

FCPS-1

ONE-LINERS

High-Yield Points, Mnemonics & Rapid-Recall Facts

HighYield

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Disclaimer

This booklet is a compilation of exam-recall one-liners and high-yield points prepared for FCPS-1 preparation.

The material is derived from candidate recall of past papers and commonly repeated questions. Recalled stems and options are frequently incomplete or paraphrased, and "best-choice" answers reflect the consensus among reference texts at the time of writing.

Accordingly, the answers here are NOT guaranteed to be complete or correct. Several items are acknowledged in the source material as controversial or dependent on exact question wording.

Always cross-check with standard reference textbooks (Guyton, Ganong, Robbins, Goljan, Katzung, Goodman & Gilman, Snell, KLM, Gray's, Harrison, Davidson) and current guidelines before relying on any point clinically or in an examination.

Use this booklet strictly as a rapid revision aid — not as a primary source or a substitute for standard study.

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Part A — Anatomy

A1. Joints & Histology

Synovial condylar joint	Knee joint (else TMJ, else metacarpophalangeal)
Immobile joint	Suture
First costosternal & all costochondral joints	Synarthrosis and synchondrosis
Ear ossicles articulate via which joint	Synovial
Hinge joint example	Elbow
Joint at knee (type)	Diarthrosis
Vomer–sphenoidal rostrum junction	Syndesmosis
Primary cartilaginous joint / synchondrosis	Covered by hyaline cartilage
First costosternal joint (if both given)	Synchondrosis
Symphysis pubis joint	Secondary cartilaginous joint & amphiarthrosis
All midline joints	Secondary cartilaginous (symphysis menti, intervertebral, pubic)
Joint between coccyx and sacrum	Symphysis
Fibrocartilage location	Between intervertebral discs
Vertebral disc tensile strength due to	Fibrocartilage
First carpometacarpal joint	Saddle joint
Pivot joint example	Atlanto-axial joint
Articular cartilage commonly at	Epiphysis of long bones (synovial joints)
Sacroiliac joint (if both options)	Synovial (has synovial + fibrous components)
Primary cartilaginous joint example	Costochondral junctions
Fibrocartilage is rich in	Collagen

A2. Upper Limb

Muscle initiating shoulder abduction	Supraspinatus
Radial head articulates with	Capitulum
Radial head enclosed in	Annular ligament
Cannot flex distal phalanx	Flexor digitorum profundus injury
Adductor pollicis supplied by	Ulnar nerve
Abductor pollicis brevis supplied by	Median nerve
Cannot lift thumb to ceiling (hand on table)	Abductor pollicis brevis affected
Froment's test positive (abnormal pinch, flexed thumb)	Weak adductor pollicis (ulnar)
Thenar muscles supplied by	Median nerve (except adductor pollicis)

Hypothenar muscles supplied by	Ulnar nerve
Tests for median nerve muscles	Tinel's and Phalen's tests
Muscle superficial in carpal tunnel release	Palmaris longus
Scaphoid blood supply	Distal pole (necrosis in proximal part)
Ulnar nerve relation to ulnar artery	Nerve is ulnar (medial) to artery
Median nerve relation to brachial artery	Lateral → anterior → medial
Winging of scapula	Nerve to serratus anterior (long thoracic, C5,6,7)
Wrist flexes on picking up a knife after axillary clearance	Posterior cord injury (not radial)
Axillary nerve injury — 2nd muscle affected after deltoid	Teres minor
Wrist injury + thenar eminence atrophy	Median nerve injury
Nerve specific for thumb opposition	Recurrent branch of median nerve
Loss of thumb adduction	Deep ulnar nerve
Clavipectoral fascia covers	Pectoralis minor
Vein piercing clavipectoral fascia	Cephalic vein
Cephalic vein lies between	Deltoid and pectoralis major
Rotator cuff muscles	Supraspinatus, infraspinatus, teres minor, subscapularis
Axillary vein formed by	Basilic vein + venae comitantes of brachial artery
Axillary sheath derived from	Prevertebral fascia
Anterior & posterior humeral circumflex — branch of	Axillary artery (3rd part)
Dorsal scapular artery — branch of	Subclavian artery
Weight of upper limb transmitted to axial skeleton via	Costoclavicular ligament
Shoulder joint is traversed by	Long head of biceps

A3. Lower Limb

Nerve injury during posterior hip approach	Sciatic nerve
Nerve injury during distal femoral approach / neck of fibula fracture	Common peroneal nerve
Injury at lower end of fibula	Pott's fracture
Nerve at lower border of psoas major → thigh numbness	Lateral cutaneous nerve of thigh (Meralgia paresthetica)
Foot drop — nerve involved	Sciatic / common peroneal / deep peroneal
Loss of sensation over 1st web space	Deep peroneal nerve
Loss of sensation over medial leg	Saphenous nerve

Medial ankle approach — nerve affected	Saphenous nerve
Short saphenous vein surgery — nerve affected	Sural nerve
Knee scope, sensory loss just below knee medially	Infrapatellar branch
Anterior compartment syndrome, pain on plantar flexion of big toe	Numbness in 1st web space (deep peroneal)
Fibula fracture, loss of eversion	Superficial peroneal nerve
Pain on plantar flexion after tibial fracture	Anterior compartment syndrome (deep peroneal)
Tendon posterior to lateral malleolus prone to injury	Peroneus brevis
Only sensory nerve of leg not from sciatic	Saphenous nerve (from femoral)
Unable to extend knee — muscle affected	Quadriceps femoris
Commonest site of peripheral aneurysm	Popliteal artery
Lymph drainage of fascia lata	Deep inguinal nodes
Course of posterior tibial artery	Midway between medial malleolus and tendocalcaneus
Great saphenous vein — number of valves	20 (longest vein in body)
Ossification of distal femur	Occurs immediately after birth

A4. Thorax

4th intercostal space, left of sternum	Intercostal membrane
5th intercostal space, left of sternum	Intercostal muscles
6th intercostal space, right of sternum	Right atrium
Stab above xiphisternum at 6th costal cartilage (right)	Right atrium injured
Coronary arteries arise from	Ascending aorta
Right marginal artery blockage affects	Right ventricle
RCA occluded distal to right marginal artery — most affected	AV node
Vessel of the anterior interventricular groove	LAD (not the circumflex)
Visceral pericardium is supplied by	Cardiac plexus

A5. Abdomen & Pelvis

Below midpoint umbilicus→symphysis pubis	Arcuate line (posterior rectus sheath deficient)
Umbilical lymphatic drainage — above umbilicus	Axillary LN
Umbilical lymphatic drainage — below umbilicus	Inguinal LN
Neurovascular bundle in abdomen lies between	Internal oblique & transversus abdominis
Below arcuate line, posterior rectus sheath =	Only fascia transversalis
Callot's triangle — medial boundary	Hepatic duct

Pringle's maneuver — structure at direct risk	CBD
Left renal vein compression near SMA	Nutcracker syndrome
Cystic duct supplied by	Cystic artery
Common bile duct supplied by	Hepatic artery
Vessel in front of uncinate process of pancreas	SMA
Anterior to neck of pancreas	Pyloroduodenal junction
Posterior relation of body of pancreas	Left crus of diaphragm
Left renal vein relation to SMA	Posterior
Posterior relation of 1st & 3rd parts of duodenum	Inferior vena cava
Left renal vein relation to left renal artery at hilum	Vein is anterior
Anterior relation of right suprarenal gland	IVC and liver
Posterior relation of right suprarenal gland	Right crus of diaphragm
Anterior relation of left suprarenal gland	Stomach
Veins descending anterior to ureters	Gonadal veins
Nerve injury after gridiron incision	Ilioinguinal nerve
Nerve injury after inguinal hernia surgery	Ilioinguinal nerve
Nerve injury after anterior/abdominoperineal resection	Hypogastric plexus
Erectile dysfunction after abdominal surgery	Splanchnic nerve injury
Fecal incontinence after normal delivery	Pudendal nerve (S2,3,4)
Ligation of short gastric arteries — organ at risk	Tail of pancreas
Suprarenal blood supply	Inferior phrenic (superior), aorta (middle), renal (inferior)
Lax splenic ligaments → mobile spleen	Wandering spleen
Weight of prostate	~18–20 g
Least common site of ectopic pregnancy	Ovaries
Pain from the uterus is carried by	Sympathetic (mainly); also parasympathetic

A6. Head & Neck

Nerve injury in posterior triangle	Spinal accessory nerve (CN XI)
Unable to shrug shoulder / torticollis	Spinal accessory nerve
Deviated tongue after endarterectomy	Hypoglossal nerve
Numbness at angle of lower jaw	Great auricular nerve (C2–3)
Ophthalmic artery passes through	Optic canal
Maxillary nerve passes through	Foramen rotundum

Mandibular nerve passes through	Foramen ovale
CN 9,10,11 pass through	Jugular foramen
Middle meningeal artery passes through	Foramen spinosum
Internal carotid artery passes over	Foramen lacerum
Hypoglossal nerve passes through	Hypoglossal canal (anterior condylar foramen)
Ophthalmic nerve passes through	Superior orbital fissure
Cerebellopontine angle lesion	Acoustic neuroma (affects CN 7, 8)
Hit on vertex — sinus affected	Superior sagittal sinus
Vertebral artery — branch of	Subclavian artery
Vertebral artery passes through	Foramen transversarium of C6
Fracture of middle 1/3 clavicle — vessel affected	Subclavian vein
ACA stroke presentation	Lower limb more affected
Nerve NOT in posterior triangle	Ansa cervicalis
Phrenic nerve lies in	Posterior triangle of neck
First branch of internal carotid artery	Ophthalmic artery
Numbness of lower lip after tooth extraction	Inferior alveolar nerve
Loss of general sensation anterior/side of tongue	Lingual nerve
Submandibular gland surgery near duct — nerve injured	Lingual nerve
Most common nerve injury in cavernous sinus	Abducent nerve
Origin of vagus & CN9	Medulla
Cranial nerve without parasympathetic fibers	Optic nerve
Origin of CN III (oculomotor)	Midbrain
Numbness at chin	Mental nerve (branch of inferior alveolar, V3)
Numbness over cheek	Infraorbital nerve
Nerve supplying forehead above eye	Supraorbital nerve
Single test to differentiate UMN vs LMN facial palsy	Inability of eyebrow elevation
Nerve injured in parotid surgery	Facial nerve
Asymmetrical smile after parotid surgery	Marginal mandibular branch of facial nerve
Superficial parotid dissection — nerve injured	Great auricular nerve
Hoarseness after thyroidectomy	Vagus / recurrent laryngeal nerve
Motor supply to trapezius & sternocleidomastoid	Accessory nerve
Pain in mumps is due to	Auriculotemporal nerve
Stability of the TMJ	Temporomandibular ligament

Partial resection of both recurrent laryngeal nerves	Vocal cords lie midline
Structure deep to posterior digastric, near palatoglossus, running obliquely up	Lingual artery
Vertical artery under submandibular gland running obliquely up	Facial artery
Lacrimal gland preganglionic parasympathetic fibers from	Greater superficial petrosal nerve
Nerve through petrotympanic fissure	Chorda tympani
Sphenopalatine (pterygopalatine) ganglion associated with	Greater superficial petrosal nerve
Excessive nasal secretions — nerve damaged	Deep petrosal nerve (sympathetic)
Foramen lacerum transmits (wholly)	Meningeal branch of ascending pharyngeal artery
Nerve supply of lacrimal gland	Greater petrosal nerve
RTA, middle cranial fossa injury, later loss of tears	Greater superficial petrosal nerve
Otic ganglion lies under	Foramen ovale (inferior border)
Dryness of eyes and nose — lesion	Pterygopalatine ganglion
Dryness of nose and palate — lesion	Pterygopalatine ganglion
Autonomic ganglion for CN III	Ciliary ganglion (Otic→CN9, Pterygopalatine→CN7)

A7. Neuroanatomy

Motor loss + sensory loss (upper limb)	MCA lesion
Motor loss + sensory loss (lower limb)	ACA lesion
Contralateral hemianopia with macular sparing	PCA lesion
Right paralysis + left tongue deviation	Left ASA lesion
CN 9,10,11 palsy + dysphagia + hoarseness + ipsilateral Horner	PICA lesion
CN 6,7,8 palsy + ↓salivation/lacrimation + ↓taste (ant. 2/3) + ipsilateral Horner	AICA lesion
Motor loss + aphasia	Left cerebral cortex
Motor loss + hemineglect	Right cerebral cortex
Motor loss + impaired judgement/concentration/orientation	Frontal lobe
Motor loss + agraphia + acalculia	Dominant parietal cortex
Contralateral paralysis (no cortical signs)	Internal capsule lesion
Pure motor stroke	Internal capsule
Internal capsule lesion + sensory loss possible	Motor + sensory fibers run together
Internal capsule lesion hallmark	No cortical signs (aphasia/neglect/visual loss absent)

Loss of motivation + judgement	Frontal lobe
Hemineglect	Non-dominant parietal cortex
Broca area location	Inferior frontal gyrus
Wernicke area location	Superior temporal gyrus
Auditory cortex location	Superior temporal gyrus
Primary visual cortex	Area 17 (occipital lobe)
Chorea	Caudate nucleus
Hemiballismus	Contralateral subthalamic nucleus
Striatum components	Caudate + putamen
Lentiform nucleus	Putamen + globus pallidus
Amnesia	Hippocampus
Most vulnerable to ischemia	Hippocampus
Hyperphagia + hypersexuality	Amygdala
Intention tremor	Cerebellum
Truncal ataxia	Vermis (cerebellum)
Resting tremor	Parkinsonism
Cannot eat (↓hunger)	Lateral hypothalamus lesion
Eats excessively	Ventromedial nucleus lesion (satiety center loss)
Cooling center (sweating)	Anterior hypothalamus
Heating center (shivering)	Posterior hypothalamus
Circadian rhythm control	Suprachiasmatic nucleus
ADH synthesis	Supraoptic nucleus
Oxytocin synthesis	Paraventricular nucleus
Temporal horn of lateral ventricle contains	Hippocampus
CSF is produced by	Ependymal cells of choroid plexus
Total CSF volume	~150 ml
CSF pressure	60–150 mm H ₂ O
Newborn conus medullaris ends at	L3
Left lower quadrantanopia — lesion	Right parietal lobe
Main determinant of cerebral blood flow	ICP
Physiological way to decrease ICP	Hyperventilation
Decrease raised CPP after trauma by	Decreasing mean arterial pressure

A8. Embryology

Meckel's diverticulum is a remnant of	Vitelline duct (NOT urachus)
Notochord forms	Neural plate → neural tube
Interventricular septal defect most affects	Tricuspid valve
Fetal circulation — more oxygen in	IVC than SVC
Bulbus cordis defect causes all EXCEPT	ASD
Structure formed in the 3rd week of development	Heart tube
Mesonephric duct functional remnants	Epididymis & ductus deferens
Extraembryonic mesoderm derived from	Epiblast / hypoblast

A9. Eye (Ophthalmology)

Cornea is what fraction of eyeball	1/6th
Corneal diameter	12 mm horizontal, 11 mm vertical
Corneal thickness (center)	0.5–0.6 mm
Corneal thickness (periphery)	0.7–1 mm
Radius of curvature — anterior surface	7.7 mm
Radius of curvature — posterior surface	6.9 mm
Corneal refractive index	1.37
Max contributor to refractive power (43 D of 59 D)	Anterior corneal surface
Corneal reflex afferent	Ophthalmic branch of trigeminal
Corneal reflex pathway	Trigeminal ganglion → sensory cortex
Corneal reflex in infants	Infrequent
Nervous control of accommodation	Parasympathetic system only

Part B — Physiology

B1. Body Fluids & Acid-Base

Fluid distribution — intracellular	2/3 (~28 L)
Fluid distribution — extracellular	1/3 (~14 L): 10 L interstitial, 3 L plasma, 1 L transcellular
Pyloric stenosis / excessive vomiting	Hypochloremic metabolic alkalosis
Bowel ischemia (mesenteric infarction)	Metabolic acidosis
Pulmonary embolism / early salicylate poisoning	Respiratory alkalosis
COPD / asthma / opioid or sedative overuse	Respiratory acidosis
DM on metformin	Metabolic acidosis (lactic)

B2. Cardiovascular — Vessels & Circulation

Greatest % of blood volume	Venules + veins
Compensation in hemorrhage → decrease in	Venous capacitance
Vascular smooth muscle control (almost purely neural)	Venules
Max volume reduction after ~8% blood loss	Veins
~8% blood loss in 30 min → main source	Veins
Inflammatory cell migration site	Post-capillary venules
Fluid exudation in acute inflammation	Venules
Neutrophil emigration (acute inflammation)	Venules
Chronic HTN with decreased visual acuity → affected vessel	Arterioles
Grade III HTN retinopathy target	Arterioles
Most important target of HTN in retina	Arterioles
Greater resistance is shown by	Greater pressure drop across arterioles
Greatest pressure drop in circulation occurs across	Arterioles
ANS sympathetic nervous system mainly involves	Arterioles
Maximum pressure from systole falls at	Arterioles–capillaries junction
Highest total cross-sectional area in body	Capillaries
Continuous capillaries are present in	Brain
Common characteristic of pulmonary and skeletal capillaries	Protein permeability
Increased interstitial fluid pressure can occur due to	Increased permeability of capillaries
Spread of tumor to lymph nodes first is via	Capillaries

B3. Cardiovascular — Heart & Cardiac Cycle

Ventricles completely depolarized during	ST segment
SA node acts as pacemaker because it	Generates impulses at a faster rate
Pacemaker potential is due to	Slow Ca^{2+} channels
Plateau phase of cardiac action potential	Ca^{2+} influx
Tricuspid valve closes in	Isovolumetric ventricular contraction (C wave)
Rapid ventricular filling occurs in	Isovolumetric ventricular relaxation
Maximum ventricular filling	Rapid filling phase
Third heart sound (S3) due to	Rapid ventricular filling
First heart sound (S1) due to	Closure of AV valves
Second-degree heart block	Ventricular rate less than atrial rate
At rest, venous return equals	Cardiac output
Normally equal	Venous return and cardiac output
Organ not getting full blood supply during exercise	Kidney
Autoregulation is NOT seen in	Skin (> liver)
Scrubbed student collapses, BP 90/50	Vasodilation (vasovagal syncope)
JVP increases in	Expiration, exercise, supine, SVC obstruction, ↑ intrathoracic pressure, pregnancy, hypervolemia
JVP decreases in	Inspiration, standing, hypovolemia, ↓ intrathoracic pressure

B4. Respiratory

Injury above the pons	Regular breathing
Injury below medulla	Breathing ceases (phrenic nerve cut)
Injury below pneumotaxic center	Sustained inspiration (apneusis) with vagal cut
Injury below apneustic center	Gasping, irregular respiration
Highest PO ₂ in	Pulmonary capillaries
Lowest PO ₂ in	Umbilical artery
Highest venous oxygen saturation	Renal vein
Less in fetus than mother	PCO ₂
Oxygen taken up in lungs through	Simple diffusion
Lowest oxygen level in	SVC
PaO ₂ at sea level in normal adults	97%
PEEP (positive end-expiratory pressure) effect	Improves gas distribution, prevents alveolar collapse, ↑ FRC
Hyperbaric oxygen is most useful in	CO poisoning

B5. Renal

Urine osmolarity 1200, plasma 300	Dehydration (SIADH only if plasma osm <270)
Hypertensive with CRF — unlikely finding	Hypophosphatemia (CRF → hyperphosphatemia)
Asthenuria — test of tubular concentrating function	Urinary Na
After 2 L normal saline infusion	Increased ECF volume
Lowest osmolarity segment of nephron	Proximal DCT (medullary collecting tubule if no ADH)

B6. Gastrointestinal

Resection of distal ileum impairs absorption of	Bile salts >> Vit B12
Decreased acid secretion (normal person)	Abnormal protein digestion
Intestinal motility — false statement	That it does not depend on gastric motility

B7. Endocrine, Metabolism & Thermoregulation

Potent stimulus for GH	Strenuous exercise
Conversion of chondrocyte into osteoblast	GH
Non-shivering thermogenesis	Brown fat (neonates); noradrenaline (rapid); thyroid (late, major)
Blood loss → low ACTH → adrenal shrinks to 2 g	Atrophy of adrenal cortex

B8. Reproductive

Helpful in the second stage of labor	Oxytocin (esp. if prolonged)
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B9. Neurophysiology

Function of basal ganglia	Initiation of movement
Fine movement is controlled by	Cerebellum
Voluntary, discrete, rapid, skilled movement	Corticospinal tract

B10. Blood & Coagulation

Main coagulation pathway	Extrinsic pathway
Extrinsic pathway factors	7 & 3 – Warfarin (PT)
Intrinsic pathway factors	8, 9, 11, 12 – Heparin (APTT)
Common pathway factors	10 & 5
Natural antithrombotic in blood	Plasminogen
Commonest cause of macrocytosis (Asian population)	Alcohol
Hereditary spherocytosis — commonest defect	Ankyrin
Hereditary spherocytosis — membrane skeleton defect	Spectrin
Downey cells (atypical lymphocytes)	Infectious mononucleosis

Smudge cells	CLL
Sézary cells	Cutaneous T-cell lymphoma

Part C — Biochemistry & Nutrition

C1. Nutrition & Metabolism

Primigravida on iron tablets + vegetable juices — deficiency risk	Vit B12 (only from animal sources)
Energy source in a fasting individual	Carbohydrate → lipid → protein (by duration)
TPN is contraindicated in	Liver failure
Homocystinuria — vitamin	Vit B12 (also B6-responsive forms)

Part D — Pharmacology

D1. General Principles & Miscellaneous Drugs

Therapeutic dose depends upon	Efficacy
Beta blockers increase risk of	Hypoglycemia
Anti-manic effect of lithium — onset	7–10 days

D2. Benzodiazepines — Basics, MOA & GABA-A

Sedative agent	↓ Anxiety + calming effect & sleep
Hypnotic agent	Induces drowsiness + sleep
Sedative-hypnotics	Cause CNS depression
Benzodiazepines	Major sedative-hypnotic class
Short-acting benzos	Oxazepam, triazolam, alprazolam, midazolam
"-olam" suffix	Often short-acting benzodiazepines
Short serum $t_{1/2}$	↑ Physical dependence risk
Short-acting benzos	↑ Addiction/withdrawal risk
Benzodiazepine clearance	Hepatic metabolism
LOT: Lorazepam, Oxazepam, Temazepam	Rapid hepatic inactivation
Long-acting benzos	Diazepam, chlordiazepoxide
Long-acting benzos	Form active metabolites
Active metabolites	Prolong effect up to ~100 h
Multiple long-acting benzo doses	Cumulative toxicity risk
Elderly + long-acting benzos	↑ Sedation/toxicity risk
Liver disease + benzos	↑ Serum half-life risk
Benzo MOA	Bind allosteric site on GABA-A receptor
Benzos	Enhance GABA effect; do not mimic GABA
GABA	Major inhibitory CNS neurotransmitter
Glycine	Major inhibitory CNS neurotransmitter
Benzos in CNS	Potentiate GABA-A transmission
GABA-A activation	Opens Cl^- channel
↑ Cl^- conductance	Hyperpolarization → ↓ neuronal excitability
Benzo CNS effect	Overall CNS depression
Benzos + GABA-A	↑ Frequency of Cl^- channel opening
Barbiturates vs benzos	Barbiturates ↑ duration; benzos ↑ frequency

GABA-A receptor	Main benzo site of action
GABA-A receptor structure	5 subunits forming Cl ⁻ channel
GABA-A function	Mood, anxiety, sleep, neuronal excitability
Alcohol MOA	Binds GABA-A allosteric site
Alcohol	CNS depressant via ↑ GABA inhibitory tone
GABA-A memory hook	A = Alcohol
Chronic alcohol use	↓ GABA sensitivity → tolerance
Alcohol tolerance	↑ Intake needed for same effect
Abrupt alcohol cessation	↓ GABA inhibition → CNS excitation

D3. Benzodiazepines — Alcohol & Withdrawal

Alcohol withdrawal onset	8–12 h after last drink
Early alcohol withdrawal	Insomnia, tremor, anxiety
Alcohol withdrawal autonomic signs	↑ BP variability, diaphoresis, tachycardia
Alcohol withdrawal seizures	12–48 h
Delirium tremens timing	48–96 h
Delirium tremens features	Fever, disorientation, severe agitation
Alcohol withdrawal treatment	Benzodiazepines first-line
Benzos in alcohol withdrawal	↓ Agitation + prevent seizures/DTs
Diazepam/chlordiazepoxide	Preferred in most alcohol withdrawal
Long-acting benzos in withdrawal	Self-tapering → smoother course
Cirrhosis/alcoholic hepatitis	Avoid long-acting active-metabolite benzos
Liver disease + alcohol withdrawal	Prefer lorazepam/oxazepam
Lorazepam/oxazepam	No active metabolites; safer in liver disease
Alcohol withdrawal	Common adult seizure cause

D4. Benzodiazepines — Clinical Uses

IV benzos	Rapid severe withdrawal control
IV benzodiazepines	Acute seizure control
Status epilepticus	Continuous/recurrent tonic-clonic seizures without recovery
Status epilepticus acute drug	IV lorazepam/diazepam
Diazepam/lorazepam/midazolam	Used IV for anesthesia
IV benzos in procedures	Conscious sedation
Conscious sedation	Patent airway + follows commands
Colonoscopy sedation	IV benzodiazepines may be used

Procedural benzo benefit	Sedation + amnesia
Benzos for insomnia	Short-term use only
Benzo sleep-aid problem	Tolerance + dependence + adverse effects
Benzos in children	May help parasomnias
Parasomnias	Sleepwalking/night terrors
Benzos as muscle relaxants	Central skeletal muscle relaxation
Diazepam use	Reduces spasticity
Spasticity causes treated by diazepam	MS, stroke, spinal cord trauma, tetanus
Muscle-relaxant benzo dose	Often causes sedation

D5. Benzodiazepines — Anxiety Disorders

Benzos in acute anxiety	Rapid symptom relief
GAD symptoms	Excessive/unreasonable anxiety
GAD somatic symptoms	Headache, muscle tension, insomnia
Benzos in GAD	Reduce emotional + somatic symptoms
Benzo onset in anxiety	Minutes to hours
Panic disorder	Recurrent abrupt intense fear episodes
Panic attack duration	Minutes to ~1 hour
Panic attack symptoms	Chest pain/SOB + fear of future attacks
First-line GAD/panic pharmacotherapy	SSRI/SNRI
Benzos in anxiety	Not ideal long-term therapy

D6. Benzodiazepines — Tolerance & Dependence

Chronic benzo use	GABA-A downregulation
GABA-A downregulation	↓ GABA sensitivity → tolerance
Tolerance	Higher dose needed for same effect
Physical dependence	Withdrawal if abruptly stopped
Benzo withdrawal resembles	Alcohol withdrawal
Benzo withdrawal symptoms	Tremor, anxiety, perceptual disturbance
Severe benzo withdrawal	Dysphoria, psychosis, seizures
Benzo dependence + tolerance	↑ Addiction risk
Substance use disorder history	Avoid/limit benzodiazepines

D7. Benzodiazepines — Adverse Effects & Interactions

Most benzo adverse effects	Dose-related CNS depression
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Low-dose benzo effects	Drowsiness + impaired judgment
Benzos impair	Motor skills, job performance, driving
Benzo amnesia	Dose-related anterograde amnesia
Anterograde amnesia	Impaired new learning
Clinical use of benzo amnesia	Endoscopy/procedural sedation
Elderly sensitivity to benzos	Increased CNS adverse effects
Confusion in elderly	Sedative-hypnotic overuse = reversible cause
Benzos in elderly	Avoid due to falls/confusion
Benzo coordination effect	Central ataxia
Central ataxia	↑ Fall risk
Benzos + alcohol	Dangerous additive CNS depression
Benzos + barbiturates	Additive CNS depression
Benzos + neuroleptics	Additive CNS depression
Benzos + 1st-gen antihistamines	Additive sedation risk
1st-gen antihistamines	Cross BBB → strong sedation
Elderly + sedating polypharmacy	High fall/confusion risk
Diphenhydramine	1st-gen H1 blocker; sedating
Benzos/alcohol/barbiturates	All modulate GABA-A allosterically

D8. Benzodiazepines — Flumazenil & Memory Hooks

Benzo overdose antidote	Flumazenil
Flumazenil MOA	Competitive benzo receptor antagonist
Flumazenil use	Reverses benzo sedation
Flumazenil after anesthesia	Can reverse benzo-induced sedation
Flumazenil after procedural sedation	Can reverse benzo effect
Flumazenil in overdose	Controversial
Flumazenil danger	Can precipitate withdrawal seizures
Chronic benzo user + flumazenil	High seizure risk
Benzo toxicity reversal	Use flumazenil cautiously
Core benzo memory hook	↑ GABA-A → ↑ Cl ⁻ frequency → CNS depression
High-yield safer liver benzos	LOT: Lorazepam, Oxazepam, Temazepam

D9. Drugs & Arrhythmias

DOC for ventricular arrhythmias	Lidocaine
DOC for AF without heart failure	Beta blockers

DOC for atrial flutter without heart failure	Beta blockers
DOC for AF with heart failure	Digoxin
DOC for atrial flutter with heart failure	Digoxin
DOC for PSVT	Adenosine
DOC for WPW syndrome	Procainamide
DOC for ventricular ectopics	Beta blockers
DOC for sinus bradycardia	Atropine

Part E — Pathology

E1. Cell Injury, Inflammation & Wound Healing

First line of defense in inflammation	Tissue macrophage
Most radiosensitive tissue	Lymphoid tissue
Collagen type giving wound strength	Type 1
Most important factor in collagen synthesis	Vit C
Most important factor in delayed wound healing	Anemia

E2. Neoplasia & Carcinogens

NOT a carcinogen	Alcohol
Carcinoma NOT related to	Iodine deficiency
Chemical exposure causing carcinoma	Benzene
Carcinogen–organ pairing	Alcohol for liver
NOT a chemical carcinogen	Sodium methylsulfate (arsenic & chromium are)
Hypercalcemia NOT related to	Prostate cancer (osteoblastic mets)
NOT a neoplasia	Choristoma (leiomyoma is benign tumor)
Circulating tumor cell — most widely diagnosed by	Peripheral blood film
CNS tumor due to radiation	Meningioma
Delta antigen (HDV) indicates	Severity/fatality (superinfection >70% fatal)

E3. Cardiovascular Pathology

Chest pain + vomiting, ST elevation anterior leads, normal enzymes	Acute MI
Embolus from deep leg veins goes first to	IVC → right heart → pulmonary arteries
Most probable cause of edema in cirrhosis	Portal hypertension
Libman-Sacks endocarditis affects	Mitral & tricuspid (some texts: aortic)

E4. Immunology & Transfusion

H antigen is found in blood group	O
Anti-H antibody is found in blood group	Oh (Bombay phenotype)
Most common primary immunodeficiency	IgA deficiency
Post-transfusion fever, hypotension & shock	Bacterially contaminated blood
Post-transfusion hypersensitivity — type	Type II
Skin allograft rejection — cells	T lymphocytes
Most important prerequisite for renal transplant	HLA testing (initial = ABO)

IgE on the surface of	Mast cells (> basophils)
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E5. Genetics & Cytogenetics

Barr body present in	Normal female (and Klinefelter)
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Barr body count — XO / XX / XXX	0 / 1 / 2
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Barr body — diagnostic (absent) in	Turner syndrome
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Autosomal dominant inheritance shows	Heterogeneity & variable (in)complete penetrance
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Part F — Microbiology

F1. Bacteria — Identification Clues

Cold agglutinin	Mycoplasma pneumoniae
Urease positive	H. pylori
Satellitism	H. influenzae
Alpha hemolysis	Streptococcus pneumoniae
Beta hemolysis	Streptococcus pyogenes
Coagulase-negative staph	Prosthetic device infections
Chlamydia	No cell wall
Legionella	Urinary antigen test
Campylobacter	Guillain-Barré syndrome association

F2. Anaerobes & Clostridia

Clostridium tetani	Tetanospasmin toxin
Clostridium botulinum	Flaccid paralysis
Clostridium perfringens	Gas gangrene
Clostridium difficile	Pseudomembranous colitis
Bacteroides fragilis	Intra-abdominal abscess
Tetanus toxin MOA	Blocks GABA release
Botulinum toxin MOA	Blocks ACh release
Nagler reaction	Clostridium perfringens
Spore-forming bacteria	Clostridium
Anaerobic infection clue	Foul-smelling discharge

F3. Viruses

DNA virus example	HSV
RNA virus example	Influenza
Retrovirus	HIV
CD4 receptor	HIV target
HBsAg	Hepatitis B infection
Anti-HBs	Immunity to Hepatitis B
Rabies virus	Negri bodies
HPV	Cervical cancer
EBV	Burkitt lymphoma

CMV	Owl's eye inclusion
Measles	Koplik spots
Parvovirus B19	Aplastic crisis
Hepatitis B diagnosis	HBsAg + anti-HBc
Confirmatory test for AIDS	Western blot

F4. Fungi

Candida albicans	Pseudohyphae
Aspergillus	Acute angle branching (~45°)
Mucor	Broad non-septate hyphae
Cryptococcus	India ink positive
Histoplasma	Intracellular yeast
Blastomyces	Broad-based budding
Dermatophytes	Tinea (ringworm) infections
Pneumocystis	Silver stain
KOH mount	Fungal detection

F5. Parasites

Plasmodium falciparum	Most severe malaria
Plasmodium vivax	Relapse (hypnozoites)
Entamoeba histolytica	Flask-shaped ulcer
Giardia lamblia	Pear-shaped trophozoite
Toxoplasma gondii	Ring-enhancing brain lesions
Echinococcus	Hydatid cyst
Wuchereria bancrofti	Elephantiasis

F6. Tuberculosis & Leprosy

Mycobacterium tuberculosis	Acid-fast bacilli
Mantoux test	Delayed (type IV) hypersensitivity
CBNAAT	Rapid TB detection
Lepromatous leprosy	Poor cell-mediated immunity
Tuberculoid leprosy	Strong cell-mediated immunity
Rifampicin	Red/orange body fluid discoloration
Caseating granuloma	Tuberculosis hallmark

F7. Sterilization & General Microbiology

Dry heat kills bacteria by	Oxidation (moist heat → coagulation)
Food poisoning in 10 people relates to	Virulence
Commonest site of pyogenic brain abscess	Frontal lobe

Part G — Mnemonics

G1. High-Yield Mnemonics

Golgi Tendon organ	Controls TENSION of muscles (T)
Muscle spindle	Controls LENGTH of muscle (L)
Bohr effect	Right shift deviation (R)
Haldane effect	Left shift deviation (L)
Secondary center of ossification	Epiphysis (E)
Micturition reflex	Midbrain
Pneumotoxic center	Pons (P)
Hypothalamus	Thirst & Temperature (T)
Respiration, swallowing, vomiting	Medulla oblongata

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