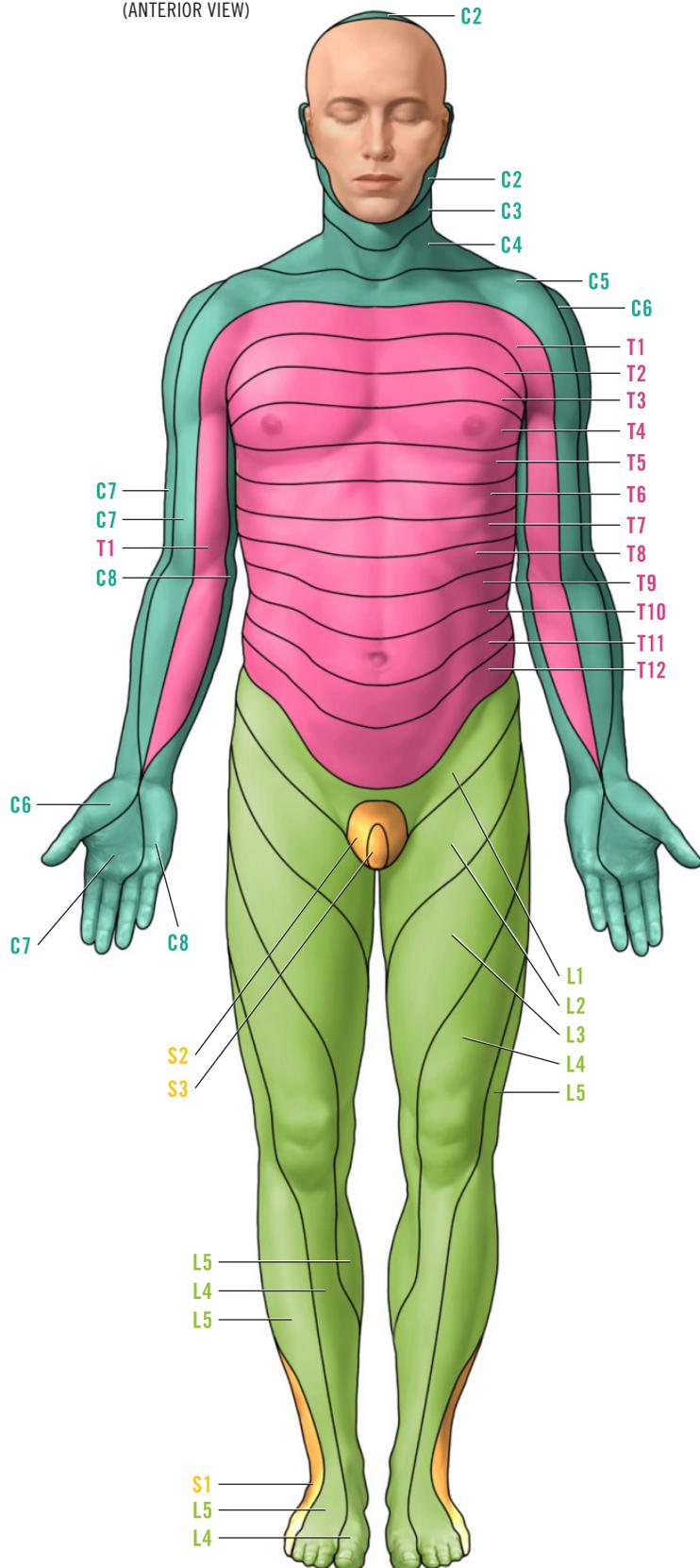
Important dermatomes and anatomical landmarks:

- C2. Occipital protuberance at the base of the skull, behind the ear
- C3. Supraclavicular fossa at the midclavicular line
- C4. Over the acromioclavicular joint
- C5. On the lateral antecubital fossa, just proximally to the elbow
- C6. Surface of the proximal phalanx of the thumb
- C7. Surface of the proximal phalanx of the middle finger
- C8. Surface of the proximal phalanx of the little finger
- T1. On the medial side of the antecubital fossa, just proximally to the medial epicondyle of the humerus
- T2. At the apex of the axilla
- T3. Intersection of the midclavicular line and the third intercostal space
- T4. Intersection of the midclavicular line and the fourth intercostal space, located at the level of the nipples
- T5. Intersection of the midclavicular line and the fifth intercostal space, horizontally located midway between the level of the nipples and the level of the xiphoid process
- T6. Intersection of the midclavicular line and the horizontal level of the xiphoid process

Following is a list of spinal nerves and points that characteristically belong to the dermatome of each nerve:

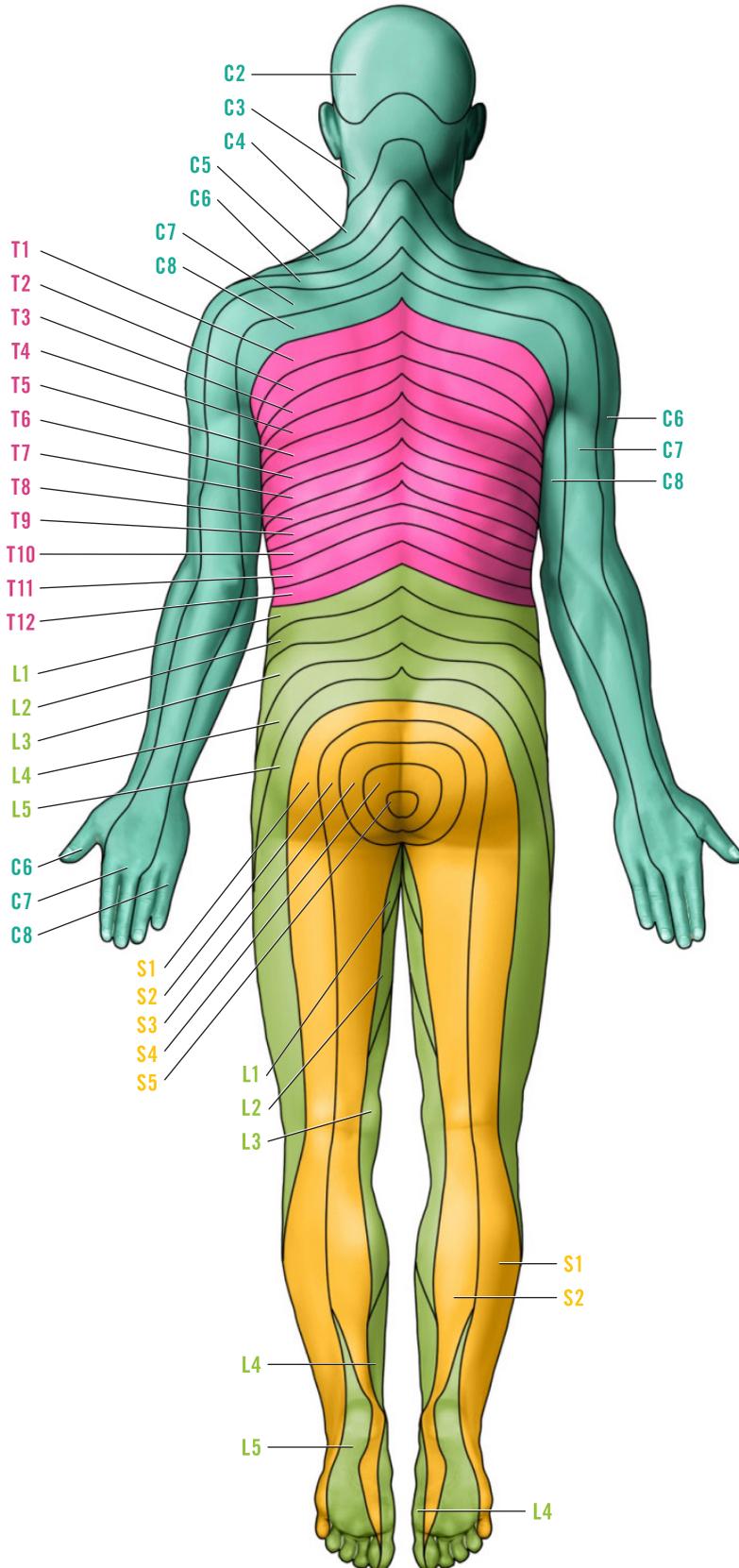
- Cervical dermatomes
- Thoracic dermatomes
- Lumbar dermatomes
- Sacral dermatomes

(ANTERIOR VIEW)



DERMATOME MAP

(POSTERIOR VIEW)



Got it memorized?

Cover the labels and quiz yourself.

Important dermatomes and anatomical landmarks:

- T7. Intersection of the midclavicular line and horizontal level at one quarter the distance between the level of the xiphoid process and the level umbilicus
- T8. Intersection of the midclavicular line and the horizontal level at one half the distance between the level of the xiphoid process and the level of the umbilicus
- T9. Intersection of the midclavicular line and the horizontal level at three quarters of the distance between the level of the xiphoid process and the level of the umbilicus
- T10. Intersection of the midclavicular line, at the horizontal level of the umbilicus
- T11. Intersection of the midclavicular line, at the horizontal level midway between the level of the umbilicus and the inguinal ligament
- T12. Intersection of the midclavicular line and the midpoint of the inguinal ligament
- L1. Between the key sensory points for T12 and L2
- L2. On the anterior medial thigh, at the midpoint of a line connecting the midpoint of the inguinal ligament and the medial epicondyle of the femur
- L3. At the medial epicondyle of the femur
- L4. Over the medial malleolus
- L5. On the dorsum of the foot at the third metatarsophalangeal joint
- S1. On the lateral aspect of the calcaneus
- S2. At the midpoint of the popliteal fossa
- S3. Over the tuberosity of the ischium or infragluteal fold
- S4 and S5. In the perianal area, less than 1 cm lateral to the mucocutaneous zone

- Cervical dermatomes
- Thoracic dermatomes
- Lumbar dermatomes
- Sacral dermatomes

The physician you want to be – and the specialty you want to practice.

From preventive care to emergency treatment to surgery, you'll find Navy Medicine at the forefront. Pioneering advances in the field. Providing the opportunity to practice in any of the following areas:

Aerospace Medicine
Anesthesiology
Dermatology
Emergency Medicine
Family Medicine
Fleet Marine Corps Medicine
Geriatrics
Internal Medicine*
Neonatology
Neurology
Nuclear Medicine

Obstetrics/Gynecology
Occupational Medicine
Ophthalmology*
Osteopathic Medicine
Otolaryngology
Pain Management
Pathology*
Pediatrics*
Physical Medicine
Plastic and Reconstructive Surgery
Preventive Medicine

Psychiatry*
Radiology*
Sports Medicine
Surface Medicine
Surgery*
Transfusion Medicine
Tropical Medicine
Undersea/Diving Medicine
Urology

*Additional subspecialties may be considered.

Find out more about Navy Medicine and hear real stories from other Navy Health Care professionals, like Dr. Nassiri, at navy.com/careers/healthcare



AMERICA'S
NAVY

A GLOBAL FORCE FOR GOOD.™