Netter for Isilo 3.0

Made by agoodbear(NDMC)

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388B Block Anesthesia of Perineal Area: Primarily Pudendal Nerve
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Head and Neck

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Thorax

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227 Lymph Vessels and Nodes of Esophagus
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Abdomen

227 Lymph Vessels and Nodes of Esophagus
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325 Lymph Vessels and Nodes of Kidneys and Urinary Bladder

Pelvis and Perineum

249 Lymph Vessels and Nodes of Posterior Abdominal Wall
381 Lymph Vessels and Nodes of Pelvis and Genitilia: Female
382 Lymph Vessels and Nodes of Perineum: Female
383A Lymph Vessels and Nodes of Pelvis and Genitilia: Male
383B Lymphatic Drainage from Prostate

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403B Pectoral, Clavpectoral and Axillary Fasciae: Section of Axilla
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514C Lymph Vessels and Nodes of Lower Limb: Inguinal Region
Skull of Newborn
Lateral View
Bony Framework of Head and Neck
Lateral View

- Sphenoid bone
- Temporal bone
- Zygomatic arch
- Mandible ramus
- Mandibular notch
- Lateral pterygoid plate (broken line)
- Masseter process
- Masseter process
- Lingual process of mandible
- Mandibular condyle
- Angle of mandible
- Body of mandible
- Mandibular ramus
- Greater horn of hyoid bone
- Lesser horn of hyoid bone
- Cricoid cartilage
- Thyroid
Bony Framework of Head - Mandible Removed
Lateral View

- Infratemporal fossa
- Sphenopalatine foramen
- Petrosal sinus
- Spine of sphenoid bone
- Chasm (posterior maxill)
- Alveolar process of maxilla
- Alveolar process of mandible
- Nuchal region of skull
- Premaxillary processes of premaxilla bones
- Pterygoid processes of pterygoid bone
- Muscles of pterygoid process
- Lateral plate of pterygoid process
- Medial plate of pterygoid process
- Foramen ovale
- Foramen spinosum
Mandible
Anterolateral Superior View
Temporomandibular Joint

Joint Action

Jaws closed

Articular tubercle
Articular disc
Jaw condyle

Jaws slightly opened
(leading action predominates)

Jaws widely opened
(leading and gliding action combined)

Jaws closed

Articular tubercle
Articular disc
Jaw condyle
Cervical Vertebrae [C1-C4], Assembled
Posterosuperior View

- Anterior facet for occipital condyle
- Articular facet for transverse ligament
- Articular facet for transverse ligament
- Vertebra C1
- Vertebra C3
- Vertebra C4
Cervical Vertebrae [C4 and C7]
Superior Views
Cervical Vertebrae [C2-T1, Assembled]
Right Lateral View

- Sphenoid processes
- Intervertebral foramina
- Lamina
- Spinous process
- Recess for articular processes
- Vertebral body (medullary cavity formed in disc removed)
- Neuraxial foramina
Cervical Vertebrae [C3-C5], Assembled
Anterior View

- Lateral mass
- Sympathetic chain
distal articulation
- Intervertebral foramen for epidural
  nerve
External Craniocervical Ligaments
Anterior and Posterior Views
Internal Craniocervical Ligaments

Upper part of vertebral canal with spinous processes and parts of ventral arches removed to expose ligaments on posterior ventral bodies: posterior view.

- Basal part of occipital bone (sphenoid)
- Tectorial membrane
- Deeper (septal) part of tectorial membrane
- Axis (C1)
- Capsule of atlantoaxial joint
- Axis (C2)
- Capsule of atlantoaxial joint
- Aza (C2)
- Capsule of articular (transverse) process of atlas (C1)
- Superior longitudinal fibers (anterior to axis)
- Transverse ligament of atlas (part of musculature)
- Inferior longitudinal fibers (part of musculature)
- Principal part of tectorial membrane: posterior view.
McGregor’s Line

McGregor’s line, from posterior tip of hard palate to lowest point of occipital bone. Average normal position of atlanto-occipital is 1.12 mm above this line, with standard deviation of plus or minus 2.6 mm as measured on a standard lateral radiograph. Tip > 4.6 mm above line is considered to indicate basilar impression.
Atlantooccipital Junction
Odontoid Abnormalities

Odontoid abnormalities, most often associated with skeletal dysplasias such as Kleeblattsche, Down's or Marquis's syndromes.

- Hypoplastic odontoid (odontoid process)
- Odontodeformities with fibrous union and narrowing of vertebral canal, which results in extension.
Superficial Face
Sources of Arterial Supply

Black: from internal carotid artery (via ophthalmic artery)
Red: from external carotid artery
Cutaneous Nerves of Head and Neck

From sympathetic division of trigeminal nerve (V1):
- Supraorbital nerve
- Supratrochlear nerve
- Superficial temporal nerve
- Occipital nerve
- External maxillary branch of maxillary nerve

From mandibular division of trigeminal nerve (V3):
- Mental nerve
- Buccal nerve
- Auriculotemporal nerve

Medial branches of dorsal rami of cervical spinal nerves:
- Medial pectoral nerve (C2)
- Great auricular nerve (C2, C3)
- Hypoglossal nerve (C1, C2)

Branches from cervical plexus:
- Inferior cervical plexus (C2, C3)
- Accessory to spinal accessory (C1, C2)
- Greater auricular nerve (C2, C3)
Dermatomes of Head and Neck
Facial Nerve Branches and Parotid Gland

Sectioned
Superficial Face
Course of Wrinkle Lines of Skin

Course of wrinkle lines of skin is transverse or blue direction of face muscles. Surgical incisions to remove of skin tumors confirm to direction of wrinkle lines.
Infrahyoid and Suprahyoid Muscles
Infrahyoid and Suprahyoid Muscles and their Action

Schema
Superficial Veins and Cutaneous Nerves of Neck

[Diagram showing anatomical structures including veins, arteries, nerves, and muscles in the neck area.]
Cervical Plexus in Situ

- Submandibular gland
- Parotid gland
- Lingual artery
- Hypoglossal nerve
- Stylohyoid muscle (inset)
- Basilar artery
- Stapedius muscle (cut, inferior belly)
- Vagus nerve (CN X)
- Styloglossus muscle
- Stylomandibular ligament
- Tongue
- Accessory nerve (CN XI)
- Transverse cervical artery
- Subclavian artery
- Y-shaped artery
- Phrenic nerve
- Subclavius muscle
- Lateral scapular nerve
- Anterior scalene muscle
- Transverse cervical artery
- Intercostal muscle
- Intercostal nerve (central ramus)
- Subclavian artery
- Cervical vertebrae
- Cervical plexus
- Scalene anterior muscle
- Thoracic sympathetic trunk
- Thoracic vertebrae
- Cervical sympathetic trunk
- Cervical plexus
Cervical Plexus Scheme

- Thyroid nerve
- Anterior cervical nerves
- Hypoglossal nerve
- Occipital nerve
- Great auricular nerve
- Lesser occipital nerve
- To subclavian artery
- To suprascapular nerve
- To oculomotor nerve
- To tongue muscles
- To sternocleidomastoid muscle
- To dilator muscles
- To trapezius muscles
- To sternothyroid muscle
- To sternohyoid muscle
- To infrahyoid muscles
- To omohyoid muscle
- To sternohyoid muscle
Carotid Arteries - Parotid Fossa
Right Lateral Dissection

[Diagram of the carotid arteries in the parotid fossa with labels for various anatomical structures]
External Carotid Artery and Branches

Schema

- Transverse facial artery
- Parotid auricular artery
- Digastric muscle (phantom)
- Occipital artery with extraopharyngeal and descending branches
- Internal carotid artery
- Parotid trunk
- Occipital artery
- Superior laryngeal branch
- Omohyoid muscle (phantom)
- Common carotid artery
Fascial Layers of Neck
Sagittal Section
External Nose [Skeleton]
Anterolateral and Inferior Views
Nasal Cavity
Speculum View

- Middle nasal concha
- Bulging septum
- Maxillary nasal concha
- Anterior nasal concha
- Floor of nasal cavity
- Middle meatus
- Inferior nasal meatus
- Nasal septum
Lateral Nasal Wall - Bony Structure
Nasal Concha Partly Removed
Medial Nasal Wall [Septum]
Nerves of Nasal Cavity
Distribution of Olfactory Mucosa

Lateral nasal wall  Nasal septum

Note: Distribution of olfactory mucosa is shaded blue.
Nerves of Nasal Cavity
Nasal Septum
Ophthalmic and Maxillary Nerves

- Posterior ethmoidal nerve
- Long and short ciliary nerves
- Ciliary ganglion
- Nasociliary nerve
- Frontal nerve
- Terminal branch of ophthalmic nerve (V1)
- Ophthalmic nerve (V1)
- Trigeminal (maxillary) ganglion
- Trigeminal nerve (V3)
- Meckel’s (pterygopalatine) ganglion
- Pterygopalatine ganglion
- Palatine nerve (V2)
- Buccal branches of facial nerve
- Zygomatic nerve
- Greater and lesser palatine nerves
- Mixed superior alveolar nerve

Inferior alveolar nerve emerging from infratemporal canal
Superior alveolar nerve
- Animal gland
- Inferior alveolar nerve (from mandibular nerve)
- Buccal branch of terminal nerve
- Zygomaticotemporal nerve
- Zygomaticotemporal nerve
- External nasal branch of inferior ethmoidal nerve
- Inferior alveolar nerve
- Maxillary nerve
- Superior alveolar nerve
- Maxillary nerve
- Maxillary nerve
- Maxillary nerve
- Maxillary nerve
- Maxillary nerve
- Maxillary nerve
- Maxillary nerve
Paranasal Sinuses
Horizontal Section

- Orbital fat and muscles
- Ethmoidal cells
- Sphenoidal sinuses
- Nasal conchae
- Nasal septum
- Medial wall of orbit
- Optic nerve
- Brain
Paranasal Sinuses
Sagittal Section
Paranasal Sinuses
Lateral Dissection
Paranasal Sinuses
Growth throughout Life

- Birth
- 1 year
- 4 years
- 7 years
- 12 years
- Adult
- Old age

[Diagram showing growth of paranasal sinuses at different stages of life]
Inspection of Oral Cavity
Dorsum of Tongue and Palate
Inspection of Oral Cavity
Sublingual Region - Anterior Vestibule
Inspection of Oral Cavity
Lateral Oral Vestibule

Papillae with opening of parotid duct
Roof of Mouth - Hard and Soft Palates
Anterior View
Floor of Mouth - Musculature
Lateral, Slightly Inferior View
Muscles Involved in Mastication - Masseter Removed

Lateral View

- Temporalis muscle
- Insertion of temporalis muscle to coronoid process of mandible
- Lateral pterygoid muscle
- Maxillary artery
- Medial pterygoid muscle
- Masseteric nerve and artery
- Maxillary nerve
- Buccinator muscle
- Obliquus oris muscle
- Parotid duct
Muscles Involved in Mastication [Deep]
Lateral View
Teeth - Deciduous and Permanent

Age of Eruptions

- Upper central incisor (6th month)
- Upper lateral incisor (7th-8th month)
- Upper canine (10th-11th month)
- Lower lateral incisor (7th-8th month)
- Lower central incisor (9th-10th month)
- Lower canine (9th-10th month)
- Lower first premolar (11th-12th month)
- Lower second premolar (11th-12th month)
- Lower first molar (13th-14th month)
- Lower second molar (14th-15th month)

- Upper second molar (12th-13th month)
- Upper first molar (10th-11th month)
- Lower second molar (13th-14th month)
- Lower first molar (14th-15th month)
- Lower third molar (14th-15th month)
- Upper third molar (10th-11th month)
Anatomy of a Tooth

Crown

- Papilla
- Enamel (bilobate adenomatous)
- Interglobular spaces
- Dentin and dental tubules (obliterative sclerosis)

Neck

- Odontoblastic lumen
- Pulp containing vessels and nerves
- Gingival (gingival epithelium) (epithelial epithelium)
- Enamel attachment
- Lamina propria of gingiva (uninvoluted connective tissue)
- Lamina propria of gingiva (uninvoluted connective tissue)
- Periodontal ligament
- Cementum (subodontal bone)

Root

- Root canal containing vessels and nerves
- Bone
Teeth - Left Upper and Left Lower Permanent
Labiooclusal View
Tongue - Schematic Stereogram
Area Indicated on Plate 52A
Tongue and Related Structures
Sagittal Section
Salivary Glands
Histology

Parotid gland
Submandibular gland
Sublingual gland

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Afferent Innervation of Mouth and Pharynx

Lateral View

- Trigeminal (V) (mesial)
  - Via pharyngeal branch of pterygopalatine ganglion

- Glossopharyngeal (IX)
  - Via the greater petrosal nerve and otic ganglion
  - Via lingual branches
  - Via tonsillar branches

- Vagus (X)
  - Via lingual branches
  - Via pharyngeal pouch

- Trigeminal (V) (mandibular)
  - Via mental branch of inferior alveolar nerve

- Facial (VII) (nervus intermedius)
  - Via greater superficial petrosal nerve
  - Via mandibular nerve
  - Via inferior alveolar nerve

- Glossopharyngeal (IX)
  - Via greater petrosal nerve and greater superficial petrosal nerve

- Trigeminal (V) (maxillary)
  - Via pharyngeal branch of pterygopalatine ganglion

- Facial (VII) (nervus intermedius)
  - Via greater superficial petrosal nerve

- Vagus (X)
  - Via lingual branches

- Trigeminal (V) (mandibular)
  - Via mental branch of inferior alveolar nerve
Afferent Innervation of Mouth and Pharynx

Dorsum of Tongue

Vagus (X)
Via internal branch of vagus or lingual nerve

Glossopharyngeal (IX)
Tangential general sensation and lingual branches

Trigeminal (V) (mandibular)
Via trigeminal nerve

Facial (VII) (nerve intermedius)
Taste via chorda tympani and lingual nerve

Vagus (X)
Glossopharyngeal nerve (IX)
Vagus nerve (X)
Facial nerve (VII)
Lymph Vessels and Nodes of Oral and Pharyngeal

- Supraclavicular nodes
- Internal jugular nodes
- External jugular nodes
- Deep cervical nodes
- Subclavian nodes
- Submental nodes
- Submandibular nodes
- Anterior deep cervical nodes (parotid)
- Anterior superciliary nodes (parotid superficial)
- posterior cervical chain of nodes
- Submandibular and sublingual nodes
- Submental nodes
- Mandibular and submandibular nodes
- Anterior superficial cervical nodes
- Internal jugular chain of nodes
- Internal jugular chain of nodes
- Anterior deep cervical chain of nodes
Lymphatic Drainage of Tongue
Lateral View
Thyroid Gland in Situ
Anterior View
Parathyroid Glands
Right Lateral View
Cartilages of Larynx
Posterior View

- Hyoid bone
- Thyroid cartilage
- Thyroid cartilage lamina
- Cricoid cartilage
- Thyroid cartilage
- Epiglottis
- Thyroid cartilage
- Vocal ligament
- Cricoid cartilage
- Trachea

[Diagram of cartilages of the larynx]
Cartilages of Larynx
Anterosuperior View

- Cricoid cartilage
- Vocal process of arytenoid cartilage
- Arytenoid cartilage
- Muscular process of arytenoid cartilage
- Cricoid cartilage
Intrinsic Muscles of Larynx
Right Lateral View
Intrinsic Muscles of Larynx
Lateral Dissection
Action of Intrinsic Muscles of Larynx

- Action of allolaryngeal muscles: Lengthening and tension of vocal folds

- Action of posterior cricoarytenoid muscles: Abduction of vocal folds

- Action of lateral cricoarytenoid muscles: Adduction of vocal folds

- Action of arytenoid muscles: Adduction of vocal folds

- Action of vocalis and thyroarytenoid muscles: Shortening the anterior of vocal folds
Nerves of Larynx
Anterior View

- Right vagus nerve
- Anomalous right inferior laryngeal nerve (not recurrent)
- Left common carotid artery
- Left recurrent laryngeal nerve
- Left subclavian artery
- Arch of aorta
- Left recurrent laryngeal nerve
**Inspection of Larynx**

**Technique**

- Position of patient and physician
- Mirror warmed over alcohol flame to prevent fogging, then tucked on back of physician's hand
- Mirror directed inside

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*Illustration showing the inspection technique of the larynx.*
Inspection of Larynx
Views during Inspiration and Phonation
Eyelids
Anterior View

- Supraorbital conjunctiva
- Superficial glands shining through
- Canthus
- Limbus of cornea
- Lacrimal glands
- Innermost lacrimal papilla and plica
- Innermost palpebral conjunctiva
- Inferior palpebral conjunctiva
- Innominate lacrimal papilla and plica
- Inferior tarsal glands shining through
- Plica semilunaris
- Pupil
- Superficial tarsal papilla and plica
- Superior tarsal glands shining through
Eyelids and Anterior Orbital Structures

Sagittal Section

- Superior tarsal (Musculus) muscle
- Superior tarsus
- Tear (Meibomian) glands
- Sebaceous glands
- Digastric
- Ophthalmic and muscle
- Optic nerve
- Inferior tarsus
- Orbital septum
- Inferior conjunctival fornix
- Eyelid palpebral superiori muscle
- Sclera
- Bulbar conjunctiva
- Palpebral conjunctiva
- Cornea
- Lens
- Anterior chamber
- Posterior chamber
Extrinsic Eye Muscles - Innervation and Action

Anterior View of Left Eye

- Obliector nerve (M)
- Trochlear nerve (IV)
- Abducens nerve (VI)

Note: arrows indicate direction of eye movement produced by each muscle.
Arteries and Veins of Orbit and Eyelids
Superior View

- Superior ophthalmic artery
- Medial palpebral artery
- Lacrimal gland
- Zygomatic branches of lacrimal artery
- Rosacea collary arteries
- Muscular branch of lacrimal artery
- Lacrimal artery
- Central artery of retina
- Orbital branches of maxillary artery
- Posterior ethmoidal artery
- Conus nasalis posterior artery
- Posterior ophthalmic artery
- Central retinal artery
- Dorsal nasal artery
- Anterior meningeal artery
- Sphenopalatine artery
- Internal carotid artery
Nerves of Orbit - Muscles Partially Cut Away

Superior View

Long ciliary nerve
Short ciliary nerves
Lacrimal nerve
Nasociliary nerve
Optic nerve (II)
Ciliary ganglion
Posterior ethmoidal nerve
Sensory root from nasociliary nerve
Superior division of maxillary nerve (V2, cut)
Nasal lachrymal
Internal carotid plate
Trigeminal nerve (V1, cut)
Ophthalmic nerve (V1)
Ciliary nerves (II, cut)
Reduced nerve (V3)
Inferior division of ophthalmic nerve (III)
Branches to inferior and medial rectus muscles
Inferior division of ophthalmic nerve (III)
Nasociliary nerve
Optic nerve (II)
Ciliary ganglion
Posterior ethmoidal nerve
Sensory root from nasociliary nerve
Superior division of maxillary nerve (V2)
Nasal lachrymal
Internal carotid plate
Trigeminal nerve (V1)
Ophthalmic nerve (V1)
Ciliary nerves (II)
Reduced nerve (V3)
Anterior Chamber Angle of Eye
Anterior Chamber Angle of Eye
Gonioscopic Views

Open [normal] anterior chamber angle (gonioscopic view)
- Schwalbe's line
- Schwalbe's ring (where cornea meets iris)
- Iris root
- Line of Schwalbe's ridge
- Trabecular meshwork
- Hydrops

Closed angle gonioscopic view
- Neovascularization
- Pigment deposition
- Rubeosis
Lens and Supporting Structures
Section in Frontal Plane

Bulb of eye: anterior segment viewed from behind
Lens and Supporting Structures
Segment Outlined in Plate 85A

Magnified to ultramicroscopic scale (semischematic)
Intrinsic Arteries and Veins of Eye

Ophthalmoscopic View

- Superior temporal artery and vein
- Inferior temporal artery and vein
- Nipulae and fovea centralis
- Inferior nasal artery and vein
- Superior nasal artery and vein
- Optic disc

Right retinal vessels
External Ear

Right Tympanic Membrane

- Posterior malleal fold
- Long crus of incus
- Pars tensa
- Anterior malleal fold
- Lateral process of malleus
- Membrane of malleus
- Urotrich
- Canal of light

Viewed through speculum
Tympanic Cavity
Viewed from External Acoustic Meatus
External Ear and Tympanic Cavity
Coronal Oblique Section
Right Osseous Labyrinth
Anterolateral View

Surrounding cancellous bone removed
Right Membranous Labyrinth with Nerves
Posteromedial View
Osseous and Membranous Labyrinths

Schema

- Ampulla
- Endolymphatic sac
- Endolymphatic duct
- Vestibular aqueduct
- Utricle
- Labyrinthine capsule
- Cochlear aqueduct
- Corti
- Cochlear nerve fibers
- Cochlear nerve
- Auditory (Vestibular) nerve
- Tympanic membrane
- Tympanic cavity
- Eustachian tube
- Mastoid process (for secondary tympanic membrane)
Osseous and Membranous Labyrinths
Section Through Turn of Cochlea
Orientation of Labyrinth in Skull
Superior Projection
Cartilage of Auditory Tube at Base of Skull

Inferior View

- Hernula of medial pterygoid plate
- Palatine process of maxilla
- Horizontal plate of palatine bone
- Chonae
- Lateral lamina of cartilage of auditory tube
- Medial lamina of cartilage of auditory tube
- Foramen lacerum
- Porous part of temporal bone
- Dorsal condyle
- Foramen magnum

- Spina of sphenoid bone
- Internal carotid foramen (cavernous canal)
- Inverted process
Auditory Tube - Section through Cartilage
Tube Closed

Dura mater
Tympanic ganglion
Internal carotid artery
Inertial canal
Lateral lamina of cartilage
Auditory tube lumen
Tensor veli palatine muscle
Malleus
Lateral veli palatine muscle
Sphenopalatine muscle

Auditory tube closed by elastic fold of cartilaginous tissue; turbidity and tension of sphenopalatine muscles.
Auditory Tube - Section through Cartilage

Tube Open

- Tympanic membrane
- Internal carotid artery
- In carotid canal
- Lateral lamina of cartilage
- Medial lamina of cartilage
- Tensor veli palatini muscle
- Sphenoid bone

Lumen maintained by fibrocartilage attachment of tensor veli palatini muscle pulls wall of tube laterally during swallowing.
Diploic and Emissary Veins of Skull

Frontal emissary vein

Occipital emissary vein

Posterior temporal emissary vein

Frontal diploic vein

Anterior temporal diploic vein

Intracranial diploic vein
Meningeal Arteries [Continued]
Meninges and Superficial Cerebral Veins

Dura Mater Lifted

- Branches of middle meningeal artery
- Superior sagittal sinus
- Superior cerebral veins (dura mater and arachnoid)
- Middle meningeal artery and veins
- Inferior cerebral veins (dura mater and arachnoid)
- Superior sagittal sinus (dura mater and arachnoid)
- Superior sagittal sinus (dura mater and arachnoid)
- Superior sagittal sinus (dura mater and arachnoid)
Cerebrum - Lobes
Lateral View

Frontal lobe
Parietal lobe
Occipital lobe
Temporal lobe
Cerebrum - Insula (Island of Reil)
Lateral View
Ventricles of Brain
Coronal Section - Posterior View

- Choroid plexus of lateral ventricle
- Corpus callosum
- Septum pellucidum
- Body of fornix
- Choroid plexus of 3rd ventricle
- Midbrain and interpeduncular fossa
- Interna capsule
- Thalamus
- 3rd ventricle
- Epithalamus
- Optic tracts
- Hypothalamus
- Brainstem
- Hippocampus
- Interpeduncular fossa
- Temporal (bifron)
- Body of nucleus
- Superior intercerebral vein
- Internal carotid vein
- Telencephalon of 3rd ventricle
- Polioventricular nuclei
- Subcallosal cinctus
- Fissure of lamina nucleus
- Choroid plexus of lateral ventricle
- Fornix of lateral ventricle
- Pineal gland
- Hypothalamus
- Optic tracts
Circulation of Cerebrospinal Fluid

- Choroid plexus of lateral ventricle (choroid)
- Dura mater of brain
- Arachnoid of brain
- Cerebellopontine angle
- Ventral horn of spinal cord
- Central canal of spinal cord
- Dura mater (of spinal cord)
- Subarachnoid space (of spinal cord)
- Crown of great cerebral vein
- Central aqueduct (of Spinal cord)
- Lateral aperture (median of Luschka)
- Medial aperture (fenestra of Magendie)
- Choroid plexus of 4th ventricle
- Interpeduncular cistern
- Cerebellomedullary cistern
- Pons cistern
- Crus cerebri

[Diagram of the Circulation of Cerebrospinal Fluid with labeled anatomical structures]
Basal Ganglia
Horizontal Sections through Cerebrum
Basal Ganglia - Schema

Left Lateral View

- Body of caudate nucleus
- Head of caudate nucleus
- Thalamus
- Claustrum for internal capsule

Levels of sections:
- A
- B

Lenticular nucleus: globus pallidus, putamen, medial to putamen

Lateral geniculate body

- Intermeshing of thalamus, lentiform nucleus, caudate nucleus and amygdaloid body.
Thalamus
Schematic Section

Thalamic nuclei

- CM: Centromedian
- LD: Lateral dorsal
- LP: Lateral posterior
- M: Medial
- MD: Mediodorsal
- LP: Lateral posterior
- M: Medial
- MVM: Medial ventral nuclei
- VPL: Ventral posterior lateral
- VPM: Ventral posterior medial

Schematic section through thalamus (level of broken line shown in plate 10C)
Thalamus

Schematic Representation of Thalamus
Hippocampus and Fornix
Superior Dissection

- Genu of corpus callosum (cor)
- Sagittal sulcus
- Stria terminalis
- Body of fornix
- Thalamus
- Corpus of fornix
- Commissure of fornix
- Sublenticulostriate
corpus callosum (cor)
- Calcar avis
- Central lateral nuclear complex of fornix
- Central perforated area of fornix
- Lateral ventricle
- Peri hippocampus
- Unicorne
- Dentate gyrus
- Fimbria of hippocampus
- Hippocampus
- Forebrain of hippocampus
- Corona radiata
- Central lateral nucleus of fornix
- Head of caudate nucleus
- Columns of fornix
Hippocampus and Fornix

Schema of Fornix

Definitions:
- Columna of fornix
- Body of fornix
- Commissure of fornix
- Corpus of fornix
- Fimbria of hippocampus
- Mammillary body
- Ammon's horn
- Hippocampus
Cerebellum
Section in Plane of Superior Cerebellar Peduncle

- Fourth ventricle
- Superior medullary velum
- Fastigial nucleus
- Gliobosum nucleus
- Emboliform nucleus
- Dentate nucleus
- Cerebellum
- Medial longitudinal fasciculus
- Ventral layer of middle olives
- Superior cerebellar peduncle
- Leuca
Brainstem
Posterolateral View

- Thalamus (cut surface)
- Lateral geniculate body
- Optic tract
- Medial geniculate body
- Brachium of superior and inferior colliculi
- Central peduncle
- Pars
- Trigeminal nerve (V)
- Middle cerebellar peduncle
- Medial longitudinal fasciculus
- Phrenic nerve of 4th ventricle
- Glossopharyngeal (IX) and vagus (X) nerves
- Cuneate nucleus
- Medial lemniscus
- Inferior cerebellar peduncle
- Accessory nerve (XI)
- Dorsal root of (cervical nerve) (XI)
Olfactory Nerve - Olfactory Bulb Cells

Schema

Schema of outlined area on plate 113A
Optic Nerve [Visual Pathway] - Structure of Retina

Schema

Structure of retina schema:
A. Amacrine cells
B. Bipolar cells
C. Cones
D. G. Ganglion cells
E. Horizontal cells
F. Pigment cells
G. Rods

Choroid
Pigment layer
Neurite
Autonomic Nerves in Neck

- glossopharyngeal nerve (IX)
- vagus nerve (X)
- recurrent laryngeal nerve
- thoracic sympathetic nerves
- cervical sympathetic ganglion
- stellate ganglion
- sympahtetic trunk
- carotid body
- superior laryngeal nerve
- inferior laryngeal nerve
- pharyngeal plexus
- esophageal plexus
- internal carotid artery
- external carotid artery
- internal jugular vein
- subclavian artery
- vertebral artery
- aortic arch
- pulmonary arteries
- bronchi
- esophagus
- stomach
- intestines
- liver
- kidneys
- spleen
- heart
- blood vessels
- lymph nodes
- ganglia
- neurons
- myelinated fibers
- unmyelinated fibers
- synapses
- neurotransmitters
- receptor sites
- effector organs
-自主神经颈内丛
- 咽喉丛
- 喉上神经
- 喉下神经
- 迷走神经
- 副神经
- 舌下神经
- 颈神经丛
- 胸交感神经丛
- 腹腔神经丛
- 胸交感神经节
- 颈交感神经节
- 胸段交感神经节
- 肝脏神经节
- 脾神经节
- 心脏神经节
- 血管神经节
- 淋巴结节
- 神经节
- 神经纤维
- 末梢神经节
- 神经递质
- 受体
- 效应器
- 自主神经系统的解剖学结构与功能
- 颈部的自主神经丛的分布与作用
- 肋间神经丛的分支与功能
- 颈部静脉丛的解剖学结构
- 颈部动脉丛的解剖学结构
- 颈部神经丛的解剖学结构与功能
- 自主神经系统的生理学与病理学
- 自主神经系统的调节机制
- 自主神经系统的临床应用
- 自主神经系统的药物治疗
- 自主神经系统的影像学检查
- 自主神经系统的手术治疗
Arteries of Brain [Continued]

Inferior View

- Superior communicating artery
- Recurrent artery of Heubner
- Anterior cerebral artery
- Middle cerebral artery
- Optic tract
- Lateral geniculate body
- Posterior limb of internal capsule
- Choroid plexus of lateral ventricle
- Cerebral peduncle
- Posterior cerebral artery
- Medial geniculate body
- Fornix of thalamus
Circle of Willis - Vessels in Situ

Inferior View

- Anterior communicating artery
- Ophthalmic artery
- Internal carotid artery
- Superior hypophyseal arteries
- Middle cerebral artery
- Posterior communicating artery
- Superior cerebellar artery
- Basilar artery
- Adenohypophysis (anterior lobe of pituitary gland)
- Vasculature of cavernous sinus
- Ophthalmic veins
- Cavernous sinus
Arteries and Veins of Hypothalamus and Hypophysis
Thoracic Vertebrae [T6]
Superior View

- Body
- Vertebrae
d- Superior vertebral notch (recess of spinous process)
- Superior articular facet
- Angle of vertebral facet
- Lamina
- Transverse vertebral facet
- Spine process
Thoracic Vertebrae [T12]

Lateral View

- Superior articular processes and facet
- Body
- Transverse process
- Costal facet
- Spinous process
- Inferior articular processes and facet
Lumbar Vertebrae [L2]
Superior View

- Vertebra body
- Pedicles
- Transverse processes
- Superior articular processes
- Inertial processes
- Spinous processes
- Vertebra foramen
- Accessory process
Lumbar Vertebrae
Intervertebral Disc

Annulus fibrosus

Nucleus pulposus
Lumbar Vertebrae [L1-L5] - Assembled

Left Lateral View

- Pedicle
- Superior articular process
- Transverse process
- Inferior articular process
- Spinal process
- Proximal vertebral body
- Intervertebral disc
- Intervertebral foramen
- Superior articular facet of vertebra
- Articular facet of facet
Sacrum and Coccyx
Pelvic Surface
Sacrum and Coccyx
Median Sagittal Section

Superior articular process
Dorsal surface
Pelvis surface
Sacral Sinus
Sacrum
Transverse Section through S1 Foramina

Median sacral crest
Iliosacral (SI joint) foramina
Promontory (dorsal) sacral foramen
Iliac (pelvic) sacral foramen
Sacral spinal cord
Sacrum and Coccyx
Dorsal Surface
Vertebral Ligaments of Lumbar Region
Left Lateral View - Partially Sectioned
Vertebral Ligaments of Lumbar Region
Anterior Vertebral Segments - Posterior View
Vertebral Ligaments of Lumbar Region
Posterior Vertebral Segments - Anterior View

Pedicle/sulcus
Ligamentum flavum
Superior articular process
Lamina
Transverse process
Inferior articular facet
Vertebral Ligaments of Lumbosacral Region
Left Lateral View
Vertebral Ligaments of Lumbosacral Region
Posterior View
Spinal Cord in Situ
Relation of Spinal Nerve Roots to Vertebrae

Lateral Protrusion

Lumbar disc protrusion does not usually affect nerve exiting above disc. Lateral protrusion at disc level L4-5 affects 5th lumbar nerve, not 4th lumbar nerve. Protrusion at disc level L5-S1 affects 1st sacral nerve, not 5th lumbar nerve.
Relation of Spinal Nerve Roots to Vertebrae

Medial Protrusion

Medial protrusion at disc level L4-5 rarely affects 4th lumbar nerve but may affect 5th lumbar nerve and sometimes 1st 4th sacral nerves
Schematic demarcation of dermatomes shown as distinct segments. There is actually considerable overlap between any two adjacent dermatomes.
Spinal Cord Cross Sections

Sections through spinal cord at various levels
Spinal Membranes and Nerve Roots
Posterior View

- Vertebral root of spinal nerve
- Dorsal root of spinal nerve
- Spinal ganglion
- Ganglia of spinal nerve
- Dorsal ramus of spinal nerve
- Vertebral ramus of spinal nerve
- Dorsal ramus of spinal nerve
- Cauda equina
- Facet joint
- Dura mater
- Arachnoid
- Subarachnoid space
- Fissure extending spinal cord
- Filaments of dorsal root
- Sclerotomes ligament
Spinal Membranes and Nerve Roots

Anterior View

Membranes removed (greatly magnified)
Spinal Nerve Origin
Section through Lumbar Vertebra

- Sympathetic ganglion
- Oesophageal commissure
- Last segment
- Dorsal root
- Ventral root
- Spinal nerve
- Ventral vein (contribute to lumbar plexus)
- Dorsal meniscus
- Cirrus medialis
- Dorsal root
- Anus
Arteries of Spinal Cord

Schema
Arteries of Spinal Cord - Intrinsic Distribution
Thoracic Section

- Posterior radicular artery
- Branch to vertebral body and dura mater
- Spinal branch of dorsal branch of posterior intercostal artery
- Dorsal branch of posterior intercostal artery
- Posterior intercostal artery
- Paramedian anastomosis
- Vertebral
Arteries of Spinal Cord - Intrinsic Distribution

Schema
Veins of Spinal Cord
Sagittal Section [without Cord]
Veins of Spinal Cord
Superior View [without Cord]
Veins of Spinal Cord
Superior View [Magnified with Cord]
Mammary Gland
Sagittal Section

- Clavicle
- 2nd rib
- Perchisalis major muscle
- Pectoral fascia
- Intersternal muscles
- Intercostal vessels and nerve
- Lung
- Axilla
- Mammary duct
- Blad. tubules
- Suspension ligaments (of Cooper)
Lymph Vessels and Nodes of Mammary Gland

- Interpectoral (Pectoral) nodes
- Subpectoral (Subpectoral) nodes
- Subareolar (Subareolar) nodes
- Central axillary nodes
- Posterior axillary nodes
- Subcapsular (Subcapsular) nodes
- Posterior subcapsular (Posterior subcapsular) nodes
- Anterior axillary nodes
- Posterior axillary nodes
- Parasternal (Parasternal) nodes
- Internal thoracic (Internal thoracic) nodes
- Nodes of subclavian (Nodes of subclavian) nodes
- Nodes of subclavian (Nodes of subclavian) nodes
- Nodes of subclavian (Nodes of subclavian) nodes
Bony Framework of Thorax

Anterior View

- Clavicle
- Acromion of scapula
- Coracoid process of scapula
- Sternoclavicular joint
- Neck of scapula
- Subscapular fossa of scapula
- Thorax
- Xiphoid process of sternum
- Sternum
- Angle of sternum
- Angle of scapula
- Inscissura of sternum
- False ribs
- True ribs
- Costal cartilages
- Floating ribs
Sternocostal Articulations
Anterior View

 costo-basal ligament
 sternosternal joint
 costal cartilage
 intercostal ligament
 costochondral ligament
 articular cartilage
 costal cartilage
 vertebral process
Middle Rib
Posterior View

- Angle
- Tubercle
- Head
- Neck
- Superior articular facet for vertebral body
- Inferior articular facet for vertebral body
- Articular facet for transverse process
- Costal groove
Costovertebral Joints
Left Lateral View
Costovertebral Joints
Transverse Section - Superior View
Costovertebral Joints
Right Posterolateral View

- Transverse process (cut off)
- Costotransverse ligament
- Radial ligament
- Lateral costotransverse ligament
- Superior costotransverse ligament
- Intervertebral ligament
Cervical Ribs and Related Anomalies 1

- Anulus scaleni muscle
- Middle scalenius muscle
- Cervical rib compresses subclavian artery postcervical dilatation

Cervical rib adheres to 1st thoracic rib by dense fibrous band.
Cervical Ribs and Related Anomalies 2

Lowest cord of brachial plexus elevated by cervical rib
Rudimentary 1st thoracic 4th with posterior broachial ala:

Normal morphology

Note: cervica rib also often asymptomatic
Deep Posterior Thoracic Wall

- Spinalis capitis and cervicis
- Spinal process of T1
- Latissimus dorsi
- Serratus posterior inferior muscles
- Thoracolumbar fascia over serratus posterior inferior muscle
- Pectoralis major
- Pectoralis minor
- Anterior serratus
- Internal intercostal muscles
- Internal abdominal oblique muscle
- Transversus abdominis muscle
- Transversus abdominis muscle
- Transverse process of L5

Branches of origin of transversus abdominis muscles

Internal abdominal oblique muscle

Branches of origin of transversus abdominis muscles
Lateral Thoracic Wall

- Middle scalene muscle
- Phrenic nerve
- Anterior scalene muscle
- Brachial plexus
- Subclavian artery and vein
- Subclavian nerve
- Intercostobrachial nerve
- Subcostal nerve
- External intercostal membrane
- Internal intercostal nerve
- Internal intercostal muscle
- Bundles of intercostal nerves and arteries
- Long thoracic nerve
- Lateral thoracic artery
- Subscapularis muscle
- Scapula (inverted)
- Teres major muscle
- Serratus anterior muscle
- Accessory nerve (II)
- Levator scapulae muscle
- Posterior scalene muscle
- Sternocleidomastoid muscle
- Middle scalene muscle

Diagram illustrating the lateral thoracic wall with labeled muscles and nerves.
Phrenic Nerve
Scheme
Muscles of Respiration

Accessory
- Serratus anterior
- Rhomboid
- Trapezius

Principal
- Internal intercostals
- External intercostals
- Diaphragm

Diaphragm: The diaphragm is a sheet of muscle that separates the thoracic cavity (chest) from the abdominal cavity. It is responsible for the major part of breathing, elevating the lower ribs and compressing abdominal contents.

External intercostals: These muscles push outward on the ribs, increasing the size of the thoracic cavity and thereby allowing air to enter the lungs.

Internal intercostals: These muscles pull inward on the ribs, decreasing the size of the thoracic cavity and thereby allowing air to be expelled from the lungs.

Quiescent breathing
Expiration results from passive recoil of lungs.

Active breathing
- Internal intercostal muscles
- Diaphragm

Expiration: The diaphragm relaxes and moves upward, squeezing the lungs and forcing air out.

Expiration continues through the external intercostal muscles.
Topography of Lungs
Anterior View

- Thyroid cartilage
- Cricoid cartilage
- Cricothyroid muscle
- Trachea
- Apex of lung
- Jugular (suprasternal) notch
- Aorta
- Left border of heart
- Cardiac notch of left lung
- Left nipple
- Oblique fissure of left lung
- Left shoulder of diaphragm
- Spleen
- Left costal pleuritic recess of pleura
- Left pleural reflection
- Flare area of pericardium
- Liver
- Superior process
Bronchopulmonary Segments
Lateral Views

Right lung

Anterior [S1] segment (right upper lobe)
Posterior [S2] segment (right upper lobe)
Superior [S4] segment (right lower lobe)
Lateral [S5] segment (right middle lobe)
Medial [S6] segment (right middle lobe)

Left lung

Anterior [S3] segment (posterior segment of left upper lobe)
Superior [S4] segment (posterior segment of left upper lobe)
Supraclavicular [S5] segment (left lower lobe)
Lateral basal [S6] segment (left lower lobe)
Anterior basal [S2] segment (left lower lobe)
Bronchopulmonary Segments
Medial Views

Right lung

Left lung
Nomenclature of Bronchi

Schema
Intrapulmonary Blood Circulation
Schema

Terminal bronchiole
Bronchial artery (from left heart via aorta)
Pulmonary artery (from right heart)
Pulmonary vein (to left heart)
Septum
Capillary bed on alveoli (ULI and INDICLICOS)
Main Bronchi With Pulmonary Arteries and Veins in Situ
Bronchial Arteries

- Trachea (pulled to left by hook)
- Juxtazygotic posterior intercostal (left posterior intercostal) artery
- Right bronchial artery
- Seta (pulled aside by hook)
- Right main (primary) bronchus
- Left main (primary) bronchus (pulled to right by hook)
- Esophageal artery
Bronchial Arteries
Variations

Right and left bronchial arteries, originating from a single stem.

Only single bronchial artery to each bronchus (normally, two to left bronchus).
Bronchial Veins
**Lymph Vessels and Nodes of Lung**

Right bronchoesophageal lymph trunk
- Right bronchoesophageal vein
- Right inferior deep cervical (oculomotor) node
- Internal suprarenal (adrenal) lymph
- Right lymphatic duct
- Subclavian veins and subclavian lymph trunk
- Right intrathoracic lymph nodes (paratracheal, intercostal, and mediastinal)
- Right pulmonary ligament
- Right pulmonary ligament
- Right interlobar lymph vessels
- Right subclavian lymphatic trunk
- Right intrathoracic lymph nodes (paratracheal, anterior retrocrural)

Left bronchoesophageal lymph trunk
- Left bronchoesophageal vein
- Left inferior deep cervical (coarctation) node
- Thoraciac duct
- Left intrathoracic lymph nodes (paratracheal, intercostal, and mediastinal)
- Left brachiocephalic nodes
- Left bronchopulmonary (thoracic) nodes
- Left pulmonary ligament
- Left interlobar lymph vessels
- Left subclavian lymphatic trunk
- Left intrathoracic lymph nodes (paratracheal, anterior retrocrural)

Right lung: branches drain to interlobar, paranchymal, and bronchopulmonary (thoracic) nodes, then to midline tracheobronchial (tracheal) nodes. Right inferior tracheobronchial nodes and right interlobar nodes empty into bronchopulmonary via bronchoesophageal trunk or subclavian node.

Left lung: upper lobes drain to pulmonary and hilar nodes, central nodes. Left superior tracheobronchial nodes, left interlobar nodes send parietal aortic nodes, then to bronchoesophageal trunk via left bronchoesophageal trunk or thoracic duct.
Heart - Diaphragmatic Surface
Posteroinferior View

- Left subclavian artery
- Left common carotid artery
- Arch of aorta
- Brachiocephalic trunk
- Superior vena cava
- Right subclavian artery
- Right common carotid artery
- Right pulmonary artery
- Right superior pulmonary vein
- Right inferior pulmonary vein
- Subclavian vein
- Subclavian artery
- Left atrium
- Oblique vein of left atrium
- Pancreatic impression
- Coronary sinus
- Left ventricle
- Posterior interventricular sulcus and posterior descending artery of right coronary artery (posterior descending artery)
Pericardial Sac - Heart Drawn Out
Left Lateral View

Heart drawn out of opened pericardial sac
Coronary Arteries and Cardiac Veins

Stemocostal Surface

- Branch to atrium (SA node)
- Branch to superior vena cava branches
- Anterior right atrial branch of right coronary artery
- Anterior cardiac vein
- Small cardiac vein
- Right marginal branch of right coronary artery
- Left coronary artery
- Circumflex branch of left coronary artery
- Serra cardiac vein
- Arteries to pericardium branches
- Left anterior descending of left coronary artery
- Right coronary artery
Coronary Arteries and Cardiac Veins
Diaphragmatic Surface

- Oblique vein of left atrium
- Great cardiac vein
- Circumflex branch of left coronary artery
- Coronary sinus
- Posterior left ventricular branch
- Posterior vena cava branch
- Right coronary artery
- Right marginal branch
- Right atrial branch
- Posterior vena cava branch of right coronary artery (posterolateral descending artery)
Coronary Arteries and Cardiac Veins
Variations 1

Posterior interventricular (posterior descending) branch
derived from circumflex branch of left coronary artery
instead of from right coronary artery.

Anterior interventricular (left anterior descending) branch
of left coronary artery very short. Apical part of
sternocostal surface supplied by branches from posterior
interventricular (posterior descending) branch of right
coronary artery curving around apex.
Coronary Arteries and Cardiac Veins
Variations 2

Posterior interventricular (posterior descending) branch absent. Area supplied chiefly by small branches from circumflex branch of left coronary artery and from right coronary artery.

Posterior interventricular (posterior descending) branch absent. Area supplied chiefly by obtuse marginal branch from circumflex branch of left coronary artery and branch curving around aorta.
Right Coronary Artery
Arteriographic View 1

Branch to atrial (SA) node
Branch to right coronary artery
Branch to atrioventricular (AV) node
Arteriogram
Branches to both atria
Marginal branch
Posterior interventricular branch
(posterior descending artery)

Left anterior oblique view
Right Coronary Artery
Arteriographic View

Branch to atrioventricular (AV) node
Branches to base of left ventricle
Posterior interventricular branch (posterior descending artery)
Marginal branches

Right anterior oblique view
Left Coronary Artery
Arteriographic View I

Left anterior oblique view
Left Coronary Artery
Angiographic View 2

- Arterial interventricular branch (left anterior descending artery)
- Lateral branch of circumflex
- Perforating branches to septum
- Diagonal branch of anterior interventricular
- Posterior interventricular
- Septal branches of circumflex

Right anterior oblique view
Opened Right Atrium
Right Lateral View

Superior vena cava
Inferior vena cava
Right pulmonary artery
Right superior pulmonary vein
Right inferior pulmonary vein
Interventricular septum
Lobe of heart valves
Fossa ovalis
Inferior vena cava
Opening of coronary sinus
Valve (left atrium of inferior vena cava)

Pulmonary trunk
Right atrium
Cava aneurysm
Cava terminalis
Ventricular septum
Pulmonary valve
Systolic murmur of coronary sinus
Opened Right Ventricle
Anterior View
Left Atrium and Ventricle
Sectioned with Mitral Valve Cut Away

- Left atrium
- Arch of aorta
- Left pulmonary artery
- Right pulmonary artery
- Left superior pulmonary vein
- Veins of lung pericardium
- Right pulmonary veins
- Left atrium
- Mitral valve (cut away)

Note: broen line indicates level of origin of tricuspid valve.
Valves of Heart in Diastole

- Right semilunar cusp of pulmonary valve
- Anterior semilunar cusp of pulmonary valve
- Left semilunar cusp of pulmonary valve
- Right coronary semilunar cusp of aortic valve
- Left coronary semilunar cusp of aortic valve
- Posterior (non-coronary) semilunar cusp of aortic valve
- Annulus fibrosus of aortic valve
- Convoluted cusp of aortic valve
- Atrioventricular bundle (AV) node
- Interatrial septal (IAS) leaflet of membranous septum
- Septal (medial) cusp of tricuspid valve
- Anterior cusp of tricuspid valve
- Posterior cusp of tricuspid valve
- Annulus fibrosus of tricuspid valve
- Right fibrous trigone
- Left fibrous trigone
- Ventral sinus of venous sinus
- Coronary sinus of atrial sinus
Valves of Heart in Systole

Viewed from base with atria removed
Aortic Valve

Note: broken line indicates level of origin of bicuspid valve on opposite side of septum.
Tricuspid [Right Atrioventricular] Valve

- Inferior vena cava
- Right atrium
- Coronary sinus
- Septal cusp of tricuspid valve
- Posterior papillary muscle (sectioned)
- Chordae tendineae
- Septal (medial) papillary muscle
- Anterior papillary muscle
- Septal band of septomarginal trabecula
- Anterior cusp of tricuspid valve
- Anterior interventricular part of septum
- Interventricular part of membranous septum (behind valve)
Mitral [Left Atrioventricular] Valve

- Anterior cusp of mitral valve
- Chordae tendineae
- Commissural cusps of mitral valve
- Fibrous (Abern's) nodule
- Posterior cusp of mitral valve
- Anterior papillary muscle (stenosed)
- Inferior papillary muscle (stenosed)
- Left atrium
Conduction System of Heart

Left Side

- Anterior cusp of aortic valve
- Left cusp of aortic valve
- Right cusp of aortic valve
- Infraventricular part of membranous septum
- Paraseptal fibers of Eustachian
- Left bundle branch
- Left papillary muscle
- Purkinje fibers
- Posterior papillary muscle
- Muscular interventricular septum
- Pulmonary artery
- Aorta
- Superior vena cava
- Left atrium
- Bachmann's bundle
- Right pulmonary vein
- Mitral valve (cut away)
Innervation of Blood Vessels

Scheme

- Cervical sympathetic trunk ganglia
- Cervical spinal nerve
- Gray rami communicantes
- Upper thoracic sympathetic trunk ganglia
- Thoracic spinal nerves
- Gray rami communicantes
- Lower thoracic sympathetic trunk ganglia
- Lumbar spinal nerve
- Gray rami communicantes
- Upper lumbar sympathetic trunk ganglia
- Lumbar spinal nerve
- Gray rami communicantes
- Lower lumbar sympathetic trunk ganglia
- Sympathetic plexus in further and small vessels and to nerves of lower limbs
Prenatal Circulation
Postnatal Circulation
Mediastinum
Right Lateral View

- Arterial scalene muscle and phrenic nerve
- Blasbal plexus
- Cardiac muscle
- Phrenic nerve
- Right subclavian artery and vein
- Right and left internal thoracic veins
- Right internal thoracic artery
- Right intercostal nerve
- Thymus gland (viewed through mediastinal pleura)
- Superior vena cava
- Thyroid lobe
- Inferior vena cava
- Brachiocephalic trunk
- Thymus gland
- Mediastinal pericardium
- Terciary pulmonary artery
- Inferior vena cava
- Branches of subclavian artery and vein
- Right internal intercostal muscle
- External intercostal muscle
- Internal intercostal muscle
- Intercostal vein, plexus of veins, and plexus of veins
- Great and small bronchial arteries and veins
- Splanchnic nerve
- Esophagus and esophageal pleura
- Right pulmonary vein
- Superior vena cava
- Coronary sinus
- Diaphragm (viewed by diaphragmatic pleura)
Topography and Constrictions of Esophagus

Schema - Anterior View

- Cardiac part of stomach
- Fundus of stomach
- Diaphragm
- Left main bronchus
- Aorta
- Arch of aorta
- Infradiaphragmatic esophageal sphincter
- Thoracic esophageal constriction
- Cervico-esophageal constriction
- Pharynx
- Oesophagus
Topography and Constrictions of Esophagus
Lateral View

- Thyroid cartilage
- Cricoid cartilage
- Trachea
- Stomach
- Heart in pericardium
- Esophagus
- Inferior pharyngeal constrictor muscle
- Esophageal mucosa (part of inferior pharyngeal constrictor)
Musculature of Esophagus 2

- Inferior pharyngeal constrictor muscle
- Zone of sparse muscle fibers
- Main longitudinal muscle bundle passing upward and ventrally to attach on internal surface of cricoid cartilage
- Accessory muscle bundle from posterior surface of cricoid cartilage
- Bare area on ventral surface of esophagus
- Fibrous elastic membrane with sparse muscle fibers

- Pharyngeal sphincter
- Cricopharyngeus muscle (end of inferior pharyngeal constrictor)
- Adductors from central ventral side of cricopharyngeus muscle
- Circular muscle layer with sparse longitudinal fibers in V-shaped area (of Zahn)
- Lateral mass of longitudinal muscle
- Hook
Pharyngoesophageal Junction

- Posterior view with pharynx opened and mucosa removed
Esophagogastric Junction
Coronal Section

- Esophageal mucosa
- Submucosa
- Phrenoesophageal ligament (ascending or upper limbs)
- Diaphragm
- Submucosal fat ring
- Top of circular esophageal and gastric mucosa
- Cardia
- Gastroesophageal (esophageal and gastric mucosa)
- Intrathoracic (transversal) fascia
- Peritoneum
- Longitudinal esophageal muscle
- Circum esophageal muscle
- Gradual slight muscle thickening
- Phrenoesophageal ligament (descending or lower limbs)
- Cardiac vein
- Phrenoesophageal ligament (descending fascia)
Esophagogastric Junction
Anterior View
Arteries of Esophagus

Variations

Common variations: Esophageal branches may originate from left inferior phrenic artery and/or directly from celiac trunk. Branches to abdominal esophagus may also come from splenic or short gastric arteries.
Veins of Esophagus
Submucous Venous Plexus
Lymph Vessels and Nodes of Esophagus

Deep lateral cervical (internal jugular) nodes
Thyroid duct
Posterior mediastinal nodes (posterior parietal nodes)
Pretracheal nodes (posterior parietal nodes)
Pre-aortic nodes (presumptive para-aortic nodes)
Diaphragmatic nodes
Left gastric nodes (cardiac nodes of stomach)
Nerves of Esophagus

Anterior View

- Superior cervical sympathetic ganglion
- Pharyngeal branch of vagus nerve
- Superior laryngeal nerve
- Thyroepiglottic
- Branch of superior laryngeal nerve (Brnlaryngeal)
- Right recurrent laryngeal nerve
- Trachea
- Carina
- Trachea
- Right recurrent laryngeal nerve
- Right paravertebral sympathetic trunk
- Gray and white rami communicans
- Right thoracic sympathetic ganglion
--cardiac plexus
- Right greater thoracic splanchnic nerve
- Aortic plexus
- Sympathetic fibers along left phrenic and thoracic aorta
- Branch of posterior vagal trunk to celiac plexus
- Greater thoracic splanchnic nerves
- Gastric plexus and ganglia
- Sympathetic fibers after esophageal branch of left gastric artery
Nerves of Esophagus
Posterior View
Nerves of Esophagus
Variations

- Multiple anterior vagal trunks
- Single anterior vagal trunk divides just above diaphragm
- Multiple posterior vagal trunks
- High emergence of single trunk
- Low emergence of single trunk
Intrinsic Nerves of Esophagus
Schema

- Longitudinal muscle
- Intermuscular connective and elastic tissue
- Submucosal (Holden's) plexus
- Mucous (Auerbach's) plexus
- Circular muscle
- Submucosa
Bony Framework of Abdomen
Rectus Sheath
Cross Section Above Arcuate Line

Rectus Sheath
Cross Section Below Arcuate Line

Approximately of internal abdominal oblique muscle does not split at this level but simply completely anterior to rectus abdominis muscle and is fused there with both approximations of external abdominal oblique muscle and that of transversus abdominis muscle. Thus posterior wall of rectus sheath is absent below arcuate line and rectus abdominis muscle lies on transversus fascia.
Inguinal and Femoral Regions
Cribiform Fascia Removed
Veins of Posterior Abdominal Wall

- Inferior vena cava
- Right inferior subcaval vein
- Right renal vein
- Psoas major muscle (crossed)
- Subcostal vein
- Quadrate (lumbar) vein
- Left (lumbar) subcostal vein
- Iliohypogastric vein
- Common iliac vein
- Internal iliac vein
- Superior gluteal vein
- Internal iliac vein
- Femoral vein
- Inferior epigastric vein
- Round ligament of uterus
- Internal spermatic vein (males)
- Pubic vein
- Pampiniform plexus
- Venous abdominal wall (femoral vein)
Lymph Vessels and Nodes of Posterior Abdominal Wall

- Right subclavian trunk
- Left subclavian trunk
- Right bronchomediastinal trunk
- Left bronchomediastinal trunk
- Tracheobronchial nodes
- Intercostal nodes
- Thoracic duct
- Superior mediastinal nodes
- Inferior phrenic nodes
- Celiac nodes (part of paraaortic nodes)
- Superior mesenteric nodes (part of paraaortic nodes)
- Inferior mesenteric nodes
- Right lumbar trunk
- Left lumbar trunk
- Inferior mesenteric nodes
- Inferior epigastric nodes
- Internal iliac nodes
- External iliac nodes
- Superficial inguinal nodes
- Inferior epigastric nodes
- Node of Cloquet, a Femoral
- External iliac nodes
- Deep inguinal nodes
- Middle sacral nodes
Quadrants of Abdomen
Regions and Planes of Abdomen

- Right lateral rectus plane (semi-longitudinal)
- Left lateral rectus plane (semi-longitudinal)
- Right mid-inguinal plane
- Left mid-inguinal plane
- Epigastric region
- Left hypochondriac region
- Right hypochondriac region
- Transpyloric line
- Subcostal plane
- Umbilical region
- Right lumbar region
- Left lumbar region
- Intercostal plane
- Interspinous plane
- Right inguinal region
- Left inguinal region
- Right iliac region
- Left iliac region
- Right subcostal region
- Left subcostal region
- Right hypochondriac region
- Left hypochondriac region
Greater Omentum and Abdominal Viscera
Greater Omentum and Abdominal Viscera

Omentum Raised

- Greater omentum (turned up)
- Transverse colon (turned up)
- Left colic (splenic) flexure
- Right colic (hepatic) flexure
- Small intestine (jejunum and ileum)
- Descending colon (covered by small intestine)
- Sigmoid colon
- Cecum
- Urinary bladder
Mesenteric Relations of Intestines
Suspensory Muscle of Duodenum

Exposure of suspensory muscle of duodenum (ligament of Treitz)
Mesenteric Relations of Intestines
Small Intestine Removed
Mesenteric Relations of Intestines
Sigmoid Colon Reflecte
Stomach
Variations in Position and Contour

Hypofract stomach  Orthostatic stomach  Supine stomach  Atate stomach
Mucosa of Stomach

Cardia zone
Zucca's line (separation of gastric and esophageal mucous)
Cardia opening
Stomach fundus
Stomach fundus
Eccentric fold (rugae)
Eccentric (longitudinal) vessel
Pyloric opening
Pyloric sphincter
Superior (one pair of duodenal) lip, or bull

Gastric canal (megastomatoes)
Mucosa of Stomach

Histology

![Diagram of the Mucosa of Stomach](image)
Musculature of Stomach

- Longitudinal muscle of esophagus
- Outer longitudinal muscle layer of stomach
  - Enveloped by layers of lesser and greater curvatures and splenic area
- Middle circular muscle layer of stomach
- Longitudinal muscle of duodenum
Musculature of Stomach [Continued]

- Outer longitudinal muscle layer (outer layer)
- Innermost oblique muscle layer
- Middle oblique muscle layer
- Circular muscle of duodenum
- Section through pylorus sphincter (transverse muscle layer of pyloric oblique muscle layer)
- Collar of Helixus (middle circular and innermost oblique layers blend here)
Mucosa and Musculature of Jejunum
Mucosa and Musculature of Ileum
Ileoceleal Region

Variations in Posterior Peritoneal Attachment
Ileocecal Region
Labial Form of Ileocecal Sphincter

- Frenulum
- Terminal part of ileum
- Opening of vermiform appendix
- Frenulum (labia inferiors)
Ileocecal Region
Papillary Form of Ileocecal Sphincter
Ileocecal Region
Schema of Muscle Fibers at Ileocecal Sphincter

- Circular muscle of colon
- Meccotic lenta
- Fibers to tenia
- Longitudinal muscle of ileum
- Circular muscle of ileum
- Fibers around ileocecal junction
Vermiform Appendix
Fixed Retrocecal
Vermiform Appendix
Cross Section
Mucosa and Musculature of Large Intestine

- Ascending colon
- Transverse colon
- Descending colon
- Rectum
- Sigmoid colon
- Cecum
- Cecal opening
- Sigmoid mesentery
- Transverse mesentery
- Right colic (hepatic) flexure
- Greater omentum (blot away)
- Epiploic appendices
- Appendix
- Posterior mesenteric artery
- Transverse (mesocolon)
- Descending (colon)
- Haustra
- Tranverse (mesocolon)
- descending colon
- ascending colon
- Cecum
- Sigmoid colon
- Internal and sphincter muscle
- Cecal (sinus) opened out and pleated to form longitudinal muscle layer
Sigmoid Colon
Variations in Position

Typical

Short, straight, obliquely into pelvis
Sigmoid Colon [Continued]
Variations in Position

Looping to right side  Ascending high into abdomen
Topography of Liver
Anterior and Posterior Views
Topography of Liver

Lateral View
Surfaces and Bed of Liver
Posterior View and Bed of Liver
Variations in Form of Liver

Very small left lobe, deep costal impressions

Complete atrophy of left lobe (left portal vein compression)

Transverse, "saddle-like" liver, relatively large left lobe

"Tongue-like" process of right lobe

Very deep right lobe impression and "conus constriction"

Diaphragmatic grooves
Liver Segments and Lobules
Parietal Surface

Division into segments is based upon ramifications of bile ducts and hepatic vessels. It does not entirely correspond with division into lobes.
Liver Segments and Lobules
Visceral Surface

Division into segments is based upon ramifications of bile ducts and hepatic vessels. It does not entirely correspond with division into lobes.
Distribution of Vessels and Ducts of Liver

1. Right lobe
d2. Left lobe
3. Anterior segmental
4. Medial segmental
5. Posterior segmental
6. Inferior segmental
7. Anterior inferior area
8. Inferior posterior area
9. Anterior superior area
10. Medial superior area
11. Posterior inferior area
12. Lateral inferior area
13. Right posterior area
14. Lateral superior area
15. Caudate lobes (right and left)
16. Oesophageal process
Normal Lobular Pattern of Liver

- Liver cell plates
- Hepatic artery branch (of portal triad)
- Portal vein branch (of portal triad)
-中央静脉 (of lobular vein)
- Sinusoids

[Diagram of liver lobules with labeled structures]
Intrahepatic Biliary System

Scheme.

Note: In this illustration, bile canaliculi appear as thin walled tubes of the same size. However, in some tissues, bile canaliculi are an extension of the surface membrane of the biliary epithelial cells.
Intrahepatic Biliary System

Histology
Gallbladder and Extrahepatic Bile Ducts
Variations in Cystic Duct

- Low union with common hepatic duct
- Adherent to common hepatic duct
- High union with common hepatic duct

- Cystic duct absent or very short
- Anterior spiral joining common hepatic duct on left side
- Posterior spiral joining common hepatic duct on left side
Variations in Accessory [Aberrant] Hepatic Ducts
Choledochoduodenal Junction

Interior of descending (2nd) part of duodenum
Choledochoduodenal Junction

Dissection

- Common bile duct (papilla choledochus)
- Longitudinal muscle of duodenum
- Circular muscle of duodenum
- Pancreatic duct
- Sphincter of common bile duct (choledochus)
- Longitudinal bundle
- Pancreatic duct sphincter (manubrium)
- Reinforcing fibers
- Duodenal muscle fibers to longitudinal bundle
Variations in Union of Bile and Pancreatic Ducts
Pancreas
Histology

Low-power section of pancreas
Pancreas

Common bile duct
(ductus choledochus)

Pancreatic notch

Principal pancreatic duct
(of Wirsung)

Accessory pancreatic duct
(of Santorini)
Variations in Pancreatic Ducts

- Minor duodenal papilla
- Accessory duct (of Santorini) abnormally large
- Major duodenal papilla
- Principal duct (of Wirsung) abnormally

Reversal in relative size of ducts
Variations in Pancreatic Ducts [Continued]

- Double access ducts (of Santorini)
- Anastomosis between ducts
- Draining ducts
- Double draining ducts
- No communication between ducts
- Double principal duct (of Wirsung)
- Tumour of ducts
- Absence of accessory ducts (of Santorini)
Spleen
Visceral and Diaphragmatic Surfaces

- Posterior extremity
- Anterior extremity
- Short gastric vessels
- Splenic hilus
- Splenic artery
- Left gastroepiploic (gastroepiploic) vessels
- Splenic vein
- Anterior surface
- Posterior surface
- Inferior margin
- Superior margin
- Diaphragmatic surface
- Visceral surface
Spleen
Cross Section
Spleen in Situ
Arteries of Duodenum and Head of Pancreas

Reflected to Left
Arteries of Duodenum and Head of Pancreas
Posterior View

- Common hepatic artery
- Proper hepatic artery
- Arteries of duodenum
- Arteries of head of pancreas
- Arteries of body of pancreas
- Arteries of tail of pancreas
- Arteries of inferior mesenteric artery

Key structures:
- Anterior inferior pancreaticoduodenal artery
- Superior mesenteric artery
- Inferior mesenteric artery
- Arteries of inferior mesenteric artery
Variations in Celiac Trunk

Common origin of celiac trunk and superior mesenteric artery

Splanic artery takes origin from superior mesenteric (here replaced by hepatic artery from celiac (select))

Hepatogastric trunk

Gastroligamentous trunk

Splanic and hepatic arteries take origin from superior mesenteric

Replaced hepatic artery takes origin from right gastro-epiploic artery from left jejunal branch
Variations in Celiac Trunk [Continued]

**Replaced right hepatic artery takes origin from superior mesenteric arterial pancreaticoduodenal and 1st jejunal arteries from replaced right hepatic artery.**

**Accessory right hepatic artery takes origin from superior mesenteric artery.**

**Complete celiac trunk**

**Hepatomesenteric trunk**

**Complete celiac trunk**

**Hepatomesenteric trunk**

**Accessory right hepatic artery takes origin from superior mesenteric artery.**

**Hepatomesenteric trunk**

**Complete celiac trunk**

**Hepatomesenteric trunk**

**Accessory right hepatic artery takes origin from superior mesenteric artery.**

**Hepatomesenteric trunk**

**Complete celiac trunk**

**Hepatomesenteric trunk**

**Right gastroepiploic (gastric marginal) artery takes origin from superior mesenteric artery.**

**Hepatomesenteric trunk**

**Complete celiac trunk**

**Hepatomesenteric trunk**
Variations in Hepatic Arteries
Variations in Hepatic Arteries [Continued]
Variations in Cystic Artery 1

May originate from normal right hepatic outside cystic triangle

Intermediate hepatic artery
Common hepatic artery
 gastroduodenal artery

May originate from cardiac trunk (or from aorta)
Variations in Cystic Artery 2
Variations in Cystic Artery 3

May originate in cystic triangle from aberrant right hepatic (from superior mesenteric)

May originate outside cystic triangle from aberrant right hepatic

Superior mesenteric artery

May cross anterior to hepatic duct
Variations in Cystic Artery 4

Double cystic artery, posterior
from right hepatic, sometimes from gastroduodenal

Double cystic artery, both
from normal right hepatic in cystic triangle
Variations in Cystic Artery 5

Double cystic artery, both from proper right hepatic, one inside and one outside cystic triangle.
Variations in Colic Arteries 1

Common origin of right colic and middle colic arteries
Variations in Colic Arteries

Common origin of right colic and ileocolic arteries
Variations in Colic Arteries 3

Absence of middle colic artery replaced by large branch from left colic artery.
Variations in Colic Arteries 4

Absence of right colic artery
Variations in Colic Arteries 6

Accessory middle colic artery

Middle colic artery

Right colic artery

Mesenteric artery

Accessory middle colic artery to left colic (splenic) flexure
Variations in Colic Arteries

Aur of Riolan between middle colic artery and left colic artery
Discontinuity of marginal artery between right colic artery and ileocolic arteries.
Variations in Colic Arteries 9

Middle colic artery originates from celiac trunk via dorsal pancreatic artery.
Variations in Colic Arteries

Middle colic artery gives origin to dorsal pancreatic artery.
Variations in Colic Arteries

Middle colic artery originates from or with replaced right hepatic artery (not superior mesenteric artery).
Middle colic artery has common origin with right gastroepiploic artery from superior mesenteric artery.
Variations in Cecal and Appendicular Arteries

Arteries cecal and posterior cecal arteries originate from arcades between cecum and ileal branches of ileocolic; appendicular artery from ileal branch.

Cecal branch of ileocolic artery
Ileocolic artery
Ileal branch of ileocolic artery
Appendicular branch of ileocolic artery
Posterior cecal branch of ileocolic artery
Anterior cecal branch of ileocolic artery
Variations in Cecal and Appendicular Arteries 2

Anterior cecal branch of ileocolic artery
Colic branch of ileocolic artery
Ileocolic artery
Reflux branch of ileocolic artery
Appendicular branch of ileocolic artery

Anterior cecal and posterior cecal arteries originate from colic branch; appendicular artery from last branch of ileocolic artery.
Anterior cecal and posterior cecal arteries have common origin from arcada, appendicular artery from ileocolic artery proper
Variations in Cecal and Appendicular Arteries

Arteria cecal and posterior cecal arteries originate from arcade between colic and ileal branches of ileocolic artery; appendicular artery from cecal branch bifurcates high.
Variations in Cecal and Appendicular Arteries

Anterior cecal and posterior cecal arteries originate from ileo-iliac branch of iliac artery; appendicular artery from posterior cecal artery.
Variations in Cecal and Appendicular Arteries
Anterior cecal and posterior cecal arteries originate from arcades between colic and ileal branches of ileocolic artery; two appendicular arteries, one from arcade, one from ileal branch of ileocolic artery.
Variations in Cecal and Appendicular Arteries

![Diagram of Cecal and Appendicular Arteries](image)

Anterior cecal and posterior cecal arteries originate from arcade, two appendicular arteries, one from anterior cecal, other from posterior cecal artery.
Veins of Small Intestine
Transverse Colon Cut
Veins of Small Intestine

Transverse Colon Elevated

Relations of superior mesenteric vein and artery in root of mesentry.
Typical Arrangement of Portal Vein
Variations of Portal Vein

- Left gastric vein often enters the portal vein along with the splenic and superior mesenteric veins.
- Portal vein branches into the splenic vein and superior mesenteric vein.
- Left gastric vein may enter splenic vein (24% of cases).
Variations of Portal Vein [Continued]

- Portal vein
- Splenic vein
- Superior mesenteric vein
- Inferior mesenteric vein
- Inferior mesenteric vein may enter junction of splenic and superior mesenteric veins
- Inferior mesenteric vein may enter superior mesenteric vein
Anomalies of Portal Vein

Portal vein anterior to head of pancreas and 1st part of duodenum

Portal vein may enter inferior vena cava (hepatic arteries enlarged)

Pulmonary vein may enter portal vein

Congenital stricture of portal vein
Lymph Vessels and Nodes of Stomach

Stomach Reflected

- Right gastro-epiploic (gastrermenental) nodes
- Cardiac node
- Left gastro-epiploic (gastrermenental) node
- Splenic nodes
- Left superior pancreaticoduodenal nodes
- Superior mesenteric nodes
- Right superior pancreaticoduodenal node
- Pancreatico-epiploic and infrapapillary nodes
- Zones and parabiliary gastro-duodenal lymph drainage (planes not shown here)
Lymph Vessels and Nodes of Small Intestine
Lymph Vessels and Nodes of Large Intestine

- Paracolic nodes
- Epsidetic nodes
- Inferior mesenteric nodes
- Superior rectal nodes
- Middle colic nodes
- Superior mesenteric nodes
- Right colic nodes
- Ileocolic nodes
- Cecal nodes
- Appendicular nodes
- Left colic nodes
- Pancreatic nodes
- Symphotic nodes
- Parascatic nodes
- Superior rectal nodes
Lymph Vessels and Nodes of Large Intestine [Continued]
Lymph Vessels and Nodes of Liver

Histology

Low-power sections of liver

Perisinusoidal spaces (of Disse) markedly widened

Perisinusoidal spaces (of Disse) very narrow or obliterated

Sinusoid

Terminal lymphatic vessel

Connective tissue of portal tract

Peribiliary space (of Mall)
Lymph Vessels and Nodes of Liver

- Nodes at termination of inferior vena cava
- Vena caval foramen
- Celiac ganglia
- Coeliac node of Cope
- Hepatic nodes
- Portal node of Toldt
- Pyloic nodes
- Hepatic nodes
Autonomic Nerves and Ganglia of Abdomen
Nerves of Stomach and Duodenum

Hiatal Region

Right phrenic nerve
Pernic ganglion
Branch from right inferior phrenic
divide to cardiac stomach
Anterior vagal trunk
Posterior vagal trunk

Left gastric artery and plexus
Left thoracic splanchic nerves
Celiac ganglion
Celiac branches of anterior
and posterior vagal trunks

Right and left inferior phrenic
divide to cardiac stomach
Greater, lesser, and least
thoracic splanchic nerves
Duodenal nerves and sympathetic plexus

Left adrenal ganglion
Nerves of Small Intestine

- Hepatic branch of anterior vagal trunk
- Posterior vagal trunk
- Inferior mesenteric artery and plexus
- Hepatic plexus
- Right gastric artery and plexus (blue)
- Left gastric artery and plexus
- Gastrroduodenal artery and plexus
- Intersegmental (splanchnic) plexus
- Inferior mesenteric artery and plexus
- Middle colic artery and plexus
- Right colic artery and plexus
- Pancreaticoduodenal plexus
- Meと思onic plexus contains appendicular arteries and nerve plexus
Innervation of Small and Large Intestines
Left Side of Schema
- Sympathetic efferents
- Parasympathetic efferents
- Somatic efferents
- Afferents and CNS connections
- Innervation paths

[Diagram showing the innervation of the small and large intestines with labels for various nerves and ganglia.]
Innervation of Small and Large Intestines
Right Side of Schema
Intrinsic Autonomic Plexuses of Intestine

Scheme

Note: intestinal wall is shown much thicker than in actuality.
Common Areas of Referred Pain in Biliary Disease
Innervation of Liver and Biliary Tract

Schema

- Sympathetic fibers
  - Propaglandin
  - Postganglionic
- Parasympathetic fibers
  - Propaglandin
  - Postganglionic
- Affe rent fibers
Innervation of Liver
Nerve Fibers around Fine Branch of Hepatic Artery
Common Areas of Pancreatic Pain
Innervation of Pancreas

Schema
Schema of Intrinsic Nerve Supply of Pancreas

- Sympathetic fibers
  - Pre-ganglionic
  - Post-ganglionic
- Parasympathetic fibers
  - Pre-ganglionic
  - Post-ganglionic
- Afferent fibers
Kidneys in Situ
Anterior Relations of Kidneys
Anterior Surface of Right Kidney

- Superior margin
- Medial margin
- Lateral margin
- Renal artery
- Renal vein
- Renal pelvis
- Nephron
- Capsule
Right Kidney Sectioned in Several Planes
Suprarenal Gland and Lobulated Kidney of Infant
Intrarenal Arteries
Frontal Section of Left Kidney - Anterior View

Superior (polar) segmental artery
Capsular and perirenal branches of arcuate arteries
Inferior suprarenal artery
Main renal artery
Anterior division of renal artery
Posterior division of renal artery
Pelvic and ureteric branches of renal artery
Anterior superior segmental artery
Inferior segmental artery
Ansa of arteries
Interlobar arteries
Posterior segmental arteries
Intralobular arteries
Cortical perforating branch
Anterior inferior segmental artery
Vascular Renal Segments
Variations in Renal Artery

A) Left accessory right renal artery may pass in front of inferior vena cava instead of behind it.

B) Inferior phrenic artery with suprarenal arteries may arise from renal artery.
Variations in Renal Vein

Double renal vein may form ring around aorta
Variations in Renal Vein [Continued]

Multiple renal veins

Persistent left anterior vena cava may join left renal vein
Diagonal Course of Ureter through Bladder Wall
Ureters in Female
Superior View
Arteries of Ureters and Urinary Bladder

Abdominal aorta
Superior mesenteric artery
Celiac (celiac) artery
Inferior mesenteric artery
Ureters branches from renal and common iliacs arteries
Superior gluteal artery
Inferior gluteal and internal iliacal arteries
Obturator artery
Vaginal artery
Ureters branch from superior vesical artery
Superior vesical arteries
Ureters
Plica major muscle
Ureters branch from aorta
Common iliac artery
Internal iliac artery
Middle rectal artery
Urethra
Inferior epigastric artery
Inferior vesical artery and ureteric branch
Innervation of Kidneys and Upper Ureters

Scheme
Renal Fascia
Transverse Section through 2nd Lumbar Vertebra
Renal Fascia
Sagittal Section through Right Kidney

Demonstrates vertical disposition of renal fascia
Arteries and Veins of Right Suprarenal Gland in Situ
Arteries and Veins of Left Suprarenal Gland in Situ
Cross Section through Suprarenal Gland

- Capsule
- Cortex
- Medulla
Nerves of Suprarenal Glands

Schema
Abdominal Wall and Viscera
Cross Section at T12

- Rectus abdominis muscle
- Latissimus dorsi
- External oblique abdominis muscle
- Transverse abdominis muscle
- 9th costal cartilage
- 8th costal cartilage
- Diaphragm
- Thoracic vertebrae
- Thoracic vertebrae
- 12th intercostal nerve
- 11th intercostal nerve
- 10th intercostal nerve
- 9th intercostal nerve
- 8th intercostal nerve
- 7th intercostal nerve
- 6th intercostal nerve
- 5th intercostal nerve
- 4th intercostal nerve
- 3rd intercostal nerve
- 2nd intercostal nerve
- 1st intercostal nerve
- Lumbar vertebrae
- Superior mesenteric vein
- Inferior mesenteric vein
- Superior mesenteric artery
- Inferior mesenteric artery
- Portal vein
- Splenic vein
- Superior mesenteric artery
- inferior mesenteric artery
- Hepatic artery
- Common hepatic artery
- Celiac artery
- Superior mesenteric artery
- Inferior mesenteric artery
- Splenic artery
- Portal vein
- Hepatic artery
- Inferior vena cava
- Superior vena cava
- Liver
- Colon
- Spleen
- Stomach
- Pancreas
- Duodenum
- Esophagus
- Aorta
- Inferior vena cava
- Right atrium
- Left atrium
- Right ventricle
- Left ventricle
- Right atrium
- Left atrium
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- Right atrium
Bones and Ligaments of Pelvis
Midsagittal Section
Bones and Ligaments of Pelvis
Posterior View
Bones and Ligaments of Pelvis
Anterior View

- Iliac crest
- External iliac artery
- Tuberosity of ischium
- Intermediate line of ischium
- Interspinous line
- Sphenoid wing
- Greater sciatic notch
- Anterior superior iliac spine
- Sartorius
- Trochanter
- Anterior superior iliac spine
- Acetabulum
- lesser sciatic notch
- Iliac crest
- Obturator internus
- Superior pubic ramus
- Posterior pubic ramus
- Ischium
- Sphenacanth
- Pubic symphysis
- Lateral crura
- Sacrotuberous ligament
- Obturator membrane
- Superior pubic ramus
- Sacrospinous ligament
- Superior pubic ramus
- Citiform process
Female Pelvis
Measurements - Anterior View
**Female Pelvis**

Measurements - Inferior View

- Transverse diameter of pelvic outlet (broadest): 11 cm
- Anteposterior diameter of pelvic outlet (narrowest): 11.5 cm
- Pubic symphysis
- Iliac spine
- Pubic symphysis
Female Pelvis
Measurements - Sagittal Section

- Sigmoid promontory
- Plane of inlet
- Conjugate diameter of inlet (approx. 11 cm)
- Pubic symphysis
- Anteroposterior diameter of outlet (13.5 - 14 cm)
Pelvic Diaphragm of Female

Medial View

- Clitoral transverse muscle and fascia (cut)
- Anterior line of bladder
- Precavernous muscle
- Oblique line of bladder
- Promontory
- Pubococcygeal muscle
- Next to rectum
- Transverse perineal muscle
- Superior and inferior fascia of vaginal or perineal diaphragm

External and cutaneous muscle

Veins of the female pelvic diaphragm

Linea nigra of the perineum
Pelvic Diaphragm of Male
Superior View - Viscera Removed

- Public symphysis
- Pubic crest
- Pubic tubercle
- Petrosus pubis (upper part of diaphragm)
- Superior ramus of pubis
- Rima of urogenital sinus
- Biceps hemorrhoidalis
- Obturator externus
- Obturator internus
- Artery of obturator internus
- Artery of obturator externus
- Vasa iliaca (small part of iliopsoas ligament)
- Rectus abdominis
- Sacrosciatic ligament
- Gastrocnemius
- Anterior cricoapharyngeus ligament
- Anterior meniscus of urethra
- Superior hemorrhoidalis
- Symphysis pubis
- Urethral plate
- Rectus abdominis
- Rectus sheath
- Transverse perineal ligament (anterior hemorrhoidalis of urogenital diaphragm)
- Transverse perineal muscle (anterior hemorrhoidalis of urogenital diaphragm)
- Rectus sheath
- Urethra for urethra
- Muscle fibers from levator ani to coccygeus and levator ani muscle of pelvic floor
- Obturator internus
- Obturator externus
- Tendinous arch of levator ani muscle
- Rectus abdominis
- Anterior cricoapharyngeus ligament
- Anterior meniscus of urethra
- Anterior hemorrhoidalis
- Anterior hemorrhoidalis
Pelvic Viscera and Perineum of Female
Midsagittal Section
Pelvic Viscera and Perineum of Female
Paramedian Sagittal Section

- Broad ligament (cut)
- Uterus (Fallopian tube)
- Ovary
- Round ligament
- Uterine pouch
- Vesicourethral pouch
- Urethra
- Ureter
- Rectum
- Vagina
- Pelvic diaphragm (levator ani muscle)
- External sphincter muscle
- Urogenital diaphragm (cut)
- Inferior pubic ramus
- Labia minora
- Labia majora
- Crista iliaca
- Posterio rectus sheath
- Rectus abdominis muscle
- Symphysis pubis
Pelvic Viscera of Female
Superior View - Peritoneum Intact

- Median umbilical fold
- Fundus of uterus
- Uterine body
- Round ligament of uterus
- Broad ligament
- Proper ovarian ligament
- Ureter (Fallopian tube)
- Cervix of uterus
- Recurrent pouch (bulge of Douglas)
- Sigmoid colon
- Sigmoid mesentery
- Adominal aorta
- Ureteric fold
- Ureteral fold
- Middle sacral vessels
- Suspensory ligament of ovary (contains ovarian vessels)
- External iliac vessels
Pelvic Viscera of Female
Superior View - Peritoneum Removed
Uterus
Changes with Age

Newborn
4 years
Preadolescence
Adult (nulliparous)
Adult (parous)
Adult (postmenopausal)
Uterus
Schema of Musculature

Spiral fibers pass deeply into wall and interface (schema)
Uterus
Variations in Position
Uterus [Continued]

Variations in Position
Perineum and External Genitalia of Female

- Perineum
- Membranes
- Prepuce of clitoris
- Labial raphe
- Labiocrural commissure
- Urethral opening (meatus)
- Vaginal opening
- Vestibule
- Vestibule (external) fossa
- Membrane of labium
- Vaginal opening
- Perineum commissure
Perineum and External Genitalia of Female [Continued]
Perineum of Female

Superficial Dissection
Perineum of Female
Midsagittal Section
Perineum and Urogenital Diaphragm of Female
Perineum and Urogenital Diaphragm of Female
Deep Dissadion

[Diagram of the perineum and urogenital diaphragm with labeled structures including: rectum, urethra, ischiocavernous muscle, ischiopubic ramus, vestibular, deep transverse perineal muscle, and inferior fascia of urogenital diaphragm.]
Urethra of Female

Frontal Section

- Trigone of urinary bladder
- Bladder neck
- Opening of urethra
- Urethra
- Levator ani muscle
- Suburethral urethral muscle
- Vestibule
- Subprostatic muscle and investing (Cowper's) gland
- Labium minor
- Superior pubic symphysis
- Superficial transverse perineal muscle
- Superficial transverse perineal muscle
- Superficial transverse perineal muscle
- Superficial transverse perineal muscle
- Cavernous venous plexus of urethra
- Urethral tissue
- Bladder neck
- Urothelial muscle of bladder neck
- Bladder neck
- Bladder neck
- Bladder neck
- Bladder neck
Urethra of Female
Schematic Reconstruction
Perineum of Male
Regions [Triangles] and Surface Topography
Section through Body of Penis

- Deep dorsal vein
- Superficial dorsal vein
- Corpus cavernosum and its tunica albuginea
- Corpus spongiosum and its tunica albuginea
- Deep artery
- Corpus (Buck's) fascia
- Lateral superficial vein
- Deep (Buck's) fascia
- Intercavernous septum of Buck's fascia
Penis

- External urethral opening (meatus)
- Frenulum
- Opening of prostatic (Tyndall) gland
- Skene's duct
- Corona of glans
- Nostril of glans
- Superficial dartos fascia of penis
- Deep Buck's fascia of penis
- External sheath of corpus cavernosum
- Striated muscle of corpus cavernosum
- Transversalis fascia of penis
- Transversus abdominis muscle
- Erector fasciae of urethral diaphragm
- Superficial transverse perineal muscle
- Central tendon of perineum
- Ischioconjugus muscle
- Gluteus maximus muscle
- External anal sphincter muscle
- Tip of coccyx
Penis [Continued]
Urogenital Diaphragm of Male
Dissection

- Superior pubic ramus
- Pubic symphysis
- Pubic bone
- Arrector pubis ligament
- Deep dorsal vein of penis
- Transverse perineal ligament
- Urethra
- Ischiopubic ramus
- Inferior fascia of urogenital diaphragm
- Ischiopubic ramus
- Urethral bulb
- Pubococcygeal muscle
- Transversus perinei muscle
- Inferior fascia of urogenital diaphragm
- External sphincter muscle
- Pubococcygeal muscle
- Inferior fascia of urogenital diaphragm
- Deep transverse perineal muscle
- Pubococcygeal muscle
- Internal sphincter muscle
- Superficial transverse perineal muscle
- Cut and reflected
Urogenital Diaphragm of Male
Deep Dissection

- Dorsal artery and nerve of penis
- Urethral artery
- Bulbospongiosus (Cowper's gland)
- Urethra
- Inferior vesical veins
- Inferior vesical plexus
- Deep transverse perineal muscle
- Internal pudendal artery and nerve of penis
- Internal pudendal artery and pudendal venous plexus
- Deep perineal membra
- Urethral muscle
Urogenital Diaphragm of Male
Frontal Section - Schema
Prostate and Seminal Vesicles
Frontal Section

- Trigone of urinary bladder
- Urethra of bladder
- Openings of prostatic ducts in urethral sinus
- Prostatic urethra
- Urethral crest
- Seminal colliculus (verumontanum)
- Opening of ejaculatory duct
- Urogenital diaphragm
- Opening of bulbourethral duct
- Bulbourethral (Cowper's) gland

Urethral bulb schematically extended
Prostate and Seminal Vesicles
Sagittal Section

- Prostate
- Opening of urethra
- Trigone of urinary bladder
- Seminal vesicle
- Prostatic utricle
- Seminal vesicle
- Opening of ejaculatory duct
- Urethral sphincter
- Urethral (Cowper's) gland
- Rectum and anal fascia
- Urethral (Cowper's) gland (retracted)
Prostate and Seminal Vesicles
Posterior View
Prostate and Seminal Vesicles
Cross Section through Prostate

- Urinary meatus
- Urethra
- Prostatic urethra
- Prostatic fascia
- Prostatic lobe
- Middle lobe
- Lateral lobe
- Seminal colliculus
- Ureters
- Urethral sinus
Descent of Testis
8 Weeks

22.5-cm crown rump
Descent of Testis

11 Weeks

Diagram showing the descent of testis and various labeled structures such as the kidney, ureter, bladder, and urethra. The diagram indicates a 43-mm crown-rump length.
Descent of Testis
4 Lunar Months

107-mm crown rump
Descent of Testis
8 Lunar Months

- Ductus deferens
- Scrotal sac (out outer)
- Epididymis
- Testes
- Subamnium

26-cm crown rump
Testis, Epididymis and Ductus Deferens
Frontal Section
Testis, Epididymis and Ductus Deferens

Schema
Testis, Epididymis and Ductus Deferens
Cross Section
Ischiorectal Fossa

Rectal fossa

Pectineus (cut edge)

Sacrospinous (lateral to internal)

Symphysis

Femoral fossa

Bladder muscle and tendo

Submucosa

Internal anal sphincter muscle

Cardinal ligament

Prostatic (fossa)

Anal canal (internal and external sphincter muscle)

Sigmoid colon

Transverse rectal muscle

External and internal sphincter

Internal pudendal nerve

Branches to levator ani

Pudendal nerve
Anorectal Musculature
Anterior View

- Rectosigmoid Junction
- Sigmoid colon
- Transverse colon
- Serosa
- Rectum
- Internal anal sphincter
- External anal sphincter
- Submucous external anal sphincter muscle
- Deep external anal sphincter muscle
- Superficial external anal sphincter muscle
- Suburothelial muscle
- Hemorrhoid muscle
- Vascular muscle layer
- Gastrocolic muscle layer
- Longitudinal muscle
- Circular muscle
Anorectal Musculature
Frontal Section

- Superior fascia of pubic symphysis
- Inferior fascia of pubic symphysis
- Lateral ani muscle
- Deep external anal sphincter muscle
- Dureteus longitudinal muscle
- Superficial external anal sphincter muscle
- Transversalis fascia recti
- Subcutaneous external anal sphincter muscle
- Conjugate oval ani muscle
- Circular muscle of rectum
- Muscularis mucosa of rectum
- Rectal fascia
- Longitudinal muscle of rectum
- Internal rectal venous plexus
- Internal anal sphincter muscle
- Musculus subnucrose ani
- Intermediate gluteal
  (white line of reflection)
External Anal Sphincter Muscle of Male
Perineal View

- Deep (haustral) fascia of rectum
- Puborectalis muscle
- Anococcygeal ligament
- Perineal (levator ani) muscle
- Pelvic floor muscle
- Transverse perineal muscle
- Ischiorectal fossae
- Central tendon of perineum
- Superficial transverse perineal muscle
- Superficial perineal fascia
- Superficial perineal muscle
- Deep perineal (bulbocavernous) muscle
- Bulbospongiosus muscle
- Ischiocavernosus muscle
- Ischiopubic rami
- Tendinous lamina
- Superior hemorrhoidal (sentinal) plexus
- Superior rectal connective tissue
- Deep external anal sphincter muscle
- Superficial external anal sphincter muscle
- Bilobed rectal muscle
Veins of Rectum and Anal Canal

Anterior View

- Inferior mesenteric vein (terminates in portal vein via splenic vein)
- Sigmoid vein
- Reticulated vein
- Internal iliac vein
- External iliac vein
- Obturator vein
- Superior rectal and uterine veins
- Middle rectal vein
- Internal pudendal vein
- Vaginal vein
- Inferior rectal vein
- Internal pudendal vein (in pudendal (Abbott) canal)
- External iliac vein
- Inferior mesenteric vein
- Common iliac veins
- Middle sacral vein
- Superior rectal vein
- Communication between internal and perirectal venous plexuses
- Perirectal veins
Arteries and Veins of Testis

Anterior View

- Inferior vena cava
- Testicular vessels (in abdomen)
- Common iliac veins
- Inferior mesenteric vein
- Inferior mesenteric artery
- Internal iliac veins
- Inferior epigastric vessels
- Deep epigastric vessels
- Genitofemoral nerve
-inferior epigastric veins
- Artery of ductus deferens
- Femoral vessels
- Superior vesical vein
- Internal pudendal vessels
- Deep circumflex iliac vein
- Deep external pudendal vessels
Arteries and Veins of Pelvis
Female - Sagittal Section

Abdominal aorta
Right common iliac artery
Left common iliac artery
Internal iliac artery
Pubic branch of internal iliac artery
External iliac artery
Obericular artery
Umbilical artery
Vascular sheath
Obturator internus fossa
External pudendal artery
Pubic symphysis
Intersphincteric plane
Sacrospinous ligament
Sigmoid colon
Ovarian vessels
Arteries and Veins of Pelvis
Female - Right Paramedian Section

Lateral View

- Abdominal aorta
- Inferior vena cava
- Right common iliac artery
- Left common iliac artery
- Ureter
- Obturator externus muscle
- Obturator internus muscle
- Sigmoid mesocolon
- Sigmoid colon
- Superior rectal artery
- Inferior mesenteric artery
- Inferior vesical artery
- Vaginal artery
- Internal pudendal artery
- Inferior gluteal artery
- Posterior division of internal iliac artery
- Anterior division of internal iliac artery
- Obturator branch of internal iliac artery
- Obturator canal

[Diagram of the arteries and veins of the pelvis]
Arterial Supply of Prostate
Arteries and Veins of Perineum

Female

- Bulbospongiosus muscle
- Ischiocavernosus muscle
- Perineal artery
- Inferior fascia of urogenital sinus
- Deep dorsal vein of penis
- Superior rectal vein
- Internal pudendal vein
- Inferior rectal vein
- Deep transverse perineal muscle
- Transverse perineal muscle
- Perineal artery (major)
- Internal pudendal artery (major)
- External pudendal artery
- Superficial perineal vessels

**Note:** Cross-sectioning (Ifcadet.com) showing removal of superficial perineal space
Lymph Vessels and Nodes of Pelvis and Genitalia

Female

- Lateral axillary nodes
- Common iliac nodes
- Lateral sacral node
- Lateral (superior) external iliac node
- Medial (inferior) external iliac node
- Obturator node
- Superficial inguinal
- Highest deep inguinal (Obturator) node
- Deep inguinal
Lymph Vessels and Nodes of Perineum
Female

- Superficial inguinal nodes
- Deep inguinal nodes
- Superficial external iliac nodes
- Femoral nodes
- Genital (perineal) nodes
- Iliac nodes
- Internal iliac nodes
- Obturator nodes
Lymph Vessels and Nodes of Pelvis and Genitalia

Male

[Diagram showing lymph nodes and vessels in the pelvis and genitalia area, labeled with names such as \( \text{Pecuniary nodes} \), \( \text{Common iliac nodes} \), \( \text{Lateral sacral node} \), \( \text{Internal iliac nodes} \), \( \text{External iliac nodes} \), \( \text{Superficial inguinal node} \), \( \text{Deep inguinal node} \), \( \text{Iliac fossa node} \), etc.]}
Nerves of External Genitalia

Male

- Greater hypogastric plexus
- Lesser hypogastric plexus
- Sublumbar nerve (T12)
- Sympathetic trunk and ganglia
- Splanchnic nerves
- Femoral nerve
- Inferior hypogastric plexus
- Pelvic plexus
- Testicular plexus
- Prostatic plexus
- Dorsal nerve of penis
Nerves of Perineum
Male - Inferior View
Block Anesthesia of Perineal Area

Primarily Pudendal Nerve
Innervation of Male Reproductive Organs

Schema
Innervation of Urinary Bladder and Lower Ureter

Schema
Homologues of External Genitalia

Undifferentiated Stage

Male
- Genital area
- Caudal tip
- Urinary bladder
- Meso-abdominal swelling
- Urogenital groove
- Genital tubercle
- Labial tubercle
- Preputial fold
- Labial fold
- Prepuce

Female
- Genital area
- Caudal tip
- Urinary bladder
- Meso-abdominal swelling
- Urogenital groove
- Genital tubercle
- Labial tubercle
- Preputial fold
- Labial fold
- Prepuce

45-50 mm
(approx. 10 weeks)
Homologies of External Genitalia

Fully Developed Male and Female

- Urethral meatus
- Corpus of clitoris
- Glans of clitoris
- Urethral meatus
- Vagina
- Labium minus
- Labium majus
- Bulb of penis
- Corpus of penis
- Scrotum
- Penoscrotal raphe
- Preputial raphe
- Preputial tissues (or male urogenital and sphincter muscles)
Homologues of Internal Genitalia
Fully Developed Male and Female

- Ductus deferens
- Prostate
- Accessory glands
- Appendages
- Epithelium
- Urethra
- Appendix
- Testes
- Vas deferens
- Vesicle
- Vagina
- Urethra
- Uterus
- Fallopian tube
- Uterine ligament
- Ovarian ligament
- Broad ligament
- Ligaments of uterus
- Bladder
- Urethra
Right Clavicle - Features

Superior surface
- Anterior
- Posterior
- Sternal extremity

Inferior surface
- Anterior
- Posterior
-Impression for costoclavicular ligament (costal tubercle)
-Armorial extremity
- Trapsosoid line
- Clavicular tubercle
-Surface for subclavius muscle
Sternoclavicular Joint

- Costoclavicular ligament
- Anterior sternoclavicular ligament
- Intercostal ligament
- Articular disc
- Articular capsule
- Sternocondylar synchondrosis
- Sternoclavicular synchondrosis
- Sterno-costal synchondrosis
- Sternum synchondrosis
- Scapula sternocostal ligament
- Clavicle
- Subclavius muscle
- Medial rib cartilage
- Joints capsule
Glenohumeral Joint
Anterior View - Tendons and Ligaments

- Coracoacromial ligament
- Coracohumeral ligament
- Greater tuberosity of humerus
- Lesser tuberosity of humerus
- Transverse ligament of humerus
- Intertubercular bursal sheath (communicates with subacromial bursa)
- Subscapularis tendon (out)
- Biceps brachii tendon (long head)
- Clavicle
- Supraspinatus tendon (out)
- Scapula
- Scapular notch
- Superior transverse scapular ligament
- Glenoid process
- Openings of subacromial bursa to shoulder joint

*Broken line indicates position of subacromial bursa*
Glenohumeral Joint
Anterior View - Supporting Muscles

- Supraspinatus muscle
- Subscapularis muscle
- Deltoide muscle (reflected)
- Capsular ligament
- Subdeltoid bursa with extension under acromion and coracoid process ligament
Glenohumeral Joint
Coronal Section through Joint

- Supraspinatus tendon
- Subdeltoid bursa
- Acromion
- Capsule ligament
- Synovial membrane
- Glenoid labrum
- Glenoid cavity of scapula
- Deltoid muscle
- Axillary recess
Muscles of Shoulder
Posterior View
Muscles of Shoulder
Anterior View

- Trapezius muscle
- Deltoid muscle
- Sternocleidomastoide muscle
- Omohyoid muscle and cervical breathing fascia
- Acromion
- Deltopectoral triangle
- Axillary vein
- Deltoid muscle
- Costicervical trunk of subclavian artery
- Great thoracic vein
- Long head of biceps brachii muscle
- Short head of biceps brachii muscle
- Triceps brachii muscle (lateral head)
- Latissimus dorsi muscle
- Serratus anterior muscle
- External abdominal oblique muscle
- Abdominal wall sheath
- Anterior sheath of rectus abdominis muscle
- Rectus abdominis muscle
- Transversus abdominis muscle
- External abdominal oblique muscle
Muscles of Rotator Cuff
Posterior View

- Supraspinatus muscle
- Infraspinatus muscle
- Spine of scapula
- Acromion process
- Supraspinatus tendon
- Subscapularis muscle
Axillary Artery and Anastomoses Around Scapula

Anterior View

- Transverse cervical artery
- Subclavian artery
- Dorsal scapular artery
- Axillary artery
- Thoracoacromial artery
- Circumflex scapular artery
- Thoracodorsal artery
- Lateral thoracic artery
- 1, 2, 3, and 4 parts of axillary artery
Pectoral, Clavipectoral and Axillary Fasciae
Section of Axilla

Oblique parasagittal section
Muscles of Arm
Anterior View - Deep Layer

- Short head of biceps brachii tendon (cut)
- Long head of biceps brachii tendon (cut)
- Semitendinosus muscle
- Brachialis muscle (cut)
- Lateral intermuscular septum
- Lateral epicondyle of humerus
- Lateral antebrachial cutaneous nerve
- Head of radius
- Extensor brevis tendons
- Tuberosity of ulna
- Musculocutaneous nerve
Arm
Distal Cross Section

- Cephalic vein
- Lateral antebrachial cutaneous nerve (from musculocutaneous nerve)
- Brachial muscle
- Biceps brachii muscle
- Brachial fascia
- Brachial artery and veins
- Median brachial cutaneous nerve
- Median nerve
- Basilic vein
- Ulnar nerve
- Median intermuscular septum
- Triceps brachii muscle and tendon
- Lateral intermuscular septum
- Radial nerve
- Brachioradialis muscle
- Extensor carpi radialis brevis muscle
- Posterior antebrachial cutaneous nerve (if radial nerve)
- Nerve
Bones of Elbow in Extension
Anterior and Posterior Views
Bones of Elbow in Extension
Lateral and Medial Views
Bones of Elbow in 90° Flexion
Lateral and Medial Views
Ligaments of Elbow
Right Elbow - Anterior View

- Articular capsule
- Lateral epicondyle
- Medial epicondyle
- Radial collateral ligament
- Ulnar collateral ligament
- Anular ligament
- Biceps brachii tendon
- Insermion of brachialis muscle
- Oblique cord
Ligaments of Elbow in 90° Flexion
Lateral and Medial Views
Elbow Joint [Opened]
Anterior and Posterior Views
Right Radius and Ulna in Pronation

Anterior View

- Olecranon
- Tricipital notch
- Coronoid process
- Oblique ridge
- Tuberosity of ulna
- Lateral surface of radius
- Volar margin of radius
- Interosseous membrane
- Groove for external collateral ligament
- Groove for extensor pollicis longus and extensor pollicis brevis
- Anconeal process of radius
- Styloid process of ulna
- Groove for extensor digiti minimi and extensor indicis minimi
- Groove for extensor digiti minimi and extensor indicis minimi
Bones of Forearm
Carpal Articular Surface and Section of Radius

- Radius
- Ulna
- Ulnar notch of radius
- Olecranon process of radius
- Area for osteochondral articular cartilage
- Apical process of ulna

Coronal section of radius demonstrates how thickness of compact bone of shaft diminishes to thin layer over cancellous bone at distal end.
Individual Muscles of Forearm

Rotators of Radius - Supination
Individual Muscles of Forearm

Rotators of Radio - Pronation

- Lateral epitrochlea
- Medial epitrochlea
- Supinator muscle
- Pronator teres muscle
- Ulna
- Radius
- Pronator quadratus muscle
Individual Muscles of Forearm

Extensors of Wrist and Digits

Note: Anconeus muscle not shown because it is extensor of elbow.
**Individual Muscles of Forearm [Continued]**

**Extensors of Wrist and Digits**

- Extensor carpi radialis longus muscle
- Extensor carpi radialis brevis muscle
- Extensor digitorum muscle
- Extensor digiti minimi muscle
- Extensor digiti minimi brevis muscle
- Extensor digiti minimi tendon (tulc)
- Extensor digiti quinti muscle
- Extensor digiti quinti tendon (tulc)
- Extensor pollicis longus muscle
- Extensor pollicis brevis muscle
- Extensor pollicis brevis tendon

Note: Anconeus muscle not shown because it is extensor of elbow.
Individual Muscles of Forearm
Flexors of Wrist

- Lateral epicondyle
- Medial epicondyle
- Common flexor tendon
- Palmaris longus muscle
- Flexor carpi ulnaris muscle
- Radius
- Ulna
- Phalanges
- Metacarpal bone
- Palmar approach (cut)

Note: Brachioradialis muscle not shown because it is hidden at elbow

Right forearm: anterior (palmar) view
**Individual Muscles of Forearm**

Flexors of Digits

Right forearm: anterior (palmar) view
Individual Muscles of Forearm (Continued)

Flexors of Digits

Right forearm: anterior (palmar) view
Bony Attachments of Muscles of Forearm
Anterior View

Note: Attachments of intrinsic muscles of hand not shown.
Carpal Bones
Anterior [Palmar] View
Carpal Bones
Posterior [Dorsal] View
Movements of Wrist
Hand in Abduction - Anterior [Palmar] View
Movements of Wrist
Hand in Adduction - Anterior (Palmar) View
Movements of Wrist
Sagittal Sections

Hand in flexion
Hand in extension
Hand in anatomical position

Sagittal sections through wrist and middle finger
Ligaments of Wrist
Flexor Retinaculum Removed - Palmar View

- Ulna
- Palmar radioulnar ligament
- Distal transverse carpal ligament
- Middle transverse carpal ligament
- Proximal transverse carpal ligament
- Extensor carpi ulnaris tendon (cut)
- Pisiform bone
- Volar carpal ligament
- Volar metacarpal ligament
- Volar digital ligament
- Volar intermetacarpal ligament
- Volar interosseous membrane
- Superficial palmar fascia
- Deep transverse carpal ligament
- Radial collateral ligament
- Ulnar collateral ligament
- Radial styloid process
- Ulnar styloid process
- Capitate bone
- Scaphoid bone
- Triquetral bone
- Triquetral ligament
- Hamulus of hamate bone
- Hamulus of hamate bone
- Triangular fibrocartilage of scaphoid bone
Ligaments of Wrist
Posterior [Dorsal] View

Note: dorsal ligaments weaker than palmar ligaments
Metacarpophalangeal and Interphalangeal Ligaments
Palmar View

- Palmar metacarpal ligaments
- Deep transverse metacarpal ligaments
- Palmar ligaments (dorsal)
- Palmar capsometacarpal ligaments
- Trapeziun bone
- Hamulus of hamate bone
- Joint capsule
- Collateral ligaments
- Flexor digitorum superficialis tendons (cut)
- Cut margins of digital fibrous sheath
- Flexor digitorum profundus tendons
Metacarpophalangeal and Interphalangeal Ligaments

Medial Views

In extension: medial view

Dorsal surface
Palm surface
Palmar ligament (plate)
Joint capsule
Cuneiform
Metacarpophalangeal (MP) joint
Proximal interphalangeal (PIP) joint
Distal interphalangeal (DIP) joint

In flexion: medial view

Palmar ligament (plate)
Collateral ligament

Note: ligaments of metacarpophalangeal and interphalangeal joints are similar.
Wrist and Hand
Deeper Palmar Dissections

- Radial artery and veins collateral
- Flexor carpi radialis tendon
- Fidora paravascularis tendon
- Median nerve
- Ulnar nerve with veins collateral and ulnar nerve
- Flexor carpi ulnaris tendon
- Ulnar bursa containing superficial and profound flexor tendons
- Palmaris longus tendon and palmar carpal
- Superficial branch of ulnar nerve
- Superficial branch at ulnar nerve
- Palmar digital nerves to 5th finger
- Ulnar bursa
- Median nerve
- Ulnar bursa
- 3rd, 4th, and 5th lumbral muscles (in sheets)
- Superficial flexor tendon sheaths
- Proper palmar digital arteries
- Palmar aponeurosis (reflected)
- Seckis fascia palmaris forming canal
- Common palmar digital artery
- Proper palmar digital artery
- Superficial palmar arterial arches
- Common palmar arterial arch
- Ulnar nerve with veins collateral and ulnar nerve
- Flexor carpi ulnaris tendon
- Ulnar nerve containing superficial and profund flexor tendons
- Median nerve
- Superficial branch of ulnar nerve
- Superficial branch at ulnar nerve
- Superficial branch of ulnar nerve
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Flexor Tendons, Arteries and Nerves at Wrist

Cross Section
Bursae, Spaces and Tendon Sheaths of Hand

Palmar View
Lumbrical Muscles and Bursae, Spaces and Sheaths

Schema

[Diagram showing various structures such as Flesch bursa, Ulnar space, Medial space, Lumbral muscle (in sheath), Digital sheath tendon sheath.

Usual arrangement

Common variation]
Lumbrical Muscles
Schema

1st and 2nd lumbral muscles
3rd and 4th lumbral muscles
Plexor digitorum profundus tendons
Plexor digitorum superficialis tendon (cut)
Flexor and Extensor Tendons in Fingers
Posterior (Dorsal) View

- Insertion of central band of extensor tendon to base of middle phalanx
- Triangular aponeurosis
- Insertion of extensor tendon to base of distal phalanx
- Slight of long extensor tendons to lateral bands
- Dorsal expansion (bend)
- Metacarpal bone
- Lumbocutaneous muscle
- Part of interosseous tendon passes to base of proximal phalanx and joint capsule
- Interosseous muscles
Flexor and Extensor Tendons in Fingers
Extended - Lateral View

Note: Black arrows indicate pull of long extensor tendons. Red arrows indicate pull of interosseous and lumbrical muscles.
Flexor and Extensor Tendons in Fingers
Flexed - Lateral View

Note: black arrows indicate pull of ring extensor tendons, red arrows indicate pull of interosseus and lumbrical muscles.
Intrinsic Muscles of Hand

Posterior [Dorsal] View

Note: arrows indicate action of muscles
Intrinsic Muscles of Hand
Deep Anterior [Palmar] View

Radius
Ulna

Phalangeal interosseous muscles

Deep interosseous
muscles

Tendinous slips to heads of
terminus digiti minimi

Note: arrows indicate action of muscles
Wrist and Hand
Superficial Dorsal Dissection

Note: Lymphatic pathways shown in black, arrows indicate direction of drainage.
Extensor Tendons at Wrist

Posterior [Dorsal] View

- Compartment 1
  - Abductor pollicis longus
  - Extensor pollicis brevis
  - Extensor pollicis longus
- Compartment 2
  - Extensor carpi radialis brevis
  - Extensor carpi radialis longus
- Compartment 3
  - Extensor retinaculum
  - Radial artery in anatomical snuff box
- Compartment 4
  - Extensor digitorum
  - Extensor indicis
  - Dorsal interosseous muscles

Transverse fibers of dorsal expansions (hoods)
Extensor Tendons at Wrist
Cross Section at Proximal Wrist
Fingers
Cross Section through Distal Phalanx
Fingers
Arteries and Nerves

Dorsal branches of proper palmar digital arteries and nerves to dorsum of middle and terminal phalanges
Dorsal digital artery and nerve
Proper palmar digital artery to neighboring digit
Nutrient branch to epiphysis
Nutrient branches to metaphyses
Cutaneous Nerves of Wrist and Hand
Anterior (Palmar) View

- Lateral antebrachial cutaneous nerve
- Medial antebrachial cutaneous nerve
- Superficial branch of radial nerve
- Palmar branch of ulnar nerve
- Palmar branch of median nerve
- Palmar digital branches of median nerve
- Palmar digital branches of ulnar nerve
Cutaneous Nerves of Wrist and Hand
Posterior [Dorsal] View
Musculocutaneous Nerve

- Medial cord of brachial plexus
- Lateral cord of brachial plexus
- Medial cord of brachial plexus
- Lateral cord of brachial plexus

- Musculocutaneous nerve (C5 & 7)
- Musculocutaneous nerve (C6 & 8)
- Musculocutaneous nerve (C5 & 7)
- Musculocutaneous nerve (C6 & 8)

- Medial brachial cutaneous nerve
- Medial antebrachial cutaneous nerve
- Lateral antebrachial cutaneous nerve

- Articular branch of musculocutaneous nerve
- Articular branch of musculocutaneous nerve

- Anterior branch of lateral antebrachial cutaneous nerve

- Pronator teres
- Pronator teres
Ulnar Nerve

Note: Only muscles innervated by ulnar nerve shown.
Radial Nerve in Arm and Nerves of Posterior Shoulder

- Supraspinatus muscle
- Suprascapular nerve (Cl, C2)
- Infraspinatus muscle
- Dorsal scapular nerve (Cl)
- Rhomboid minor muscle
- Rhomboid major muscle
- Lower subscapular nerve (Cl, C2)
- Long head of triceps brachii muscle
- Triceps brachii tendon
- Brachialis muscle
- Brachioradialis muscle
- Anconeus muscle
- Extensor carpi radialis longus muscle
- Extensor carpi radialis brevis muscle
- Extensor digitorum muscle
- Medial epicondyle
- Olecranon
- Posterior brachial cutaneous nerve
- Posterior cutaneous nerve in extensor aspects of forearm
- Lateral cutaneous nerve of forearm
- Median head of triceps brachii muscle
- Posterior lateral brachial cutaneous nerve
- Radial nerve (C5, C6, C7, C8, T1)
- Radial nerve (C5-8, Cl, C2)
- Posterior cutaneous nerve of forearm

Labels and notes:
- Superficial branch of radial nerve
- Branches of radial nerve
- Muscular branches of radial nerve
- Arterial branches of radial nerve
- Medial cutaneous nerve of forearm
Radial Nerve in Forearm

Posterior View

- Radial nerve (C.6, 7, 8, T1)
- Inextensilis (extension) of forearm
- Superficial (superficial) branch of radial nerve
- Deep (deep) branch of radial nerve
- Anconeus muscle
- Brachioradialis muscle
- Extensor carpi radialis longus muscle
- Extensor carpi radialis brevis muscle
- Extensor carpi ulnaris muscle
- Extensor digitorum muscle
- Extensor digiti minimi
- Extensor indicis proprius muscle
- Extensor pollicis longus muscle
- Extensor pollicis brevis muscle
- Posterior interosseous nerve (deep branch of radial nerve)
- Superficial branch of radial nerve
- Dorsal digital nerve
Radial and Axillary Nerves
Cutaneous Innervation

Posterior View
Superficial Nerves and Veins of Shoulder and Arm

Posterior View

- Lateral supraspinatous nerve
- Axillary branch of the axillary vein
- Superficial branches of posterior circumflex humerus vein
- Superior lateral brachial cutaneous nerve (from spinal nerve)
- Inferior lateral brachial cutaneous nerve (from radial nerve)
- Posterior interosseous nerve (from radial nerve)
- Branches of medial antebrachial cutaneous nerve
- Branches of lateral antebrachial cutaneous nerve (terminal part of musculocutaneous nerve)
Cutaneous Nerves and Superficial Veins of Forearm

Posterior (Dorsal) View

- Posterior antebrachial cutaneous nerve
- Posterior interosseous nerve
- Accessory antebrachial vein
- Radial vein
- Ulnar vein
- Cephalic vein
- Superficial branch of radial nerve
- Dorsal branch of ulnar nerve
- Dorsal metacarpal veins
- Interosseous veins
- Dorsal digital nerves and veins
Cutaneous Innervation of Upper Limb
Anterior [Palmar] View
Cutaneous Innervation of Upper Limb

Posterior (Dorsal) View

- Superior lateral brachial cutaneous nerve (from axillary nerve)
- Intercostobrachial and medial brachial cutaneous nerves
- Posterior axillary (cutaneous nerve from radial nerve)
- Medial antebrachial cutaneous nerve
- Dorsal branch and dorsal digital branches of ulnar nerve
- Proper palmar digital branches of ulnar nerve
- Superficial branch and dorsal digital branches of radial nerve
- Nerve division variable between axillary and radial (see description of brachial plexus: division at either with middle of 3rd digit instead of 4th digit as shown)
Note: schematic demarcation of dermatomes shown as distinct segments. There is actually considerable overlap between adjacent dermatomes.
Dermatomes of Upper Limb
Posterior View

Note: Schematic demarcation of dermatomes shown as distinct segments. There is actually considerable overlap between adjacent dermatomes.
Lymph Vessels and Nodes of Upper Limb

Note: Arrows indicate direction of drainage.
Lymph Vessels of Hand

Note: Arrows indicate direction of drainage.
Hip Joint
Posterior View

Ischial spine

Inferior pubic ramus

Iliohamstring ligament

Lumbricals

Greater trochanter

Lesser trochanter

Posterior superior iliac spine
Muscles of Thigh
Anterior View - Superficial Dissection

- Biceps femoris
- Gluteus medius muscle
- Iliopsoas muscle
- Ischial tuberosity
- Femoral artery
- Rectus femoris
- Pectineus muscle
- Adductor longus muscle
- Gastrocnemius
- Brachial artery
- Vastus lateralis muscle
- Vastus medialis muscle
- Rectus femoris tendon
- Medial patellar retinaculum
- Patellar ligament
- Rectus femoris (part of pes anserinus)
- Sartorius tendon (part of pes anserinus)
- Sartorius tendon (part of pes anserinus)
Muscles of Hip and Thigh

Lateral View

- Rectus femoris muscle
- Tensor fasciae latae muscle
- Vastus lateralis muscle
- Lateral condyle of femur
- Greater trochanter of femur
- Obturator externus muscle
- Iliotibial band
- Iliotibial tract
- Sartorius muscle
- Iliacus muscle
- Tensor fasciae latae muscle
- Vastus lateralis muscle
Muscles of Hip and Thigh
Posterior View - Superficial Dissection

Gluteus medius muscle
Semitendinosus muscle
Adductor magnus muscle
Semitendinosus muscle
Gastrocnemius muscle
Medial head of gastrocnemius muscle
Biceps femoris muscle (long head)

Fascia lata
Trochanter
Ischial tuberosity
Sartorius muscle
Long head of biceps femoris muscle
Short head of biceps femoris muscle
Pudal vessels and adductor nerve
Peroneus brevis
Common peroneal nerve
Gastrocnemius muscle
Soleus muscle
Gluteus medius muscle

Sciatic nerve
Psoas and Iliacus Muscles

- Origin of psoas major muscle from vertebral bodies, transverse processes and intervertebral disc (L1, L2, L3) and origin of psoas minor muscle from vertebral bodies (L2, L3)

- Transversus abdominis muscle (cut)

- Obliquus externus abdominis muscle

- Lumbar plexus

- Ilias muscle

- Psoas minor muscle

- Genitofemoral nerve

- Lateral femoral cutaneous nerve

- Femoral nerve

- Erector muscle of lumbar

- Psoas muscle passes backward insertion on lesser trochanter

- Body (shells) of lumbar

- Superior pubic ramus

- Iliac crest

- Anterior superior iliac spine

- Lumbosacral trunk

- Hip flexor (part of hip joint) (gramary of hip flexor)

- Iliolumbar ligament of pelvis
Psoas and Iliacus Muscles

Action

Note: arrows indicate direction of action of Iliacus muscle
Lumbar Plexus
Schema

- Subcostal nerve (T12)
- Lateral femoral cutaneous nerve
- Femoral nerve

Vertebral rami of spinal nerves

Accessory sacral nerve (often absent)
Obturator nerve
Lumbar renal nerves
Arteries and Nerves of Thigh
Superficial Anterior View

- Anterior superior iliac spine
- Femoral nerve
- Tensor fascia lata muscle
- Deep femoral artery
- Femoral vein
- Adductor longus muscle
- Rectus femoris muscle
- Vastus medialis muscle
Arteries of Femoral Head and Neck
Coronal Section
Arteries of Femoral Head and Neck
Femur of Child - Anterior View
Arteries of Femoral Head and Neck
Anterior View in Situ
Thigh
Distal Cross Section

- Articularis genus muscle
- Quadriceps femoris tendon
- Vastus intermedius muscle
- Vastus medialis muscle
- Femur
- Patellar tendon
- Adductor magnus tendon
- Sartorius muscle
- Saphenous nerve and descending genicular artery
- Great saphenous vein
- Gracilis muscle
- Semimembranosus muscle
- Semitendinosus muscle
- Tibial nerve
- Common peroneal nerve
- Popliteal vein and artery

Knee
Medial View

- Vastus medialis muscle
- Quadriceps femoris tendon
- Patellar ligament
- Patella
- Medial patellar retinaculum
- Patellar tendon
- Semitendinosus tendon (part of pes anserinus)
- Semitendinosus tendon (part of pes anserinus)
- Sartorius tendon (part of pes anserinus)
- Lateral femoral condyle
- Lateral collateral ligament
- Patellar ligament
- Rectus femoris muscle
- Gastrocnemius muscle
- Soleus muscle
- Semimembranosus muscle
- Semitendinosus muscle
Knee - Interior
Superior View

- Posterior meniscofemoral ligament
- Posterior cruciate ligament
- Semimembranosus tendon
- Popliteus tendon
- Anterior cruciate ligament
- Lateral meniscus
- Meniscal horn
- Superior articular surface of tibia (bicipital fovea)
- Medial meniscus
- Synovial membrane
- Patellar ligament
- Lateral meniscus
- Patellar tendon
- Popliteus tendon
Knee - Cruciate and Collateral Ligaments
Right Knee in Flexion

Anterior View
Knee
Parasagittal Section - Lateral to Midline
Tibia and Fibula of Right Leg
Posterior View
Tibia and Fibula of Right Leg
Anterior View - Ligament Attachments
Tibia and Fibula of Right Leg
Superior View

Posterior

Anterior

Fibula
Head of fibula
Posterior ligament of head of fibula
Posterior intercondylar area (origin of posterior cruciate ligament)
Intercondylar eminence
Tibial condyle
Medial condyle
Superior articular surface (medial facet)
Medial intercondylar tubercle
Lateral intercondylar tubercle
Tibial tuberosity
Anterior intercondylar area (origin of anterior cruciate ligament)
Tibia and Fibula of Right Leg
Cross Section
Tibia and Fibula of Right Leg
Inferior View

Anterior

Posterior
Bony Attachments of Muscles of Leg

Anterior View

Origin of vastus lateralis muscle
Origin of vastus medialis muscle
Origin of adductor longus muscle
Origin of adductor magnus muscle
Origin of sartorius muscle
Insertion of sartorius muscle
Insertion of gracilis muscle
Insertion of semitendinosus muscle
Insertion of semimembranosus muscle
Insertion of biceps femoris muscle
Insertion of biceps femoris muscle
Insertion of gracilis muscle
Insertion of sartorius muscle
Insertion of sartorius muscle
Origin of tibialis anterior muscle
Origin of tibialis posterior muscle
Origin of peroneus brevis muscle
Origin of peroneus brevis muscle
Origin of peroneus longus muscle
Origin of peroneus longus muscle
Insertion of peroneus brevis muscle
Insertion of peroneus brevis muscle
Insertion of peroneus longus muscle
Insertion of peroneus longus muscle
Insertion of extensor digitorum longus muscle
Insertion of extensor digitorum longus muscle
Insertion of extensor hallucis longus muscle
Insertion of extensor hallucis longus muscle

Legend:
- Origin
- Insertion

Note: Attachments of intrinsic muscles of foot not shown.
Bony Attachments of Muscles of Leg
Posterior View

- Origin of gastrocnemius muscle (medial)
- Origin of gastrocnemius muscle (lateral head)
- Origin of plantaris muscle
- Origin of popliteus muscle
- Origin of soleus muscle
- Original of flexor digitorum longus muscle
- Inseration of plantaris muscle
- Inseration of peroneus longus muscle
- Inseration of peroneus brevis muscle
- Inseration of tibialis anterior muscle
- Inseration of tibialis posterior muscle
- Inseration of flexor hallucis longus muscle
- Inseration of flexor hallucis brevis muscle

Note: Attachments of anterior muscles of foot not shown.
Bones of Foot
Dorsal View
Calcanueus of Right Foot
Lateral and Superior Views
Calcaneus of Right Foot
Posterior View with Ligaments

- Interosseous membrane
- Posterior tibiotalar ligament
- Posterior talonavicular ligament
- Calcaneocuboid ligament
- Peroneal tendons in inferior peroneal retinaculum
- Talus
- Tibia
Calcaneus of Right Foot
Functional Relations of Calcaneus
Ligaments and Tendons of Right Ankle
Medial View
Metatarsophalangeal and Interphalangeal Joints

Lateral View
Sole of Foot
Superficial Dissection

- Superficial transverse metatarsal ligament
- Proper plantar digital arteries and nerves
- Transverse metatarsal ligament
- Digital slip of plantar aponeurosis
- Lateral plantar fascia
- Cutaneous branches of lateral plantar arteries and nerves
- Plantar aponeurosis
- Medial plantar fascia
- Cutaneous branches of medial plantar artery and nerve
- Tubercle of calcaneus with underlying fascia and plantar fascia (partially cut away)
Muscles of Sole of Foot
First Layer

- Proper plantar digital branches of medial plantar nerve
- Proper plantar digital arteries
- Lumbrical muscles
- Digital branch of medial plantar artery
- Common plantar digital arteries from plantar median nerve
- Flexor digitorum brevis tendon (sewing flexor digitorum longus tendon)
- Flexor digitorum brevis muscle
- Adductor digiti reami muscle
- Flexor hallucis brevis muscle
- Plantar aponeurosis (cut)
- Medial plantar branch of the tibial nerve and posterior tibial artery
- Lateral process of tuberosity of calcaneus
- Tuberosity of calcaneus
Interosseous Muscles of Foot

Plantar View
Femoral and Lateral Femoral Cutaneous Nerves

Note: only muscles innervated by femoral nerve shown
Femoral and Lateral Femoral Cutaneous Nerves

Cutaneous Innervation

- Lateral femoral cutaneous nerve
- Anterior cutaneous branches of femoral nerve
- Infrapatellar branch of saphenous nerve
- Medial saphenous cutaneous branches of saphenous nerve
Obturator Nerve

Note: only muscles innervated by obturator nerve shown
Sciatic and Posterior Femoral Cutaneous Nerves
Sciatic and Posterior Femoral Cutaneous Nerves

Cutaneous Innervation

- Posterior femoral cutaneous nerve
- Common peroneal nerve via lateral sural cutaneous nerve (from sciatic nerve)
- Medial cutaneous nerve (from sciatic nerve)
- Superficial peroneal nerve (from sciatic nerve)
- Tibial nerve via medial sural cutaneous nerve (from sciatic nerve)
Tibial Nerve

Plantar View

- Medial calcaneal branch of tibial nerve
- Lateral calcaneal branch of peroneal nerve
- Flexor hallucis longus
- Lateral plantar nerve
- medial plantar nerve
- Plantar intrinsic muscles and nerve
- Abductor hallucis muscle and nerve
- Abductor digiti minimi muscle
- Adductor hallucis muscle
- Proper plantar digital nerves
- Common plantar digital nerves
- Deep branch of lateral plantar nerve to intersosseous muscles (2nd, 3rd, and 4th)
- Lumbocutaneous nerve and adductor hallucis

Note: articular branches not shown
Tibial Nerve
Cutaneous Innervation of Sole of Foot
Common Peroneal Nerve
Cutaneous Innervation
Dermatomes of Lower Limb
Anterior and Posterior Views
Segmental Innervation of Lower Limb Movements
Superficial Nerves and Veins of Lower Limb

Posterior View

- Superior cluneal nerves (from L1-3)
- Middle cluneal nerves (from L2-3)
- Perforating pudendal nerve (from S1-2)
- Branches of posterior femoral cutaneous nerve
- Accessory saphenous vein
- Branch of anterior femoral cutaneous nerve
- Cutaneous branch of obturator nerve
- Great saphenous vein
- Lesser saphenous vein
- Branches of saphenous nerve
- Medial saphenous nerve (from tibial nerve)
- Great saphenous nerve
- Lateral saphenous nerve (from common peroneal nerve)
- Lateral cutaneous nerve (continuation of sural nerve)
Lymph Vessels and Nodes of Lower Limb

Posterior View
Lymph Vessels and Nodes of Lower Limb
Inguinal Region