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Skeleton and its Connections

1. Structure and types of bones, innervation and blood supply of bone Osteogenesis, ossification, remodeling and growth of bone
2. Connection of bones, structure and types of joints
3. The osseous nasal cavity, relations to neighboring structures
4. Bony orbit - walls, relation to neighboring structures, passages
5. Skull, skull of neonate and its development
6. Vertebrae, vertebral column and its development, connections, curvatures and motility Craniovertebral joint
7. Skeleton of thorax and its development, connections and motility of ribs Temporomandibular joint - structure and motility
8. Development and growth of limb, molecular mechanisms, limb defects
9. Shoulder joint - structure and movements
10. Elbow joint - structure and movements
11. Bones and joints of hand including reading of X-ray images
12. Bony pelvis as complex, connections, passages, diameters, planes, sexual differences
13. Hip joint - structure, movements, developmental dysplasia of hip
14. Knee joint - structure, biomechanics, movements
15. Talocrural and subtalar joints - structure, movements
16. Bones and joints of foot including reading of X-ray images, plantar arches and their support

Muscles, Fascias, Osteofascial Compartments

1. Origin and development of muscles, molecular mechanisms
2. General features of striated muscle, its auxiliary structures (motor end plate, motor unit, muscle spindle, Golgi tendon organ), motor and proprioceptive innervation
3. Muscles and fascias of the head
4. Muscles and fascias of the neck (draw transverse section of the neck)
5. Muscles and fascias of thorax, diaphragm - structure, passages, function, innervation, diaphragmatic hernias
6. Muscles of abdominal wall, fascias, function
7. Inguinal canal (draw scheme), inguinal hernias
8. Pelvic floor muscles, perineal muscles, ischioanal fossa, pelvic fascias (draw frontal section of pelvis)
9. Muscles and fascias of back
10. Muscles of shoulder girdle, fascias, axillary fossa
11. Muscles and fascias of arm and forearm (draw transverse sections)
12. Muscles and fascias of hand (draw transverse section), tendon sheaths, carpal canal
13. Muscles and fascias of hip
14. Muscles and fascias of thigh, femoral triangle, popliteal fossa
15. Muscles, fascias and compartments of leg and foot (draw transverse sections)

Gastrointestinal Tract

1. General anatomy (macro and micro) of intestinal tube
2. Microscopic structure of the teeth and their development
3. Macroscopic structure of the teeth, fixation, gingivodental junction, innervation and vascular supply, Primary and permanent dentition formula, eruption, types of occlusion
4. Tongue, structure, intra- and extraglosseal muscles, vascular supply, innervation
5. Soft and hard palate, muscles of soft plate (draw scheme), isthmus of fauces Palate development, Cleft Defects
6. Salivary glands - structure, syntopy, innervation
7. Pharynx - structure, syntopy, blood supply, innervation
8. Nasal, palatine and lingual tonsils structure (Waldeyer circuit)
9. Oesophagus - structure (macro and micro), syntopy
10. Stomach - shape, position, syntopy, projections
11. Stomach - structure of the wall, divisions, vascular supply, innervation, lymphatic drainage, Development of oesophagus, stomach and duodenum
12. Small intestine - structure, divisions, vascular supply, innervation, lymphatic drainage Duodenum - divisions, positions, syntopy (draw scheme), blood supply
13. Large intestine, structure, divisions (draw scheme), syntopy, vascular supply, innervation, positions of vermiform appendix
14. Development of small and large intestine, intestinal rotation
15. Pancreas - structure, Langerhans islets, syntopy
16. Liver - segments, syntopy (draw scheme of visceral surface)
17. Liver - structure, nutritional and portal vascular bed, intrahepatic bile ducts
18. Gallbladder and extrahepatic bile ducts (draw scheme)
19. Development of pancreas and liver
20. Rectum and anal canal - structure, syntopy (draw frontal and sagittal sections), vascular supply, sphincters

- and their innervation
- 21. Peritoneum - parietal and visceral, greater and lesser omentum
- 22. Lesser sac (omental bursa), its recesses
- 23. Development of visceral situs and mesentery

Respiratory system

- 1. Nasal cavity, choanae, vascular and nerve supply
- 2. Paranasal sinuses and their syntopy, their development
- 3. Larynx - cartilages, ligaments, joints, muscles (draw frontal section)
- 4. Larynx - position and syntopy, vascular and nerve supply (draw laryngoscopic view of inlet)
- 5. Trachea - description, structure, syntopy (draw scheme), tracheotomy
- 6. Bronchi, bronchial tree - structure, lobar bronchi, segmental bronchi, syntopy
- 7. Lungs - description, syntopy, bronchopulmonary segments
- 8. Internal structure of lungs - alveoli and their microscopic structure, surfactant, development and maturation of lungs
- 9. Lungs - description, syntopy, borders and projection onto thoracic wall, vascular and nerve supply, lymphatics
- 10. Pleura - visceral and parietal, structure, borders of pleura, pleural dome and recesses (draw scheme), innervation Mechanics of respiration, pneumothorax

Urinary and Reproductive System

- 1. Development of urinary system
- 2. Kidney - description, position, syntopy (draw scheme), birth defects
- 3. Structure of kidney - cortex, medulla, nephron, envelopes
- 4. Vascular supply of kidney, segments
- 5. Renal calices, pelvis, ureter - syntopy
- 6. Urinary bladder - structure and position, fixation and syntopy in male and female (draw scheme)
- 7. Male and female urethra - description, its parts, hypospadias
- 8. Development of reproductive system
- 9. Testis and epididymis
- 10. Scrotum and coverings of testis, descent of testis and its defects
- 11. Vas (ductus) deferens, spermatic cord, seminal vesicles
- 12. Prostate - structure, topographic relations, prostatic urethra, ejaculatory ducts
- 13. Penis - structure (draw cross-section), vascular and nerve supply, mechanism of erection
- 14. Ovary - structure and position, ovarian cycle, vascular supply, extrauterine gravidity, infertility, IVF Uterine (Fallopian) tube - structure, divisions, position, vascular supply
- 15. Uterus - shape and divisions, structure of wall, endometrial cycle, vascular supply, lymphatics,
- 16. Uterus - position, fixation, syntopy, birth defects
- 17. Vagina - structure and syntopy (draw uterus and vagina in sagittal section)
- 18. External female genital organs, perineum

Heart

- 1. Heart - description, prenatal and postnatal circulation
- 2. Heart development and its common birth defects
- 3. Cardiac wall arrangement, cardiac skeleton, chambers (draw section through ventricles)
- 4. Endocardium, cardiac valves - structure and function, auscultation heart points, cardiac skeleton (draw scheme)
- 5. Conducting system of the heart- structure and function
- 6. Coronary arteries, veins and nerves, coronarography
- 7. Heart location and projection, X-ray (draw scheme of radiogram), auscultation heart points Epicardium and pericardium - structure, syntopy, pericardial reflections around roots of the great vessels, pericardial puncture (pericardiocentesis)

Arteries

- 1. Vascular development, structure of arteries, veins, lymphatic vessel, collateral circulation
- 2. Ascending aorta, aortic arch, thoracic aorta (course, syntopy, branches)
- 3. Common carotid artery, internal carotid artery
- 4. External carotid artery - course, syntopy, branches
- 5. Subclavian artery - course, syntopy, branches
- 6. Arteries of upper extremity - course, syntopy, branches
- 7. Abdominal aorta, position, topographic relations, parietal and visceral branches
- 8. External and internal iliac artery
- 9. Arteries of lower extremity - course, syntopy, branches
- 10. Anatomical background for vessel punctures, pressure points, palpation

Veins

- 1. Superior vena cava, brachiocephalic veins, jugular veins

2. Internal jugular vein - course and tributaries
3. Cranial veins, sinus durae matris, cerebral veins
4. Inferior vena cava - course and tributaries, Cavocaval Anastomoses
5. Azygos and hemiazygos veins, vertebral venous plexuses
6. Portal vein - tributaries, portocaval (portosystemic) anastomosis
7. Superficial and deep veins of upper and lower extremities

Lymphatic System

1. Thymus - structure, position and syntopy, function
2. Lymph node - structure and functional zones, sentinel lymph node, lymphatic tissue in organs, main lymphatic ducts
3. Spleen - structure, position, syntopy, vascular supply
4. Lymph nodes and collectors of head and neck
5. Lymph nodes and collectors of thoracic wall and lungs
6. Lymph nodes and collectors of stomach, liver and pancreas
7. Lymph nodes and collectors of intestines,
8. lymph nodes and collectors of testis
9. Lymph nodes and collectors of vagina, uterus and ovaries
10. Lymph nodes and collectors of upper and lower limbs

Central Nervous System - CNS

1. Neural tube development and its differentiation, defects of neural tube closure
2. Spinal cord segments, positional changes of cord (vertebromedullary topography), cauda equina
3. Spinal cord - structure of gray and white matter, cross section (draw scheme) Medulla oblongata and pons - gray and white matter, draw cross sections Floor of rhomboid fossa and cranial nerve nuclei (draw scheme)
4. Mesencephalon (midbrain) - gray and white matter, draw cross section Reticular formation
5. Cerebellum - structure, subdivision and functional organization, nuclei and afferent connections Intrinsic and efferent connections of cerebellum and their function
6. Diencephalon - structure, subdivision and functional organization
7. Thalamus - nuclei, afferent and efferent connections of main nuclei, their function Hypothalamus - subdivisions, connections and function
8. Anatomical background of hypothalamohypophyseal regulation
9. Basal ganglia, their connections and function, parkinsonism
10. Main functional areas of cerebral cortex
11. White matter of hemispheres - association and commissural fibers, internal capsule (draw scheme of tracts in internal capsule)
12. Ventricular system of brain (draw scheme), circulation of liquor, hydrocephalus
13. Meninges, vascular supply of spinal cord, lumbar puncture
14. Brain vessels and blood-brain barrier, brain dysfunctions related to inadequate blood supply via particular blood vessels brain damage due to vascular occlusion
15. Lemniscal system (dorsal column tract), proprioceptive and tactile sensation, sensory loss in spinal cord lesions
16. Anterolateral system of sensitive spinal tracts - (spinothalamic, spinoreticular and spinotectal tracts), pain pathways
17. Corticospinal (pyramidal) and corticonuclear tract
18. Motor pathways in spinal cord and motor deficiencies in spinal cord lesions
19. Auditory pathway
20. Visual pathway and visual cortical areas
21. Olfactory and gustatory pathway, olfactory nerve
22. Limbic system - connections and function (cortical areas, hippocampal formation, amygdalar complex)
23. Neurotransmitters in the CNS, main brain chemical systems

Peripheral nervous system - PNS

1. Neural crest cells and their differentiation
2. Ventral and dorsal spinal nerve root, dorsal root ganglion, draw general structure of the spinal nerve and its branches, autonomic fibers of spinal nerve
3. Segmental innervation, radicular areas, dermatomes, Head's zones (zones of referred visceral pain), sensory receptors, peripheral nerve regeneration
4. Cervical plexus, supraclavicular portion of brachial plexus
5. Infraclavicular portion of brachial plexus (draw scheme) and upper limb innervation
6. Radial and axillary nerve, paralysis of them
7. Median and ulnar nerve, paralysis of them
8. Skin and motor innervation of head and neck
9. Lumbar plexus and its branches
10. Femoral nerve
11. Sacral plexus and its branches
12. Sciatic nerve, paralysis of common peroneal nerve
13. Overview of muscular and skin innervation of lower limb
14. First and second branch of trigeminal nerve, sensory trigeminal nuclei
15. Third branch of trigeminal nerve

16. Oculomotor, trochlear, abducens nerve
17. Facial nerve
18. Glossopharyngeal and vagus nerve
19. Accessory and hypoglossal nerves
20. Cervical and thoracic sympathetic system
21. Cranial and sacral parasympathetic system
22. Abdominal and pelvic autonomic plexuses and ganglia, enteric system

Sensory organs, skin, endocrine glands

1. Eyeball (draw sagittal section)-vascular supply, innervation, chambers, aqueous humor circulation
2. Cornea, sclera and vitreous body, corneal reflex
3. Iris, ciliary body, choroidea, pupillary light reflex
4. Lens – structure and insertion, accommodation
5. Retina – structure, vascular supply (draw schema of eye fundus)
6. Eyelids, conjunctiva, lacrimal apparatus
7. Extraocular muscles
8. External acoustic meatus and tympanic membrane (draw otoscopic view), paracentesis (myringotomy)
9. Tympanic cavity, auditory ossicles, auditory tube
10. Bony and membranous labyrinths (draw cross section of bony cochlea and cochlear duct), vestibulocochlear nerve, nystagmus
11. Skin – epidermis and dermis, skin types, skin receptors, skin appendages (hair, nails, glands) Mamma - description and structure, blood supply and innervation, lymphatics
12. Thyroid and parathyroid glands – structure, function, topography, blood supply
13. Suprarenal gland – structure and developmental origin of cortex and medulla, function, syntopy (draw scheme), blood supply
14. Hypophysis – development, structure of adeno and neurohypophysis, function, syntopy

Regional Anatomy

1. Layers of scalp, frontal and temporal region
2. Superficial regions of face
3. Infratemporal fossa and pterygoplatine fossa
4. External and internal cranial base - openings for vessels and nerves Submandibular triangle, carotid triangle (draw scheme)
5. Lateral neck region, scalenic fissure, Axilla – boundaries, content
6. Brachial region (draw transverse section) Cubital fossa
7. Antebrachial region (draw transverse section)
8. Topographic anatomy of the hand (draw transverse section) and fingers
9. Gluteal region
10. Anterior thigh region, iliopectineal fossa, femoral triangle (draw schema)
11. Popliteal fossa, adductor canal
12. Leg region (draw transverse section)
13. Retromalleolar regions (med.+ lat.)
14. Topography of foot (draw transverse section)
15. Mediastinum – division, borders (draw transverse section)
16. Topography of chest wall (draw scheme of intercostal space)
17. Projections of heart, lungs and pleura onto thoracic wall, puncture of thorax
18. Topography of abdominal wall, rectus abdominis sheath (draw transverse section), blood supply, innervation, surgical approaches
19. Projections of abdominal organs onto abdominal wall
20. Inguinal region, inguinal canal, hernias
21. Topography of peritoneal cavity – supra and inframesocolic part (draw transverse section through lesser sac)
22. Topography of duodenum and pancreas (draw schema)
23. Retroperitoneal space, topography of its organs including vessels and nerves
24. Topographic anatomy of male pelvis (draw sagittal section)
25. Topographic anatomy of the female pelvis (draw sagittal section), mechanism of continence
26. Pelvic floor muscles, ischioanal fossa (draw frontal section of pelvis), perineal region
27. Topography of vertebral canal, anatomic backgrounds of spinal tap (lumbar puncture) and epidural anesthesia