Pharmacology week 1 – General Principles part 1

Contributes to 'General Pharmacology' which makes up 13% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 1-3.

Focus on pharmacodynamics, pharmacokinetics comes up next week

Learn the definitions by rote, you should be able to describe them succintly in a short statement

Aim to be able to draw and explain the associated graph of a concept and provide examples

Learning Outcomes LOA 1

- Pharmacodynamic principles
  - Mechanisms of action
  - Receptors and their regulation
  - Second messengers and G-proteins
  - Dose response
  - Dosing issues

Definitions to learn

- Drug
- Receptor
- Pharmacodynamics
- Agonist (and their variants)
- Antagonist (and their variants)
- Potency
- ED50 vx EC50
- Efficacy
- TD50
- LD50
- Tachyphylaxis

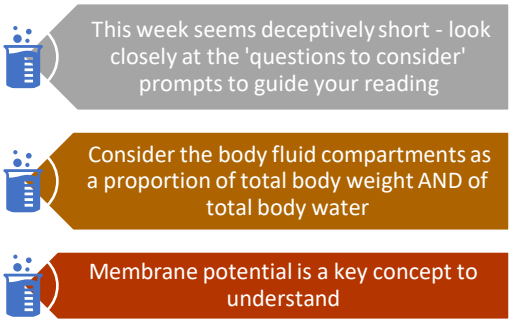
Questions to consider

- Explain chemical and physical antagonism with examples
- Explain the difference between efficacy and potency using dose-response curves
- Explain the difference between an agonist, partial agonist, competitive and non-competitive antagonist using dose-response curves
- Give examples of the different mechanisms of drug signalling
- What role does ionisation and pH partitioning play in the ability of a drug to cross membranes?

Physiology week 1 – Principles of Cellular Function part 1

Contributes to 'Principles of Cellular Function', which makes up 5% of the physiology MCQ matrix.

Reference: Ganong's Review of Medical Physiology, 26th edition. Chapters 1-2.



Learning Outcomes LOA 1

- Principles of cellular function

Definitions to learn

- Moles
- Osmoles
- Equivalents
- Oxidation
- Reduction

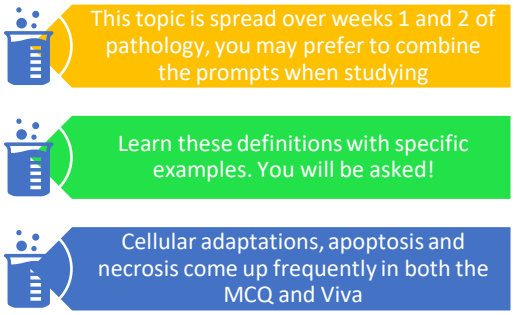
Questions to consider

- What determines the membrane potential?
- What is normal osmolality? How is it calculated? How does it differ from osmolarity?
- What is tonicity? Why does it matter?
- What is a buffer? Give examples
- Describe the body fluid compartments, their composition and how they are measured

Pathology week 1 – Cellular Adaptations, Injury and Death part 1

Contributes to 'Cellular Injury', and to 'Tissue Response to Injury' which make up 5% and 8% of the pathology MCQ matrix respectively.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapters 1-2.



Learning Outcomes LOA 1

- Mechanisms of cellular injury
- Cell response to injury (including morphological changes, sequence of events)

Definitions to learn

- Reversible cell injury
- Irreversible cell injury
- Necrosis
- Apoptosis
- Residual bodies
- Ischaemia
- Hypoxia
- Reperfusion injury

Questions to consider

- Define necrosis and give examples
- Contrast the morphological patterns of cell death
- How do free radicals cause cell injury and what mechanisms prevent this?
- What changes are seen in reversible versus irreversible cell injury?

Anatomy week 1 – Tissues & Structures

'Tissues & Structures' makes up 5% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 1.

Bursae and potential spaces (especially in the upper limb) are important clinically

Anatomical planes and terminology will be assumed knowledge throughout the MCQ and Viva exams

Examples of the different joint and cartilage types crop up commonly in the MCQs

Learning Outcomes LOA 1

- Anatomical planes and positions
- Anatomical terms of relationship, comparison, laterality and movement
- Bursae, fascial compartments and potential spaces
- Types of cartilage with examples
- Types of joints with examples, joint stability
- Bone formation and markings
- Nervous system divisions: central/peripheral, somatic/autonomic

Learning Outcomes LOA 2

- Muscular system: skeletal, cardiac striated, smooth
- Vascular circuits and vessels
- Lymphoid system

Learning Outcomes LOA 3

- Integumentary system: tension lines, layers and functions
- Common anatomical variations

Questions to consider

- Describe Hilton's law
- What is a functional unit with regards muscle?
- What are the functions of the lymphatic system? How does it communicate with the circulation?
- What is the function of the autonomic system?
- Describe the ganglia and neurotransmitters of the autonomic nervous system
- Describe the axial and appendicular skeletal components

Pharmacology week 2 – General Principles part 2

Contributes to 'General pharmacology' which makes up 13% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 3-4

Some of these concepts are a bit abstract - but don't skip this part! It will underpin your later study

Learn these definitions by rote, you should be able to describe them succintly

Many of these concepts are explained with formulae, graphs and example drugs. You may be asked to reproduce these.

Learning Outcomes LOA 1

- Pharmacokinetic principles
  - Absorption
  - Distribution
  - Elimination kinetics
  - Drug biotransformation

Definitions to learn

- Pharmacokinetics
- Volume of distribution
- Bioavailability (and contributing factors)
- Clearance
- Elimination
- Half-life (plus formula)
- Extraction ratio
- Fick's law of diffusion
- pKa
- Henderson-Hasselbach

Questions to consider

- What is zero order kinetics? Provide examples of drugs which undergo zero and first order kinetics
- What is first pass metabolism? Why is it important?
- How can you avoid first pass metabolism?
- How do you calculate a loading and a maintenance dose?
- What is steady state?
- What is the difference between capacity-limited and flow-dependent drug elimination?
- Describe the phases of drug trials
- What is an enzyme inducer? What is the relevance in prescribing? What about enzyme inhibitors?

Physiology week 2 – Principles of Cellular Function part 2

Contributes to 'Principles of Cellular Function', which makes up 5% of the physiology MCQ matrix.

Reference: Ganong's Review of Medical Physiology, 26th edition. Chapters 1-3.

Overlaps with Physiology week 1

The NA/K ATPase pump is vitally important to life.... and the College examiners

Don't spend too much time on the immune system - it will be covered in great detail in pathology

Learning Outcomes LOA 1

- Principles of cellular function

Definitions to learn

- Gibbs-Donnan effect
- Fick's law of diffusion
- Diffusion
- Osmosis

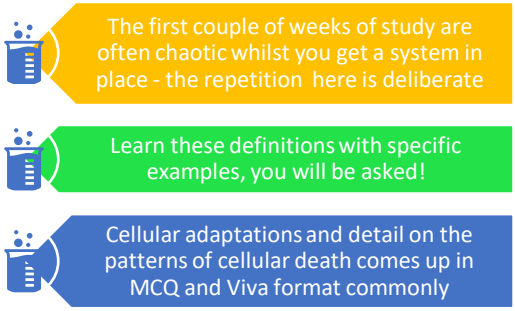
Questions to consider

- Describe the Na/K ATPase pump (in detail!)
- How is temperature regulated? Why does fever occur?
- What are the determinants of the plasma glucose level?
- Describe second messenger systems with examples
- What is secondary active transport? How else does transport occur across the cell membrane?
- What are the major components of the immune system? (briefly, covered in detail in pathology later on)
- Describe the classical/alternative pathway (briefly, covered in detail in pathology later on)

Pathology week 2 – Cellular Adaptations, Injury and Death part 2

Contributes to 'Cellular Injury' and to 'Tissue Response to Injury' which make up 5% and 8% of the pathology MCQ matrix respectively.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapters 1-2.



Learning Outcomes LOA 1

- Review mechanisms of cellular injury and the cell's response to injury

Definitions to learn

- Hypertrophy
- Hyperplasia
- Atrophy
- Metaplasia

Questions to consider

- In what ways can a cell respond to injury?
- By what processes do intracellular accumulations occur? Give examples
- Explain dystrophic and metastatic calcification with examples
- What are the mechanisms of cellular ageing?
- What is hyperplasia and give examples

Anatomy week 2 – The Back and Vertebral Column

Contributes to 'Thorax' and to 'Head, Neck and CNS' which make up 12.5% and 20% of the anatomy MCQ matrix respectively.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapters 2 and 9.
Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 3

Make sure you can name which cervical vertebrae are atypical, and explain why

You need to be able to differentiate the vertebrae from different regions

Spinal levels and cord anatomy, whilst tedious to learn, is money for jam in the primaries

Learning Outcomes LOA 1

- Structure and function of the vertebrae
- Regional characteristics of the vertebrae
- Nerves of the vertebral column
- Spinal cord
- Spinal nerve roots
- Spinal meninges and CSF

Learning Outcomes LOA 2

- Joints of the vertebral column
- Movements of the vertebral column
- Curvatures of the vertebral column
- Vasculature of the vertebral column
- Vasculature of the spinal cord and spinal nerve roots

Learning Outcomes LOA 3

- Extrinsic back muscles
- Intrinsic back muscles
- Surface anatomy of the back muscles
- Sub-occipital and deep neck muscles

Questions to consider

- Identify this ..... vertebrae and it's relevant components. What differentiates the cervical, thoracic, lumbar and sacral vertebrae?
- Outline the normal positon, curvature and movements of the spine
- How is the spinal cord organised? Where does it start and finish? Where do the nerve roots exit?
- What are the layers that are passed through during a lumbar puncture? (don't forget to start with skin)
- Describe the vasculature of the spinal cord
- What is the difference between the intrinsic and extrinsic back muscles? Outline their attachments, innervation and function

Pharmacology week 3 – Cardiovascular: Adrenoreceptors

Contributes to 'Cardiovascular System' which makes up 18% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 9-10.

Beta-blockers come up repeatedly e.g. as anti-anginals and as anti-arrhythmics. Look at them in detail now, but you will get the chance to review them again in later weeks

There are alot of drugs to cover this week, take your time, these are key agents in resus

Understanding the distribution and effects of the various adrenoreceptors is essential

Learning Outcomes LOA 1

- Emergency cardiac drugs
- Inotropes
- Beta-blockers

Questions to consider

- Describe the adrenoreceptors by subunit, type, distribution and effects
- What are the non-cardiovascular effects of the sympathomimetics?
- What are the different effects of the various beta blockers? Why is this important in toxicology?
- What is the effect of alpha agonism? When is this clinically useful?
- Outline the pharmacokinetics and pharmacodynamics for
  - Adrenaline
  - Noradrenaline
  - Isoprenaline
  - Dobutamine
  - Dopamine
- Outline the pharmacokinetics and pharmacodynamics for
  - Propranolol
  - Metoprolol
  - Atenolol
  - Labetalol (superficial)
  - Esmolol (superficial)
  - Phentolamine (superficial)
  - Phenoxybenzamine (superficial)
  - Prazosin (superficial)

Physiology week 3 – Electrical Activity of the Heart

Contributes to 'The Heart and The Circulation' which makes up 25% of the physiology MCQ matrix.

Reference: Ganong's Review of Medical Physiology, 26th edition. Chapter 29 and pages 112-115.

Understanding the key concepts here will create a solid base for fellowship study later on

Make sure you understand how the ECG relates to the cardiac cycle and ion fluxes across the membrane in detail

Learn to reproduce and explain the pacemaker potential (hot Viva topic)

Learning Outcomes LOA 1

- Function, metabolism, and properties of cardiac muscle (briefly)
- Cardiac excitation
- The ECG
- Arrhythmias, and ECG findings in other diseases
- Effects of regulatory mechanisms: hormonal, local, nervous system

Questions to consider

- Draw an action potential for a pacemaker cell *(pacemaker cells, and the pacemaker potential, have been repeatedly examined in the past)*
- Draw an action potential for a ventricular myocyte
- Describe the spread of cardiac excitation with reference to relative conduction speeds, *(and thus the normal intervals seen on an ECG)*
- What effect does a 'block' have on the spread of cardiac excitation?
- What causes the major abnormalities in the ECG in acute MI?
- What is the effect of a changing potassium concentration on the ECG?
- What is the effect of sympathetic stimulation on the electrical activity of the heart?

Pathology week 3 – Acute and Chronic Inflammation

Contributes to 'Tissue Response to Injury' which makes up 8% of the pathology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapter 3.

Ignore the tables and morphology boxes in Robbins at your peril - they are exam gold!

These are basic concepts but underpin the learning in future weeks

Roles of specific mediators and the differences in acute versus chronic inflammation comes up in MCQ and Vivias

Learning Outcomes LOA 1

- Acute inflammation
- Chronic inflammation

Be sure to review

- Acute inflammation:
  - Vascular changes and cellular events
  - Chemical mediators (in detail)
  - Cytokines (especially IL-1 and TNF)
  - Outcomes and morphologic patterns
  - Important Robbins references: Figure 3-12, Table 3-4, Table 3-7
- Chronic inflammation:
  - Causes, histologic and morphologic features
  - Mononuclear cell infiltration
  - Granulomatous inflammation (TB is classic example)
  - Systemic effects and consequences

Questions to consider

- Define chronic inflammation
- What vascular and cellular events occur in acute inflammation?
- What are the roles of the chemical mediators in inflammation?
- What are the potential outcomes of acute inflammation?
- What activates the complement pathways?
- Describe phagocytosis in detail
- What does TNF do?
- Define granulomatous inflammation with examples
- Describe the systemic effects of inflammation
- What are the morphological patterns of inflammation?

Anatomy weeks 3 & 4 – Upper Limb: Shoulder and Arm

Contributes to 'Upper Limb' which makes up 25% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 3.
Reference: McMinn's Clinical atlas of human anatomy 9th edition. Chapter 4.

This page lists the content that should be covered in weeks 3 & 4 of anatomy, divide it up however you like!

There is alot of material to cover here, if you run out of time, keep a note of what you missed, so you can return to it later

Reference McMinns or Anatomedia dissection images throughout, for practice

Learning Outcomes LOA 1

- Development of the upper limb
- Bones (landmarks, attachments, relations of): clavicle, scapula, humerus
- Joints: Gleno-humeral
- Axio-appendicular, scapulo-humeral and muscles of the upper arm (special emphasis on shoulder and rotator cuff)
- Surface anatomy of the pectoral, scapular and deltoid regions
- The axilla: boundaries and contents in detail
- The brachial plexus in detail (sorry)
- Cutaneous and motor supply of the arm
- Fascia of the arm
- Arterial supply and venous drainage of the arm

Learning Outcomes LOA 2

- Joints: sternoclavicular, acromioclavicular
- Lymphatic drainage of the upper limb

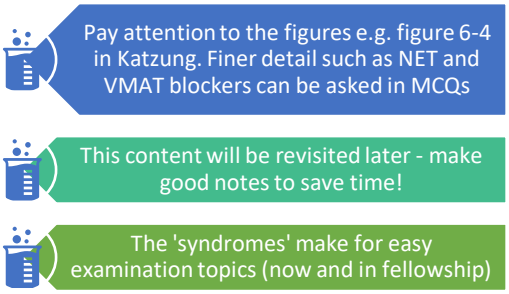
Questions to consider

- Identify this bone ..... in its anatomical position and describe its bony features
- Describe the boundaries and contents of the axilla
- Draw the brachial plexus
- What clinical findings are expected following injury to the superior trunk of the brachial plexus?
- Outline the movements of the scapula, which muscles are responsible?
- Describe the movements of the .... joint. What factors provide stability to this joint?
- Describe the lymphatic drainage of the breast
- What pierces the clavipectoral fascia
- Describe the .... muscle: its origin, insertion, action, innervation and blood supply
- Describe the clinical pattern seen in injury of the [....] Nerve

Pharmacology week 4 – Autonomic Pharmacology

Contributes to 'Nervous System' which makes up 14% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 6-8



Learning Outcomes LOA 1

- Drugs acting on the sympathetic nervous system
- Drugs acting on the parasympathetic nervous system

Learning Outcomes LOA 2

- Centrally acting sympathoplegics
- Neurotransmitters

Learning Outcomes LOA 3

- Adrenergic neuro-blocking agents

Questions to consider

- Outline the neurotransmitter chemistry of the autonomic nervous system (this needs to be in detail e.g Figure 6-3 and 6-4 in Katzung)
- Describe the autonomic and hormonal control of cardiovascular function (Figure 6-7in Katzung)
- Which drugs affect the eye and how?
- What is the effect of botulism?
- What are the clinical uses of cholinomimetics?
- Describe the varying pharmacokinetics and pharmacodynamics of tertiary versus quaternary amines with regards to anticholinergics
- What are the clinical uses of anticholinergics?
- Describe the anticholinergic toxidrome using atropine as an example
- Describe the cholinomimetic toxidrome using organophosphates as an example
- What are the ganglion blockers?

Physiology week 4 – The Heart and Circulation

'Circulating Body Fluids' makes up 5% of the physiology MCQ matrix. This week also contributes to 'The Heart and The Circulation' which makes up 25% of the physiology MCQ matrix.

Reference: Ganong's review of medical physiology 25th edition. Chapters 30-31
Reference: Guyton's textbook of medical physiology 12th edition. Chapter 9

The list here is lengthy, but really focus on understanding cardiac output and events in the cardiac cycle - this is key

If you can draw and explain a concept (e.g. pressure volume loop of the LV) - then you probably understand the detail

Haemostasis is primarily covered in pathology, cover it briefly here

Learning Outcomes LOA 1

- Mechanical events of the cardiac cycle
- Cardiac output
- Cardiac function in health and disease
- Biophysics of circulating body fluids
- Blood circulation, vessels
- Interstitial fluid
- Bone marrow
- Blood cell types
- Haemoglobin
- Platelets
- Blood types
- Plasma
- Haemostasis

Learning Outcomes LOA 2

- Lymphatic circulation

Learning Outcomes LOA 3

- Lymph

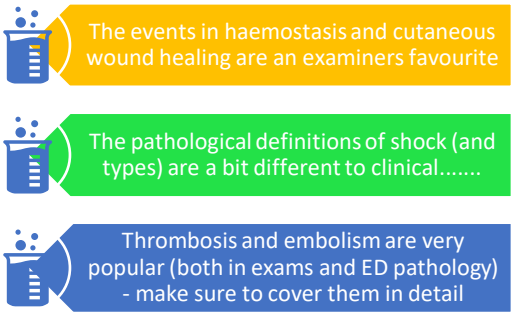
Questions to consider

- What is the average value for cardiac output, how is it measured?
- What is the Fick principle?
- What factors affect afterload? What about contractility?
- How do the pressure-volume loop and Frank-Starling curve change in disease?
- Draw the cardiac cycle and explain its cardinal events
- What factors affect the ability of Hb to carry oxygen? What is the role of HbF?
- What methods are there to measure blood flow?
- What is the relevance of the Reynold's number?
- Describe the law of Laplace and it's clinical relevance
- What are the determinants of flow within a vessel? What is the Poiseuille-Hagen formula?
- What is the effect of gravity on arterial and venous pressure?
- Describe the changes in pressure and velocity of blood flow in the systemic circulation
- What are the causes of increased interstitial fluid volume?
- What are some causes of secondary hypertension?

Pathology week 4 – Tissue and Fluid

'Fluid and Haemodynamics' makes up 7% of the pathology MCQ matrix. This week also contributes to 'Tissue Response to Injury' which makes up 8% of the pathology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapters 3-4



Learning Outcomes LOA 1

- Cutaneous wound healing
- Oedema
- Hyperaemia and congestion
- Haemorrhage
- Thrombosis and embolism
- Haemostasis
- Infarction
- Shock

Learning Outcomes LOA 2

- Normal tissue: principles of tissue renewal and repair
- Vascular responses to injury
- Repair by healing (non-cutaneous)
- Scar formation and fibrosis

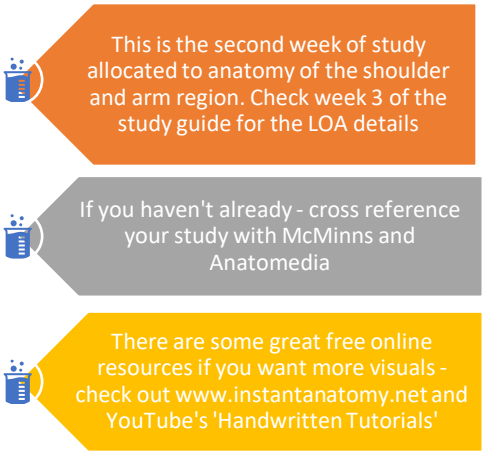
Questions to consider

- What factors influence wound healing? What complications can occur?
- What growth factors and signalling mechanisms are involved in wound healing?
- What are the sequence of events in fibrosis?
- What is the timeline for events in wound healing by primary intention, what about in secondary intention wound healing?
- Tell me about scar formation
- Describes the features of congestion within the liver (or lung)
- What is an embolus and what types can occur?
- How is it that clotting is restricted to the site of an injury?
- What factors influence development of an infarct? What is a red infarct?
- What are the possible fates of the thrombus?
- Tell me about the pathogenesis of thrombosis, what is Virchow's triad?
- Describe the pathogenesis of DIC and its causes
- What are the stages of shock?

Anatomy weeks 3 & 4 – Upper Limb: Shoulder and Arm

Contributes to 'Upper Limb' which makes up 25% of the anatomy MCQ matrix.

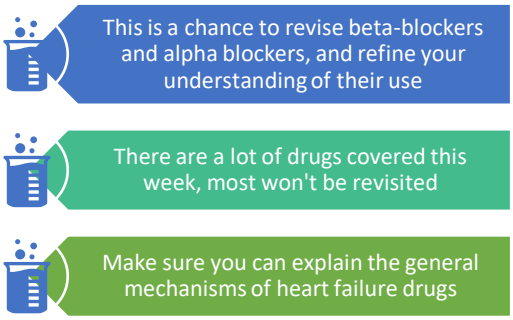
Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 3.
Reference: McMinn's Clinical atlas of human anatomy 9th edition. Chapter 4.



Pharmacology week 5 – Cardiovascular: HTN & Failure

Contributes to 'Cardiovascular System' which makes up 18% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 11-13, 17



Learning Outcomes LOA 1

- Anti-anginal drugs: nitrates, calcium channel blockers, beta-blockers
- Cardiac glycosides

Learning Outcomes LOA 2

- Antihypertensives: ACE inhibitors, angiotensin receptor blockers, vasodilators, alpha blockers, centrally acting sympathoplegics, alpha blockers

Questions to consider

- Outline the control of normal cardiac contractility and the drugs used in heart failure
- By what mechanisms do nitrates exert their beneficial (and harmful) effects? (review table 12-2)
- What is the coronary steal syndrome?
- What are the differences between dihydropyridines and non-dihydropyridines?
- Tell me about drugs used in the treatment of angina
- How do the side effects of the ACE inhibitors and A2RBs differ?
- Tell me about nitrate toxicity, tolerance and tachyphylaxis
- Why are nitrates given sublingually?
- Tell me about digoxin toxicity
- What drugs are used in heart failure (use a systematic approach)

Physiology week 5 – Cardiovascular Regulatory Mechanisms

Contributes to 'The Heart and the Circulation' which makes up 25% of the physiology MCQ matrix.

Reference: Ganong's Review of Medical Physiology, 26th edition. Chapters 31-32

There are lots of lists to cover this week..... Lists are easy resources to create MCQs from... Just saying...

Don't be fooled by the brevity of the learning outcomes- this a big conceptual week

Learn to describe the sequence of events following a volume loss

Learning Outcomes LOA 1

- Local regulation
- Hormonal regulation
- Regulation by the nervous system

Questions to consider

- What factors affect arteriolar calibre (you will be asked to provide examples for both dilation and constriction, popular exam topic)
- Describe the neurological control of the cardiovascular system
- What is the RVLM? What is its role?
- Describe the baroreceptors, their location and role. What is baroreceptor resetting?
- What other receptors are involved in BP control?
- Describe the different stages of the valsalva manoeuvre
- Describe the chemoreceptors, their location and role
- What local factors affect blood flow? (popular exam topic)
- What circulating substances affect blood flow, and in what way?
- How is BP measured? What do the different korotkov sounds represent?
- What is the Bainbridge reflex? Bezold-Jarisch? Cushing?
- What are starling forces? Can you give typical values?
- Draw the Frank-Starling curve and describe what it represents (revision of week 4, with a focus on the regulatory component)
- What is laminar flow?
- What is the physiological significance of Laplace's and Poiseuille's laws?
- By what mechanism does venous return occur?

Pathology week 5 – Blood Vessels

Contributes to 'Cardiovascular System' which makes up 8% of the pathology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapter 11

You need to have an excellent understanding of the causes and subsequent events in endothelial injury

The vasculitides (and their classification) has come up repeatedly in MCQs

The Robbins smaller handbook is generally sufficient detail from now

Learning Outcomes LOA 1

- Atherosclerosis
- Aneurysm
- Dissection

Learning Outcomes LOA 2

- Hypertensive vascular disease
- The vascular response to injury

Learning Outcomes LOA 3

- Vasculitides
- Veins and lymphatics
- Vascular interventions

Questions to consider

- What are the functions of the endothelial cells? What happens in injury?
- What is arteriosclerosis? Atherosclerosis?
- What are the components of an atherosclerotic plaque?
- What are the long term consequences of atherosclerosis?
- What is an aneurysm? A pseudoaneurysm?
- Tell me about AAAs
- Tell me about the subtypes and consequences of aortic dissection
- Tell me about the pathogenesis of essential hypertension
- Tell me about temporal arteritis, kawasakis
- Describe the changes that occur in Raynaud's phenomenon
- Describe the pathogenesis of varicose veins
- How would you classify the vascular tumours?

Anatomy weeks 5 & 6 – Upper Limb: Elbow & Forearm

Contributes to 'Upper Limb' which makes up 25% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 3

Consider if it's easier for you to review the neurovasculature of the entire limb at once rather than divide it into arm, forearm and hand

This page lists the content that should be covered in weeks 5 & 6 of anatomy

Review McMinns or Anatomedia superficial and deep dissection images of the cubital fossa

Learning Outcomes LOA 1

- Bones (landmarks, attachments, relations of): radius, ulna
- Joints: Elbow (in detail), proximal radio-ulnar joint, distal radio-ulnar joint
- Muscles of the forearm
- Surface anatomy of the forearm
- The cubital fossa: boundaries, contents and surface anatomy (in detail)
- Arterial supply and venous drainage of the forearm
- Fascia and compartments of the forearm
- Cutaneous and motor supply of the forearm

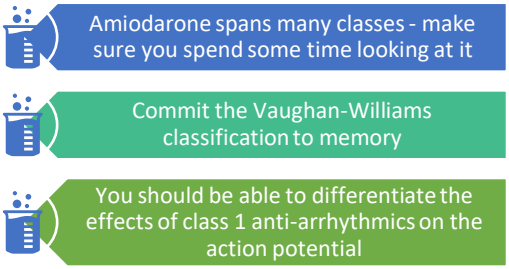
Questions to consider

- Identify this bone … in its anatomical position and describe its bony features
- Describe the boundaries and contents of the cubital fossa
- Describe the movements and stability of the …. joint
- Describe the course of the radial/median/ulnar nerve in the arm
- Describe the …. muscle: its origin, insertion, action, innervation and blood supply
- Describe the mechanisms of pronation and supination of the arm

Pharmacology week 6 – Cardiovascular: Anti-arrhythmics

Contributes to 'Cardiovascular System' which makes up 18% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapter 14



Learning Outcomes LOA 1

- Class 1a sodium channel blockers
- Class 1c sodium channel blockers

Learning Outcomes LOA 2

- Class 1b sodium channel blockers
- Class 2 beta blockers
- Class 3 potassium channel blockers
- Class 4 calcium channel blockers
- Adenosine
- Magnesium

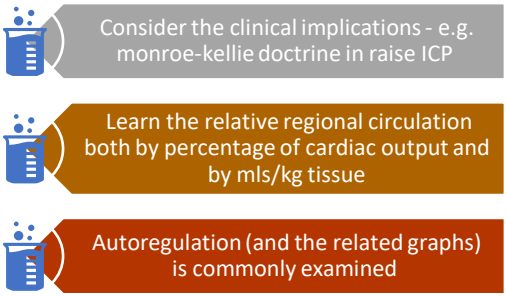
Questions to consider

- Revise the electrophysiology of the cardiac conduction system and the mechanism of arrhythmias
- Outline the Vaughan-Williams classification system, and provide examples for each class
- Tell me about amiodarone
- Tell me about lignocaine
- Tell me about flecainide
- Tell me about sotalol

Physiology week 6 – Circulation Through Special Regions

Contributes to 'The Heart & The Circulation' which makes up 25% of the physiology MCQ matrix.

Reference: Ganong's Review of Medical Physiology, 26th edition. Chapter 33



Learning Outcomes LOA 1

- Cerebral circulation
- Coronary circulation
- Pulmonary circulation
- Renal circulation

Learning Outcomes LOA 2

- Splanchnic circulation
- Cutaneous circulation
- Placental and foetal circulation

Questions to consider

- What percentage of the total body oxygen consumption is attributable to the brain/heart/kidneys/skin?
- Where is CSF produced? Where does it flow?
- How much CSF is there? What is it made up of and how is it turned over? Is this constant?
- What is the relevance of the circumventricular organs?
- How is cerebral blood flow measured?
- Describe metabolism within the brain
- How does the brain manage ammonia?
- Describe the route that blood takes after it enters one of the main coronary arteries
- How does the flow of blood in the coronary arteries change throughout the cardiac cycle?
- Describe the triple phase response
- Describe how circulation changes from foetus to newborn to adult
- What changes in circulation occur at birth?

Pathology week 6 – The Heart

Contributes to 'Cardiovascular System' which makes up 8% of the pathology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapter 12
Reference: Ganong's Review of Medical Physiology, 26th edition. Chapters 29-30

When asked for complications of pathological conditions, consider the early and late effects (and don't forget to mention death!)

Ganong's is a useful reference for ischaemic and congestive heart disease

Congenital heart disease tends to form MCQs rather than Vivas

Learning Outcomes LOA 1

- Heart failure
- Arrhythmias
- Ischaemic heart disease
- Cardiomyopathies
- Pericardial disease

Learning Outcomes LOA 2

- Valvular heart disease

Learning Outcomes LOA 3

- Transplantation
- Congenital heart disease

Questions to consider

- What conditions can lead to heart failure? *(you need a clear systematic approach to this)*
- Contrast systolic and diastolic dysfunction, right and left heart failure
- What processes can lead to ventricular hypertrophy?
- What constitutes ischaemic heart disease?
- Tell me about the pathogenesis of myocardial infarction (MI)?
- What are the morphological events in MI? Over what timeframe do they occur?
- Tell me about the reversible and irreversible phases of MI
- What are the possible consequences of MI? How common/likely are they?
- What is the pathogenesis of sudden cardiac death?
- Outline the pathophysiology of infective endocarditis
- Describe the major aetiologies of acquired valvular heart disease
- What are the possible complications of valve replacement?
- Describe the pathogenesis and potential cardiovascular outcomes of rheumatic fever, what are the Jones criteria?
- Describe the pathogenesis and morphological features of the different types of cardiomyopathy
- What are the causes and clinical features of pericarditis and myocarditis
- What are the major categories and lesions in congenital heart disease?
- Which congenital conditions are associated with L->R shunt? R->L shunt? Obstructive lesions? Cyanosis?

Anatomy weeks 5 & 6 – Upper Limb: Elbow & Forearm

Contributes to 'Upper Limb' which makes up 25% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 3

This is the second week of study allocated to anatomy of the elbow and forearm region. Check week 5 of the study guide for the LOA details

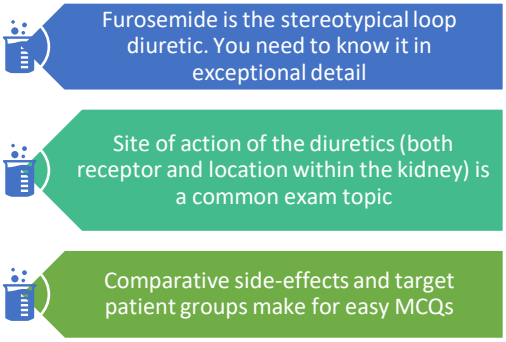
If you haven't already, cross reference your study with McMiins and Anatomedia

There are some great free online resources if you want more visuals - check out www.instantanatomy.net and YouTube's 'Handwritten Tutorials'

Pharmacology week 7 – Cardiovascular: Diuretics

Contributes to 'Cardiovascular System' which makes up 18% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapter 15



Learning Outcomes LOA 1

- Loop diuretics

Learning Outcomes LOA 2

- Thiazide diuretics
- Potassium sparing diuretics
- Osmotic diuretics
- Carbonic anhydrase inhibitors

Questions to consider

- Review renal physiology and functions as it applies to receptor effect and pharmacological principles
- Review Figure 15-1 and Table 15-1 in Katzung
- How do diuretics work?
- What are the indications for carbonic anhydrase inhibitors and what are their mechanism of action?
- How are loop diuretics used in emergency medicine and what are some of their adverse effects?
- Why do patients with liver failure respond differently to loop diuretics versus aldosterone antagonists? Which has greater effect in these patients?
- Tell me about spironolactone
- Tell me about ADH agonists, antagonists and their clinical applications

Physiology week 7 – Respiratory: Ventilation and Perfusion

Contributes to 'Respiratory Physiology' which makes up 20% of the physiology MCQ matrix.

Reference: West's Respiratory Physiology, 10th edition. Chapters 1-5, 10
Reference: Ganong's Review of Medical Physiology, 26th edition. Chapters 34-35

Lung volumes and dead space are common exam topics, as is Fick's law

Ventilation and perfusion is expected core knowledge, make sure you understand the concepts and can explain the graphs in Wests (sorry)

West's Respiratory Physiology is dense to read but it is an ESSENTIAL resource - ignore it at your peril

Learning Outcomes LOA 1

- Anatomy, structure and function
- Gas diffusion
- Pulmonary circulation
- Ventilation-perfusion relationships

Learning Outcomes LOA 2

- Forced expiration

Learning Outcomes LOA 3

- Tests of pulmonary function

Questions to consider

- What is the difference between type 1 and type 2 pneumocytes?
- Using a diagram describe the typical volumes within a lung during tidal and maximal respiration - which can be measured by spirometry?
- How is functional residual capacity measured?
- What is dead space? How is it measured?
- Describe Fick's law of diffusion? How is this different to the Fick principle?
- With the aid of a diagram and examples describe the differences between diffusion and perfusion limitation
- How does oxygen uptake along the pulmonary capillary differ in various conditions?
- How do the hydrostatic pressures between pulmonary and systemic capillaries differ? How is blood distributed within the lung?
- Describe what happens to ventilation and perfusion in the different zones of the lung?
- What is hypoxic pulmonary vasoconstriction? What are its advantages? Disadvantages?
- Describe the metabolic functions of the lung
- What are the four causes of hypoxaemia? How would you differentiate them?
- What is shunting? What is physiological shunting?
- Why does hyperventilation reduce your arterial CO2 more than it increases your O2?

Pathology week 7 – Haemopoietic System

'Haemopoietic System' makes up 5% of the pathology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapters 13-14
Reference: Guyton's textbook of medical physiology 12th edition. Chapter 31

There are alot of conditions covered this week, let the LOA guide your depth of study

Guytons physiology textbook is a good reference for blood groups and transfusions

The anaemias and thrombocytopaenias make for easy MCQs

Learning Outcomes LOA 2

- Anaemias
- Bleeding disorders
- Blood groups
- Transfusions
- Leukopenia
- Inflammatory white cell proliferation

Learning Outcomes LOA 3

- Normal development of blood cells
- Polycythaemia
- Neoplastic white cell proliferation
- Splenomegaly

Questions to consider

- What is anaemia? What causes it? (try to group causes by their classification)
- What are the morphological features of spherocytosis? Sickle cell disease?
- What is thalassaemia? Describe the potential clinical manifestations
- Tell me about aplastic anaemia
- Outline the various causes of bleeding diastheses
- Contrast ITP and TTP
- What conditions can cause disseminated intravascular coagulation?
- Summarise the ABO system including agglutinins and agglutinates, which blood type is most/least common?
- Describe the pathogenesis of leukopenia, at what point is infection risk significantly increased?
- What causes polycythaemia? What are the clinical implications?
- By what mechanisms do circulating white cells increase?
- Contrast the pathogenesis, morphology and clinical presentation of hodgkins and non-hodgkins lymphoma
- Which viruses are thought to cause neoplastic white cell proliferation?
- What is myelofibrosis? Myelodysplasia?
- Describe the functions of the spleen
- Outline 3 causes of splenomegaly with a specific example for each
- Describe the role of the thymus gland and it's relevant pathology

Anatomy weeks 7 & 8 – Upper Limb: Wrist and Hand

Contributes to 'Upper Limb' which makes up 25% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 3

You need to study the carpal tunnel specifically, and in detail

This page lists the content that should be covered in weeks 7 & 8 of anatomy

Review McMinns or Anatomedia for superficial and deep dissection images of the wrist (e.g. flexor tendons, median nerve)

Learning Outcomes LOA 1

- Bones (landmarks, attachments, relations): carpus and bones of the hand
- Joints: wrist, intercarpal, carpometacarpal, intermetacarpal, metacarpophalangeal and interphalangeal
- Muscles of the hand
- Fascia and compartments of the palm
- Tendons and tendon sheaths in the hand
- Vascular supply to the hand
- Cutaneous and motor supply to the hand
- Surface anatomy of the hand

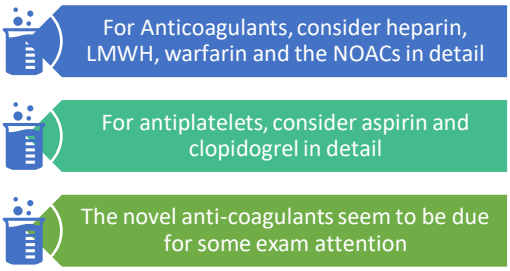
Questions to consider

- Identify this bone …. in its anatomical position and describe its bony features
- Describe the boundaries and contents of the carpal tunnel
- Describe the boundaries and contents of the anatomical snuffbox
- Describe the movements and stability of the …. joint
- Tell me about the extensor retinaculum
- Tell me about the flexor retinaculum (attachments, structures passing over/through it)
- Describe the contents of the web space
- Describe the …. muscle: its origin, insertion, action, innervation and blood supply
- What are the actions of the interossei and the lumbricals
- Describe the movements of the thumb including muscle action and nerve supply

Pharmacology week 8 – Cardiovascular: Loose Ends

Contributes to 'Cardiovascular System' which makes up 18% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 33-35



Learning Outcomes LOA 1

- Anti-platelet agents
- Anticoagulants
- Thrombolytics

Learning Outcomes LOA 2

- Antifibrinolytics
- Statins

Learning Outcomes LOA 3

- Haemopoietic agents
- Other (*non-statin*) drugs used in dyslipidaemia e.g. fibrates

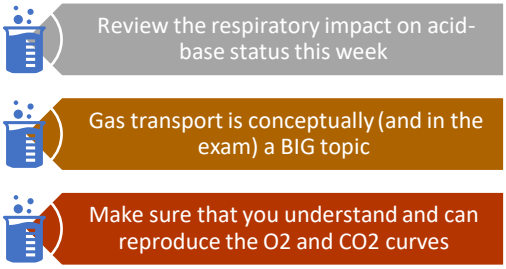
Questions to consider

- Which drugs affect the different stages of coagulation?
- What is aminocaproic acid?
- How does ezetimibe work?
- Tell me about the adverse effects of HMG-COA reductase inhibitors
- How can you reverse heparin? Warfarin? Dabigatran?
- How does warfarin work? What implication does this have for monitoring timeframes and initiation of therapy?
- Compare and contrast the direct thrombin inhibitors with warfarin

Physiology week 8 – Respiratory: Gas Transport

Contributes to 'Respiratory Physiology' which makes up 20% of the physiology MCQ matrix.

Reference: West's Respiratory Physiology, 10th edition. Chapters 5-6
Supplemental Reference: Ganong's Review of Medical Physiology, 26th edition. Chapter 35



Learning Outcomes LOA 1

- Gas transport by the blood

Questions to consider

- Describe in detail how oxygen is transported in the blood
- What is Henry's law?
- Draw the oxygen dissociation curve with values, how is it affected by change in temperature? pH?
- Define p50, what is it's typical value?
- How does the dissociation curve for myoglobin and HbF differ?
- What is the alveolar gas equation? How is an A-a gradient calculated?
- Describe in detail how carbon dioxide is carried in the blood
- What is chloride shift?
- Draw the carbon dioxide dissociation curve
- What is the haldane effect?
- What is the Henderson-Hasselbalch equation?
- Describe the relationship between HCO3, pH and pCO2 with aid of the Davenport diagram
- How is acid buffered in blood?
- Why is altitude a problem?
- Why is carbon monoxide poisoning a problem?

Pathology week 8 - Immunity

Immunity makes up 5% of the pathology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapter 6
Supplemental Reference: Guyton's textbook of medical physiology 12th edition. Chapter 3

You should learn clinical examples for each of the four hypersensitivity reactions

Guytons is a good reference for hypersensitivity reactions

AIDS is a reasonably common MCQ topic historically

Learning Outcomes LOA 1

- Hypersensitivity reactions

Learning Outcomes LOA 2

- General features of the immune system and diseases of immunity
- Normal immune reactions

Learning Outcomes LOA 3

- Immunologic tolerance and causative mechanisms of autoimmune disease
- Acquired immunodeficiency syndrome (AIDS)

Questions to consider

- Describe the four mechanisms of hypersensitivity reactions with prototypes *(know this in exceptional detail)*
- Describe transplant rejection, graft versus host and host versus graft disease
- Contrast innate and adaptive immunity
- Contrast humoral and cellular immunity
- What are the components of the innate immune system? How are they activated?
- What are the components of the adaptive immune system? How are they activated?
- Discuss MHC class I and II, antigen-presentation and binding
- What are cytokines? What do they do? Give some specific examples
- Tell me about NK cells
- What is tolerance? How does it arise?
- What are the mechanisms of autoimmune disease (with examples)?
- What are the clinical manifestations of SLE? RA? CREST?
- What type of immune deficiencies are there? Which infections do these increase the risk of?
- Describe SCID
- Tell me about C1 inhibitor deficiency
- Describe the pathogenesis and clinical presentation of amyloidosis
- HIV/AIDs consider at-risk groups, natural history, clinical features, AIDs-defining illness
- Describe the viral structure of HIV, mechanism of immunopathogenesis and the resultant abnormalities in immunity

Anatomy weeks 7 & 8 – Upper Limb: Wrist and Hand

Contributes to 'Upper Limb' which makes up 25% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 3

This is the second week of study allocated to anatomy of the wrist and hand. Check week 7 of the study guide for the LOA details

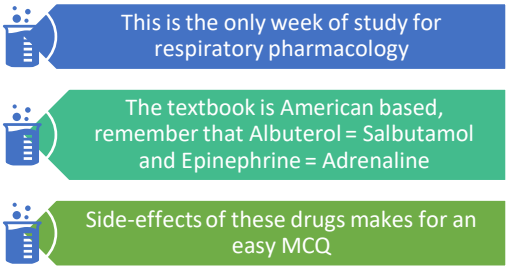
If you haven't already, cross reference your study with McMinns and Anatomedia

There are some great free online resources if you want more visuals - check out www.instantanatomy.net and YouTube's 'Handwritten Tutorials'

Pharmacology week 9 – Respiratory System

'Respiratory System' contributes 5% to the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapter 20



Learning Outcomes LOA 1

- Sympathomimetic agents
- Muscarinic antagonists
- Steroids in respiratory disease

Learning Outcomes LOA 2

- Methylxanthines

Learning Outcomes LOA 3

- Antitussives
- Disodium cromoglycolate

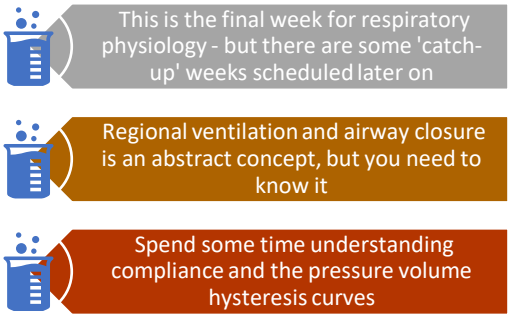
Questions to consider

- Describe the role of the different agents used in asthma with regards bronchial tone (Fig 20-2)
- Why is adrenaline first line for bronchospasm in anaphylaxis but not for bronchospasm in asthma?
- What classes of drugs are available for asthma treatment and what are their main actions? *(briefly consider monocloncal antibodies and leukotriene pathway inhibitors)*
- Why do we sometimes use nebulisers instead of inhalers? How does this affect drug delivery and effect?
- Describe the pharmacokinetics of salbutamol
- Describe the pharmacodynamics of theophylline - how would you dose it? What would you warn the patient to expect?
- How does ipratropium work? Why isn't it used first line?
- Tell me about tiotropium
- How do steroids work in asthma? What is the role of inhaled corticosteroids over oral glucocorticoids?
- What is the role of disodium cromoglycolate?
- Tell me about montelukast

Physiology week 9 – Respiratory: Control of Ventilation

Contributes to 'Respiratory Physiology' which makes up 20% of the physiology MCQ matrix.

Reference: West's Respiratory Physiology, 10th edition. Chapters 7-9
Supplemental Reference: Ganong's Review of Medical Physiology, 26th edition. Chapter 36



Learning Outcomes LOA 1

- Control of ventilation
- Mechanics of breathing

Learning Outcomes LOA 2

- Respiratory system under stress

Questions to consider

- Where is surfactant produced? What is its role?
- Why does basal atelectasis occur in shallow respiration?
- What is the Reynolds number?
- Where does the most airways resistance occur?
- Explain dynamic compression of the airways
- Describe the location, function and role of chemoreceptors
- What are the differences between the central and peripheral chemoreceptors?
- Describe the lung and other peripheral receptors
- What is the ventilatory response to a rise in arterial CO2? Fall in arterial O2? Fall in pH? Exercise?
- How does the body respond to being at altitude?
- Tell me about decompression sickness
- Describe perinatal respiration

Pathology week 9 – Respiratory System

'Respiratory System' makes up 8% of the pathology MCQ matrix.

Make sure you can describe the different emphysema varients, and how frequently they occur

Pulmonary infections are common exam material - cover in detail

PE is only LOA 3 this week, but embolus in pathology is an LOA 1 topic. So unsurprisingly, PE is commonly examined.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapter 15
Supplemental Reference: Barrett et al. Ganong's review of medical physiology 25th ed. Chapter 34, p652

Learning Outcomes LOA 1

- Pulmonary congestion and oedema
- Acute lung injury
- Obstructive airways disease
- Pulmonary infections

Learrning Outcomes LOA 2

- Tumours
- Pleural pathology

Learning Outcomes LOA 3

- Atelectasis
- Diffuse interstitial disease
- Diseases of vascular origin
- Hyperbaric oxygen

Questions to consider

- What is pulmonary oedema? Outline some categories and causes
- Tell me about the processes involved in an acute lung injury. What conditions can cause it?
- How do the pathological changes differ between the various diseases of airflow obstruction?
- Tell me about the four major types of emphysema *(common MCQ content)*
- What is the pathogenesis of emphysema?
- What is the pathogenesis of chronic bronchitis? Bronchiectasis?
- What is the pathogenesis of asthma?
- Outline the common causes of the different types of pneumonia. What are the stages of a lobar pneumonia?
- What are the pneumonia syndromes?
- Tell me about influenza. What is shift and drift?
- Tell me about the different classes of tumours. Which are more closely correlated to smoking?
- What morphological changes would you expect in adenocarcinoma? Squamous cell carcinoma? Small cell carcinoma? Large cell carcinoma?
- Outline the various paraneoplastic syndromes in lung cancer (common exam material)
- Define atelectasis and outline the subtypes
- Contrast restrictive lung disease with obstructive
- Give some examples of the varying subtypes of interstitial lung disease
- What is the pathogenesis and potential outcomes in pulmonary embolus?
- Tell me about pulmonary hypertension
- What is the pathogenesis of pleural effusions? How would you differentiate between them?
- Tell me about pneumothorax

Anatomy weeks 9 & 10 – Lower Limb: Hip and Thigh

Contributes to 'Lower Limb' which makes up 25% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 7
Supplemental Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 7

The femoral triangle and adductor canal require focussed attention *(the inguinal canal will come in later weeks)*

This page lists the content that should be covered in weeks 9 & 10 of anatomy, divide it up however you like

Take note that the Curriculum emphasises anterior and medial thigh anatomy above gluteal and posterior thigh for level of detail, however surface anatomy is LOA 1 throughout

Learning Outcomes LOA 1

- Development of the lower limb
- Bones (landmarks, attachments, relations of): pelvis, femur
- Hip joint (in detail)
- Anterior and medial thigh: organisation, muscles
- Surface anatomy of the gluteal and thigh regions
- Subcutaneous tissues and fascia
- Cutaneous and motor supply of the anterior and medial thigh
- Arterial supply and venous drainage of the anterior and medial thigh

Learning Outcomes LOA 2

- Gluteal and posterior thigh muscles
- Cutaneous and motor supply of the gluteal region and posterior thigh
- Arterial supply and venous drainage of the gluteal region and posterior thigh
- Posture and gait, including standing at ease and the gait cycle
- Lymphatic drainage of the lower limb

Questions to consider

- Identify this bone … in its anatomical position and describe its bony features
- Describe the boundaries and contents of the femoral triangle
- What borders the adductor canal? What lies within it?
- Describe the movements of the hip joint, the muscles responsible and what makes it a stable joint?
- Describe the …. muscle: it's origin, insertion, action, innervation and blood supply
- Why does the leg rotate in fractures involving the neck of femur?

Pharmacology week 10 – Analgesics & Anti-inflammatories

'Analgesics & Anti-inflammatory Agents' makes up 9% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 31, 36

Relative risk of side effects with different drugs in the same class is a common theme

Opiates comes up time and again *(often as part of other questions)*

Make sure you understand the mechanism of paracetamol toxicity in detail

Learning Outcomes LOA 1

- Paracetamol
- Opiates
- Aspirin
- Steroids

Learning Outcomes LOA 2

- Non-steroidal anti-inflammatory drugs
- Anti-gout agents

Learning Outcomes LOA 3

- Disease modifying anti-rheumatic drugs

Questions to consider

- Tell me about the pharmacodynamics and pharmacokinetics of paracetamol. What happens in toxicity?
- What are the opioid receptor subtypes, their locations and actions?
- What are the relative equivalences of the opiates?
- What are the pharmacodynamics and pharmacokinetics of opiates?
- Tell me about morphine? Fentanyl? Codeine? Pethidine? Tramadol? (you will also need some familiarity with methadone, buprenorphine, tapentadol)
- What are the adverse effects of the opiates? How do they differ in acute vs chronic use?
- To which opiate effects can people become tolerant?
- Which drugs have anti-inflammatory actions? How do they work?
- How is aspirin different to the NSAIDs? How does the side-effect profile differ?
- Which drugs are COX-2 selective? What are the implications of this?
- Look at the DMARDs briefly: major classes/actions/adverse effects
- What classes of drugs are used in the management and treatment of gout? How do they work?
- Tell me about colchicine. What happens in overdose?

Physiology week 10 – Renal Function

Contributes to 'Renal Physiology' which makes up 15% of the physiology MCQ matrix.

Reference: Ganong's Review of Medical Physiology, 26th edition. Chapter 37

When studying, consider the *effects* of disordered renal function

This might not seem like a busy week but these are *BIG* concepts

Post your tubulur function notes somewhere visible for easy reference and revision

Learning Outcomes LOA 1

- Renal circulation
- Glomerular filtration
- Tubular physiology
- Regulation of water and electrolyte excretion
- Renal function disorder and diuretics

Learning Outcomes LOA 2

- The bladder
- Anatomy of the renal system

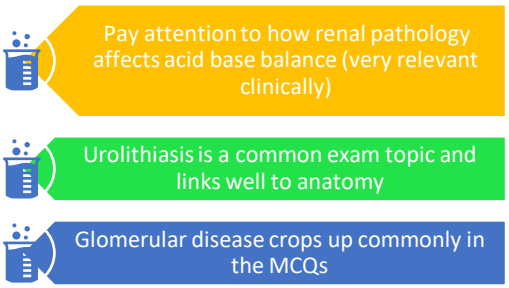
Questions to consider

- Describe the functional anatomy of the nephron. What is the role of mesangial cells? What is the juxtaglomerular apparatus?
- How is renal plasma flow calculated?
- What is the renal blood flow? How is it regulated?
- What is GFR? How is it measured and what is it's normal value? Why is creatinine clearance different?
- What factors affect the GFR?
- Describe how the kidney handles water? Sodium? Glucose? Potassium? *(This is a really common viva topic)*
- Describe the concept of the renal threshold, how does this actual value differ from expected?
- What is the countercurrent mechanism?
- Compare and contrast osmotic versus water diuresis
- Describe the feedback mechanisms within the kidney for GFR
- Describe the mechanisms of different diuretic agents (table 37.8)
- Describe the control of the bladder, how is this altered in disease states?

Pathology week 10 – Renal System

Contributes to 'Renal system and Genitourinary' which makes up 8% of the pathology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapter 20
Supplemental Reference: Barrett et al. Ganong's review of medical physiology 25th ed. Chapters 37, 39



Learning Outcomes LOA 1

- Urinary tract obstruction
- Urolithiasis

Learning Outcomes LOA 2

- Principles of renal disease
- Tubular and interstitial disease

Learning Outcomes LOA 3

- Glomerular disease
- Hypertensive renal disease

Questions to consider

- What are the systemic manifestations of renal disease?
- Outline the potential causes and consequences of acute renal failure
- How and where in the renal system can obstruction occur?
- Tell me about urolithiasis. What are they made up of? What influences their formation?
- What happens in acute tubular necrosis? What are the potential outcomes?
- Outline the pathogenesis of urinary tract infections and pyelonephritis
- Tell me about polycystic kidney disease including extra-renal associations
- What is the difference between primary and secondary glomerular disease? Give some examples
- Compare and contrast the nephritic and nephrotic syndromes
- Give a brief outline of post-streptococcal glomerulonephritis, what about IgA nephropathy? Renal disease in diabetes?
- What processes occur in the kidney in vascular disease? Tell me about the thrombotic microangiopathies, TTP and HUS
- Which malignancies arise in the kidney? Outline their morphology

Anatomy weeks 9 & 10 – Lower Limb: Hip and Thigh

Contributes to 'Lower Limb' which makes up 25% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 7
Supplemental Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 7

This is the second week of study allocated to anatomy of the hip and thigh region. Check week 9 of the study guide for the LOA details

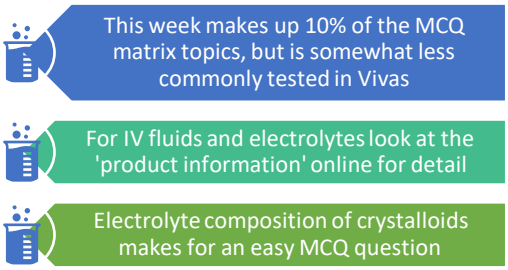
If you haven't already, cross reference your study with McMinns and Anatomedia

The relative anatomy of the sciatic nerve as it exits the pelvis needs some attention

Pharmacology week 11 – Fluids and the Immune System

'Fluids and Electrolytes' makes up 5% of the pharmacology MCQ matrix.
'Immune System' makes up 5% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 16-18



Learning Outcomes LOA 1

- Intravenous fluid solutions
- Potassium
- Sodium
- Magnesium (Katzung p243)
- Calcium (Katzung p757-758)

Learning Outcomes LOA 2

- Histamine antagonists

Learning Outcomes LOA 3

- Serotonergic agents
- Eicosanoids
- Vaccines (p1134-1137)
- Immunoglobulins
- Cancer chemotherapy agents

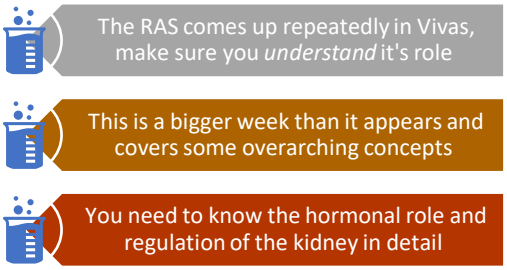
Questions to consider

- Outline the electrolyte components of the crystalloid solutions used in clinical practice
- When would you choose 3% saline?
- What are the indications for magnesium? What are its adverse effects?
- Tell me about histamine. Where are the receptors located and what are their effects?
- What is the difference in the generations of H1 antagonists? Give named examples
- Tell me about serotonin, what is its role? What happens when it is agonised/antagonised? (*ondansetron comes up not infrequently*)
- Describe the storage and metabolism of serotonin. What is serotonin syndrome?
- Think about the ergot alkaloids briefly, mainly in the context of migraine, hyperprolactinaemia and PPH
- What is the role of the vasoactive peptides in vasodilation and pain?
- Tell me about vasopressin
- Tell me about the arachadonic acid pathways (Fig 18-1, Fig 18-2)
- What do the products of arachadonic acid do? Tell me about prostaglandins and thromboxanes
- What are eicosanoids? What clinical uses do they have?

Physiology week 11– Regulation of Extracellular Fluid

Contributes to 'Renal Physiology' which makes up 15% of the physiology MCQ matrix.

Reference: Ganong's Review of Medical Physiology, 26th edition. Chapter 38



Learning Outcomes LOA 1

- Tonicity
- Volume
- Renin-Angiotensin system

Learning Outcomes LOA 2

- Natriuretic factors

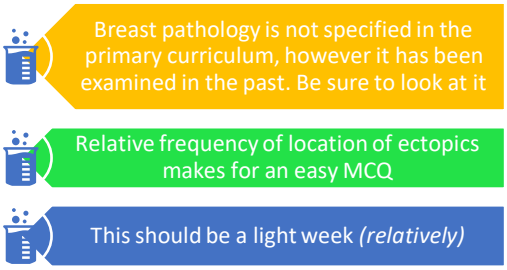
Questions to consider

- What is normal plasma osmolality? How is it regulated?
- What is vasopressin? Describe its role in detail
- What is diabetes insipidus? What is the role of dDAVP?
- Describe the formation and metabolism of the circulating angiotensins
- What factors affect renin secretion?
- What is the renal response to haemorrhage? (*common viva topic*)

Pathology week 11 – Genitourinary

Contributes to 'Renal system and Genitourinary' which makes up 8% of the MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapters 21-22, 23



Learning Outcomes LOA 1

- Gestational disorders: miscarriage, ectopic pregnancy

Learning Outcomes LOA 2

- Gestational disorders (everything else)
- Disorders and diseases of the testes

Learning Outcomes LOA 3

- Disorders and diseases of the prostate
- Disorders and diseases of the female genital tract

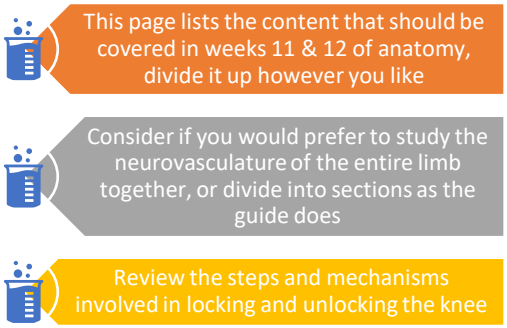
Questions to consider

- Describe the disorders that can occur in early and in late pregnancy
- Where can ectopic pregnancies occur? With what frequency? What is a heterotopic pregnancy?
- What is the pathogenesis and morphological appearances in pre-eclampsia?
- What is gestational trophoblastic disease?
- Outline the pathophysiology of cystitis, including common causative organisms.
- Outline the pathogenesis and epidemiology of carcinoma of the bladder
- Which malignancies can arise in the lower urinary tracts and genitalia? Outline their morphology
- What is cryptorchidism? What is its significance?
- Outline the pathogenesis of epididymo-orchitis. How do we classify the causes? Give some examples
- How do we categorise prostatitis?
- Outline the pathogenesis and clinical features of benign prostatic hyperplasia
- What happens in PID? Which organisms are culprits? What are the potential sequelae? How does this differ from cervicitis?
- Outline the morphological changes in the endometrium during the menstrual cycle. What are other common causes for uterine bleeding?
- Outline the pathogenesis of endometriosis
- Describe the cystic conditions that can affect the ovaries - why is this important?

Anatomy weeks 11 & 12 – Lower Limb: Knee and Leg

Contributes to 'Lower Limb' which makes up 25% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 7
Supplementary Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 7



Learning Outcomes LOA 1

- Bones (landmarks, attachments, relations of): patella, tibia, fibula
- Joints: Knee (in detail), tibiofibular
- Fascia and compartments of the leg
- Muscles of the leg
- The popliteal fossa: boundaries and contents in detail
- Surface anatomy of the leg
- Arterial supply and venous drainage of the leg
- Cutaneous and motor supply of the leg

Questions to consider

- Identify this bone …. in its anatomical position and describe its bony features
- Describe the venous drainage of the lower limb
- Describe the blood supply to the head of the femur
- What are the boundaries and contents of the popliteal fossa?
- Describe the course of the sural/tibial/peroneal/sciatic nerve in the leg
- Describe the ligaments, their attachment and function with regards the knee joint
- Describe the …. muscle: its origin, insertion, action, innervation and blood supply

Pharmacology week 12 – Neurotransmitters & LA

Contributes to 'Nervous System' which makes up 14% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 6, 21, 26

This is a reasonably light week for pharmacology, use it to catch up on any topics you may have missed previously

There is some deliberate repetition to aid revision of the ANS for pharmacology

Focus on local anaesthetics - this has been a popular exam topic

Learning Outcomes LOA 1

- *Drugs acting on the sympathetic system (revision)*
- *Drugs acting on the parasympathetic system (revision)*
- Local anaesthesia

Learning Outcomes LOA 2

- Neurotransmitters

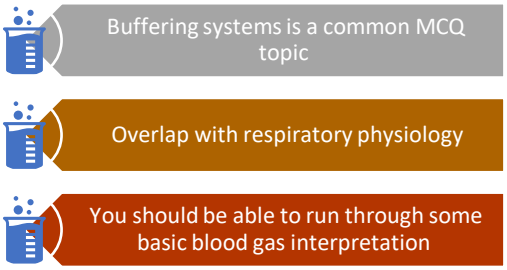
Questions to consider

- Revise chapter 6 for cholinergic and adrenergic transmission and autonomic receptors
- Tell me about the blood brain barrier. Where is it exactly? What is its role?
- What happens when a neurotransmitter acts at a receptor?
- Tell me about action potentials in the CNS. What is the threshold? What is an EPSP?
- How can drugs act to alter this process and synaptic transmission? (Fig 21-4)
- Outline the neurotransmitters active in the CNS. How can they be categorised?
- How can you classify the local anaesthetics?
- How do local anaesthetics work?
- Outline the pharmacokinetic and pharmacodynamic properties of lignocaine, bupivacaine, prilocaine and tetracaine
- Tell me about the intrinsic susceptibility of nerve fibres Tab 26-3
- What happens in local anaesthetic toxicity? How does this affect our clinical decisions when using local anaesthetics? What is a safe dose of lignocaine? Bupivacaine?

Physiology week 12 – Renal Acid-Base Handling

Contributes to 'Renal Physiology' which makes up 15% of the physiology MCQ matrix.

Reference: Ganong's Review of Medical Physiology, 26th edition. Chapter 39



Learning Outcomes LOA 1

- Hydrogen and bicarbonate regulation
- Acidosis and alkalosis

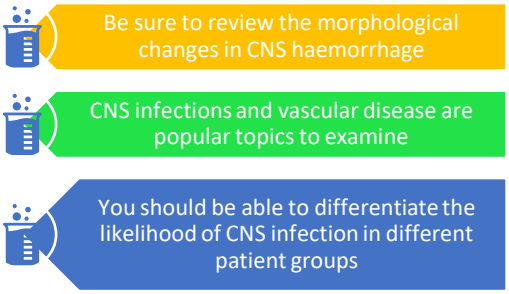
Questions to consider

- Tell me about renal H+/HCO3 handling
- What is the limiting pH for urine?
- Describe the buffering systems within the renal system
- What is compensation?
- What is the renal response to an acid load?
- What is the specific ionic composition along the renal tubules

Pathology week 12 – Nervous System part 1

Contributes to 'CNS & Eye which makes up 5% of the pharmacology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapter 28



Learning Outcomes LOA 1

- Cerebral oedema and raised intracranial pressure
- Trauma
- Cerebrovascular disease
- Infections

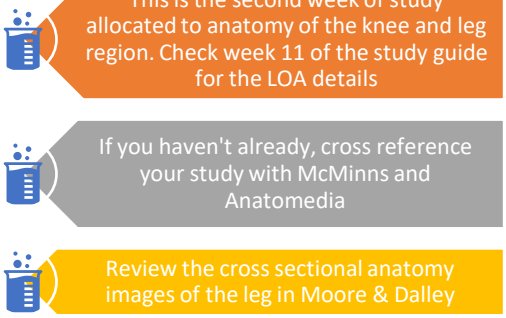
Questions to consider

- What is the neuronal response to disease? Describe the different morphologies
- Compare and contrast vasogenic, cytotoxic and interstitial oedema. Give examples
- What is hydrocephalus?
- Outline the patterns of cerebral herniation
- Describe the different developmental anomalies affecting the CNS
- What determines the clinical consequences in CNS trauma?
- What is the morphological pattern in a diffuse axonal injury?
- Describe the patterns of vascular injury seen in the CNS. Do they have any distinguishing features in clinical presentation or on imaging?
- Describe what can happen in impaired blood supply and oxygenation of the CNS. What are the mechanisms of this? Describe the morphological changes
- What are the sources of emboli to the brain? By what other mechanisms does focal cerebral ischaemia occur? (*common viva topic*)
- Outline the pathophysiology of hypertensive cerebrovascular disease
- Outline the pathophysiology and morphological changes in intracranial haemorrhage
- Tell me about the frequency and location of aneurysms within the circle of Willis
- What are the risk factors for subarachnoid haemorrhage? Outline the potential clinical presentations
- How can we classify the vascular malformations affecting the CNS?
- Outline the different CNS infections, their clinical syndromes and common causative organisms (*comes up commonly*)
- Tell me about the prion diseases (*brief look only*)

Anatomy weeks 11 & 12 – Lower Limb: Knee and Leg

Contributes to 'Lower Limb' which makes up 25% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 7
Supplementary Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 7



Pharmacology week 13 – Nervous System part 2

Contributes to 'Nervous System' which makes up 14% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 23, 24, 28, 29, 30

Comparative pharmacology and side effects of the antipsychotics and anticonvulsants is a common exam area

This is a big week, give yourself time to get to grips with the basics

For LOA 2 and 3 learn about the drug class in general and only go into detail for the prototypical agent in that class

Learning Outcomes LOA 1

- Alcohols: ethanol, methanol, ethylene glycol
- Drugs used in acute alcohol withdrawal
- Anticonvulsants: phenytoin, carbamazepine, sodium valproate, levetiracetam
- Antidepressants: tricyclic antidepressants, lithium

Learning Outcomes LOA 2

- Antidepressants: serotonin re-uptake inhibitors, newer agents
- Anti-migraine agents

Learning Outcomes LOA 3

- Anti-parkinsonian agents
- Antipsychotic agents
- Drugs used in chronic alcoholism
- All other anticonvulsants *(not specified above)*

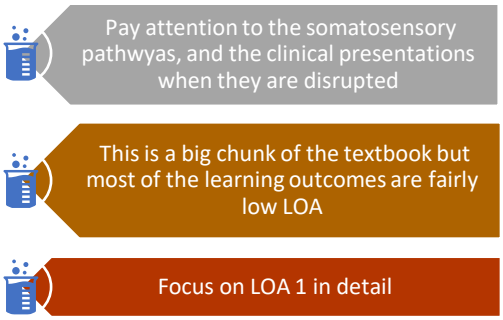
Questions to consider

- Tell me about the pharmacokinetics and pharmacodynamics of alcohol, how does this change in chronic consumption?
- What is the disulfiram reaction? Which other drugs can mimic this?
- Tell me about the toxic alcohols methanol and ethylene glycol. How can we treat them in toxicity?
- Outline the molecular targets for anti-seizure drugs
- Tell me about phenytoin, what is special about its pharmacokinetics? How would you approach dose adjustments?
- Tell me about carbamazepine. How does its half-life vary?
- Tell me about levetiracetam. What is its mechanism of action?
- What is the role of benzodiazepines in seizure? What limits their use?
- What is the chemical hypothesis for schizophrenia?
- Outline the classes of antipsychotics and their relative potency and side effects (Tab 29-1)
- How do the antipsychotics work? What is meant by atypical? Outline the pharmacokinetics
- What are the adverse effects of the antipsychotics? By what mechanism do these occur? Which drugs are culprits?
- Describe the pharmacokinetics and pharmacodynamics of lithium. What are its adverse effects?
- What are the classes of antidepressants? How do their pharmacokinetics vary?
- Tell me about serotonin syndrome. What happens in TCA toxicity?
- What are the treatment options in parkinsonism? How can their effect be maximised? What is the on-off phenomena?

Physiology week 13 – Nervous System

'Nervous System' makes up 5% of the physiology MCQ matrix. Also contributes to 'Nerves and muscles' which makes up 5% of the physiology MCQ matrix.

Reference: Barrett et al. Ganong's review of medical physiology 25th edition. Chapters 7-15



Learning Outcomes LOA 1

- Neurotransmitters *(will be covered again in week 17)*
- Control of posture and movement (cerebellum, corticospinal, corticobulbar)
- Eye movements

Learning Outcomes LOA 2

- Autonomic nervous system
- Seizures
- Anatomy and mechanisms of hearing and vestibular functions
- Anatomy and pathways of image forming mechanisms

Learning Outcomes LOA 3

- Role of hair cells
- Overview of alert behaviour, sleep/wake and electrical activity of the brain
- Control of posture and movement (midbrain and basal ganglia)
- Learning and memory
- Smell and taste

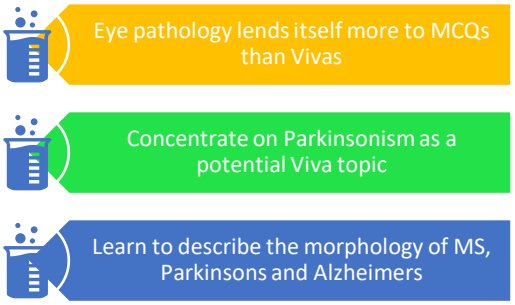
Questions to consider

- Describe the biochemical events at the cholinergic, noradrenergic and serotonergic synapses
- Outline the synthesis and fate of acetylcholine, noradrenaline, serotonin and glutamate
- Outline the sensory modalities and responsible receptors
- What is referred pain? What is the gate control mechanism of pain?
- What happens in brown-sequard syndrome?)
- How does the eye focus? How can this go wrong?
- What are the photoreceptors in the eye called and how do they function?
- Tell me about the pupillary light reflex
- Describe how lesions within the visual pathway can affect vision
- Outline the components and function of the hearing apparatus. What is the role of the hair cells?
- How can deafness occur? How is it assessed clinically?
- How is motion sensed? What can go wrong?
- Outline the pathways for smell and taste sensation (keep this brief)
- Describe the motor pathways
- Outline the role of the brainstem and basal ganglia in control of movement. What is decorticate and decerebrate?
- Read chapters 14 and 15 only briefly

Pathology week 13 – Nervous System part 2

Contributes to 'CNS & Eye' which makes up 5% of the pathology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapters 28, 29



Learning Outcomes LOA 3

- Peripheral neuropathies
- Demyelinating diseases
- Degenerative diseases
- Toxic and acquired metabolic diseases
- Principles of common diseases and disorders of the eye and sight
- Diseases of the neuromuscular junction
- Disease of skeletal muscle

Questions to consider

- Outline the pathophysiology of multiple sclerosis. What distinguishes the CSF in MS?
- Briefly describe the other demyelinating conditions (NMO, ADEM, CPM)
- Which conditions make up the neurodegenerative diseases? What is their hallmark?
- Describe the pathogenesis and morphological changes in alzheimers
- Describe the pathogenesis and morphological changes in parkinsons disease. How do the atypical parkinson syndromes differ?
- Look at the other degenerative conditions briefly
- Outline the clinical manifestations of B1 and B12 deficiency, which toxins are important in the CNS?
- Which are the major classes of primary brain tumours? What are their characteristic features?
- What proportion of brain tumours are secondary? Where do they come from typically?
- Which familiar tumour syndromes involve the CNS? Outline their clinical features
- Which malignancies affect the eye?
- Outline the pathophysiology of cataracts, glaucoma and the inflammatory conditions (e.g. endophthalmitis)
- Outline the pathophysiology of retinal detachment and the retinal vascular diseases
- Tell me about macular degeneration
- Which conditions affect the optic nerve?
- Give yourself a prize if you can pronounce phthisis bulbi

Anatomy weeks 13 & 14 – Lower Limb: Ankle & Foot

Contributes to 'Lower Limb' which makes up 25% of the MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 7
Supplementary Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 7

This page lists the content that should be covered in weeks 13 & 14 of anatomy, divide it up however you like

Order of structures posterior to the medial malleolus is a common exam question

Be sure to distinguish between movements that occur at the ankle versus the subtalar joint - a common error

Learning Outcomes LOA 1

- Bones (landmarks, attachments, relations of): tarsals, metatarsals, phalanges
- Joints: ankle, subtalar, tarsal, tarso-metatarsal, metatarso-phalangeal, interphalangeal
- Fascia and compartments of the foot
- Surface anatomy of the ankle and foot
- Arterial supply and venous drainage of the foot and ankle
- Cutaneous and motor supply of the foot and ankle

Learning Outcomes LOA 2

- Muscles of the foot

Questions to consider

- Identify this bone … in its anatomical position and describe its bony features
- What passes below the extensor retinaculum?
- Describe the structures that lie posterior to the medial malleolus
- What maintains the arches of the foot?
- Describe the ligaments supporting the ankle
- What is contained in each of the four muscular layers of the foot?

Pharmacology week 14 - Endocrine

'Endocrine system' makes up 5% of the pharmacology MCQ matrix

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 37-42

Octreotide should be revision now

Focus on the diabetic medications and glucocorticoids in detail

Thyroid medication comes up fairly frequently

Learning Outcomes LOA 1

- Insulin
- Sulfonylureas
- Biguanides
- Glucocorticoids

Learning Outcomes LOA 2

- Octreotide
- Mineralocorticoids
- Thyroxine

Learning Outcomes LOA 3

- Sex hormones
- Antithyroid drugs
- Hypothalamic/pituitary hormone agents
- Drugs affecting bone metabolism
- Drugs used in the management of diabetes *(those not previously mentioned)*

Questions to consider

- Tell me about the pharmacokinetics of insulin. How does it work? How do the different preparations vary?
- Tell me about the biguanides and sulphonylureas
- What are the other classes of oral hypoglycaemic agents?
- Outline the pathways of steroid synthesis in the body.
- Describe the pharmacokinetics and pharmacodynamics of the naturally occurring steroids, what happens in steroid excess?
- Compare the potency and varied effects of corticosteroids (Tab 39-1), what is the role of fludrocortisone?
- Outline the steroid antagonists and their clinical role (brief)
- What is the role of octreotide clinically? Outline its pharmacokinetics and pharmacodynamics
- Vasopressin, dopamine agonists, growth hormone, oxytocin and the gonadotropins (in OHSS) have some clinical relevance but are quite low yield study topics, otherwise look at chapter 37 only briefly
- When would oestrogen or progesterone therapy be used? What are their adverse effects?
- What is the role of gonadal hormone inhibition? What is SERM?
- What is the role of androgen supplementation? What are the adverse effects?
- Outline the roles, relative proportions and pharmacokinetics of T3 and T4
- What considerations are important in the commencement and maintenance of thyroxine?
- Tell me about the antithyroid drugs PTU and carbimazole, what is the role of radioactive iodine?
- Describe the pharmacodynamics and pharmacokinetics of the bisphosphonates
- What is the role of calcium, Vit D and phosphate supplementation?

Physiology week 14 – Endocrine part 1

Contributes to 'Endocrinology' which makes up 10% of the physiology MCQ matrix.

Reference: Ganong's Review of Medical Physiology, 26th edition. Chapters 16, 19, 20, 24

You're well over halfway through now...

Glucose and thyroid disorders span into pharmacology and pathology this week - take advantage of the repetition of information

Understanding feedback loops and endocrine regulation is key

Learning Outcomes LOA 1

- Insulin and regulation of insulin secretion
- Disorders of glucose metabolism
- Glucagon
- Adrenal medulla and medullary hormones
- Glucocorticoids
- Mineralocorticoids

Learning Outcomes LOA 2

- Adrenal morphology
- Regulation of glucocorticoid secretion
- Physiology of the thyroid gland
- Thyroid hormones
- Adrenal cortex and cortical hormone synthesis/metabolism

Learning Outcomes LOA 3

- Islet cell structure
- Other islet cell hormones

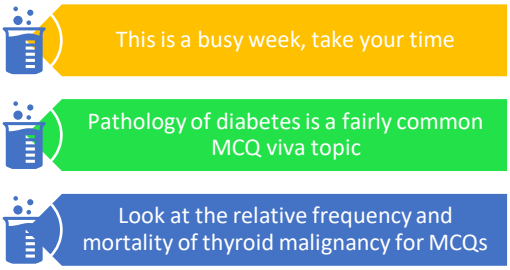
Questions to consider

- Read Ganong chapter 16 to get a good grasp of hormone synthesis and transport, feedback loops and general principles of the different types of endocrine disorders
- Describe the process of thyroid hormone synthesis and secretion. How is it transported? How is this regulated?
- Describe the physiologic effects of the thyroid hormones
- Where within the adrenal gland are the various hormones synthesised? How are they transported? What are their functions? How are they regulated?
- Describe the clinical features of adrenal hyper- and hypo- plasia
- Which conditions increase aldosterone secretion?
- Outline the islet cells and their roles. Where are they in the pancreas?
- How is insulin synthesised and secreted? What are its actions? What is its role in glucose transport? Potassium?
- What are the consequences of insulin deficiency? Insulin excess? What are the organ effects of different glucose levels?
- What factors affect insulin secretion?
- What is the role of glucagon? What factors affect its secretion?
- Briefly review the other islet cell hormones

Pathology week 14 - Endocrine

'Endocrine System' makes up 5% of the pathology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapter 24



Learning Outcomes LOA 1

- Endocrine pancreas

Learning Outcomes LOA 2

- Thyroid
- Adrenal cortex and medulla

Learning Outcomes LOA 3

- Pituitary
- Parathyroid

Questions to consider

- What are the possible causes and resultant clinical manifestations of pituitary disease?
- What is the difference between pituitary apoplexy and Sheehan syndrome?
- What distinguishes anterior pituitary from posterior pituitary syndromes?
- What is diabetes insipidus? How is it classified?
- What is the role of the endocrine pancreas?
- Outline the pathophysiology and clinical manifestation of diabetes mellitus. How can it be classified?
- What are the potential complications of diabetes? *(consider acute versus chronic presentations)*
- What are the pancreatic neuroendocrine tumours? Outline the three more common syndromes
- Outline the pathophysiology and clinical manifestations of hyper- and hypo- adrenalism
- Tell me about phaeochromocytoma. What is the 'rule of tens'? Why can't beta-blockers alone be used in treatment?
- Tell me about the MEN syndromes
- What is the Waterhouse-Friderichson syndrome?
- Outline the pathophysiology and clinical manifestations of hyperthyroidism. What about hypothyroidism?
- What are the three more common subtypes of thyroiditis? Who do they typically affect and how do they present?
- What is the prevalence of the common thyroid malignancies? Which have a more grave prognosis?
- Outline the pathophysiology and clinical presentation of hyper- and hypo-parathyroidism. How is it subclassified?

Anatomy week 13 & 14 – Lower Limb: Ankle & Foot

Contributes to 'Lower Limb' which makes up 25% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 7
Supplementary Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 7

This is the second week of study allocated to anatomy of the ankle and foot region. Check week 13 of the study guide for the LOA details

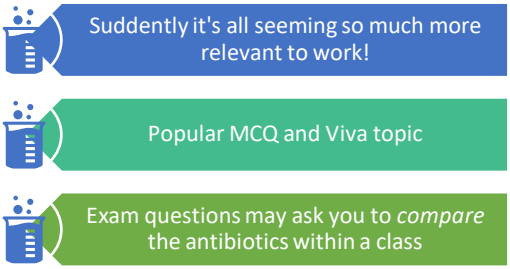
If you haven't already, cross reference McMinns and Anatomedia

DO NOT SKIP THE FOOT!!!

Pharmacology week 15 – Antimicrobial Agents part 1

Contributes to 'Antimicrobial Agents' which makes up 8% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 43, 45, 46, 51



Learning Outcomes LOA 1

- Principles of action of antimicrobial agents
- Beta lactam agents

Learning Outcomes LOA 2

- Aminoglycosides
- Sulphonamides
- Quinolones
- Vancomycin

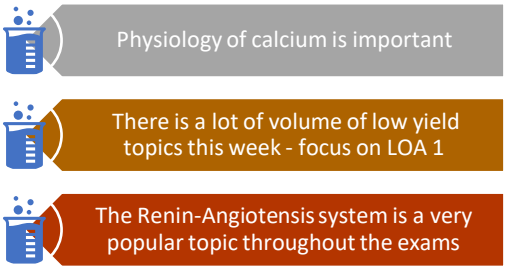
Questions to consider

- What considerations impact the clinical decisions on antibiotic use and choice?
- What is the MIC?
- Outline bacteriostatic versus bactericidal effects with examples
- What is the post-antibiotic effect? Time dependent versus concentration dependent killing?
- What are the mechanisms of synergism and antagonism in antimicrobial action?
- For each drug class consider: mechanism of action, microbes against which they are effective, how the class is organised, pharmacokinetics and pharmacodynamics for example drugs, adverse effects and mechanisms of resistance to the drug
- What is the rate of cross-over hypersensitivity between the beta-lactams?
- Outline the role of the different penicillins in the prevention and management of rheumatic fever
- Compare and contrast the different generations of the cephalosporins
- What is the red man syndrome?
- What is the role of probenecid?

Physiology week 15 – Endocrine part 2

Contributes to 'Endocrinology' which makes up 10% of the physiology MCQ matrix.

Reference: Ganong's Review of Medical Physiology, 26th edition. Chapters 17, 18, 21, 22, 23, 38



Learning Outcomes LOA 1

- Calcium and phosphorus metabolism
- Pituitary insufficiency
- Pregnancy (physiology of reproduction)
- Parathyroid glands

Learning Outcomes LOA 2

- Bone physiology
- Physiology of growth and growth hormone
- Pituitary: hyperfunction, morphology, intermediate lobe hormones
- The male and female reproductive systems
- Lactation
- Water regulation, including diuresis and thirst (*overlaps renal*)

Learning Outcomes LOA 3

- Vitamin D and the hydroxycholecalciferols
- Calcitonin
- Intermediate lobe hormones of the pituitary gland
- Physiology of growth
- Sex differentiation and development
- Pituitary gonadotropins and prolactin
- Other renal hormones (i.e. not RAS)

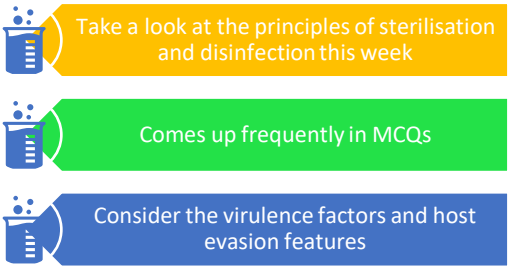
Questions to consider

- What is released from the anterior and posterior pituitary? How is it regulated and what are the end organ effects?
- What factors influence thirst?
- How is temperature regulated?
- What are the clinical features and changes found in hypothalamic and pituitary disorders? (overlaps pathology week 13)
- What factors affect growth hormone secretion?
- How is calcium distributed throughout the body? Outline its metabolism, excretion and regulation
- What is the role of PTH and Vit D? How do they inter-relate? What happens after a total parathyroidectomy?
- Revise week 10 physiology with regards the renin-angiotensin system
- Outline the stages in the menstrual cycle. Which hormones are involved?
- What is a corpus luteum?
- Tell me about the naturally occurring oestrogens. What is their role?
- Where is progesterone produced? What is its role?
- How is ovarian function regulated?
- What is the relative effectiveness of the available contraceptive methods?
- Outline the changes that occur during lactation
- What happens during spermatogenesis?
- Outline the synthesis and actions of testosterone
- How is testicular function regulated?

Pathology week 15 – Infectious Diseases part 1

Contributes to 'Infectious Diseases' which makes up 8% of the pathology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapter 8



Learning Outcomes LOA 1

- General principles of microbial pathogenesis
- Bacterial infections such as chlamydia, rickettsia, mycoplasma

Questions to consider

- How do micro-organisms cause disease? What are the local host defence mechanisms?
- How do micro-organisms evade the immune system?
- How are bacterial organisms classified? Which species are associated with which organ system infection?
- What are the bacterial toxins and the super-antigens?
- Outline the pathophysiology, morphology and clinical presentations for each bacterial infection listed in chapter 8, consider if any of them have 'special' mechanisms of causing disease or evading host defences

Anatomy week 15 – Head & Neck part 1

Contributes to 'Head, Neck & CNS' which makes up 20% of the anatomy MCQ matrix.

Reference: Moore et al. Clinically oriented anatomy 7th edition. Chapter 7
Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 2

Nerves of the face is a common topic

You need to know this in exceptional detail

BOS foramina and their contents trips alot of people up - study with the model of the skull to help solidify your learning

Learning Outcomes LOA 1

- Features and surface anatomy of the face and scalp
- Nerves of the face and scalp
- Orbits, extraocular muscles and nerves of the orbit
- Surface anatomy of the eye and lacrimal apparatus

Learning Outcomes LOA 2

- Muscles of the face and scalp
- Superficial vasculature of the face and scalp
- Cranium aspects (facial, lateral, occipital, superior)
- Cranium base (internal and external surfaces)
- Walls of the cranial cavity
- Regions of the head
- Eyelids and lacrimal apparatus
- Eyeball
- Vasculature of the orbit
- Oral cavity
- Lips, cheeks and gingivae
- Teeth
- Tongue
- Salivary glands

Learning Outcomes LOA 3

- Palate

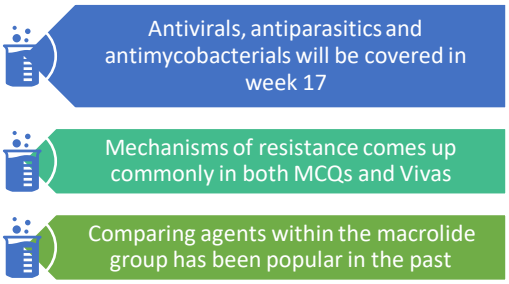
Questions to consider

- Identify each foramina in the base of skull and name what passes through it
- List (in order) the layers of the scalp
- What is the pterion? Why is it important?
- Identify on a dissection image the branches of the facial and trigeminal nerves
- Demonstrate on the eye model the extraocular muscles, give their innervation and direction of movement
- Describe the venous drainage of the face
- What is the innervation of the tongue? What happens when this is interrupted?

Pharmacology week 16 – Antimicrobial Agents part 2

Contributes to 'Antimicrobial Agents' which makes up 8% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 44, 50



Learning Outcomes LOA 1

- Metronidazole

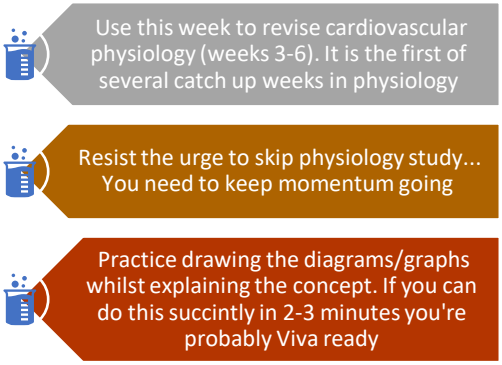
Learning Outcomes LOA 2

- Mechanisms of microbial resistance
- Macrolides
- Tetracyclines
- Lincosamides
- Other antimicrobial agents not otherwise specified

Questions to consider

- For each drug class consider: mechanism of action, microbes against which they are effective, how the class is organised, pharmacokinetics and pharmacodynamics, adverse effects and mechanisms of resistance to the drug
- Compare and contrast azithromycin with the other macrolides (azithromycin is a popular viva topic)
- Why aren't tetracyclines used in the paediatric population?
- Why isn't chloramphenicol used more extensively?
- Why can't nitrofurantoin be used for infections outside of the urinary tract?

Physiology week 16 – Revision and Catch-up



Pathology week 16 – Infectious Diseases part 2

Contributes to 'Infectious Diseases' which makes up 8% of the pathology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapter 8, 18

AIDS was previously considered as a disorder of immunity. Now look closely at the causative virus - HIV

Viral hepatitis is revisited in later weeks in liver pathology

Ensure you understand the lifecycle and disease process of malaria. Comparitive presentations of the falciparum species has been asked previously

Learning Outcomes LOA 1

- Specific viral infections
  - CMV
  - EBV
  - Hepatitis
  - HSV
  - Influenza
  - Measles
  - Mumps
  - Varicella
  - HIV

Learning Outcomes LOA 2

- Viral infections (*not otherwise specified*)
- Malaria

Learning Outcomes LOA 3

- General features of other infectious diseases: fungi, protozoa, helminths
- Emerging infectious diseases

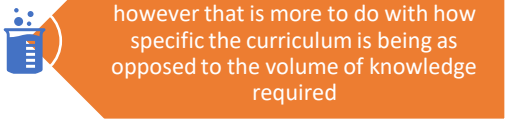
Questions to consider

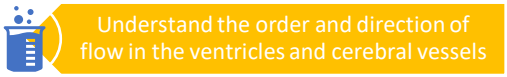
- Outline the pathophysiology and morphology for each viral infection listed in chapter 8. Consider if any of them have 'special' mechanisms of causing disease or evading host defences. What diagnostic tests are available for them?
- What is the mode of transmission, incubation period, clinical presentation and potential outcome for ... virus?
- What is the life cycle and pathogenesis of the plasmodium species? What are the clinical manifestations of malarial disease?
- Give a brief consideration to the other infections detailed in chapter 8

Anatomy week 16 - Head & Neck part 2

Contributes to 'Head, Neck & CNS' which makes up 20% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 8
Supplemental Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 2





Learning Outcomes LOA 1

- Parts of the brain
- Ventricular system
- Arterial supply of the brain

Learning Outcomes LOA 2

- Venous drainage of the brain
- Meningeal spaces
- Parotid region
- Maxillary nerve
- External nose
- Nasal cavities
- Vasculature and innervation of the nose
- External ear
- Middle ear

Learning Outcomes LOA 3

- Cranial meninges
- Temporal region
- Infratemporal fossa
- Temporomandibular joint
- Pterygopalatine fossa
- Pterygopalatine part of the maxillary artery
- Paranasal sinuses
- Internal ear

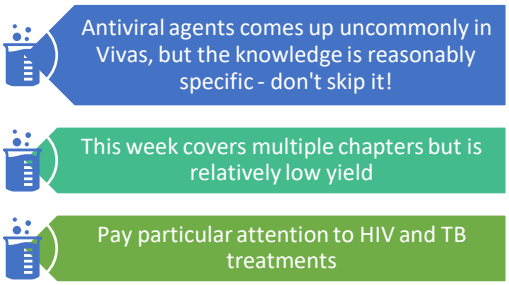
Questions to consider

- Describe the ventricular system of the brain and the flow of CSF
- Outline the arterial supply of the brain - which vessels supply which areas? What is the order of venous drainage of the brain?
- What is keisselbachs plexus? Why is it relevant?
- What is the danger triangle of the face?
- Where can infections from the ear spread?

Pharmacology week 17 – Antimicrobial Agents part 3

Contributes to 'antimicrobial agents' which makes up 10% of the pharmacology MCQ matrix

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 47-50, 52-53



Learning Outcomes LOA 2

- Antiviral agents, including HIV prophylaxis
- Disinfectants

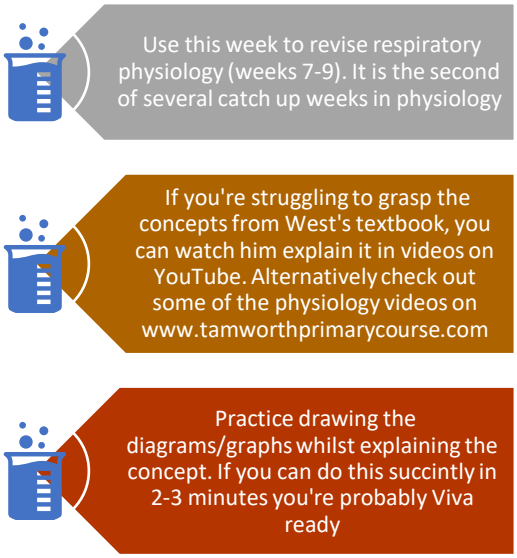
Learning Outcomes LOA 3

- Antifungals
- Antiprotazoals, antiparasitics, antihelminthics
- Antimycobacterial agents

Questions to consider

- For each drug class consider: mechanism of action, microbes against which they are effective, how the class is organised, pharmacokinetics and pharmacodynamics, adverse effects and mechanisms of resistance to the drug
- What determines the choice of agents in HIV prophylaxis?
- What is the role of chlorhexidine? When should it be avoided?
- Which drug regimens are used in the treatment of TB? Why? What are their adverse effects?
- Compare and contrast acyclovir and valacyclovir

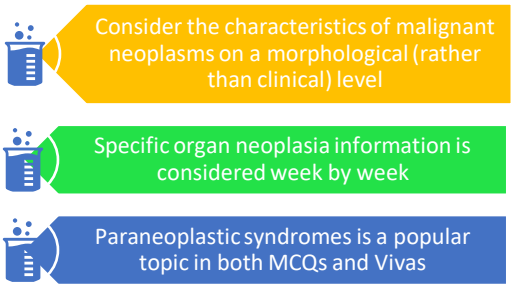
Physiology week 17 – Revision and Catch-up



Pathology week 17 - Neoplasia

'Neoplasia' makes up 5% of the pathology MCQ matrix

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapter 7



Learning Outcomes LOA 1

- Characteristics of benign and malignant neoplasms

Learning Outcomes LOA 2

- Clinical features of tumours

Learning Outcomes LOA 3

- Epidemiology
- Molecular basis of cancer
- Carcinogenic agents

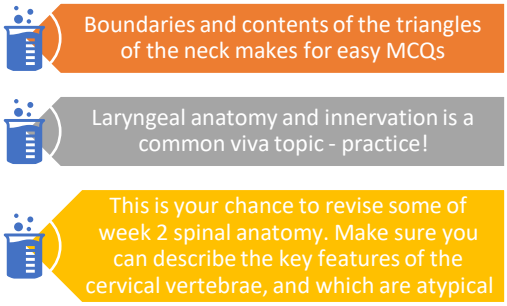
Questions to consider

- Describe the differences between benign and malignant tumours. What defines them? Give examples
- Spend some time understanding the varying nomenclature for neoplasia (e.g. metaplasia, dysplasis, anaplasia)
- What are the characteristics of neoplasms?
- Outline the epidemiology of cancer. How does its frequency vary by gender, age and geographical location? What are the most common cancers?
- Which conditions are considered to be predisposing for neoplasia?
- What cellular features are hallmarks of neoplasia?
- What are some of the recognised genetic mutations associated with neoplasia?
- What are the processes in angiogenesis? What about local invasion? Metastasis?
- How does neoplasia evade the host defence mechanisms?
- Outline the role of carcinogens in neoplasia - can you give some specific examples?
- Outline some of the paraneoplastic syndromes and their pathophysiology *(common topic e.g. matching the correct malignancy with a mechanism and the relevant paraneoplastic syndrome in MCQs or listing "five or so" syndromes and causes in the viva)*

Anatomy week 17 – Head & Neck part 3

Contributes to 'head, neck and CNS' which makes up 20% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 9
Supplemental Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 2



Learning Outcomes LOA 1

- Cervical vertebrae *(revision)*
- Regions of the neck (anterior cervical, lateral cervical, posterior cervical)
- Triangles of the neck
- Sternocleidomastoid
- Surface anatomy of the neck
- Respiratory layer of cervical viscera

Learning Outcomes LOA 2

- Deep cervical fascia
- Prevertebral muscles
- Root of the neck
- Layers of cervical viscera (endocrine, alimentary)
- Surface anatomy of the endocrine and respiratory layers of cervical viscera
- Lymphatics of the neck

Learning Outcomes LOA 3

- Hyoid bone
- Cervical subcutaneous tissue and platysma

Questions to consider

- Identify this ... vertebrae and it's relevant components (C1, C2, C7 are 'special' compared to the 'typical' vertebrae). Identify the ligaments and where they attach
- What is contained within the ... triangle of the neck? What borders it?
- What is the innervation of the larynx? What happens when this is interrupted?
- Which muscles are involved in phonation?
- Which muscles control swallowing? Which are voluntary?
- What are the prevertebral layers?
- What structures do the deep fascial layers invest?
- What is contained in the carotid sheath? How does it's orientation change as it courses through the neck?

Pharmacology week 18 – Hypnotics & Anaesthetics

Contributes to 'Nervous System' which makes up 14% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 22, 25, 27

Remember, if a drug has an 'interesting' effect or property..... it seems extra shiny and interesting to the examiners...

Ketamine receives a lot of focus but be sure to look at **ALL** of the induction agents

Ensure you understand how the muscle relaxants work in detail, and their comparative pharmacokinetics

Learning Outcomes LOA 1

- Induction agents
- Muscle relaxants
- Nitrous oxide
- Benzodiazepines
- Barbiturates

Learning Outcomes LOA 2

- Neuromuscular reversal agents

Learning Outcomes LOA 3

- Volatile anaesthetics
- Newer sedatives & hypnotic agents

Questions to consider

- Tell me about the pharmacokinetics of benzodiazepines, why is this important?
- What factors affect the elimination of the sedative-hypnotics?
- How do the sedative-hypnotics work? What are their potential adverse effects?
- Tell me about tolerance
- What factors affect the CNS concentration of the general anaesthetics?
- What is the MAC? What is its relevance?
- Outline the organ effects of the inhaled anaesthetics. What are their potential adverse effects?
- What is the incidence of hepatotoxicity after halothane exposure?
- Tell me about the pharmacokinetics and pharmacodynamics of propofol
- Outline the organ effects and dosing of the barbiturates
- Tell me about the pharmacokinetics and pharmacodynamics of ketamine (*a popular topic*)
- Tell me about etomidate and dexmedetomidine (*brief only*)
- Revise the normal mechanism of neuromuscular transmission - where do the muscle relaxants work?
- How are the muscle relaxants classified? Compare their pharmacodynamics. Which tend to cause histamine release?
- Are there any side effects with muscle relaxant use?
- What is train of four? How does it change with the different states of muscle relaxation?
- What are some important potential drug interactions with the muscle relaxants?
- Tell me about reversal of the muscle relaxants
- Tell me about dantrolene and baclofen (*briefly*)

Physiology week 18 – Nerves & Muscles

'Nerves and Muscles' makes up 5% of the physiology MCQ matrix.

Reference: Ganong's Review of Medical Physiology, 26th edition. Chapters 4-6

Look at the reflex mechanism carefully

The sequence of events in muscle contraction and relaxation has been examined previously

Comparative physiology of the different muscle types is a common MCQ

Learning Outcomes LOA 1

- Nerve physiology: excitation, conduction, fibre types, neurotransmitters, synapses, neuromuscular transmission
- Skeletal and cardiac muscle physiology: function, metabolism, electrical and mechanical properties

Learning Outcomes LOA 2

- Anatomy of skeletal and cardiac muscle cells
- Morphology and properties of smooth muscle
- Reflex mechanism: monosynaptic, polysynaptic

Learning Outcomes LOA 3

- General morphology and anatomy of nerve cells

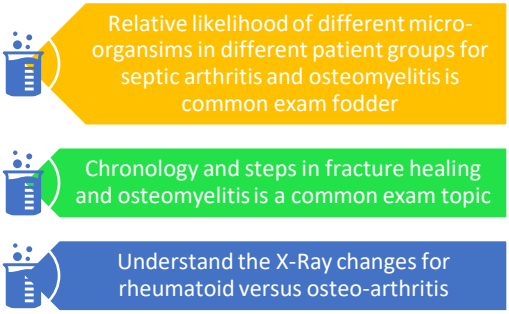
Questions to consider

- How do nerves work? What features assist this?
- What are the general ionic changes during an action potential? What is after-hyperpolarisation? What is the refractory period? What is saltatory conduction?
- Outline the different fibre types and their properties. How can they be classified?
- What is the relative susceptibility of different nerve fibres to hypoxia, pressure and the local anaesthetics?
- Describe the stretch reflex in detail
- What is the inverse stretch reflex? The withdrawal reflex?
- How are skeletal muscles organised?
- What differentiates skeletal, cardiac and smooth muscle? (*common topic*)
- What are the steps in contraction and relaxation of skeletal muscle? What different types of contraction are there? How does this differ in smooth muscle?
- What is the energy source required for contraction of skeletal muscle? What about cardiac? So what happens in rigor mortis?
- How do the properties of the different skeletal muscle fibres vary?
- What is a motor unit?
- What is Starlings law in relation to cardiac muscle?
- Draw the neuromuscular junction and outline the steps that lead to an action potential in the muscle fibre
- What is EPSP? IPSP? Postsynaptic inhibition? Presynaptic inhibition?
- Where are the neurotransmitters synthesised and stored? What is their fate after release?

Pathology week 18 - Musculoskeletal

'Musculoskeletal System' makes up 5% of the pathology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapter 26



Learning Outcomes LOA 1

- Osteomyelitis
- Fractures

Learning Outcomes LOA 2

- Arthritis

Learning Outcomes LOA 3

- Bone remodelling, growth and development
- Osteoporosis
- Paget's disease
- Osteonecrosis

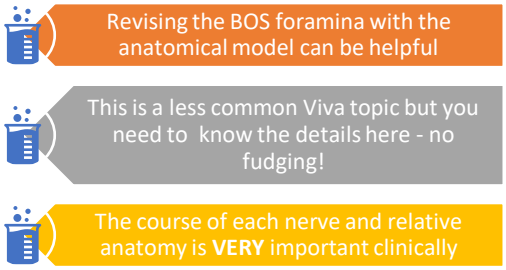
Questions to consider

- Outline the pathophysiology and clinical course of osteomyelitis. Describe the morphological changes with an expected timeframe
- Describe the steps and expected chronology of fracture healing
- Outline the pathophysiology, clinical presentation and expected clinical course of osteoarthritis. How does this differ in rheumatoid arthritis? What morphological changes would you expect for each condition?
- Outline the other arthritides
- Briefly outline the possible developmental disorders that occur in bone and cartilage (e.g. osteopetrosis, osteogenesis imperfecta)
- What is the difference between osteopenia and osteoporosis? What is the pathogenesis and clinical manifestations of osteoporosis?
- Outline the pathophysiology of Paget disease? What is the expected clinical course?
- What is osteonecrosis?
- Briefly outline the common bony, cartilaginous and soft tissue tumours

Anatomy week 18 – Head & Neck part 4

Contributes to 'Head, neck & CNS' which makes up 20% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 10, 7
Supplementary Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 2



Learning Outcomes LOA 1

- Optic nerve
- Oculomotor nerve
- Trochlear nerve
- Trigeminal nerve
- Abducent nerve
- Facial nerve

Learning Outcomes LOA 2

- Glossopharyngeal nerve
- Vagus nerve
- Spinal accessory nerve

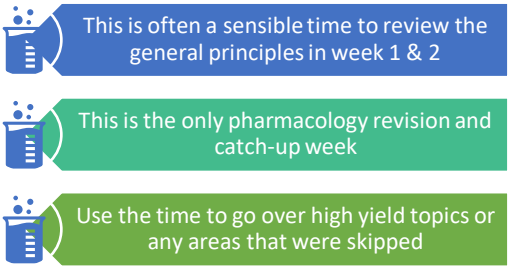
Learning Outcomes LOA 3

- Olfactory nerve
- Vestibulocochlear nerve
- Hypoglossal nerve

Questions to consider

- For each cranial nerve outline its origin, path and what it innervates
- Consider the clinical picture if each nerve is interrupted
- How does the defect differ if the optic nerve is damaged at different sections along its course?

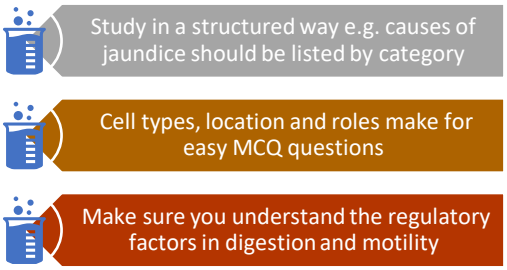
Pharmacology week 19 – Revision and Catch-up



Physiology week 19 - Gastrointestinal

Contributes to 'Gastrointestinal & Metabolism' which makes up 10% of the physiology MCQ matrix.

Reference: Ganong's Review of Medical Physiology, 26th edition. Chapters 25, 27-28



Learning Outcomes LOA 1

- Liver and biliary system

Learning Outcomes LOA 2

- Mouth and oesophagus
- Stomach
- Exocrine portion of the pancreas
- Small intestine
- Colon
- Gastrointestinal hormones
- Gastrointestinal motility

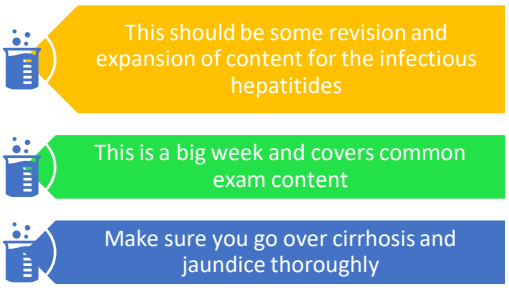
Questions to consider

- What is the role of saliva? How is it regulated?
- What are the major cell types in the stomach and what do they produce? How are they organised?
- What is the role of the pancreatic secretions? How is it regulated? What about bile?
- Outline the principal digestive enzymes, their activator, substrate, source and products
- Describe the daily water turnover that occurs in the gastrointestinal tract
- Which electrolytes are absorbed and secreted in the intestines?
- What hormones are produced by the gastrointestinal tract and what are their roles?
- Outline the innervation of the gastrointestinal system
- What is a migrating motor complex?
- How is swallowing controlled?
- What is the mechanism of vomiting? Defecation?
- What are the principal functions of the liver?
- What is the typical composition of bile?
- Outline the metabolism and excretion of bilirubin
- Outline the neurohumoral control of the gallbladder

Pathology week 19 - Hepatobiliary

'Liver, Biliary tract & Pancreas' makes up 8% of the pathology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapters 18, 19



Learning Outcomes LOA 1

- General features of hepatic disease
- Liver failure
- Acute pancreatitis
- Infectious disorders of the liver and biliary tract
- Alcoholic liver disease
- Cholelithiasis
- Cholecystitis

Learning Outcomes LOA 2

- Principles of pancreatic disease

Learning Outcomes LOA 3

- Chronic pancreatitis

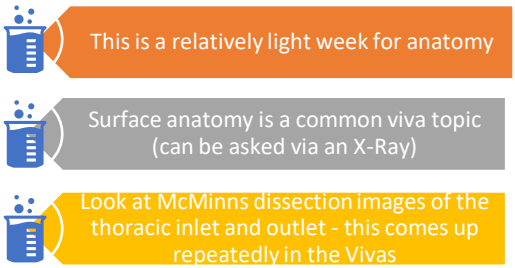
Questions to consider

- Which laboratory tests are relevant to the different categories of hepatobiliary dysfunction (table 18-1)
- Outline the morphological and microscopic pathologic changes in liver injury, what are the possible outcomes?
- Outline the pathophysiology of liver failure. How does this differ between acute and chronic? Give some causes for each
- What are the clinical features and potential outcomes of an infectious hepatitis? Describe the changes in serological markers with time. How does this differ between the different hepatitis viruses?
- Describe the other infectious and inflammatory conditions of the liver
- Outline the pathophysiology of alcoholic liver disease in detail including the morphological changes
- What are the metabolic liver disorders? Describe their pathogenesis, morphology and distinguishing clinical features briefly
- How does NAFLD differ between the paediatric and adult populations?
- How is bilirubin formed, metabolised and eliminated? How does this help us to distinguish potential causes of jaundice clinically?
- What are some congenital causes of jaundice? How are they classified?
- Compare the typical features of primary biliary cirrhosis and primary sclerosing cholangitis. Do they have any associations?
- Why are liver infarcts rare? What changes would be expected if they do occur? What about other conditions of impaired liver blood flow?
- Outline the hepatic diseases associated with pregnancy
- Describe the neoplasia which affect the hepatobiliary system. How does HCC presentation differ around the world? Why?
- Outline the pathophysiology of cholelithiasis in detail, including risk factors and morphology of the different stone types
- Outline the pathophysiology of acute pancreatitis in detail
- Briefly look at chronic pancreatitis and the other conditions affecting the pancreas described in chapter 19

Anatomy week 19 – Thorax part 1

Contributes to 'Thorax' which makes up 12.5% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 4
Supplementary Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 5



Learning Outcomes LOA 1

- Skeleton of the thoracic wall
- Surface anatomy of the thoracic wall

Learning Outcomes LOA 2

- Nerves and vasculature of the thoracic wall
- Muscles of the thoracic wall
- Breasts

Learning Outcomes LOA 3

- Thoracic apertures
- Fascia and joints of the thoracic wall
- Movements of the thoracic wall

Questions to consider

- Describe the surface anatomy of the thoracic wall
- Identify the landmarks on a typical rib and on the first rib. What are the relations of the first rib?
- What are the muscles of respiration?
- Outline the position of structures at the thoracic inlet and outlet

Pharmacology week 20 - Toxicology

'Toxicology' makes up 5% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 56, 57, 58
Supplementary Reference: Murray et al. Toxicology handbook

The toxicology handbook is an excellent resource, and it's worth having a copy for use clinically and for future fellowship study

Patterns of toxidromes make for easy questions

Read chapter 56 only briefly

Learning Outcomes LOA 1

- Activated charcoal *(Murray's toxicology handbook is a great resource)*
- Toxidromes
- Antidotes: N-Acetyl cysteine, naloxone, flumazenil, sodium bicarbonate

Learning Outcomes LOA 2

- Antivenoms
- Digoxin antibody fragments
- Drugs of abuse

Learning Outcomes LOA 3

- Chelating agents
- Oximes
- Occupational and environmental pollutants

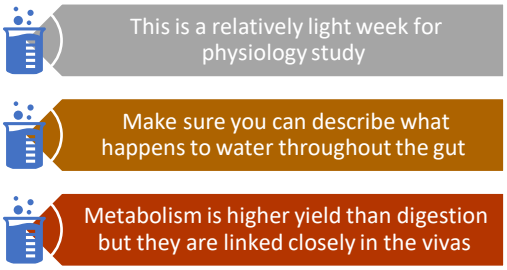
Questions to consider

- What considerations are important in the approach to the poisoned patient?
- Outline the toxidrome presentation for _____ (Ch 58)
- Tell me about activated charcoal. How does it work? What are some potential adverse effects? When can't it be used?
- Tell me about flumazenil. When shouldn't it be used?
- Why is the half-life of naloxone important in clinical practice? How can it be administered?
- What are some indications for sodium bicarbonate?
- How do digoxin antibody fragments work? What is the implication for digoxin level testing?
- What treatment options are available for the toxidromes of the drugs of abuse?
- How do chelating agents work? Give some examples
- What are oximes?

Physiology week 20 – Digestion & Nutrition

Contributes to 'Gastrointestinal & Metabolism' which makes up 10% of the physiology MCQ matrix.

Reference: Ganong's Review of Medical Physiology, 26th edition. Chapter 26



Learning Outcomes LOA 1

- Absorption of water and electrolytes

Learning Outcomes LOA 2

- Lipid digestion and absorption
- Absorption of vitamins and minerals
- Nutrition and energy metabolism
- Carbohydrate digestion and absorption

Learning Outcomes LOA 3

- Protein and nucleic acid digestion and absorption

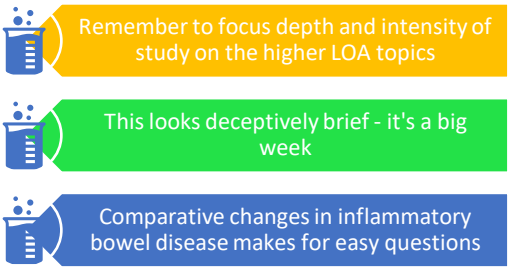
Questions to consider

- What is the fate of proteins in the digestive tract? What about lipids? Carbohydrates? Minerals?
- What are the principles of energy metabolism? What factors affect the metabolic rate?
- Which vitamins cannot be produced but must be sourced within the diet? What happens if these are deficient?

Pathology week 20 - Gastrointestinal

'Gastrointestinal System' makes up 5% of the pathology MCQ matrix

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapter 17



Learning Outcomes LOA 1

- Ischaemic bowel disease
- Intestinal obstruction
- Oesophageal varices

Learning Outcomes LOA 2

- Intestinal inflammatory disorders
- Gastritis
- Oesophagitis

Learning Outcomes LOA 3

- Malabsorption syndromes

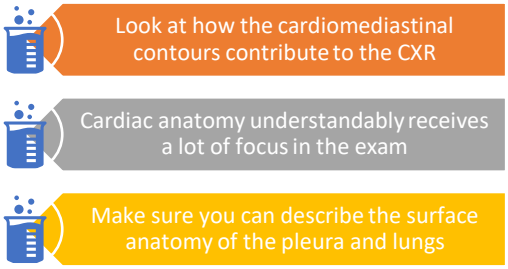
Questions to consider

- Outline the congenital anomalies of the gastrointestinal tract. Pyloric stenosis, Hirschprung disease and Meckel diverticulum make good MCQ questions
- What is the triad of achalasia?
- Why is Barretts oesophagus important? Describe it's morphology
- Outline the causes of oesophageal reflux disease, gastritis and haematemesis. Tell me about Helicobacter Pylori, what factors increase its virulence? What is it's prevalence?
- What are 'stress ulcers'? Which patients are affected?
- Outline the common malignancies which affect the gastrointestinal tract, how do their presentations vary?
- How does intestinal obstruction present? Outline the potential causes, does this change between large and small bowel obstruction?
- Why is the intestine susceptible to ischaemia? Outline the causes, pathophysiology and clinical features
- What are the features of the different malabsorption syndromes?
- What is the definition of diarrhoea? How can it be classified?
- Outline the pathophysiology and clinical course of the infectious enterocolitis conditions. Which are associated with extra-intestinal manifestations? (*this makes for common MCQ questions e.g. the E.Coli subgroups*)
- Compare and contrast Ulcerative Colitis and Crohn disease. Describe the morphological changes for each condition
- Describe the pathophysiology and clinical presentation of diverticular disease
- Outline the different causes of polyps in the gastrointestinal tract
- Briefly cover the remainder of Chapter 17

Anatomy week 20 – Thorax part 2

Contributes to 'Thorax' which makes up 12.5% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 4
Supplementary Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 5



Learning Outcomes LOA 1

- Pleura, lungs and tracheobronchial tree
- Mediastinum overview
- Heart
- Superior mediastinum and great vessels
- Surface anatomy of the heart and mediastinal viscera

Learning Outcomes LOA 2

- Pericardium
- Posterior mediastinum

Learning Outcomes LOA 3

- Anterior mediastinum

Questions to consider

- Outline the landmarks and borders of the mediastinum and its compartments. What are its contents?
- Outline the surface anatomy of the heart
- What structures of the heart make up its various surfaces?
- What are the branches of the thoracic aorta?
- Describe the vasculature of the heart (arteries and veins) and the territories that they supply
- Describe the vasculature of the lungs (both pulmonary and bronchial vessels), which is systemic?

Pharmacology week 21 – Gastrointestinal tract

'Gastrointestinal Tract' makes up 5% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapter 62

Class mechanism of action makes for an easy MCQ

Antiemetics are a popular topic

Make sure you understand **HOW** the proton pump inhibitors work and how this affects prescribing

Learning Outcomes LOA 1

- Antiemetics
- Antiulcer medication: proton pump inhibitors

Learning Outcomes LOA 2

- Antiulcer medication: H2 receptor antagonists
- Antispasmodics

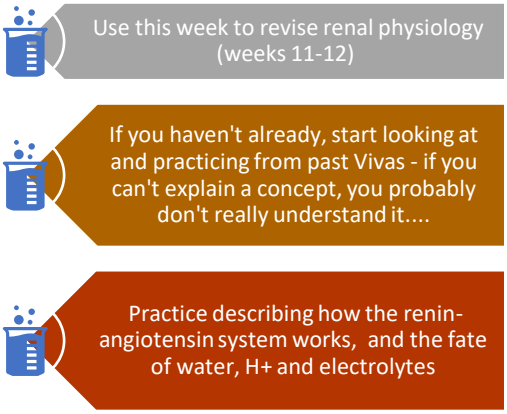
Learning Outcomes LOA 3

- Antiulcer medication: other agents not previously specified
- Antidiarrhoeals
- Laxatives
- Topical rectal agents

Questions to consider

- Revise the pathophysiology of nausea and vomiting - what are the targets of antiemetics?
- How does metoclopramide work? When should it be avoided/used with caution?
- Tell me about ondansetron
- Outline the drugs used in the treatment of reflux and peptic ulcer disease
- What are some strategies to increase the effectiveness of proton pump inhibitor use? Why is an IV infusion preferred to a bolus?
- Why isn't cimetidine more widely used?
- How do the antidiarrhoeals work? When are they indicated?
- Outline the mechanism of action of the different classes of laxatives
- What medications are used in inflammatory bowel disease? How do they work?

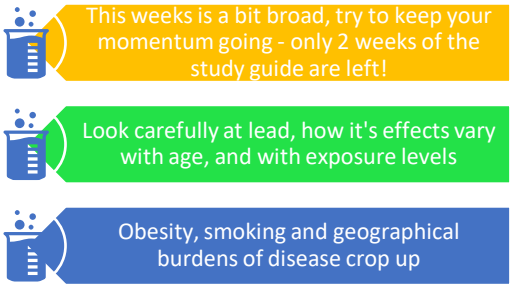
Physiology week 21 – Revision and Catch-up



Pathology week 21 - Environmental

'Environmental Pathology' makes up 5% of the pathology MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapter 9



Learning Outcomes LOA 1

- Therapeutic drugs
- Nontherapeutic agents
- Physical injuries

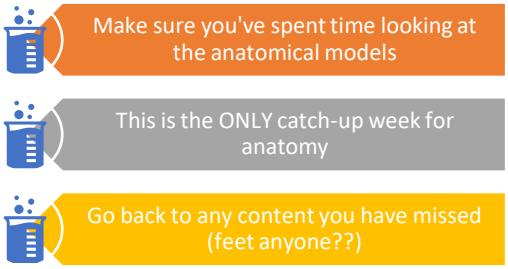
Learning Outcomes LOA 3

- Personal exposure
- Air pollution
- Heavy metals and industrial exposure
- Radiation
- Nutritional pathology

Questions to consider

- How has the burden of disease changed globally over time?
- What are the most common causes of death in developed versus developing countries? How does this change for paediatric mortality?
- What are the potential effects of the different air pollutants?
- What happens in acute CO poisoning? How about chronic exposure?
- Describe the varying clinical picture with increasing lead levels on exposure. Why are children more susceptible?
- Briefly outline the clinical presentation with mercury, arsenic and cadmium poisoning
- Outline the diseases known to be associated with occupational exposures
- What is the effect of the different constituents of tobacco smoke? What are the organ effects and disease states associated with smoking?
- What is the effect of smoking on survival? Does this change if smoking is ceased?
- Outline the key changes and effects associated with alcohol consumption. How does it mediate these effects on a cellular level?
- Outline the toxic effects of some common therapeutic agents and drugs of abuse
- Outline the effects of thermal and electrical injury and ionising radiation
- Outline the common recognised nutritional diseases
- What is the role of obesity in disease?

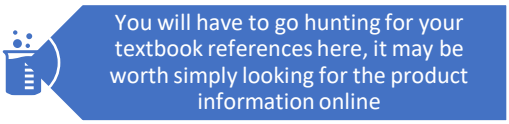
Anatomy week 21 – Revision and Catch-up

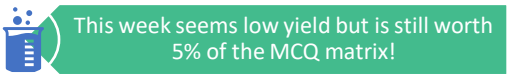


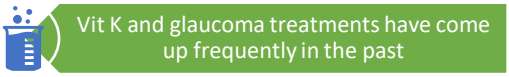
Pharmacology week 22 – Miscellaneous Agents

'Miscellaneous' makes up 5% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. *(various)*







Learning Outcomes LOA 1

- Vit K (chapter 34)

Learning Outcomes LOA 2

- Vit B1 (chapter 23)
- Ophthalmic preparations (chapters 10, 60)

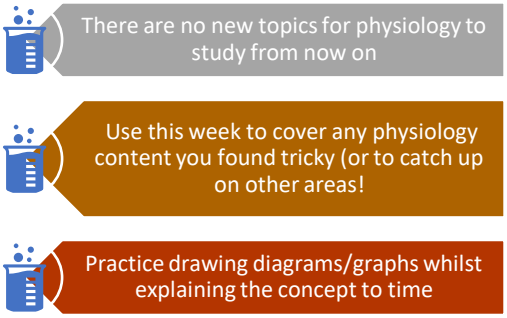
Learning Outcomes LOA 3

- Other vitamins (chapter 33)
- Agents employed in the prevention and treatment of genitourinary infections
- Pharmacology of common dermatologic agents

Questions to consider

- How does vitamin K work in warfarin induced coagulopathy? Tell me about its pharmacokinetics
- What is the role of thiamine?
- Outline the agents used in the treatment of glaucoma with examples

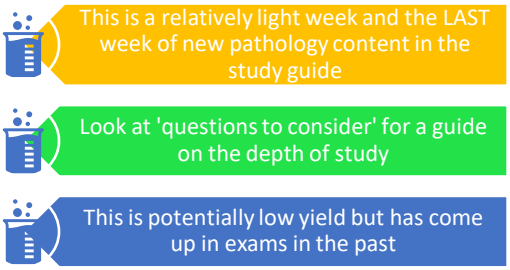
Physiology week 22 – Revision and Catch-up



Pathology week 22 - Leftovers

This content is specified in the curriculum but does not clearly have a place in the MCQ matrix.

Reference: Robbins and Cotran Pathologic Basis of Disease, 9th edition. Chapters 10, 16, 25



Learning Outcomes LOA 2

- Sudden infant death syndrome
- Perinatal infections
- Melanoma

Learning Outcomes LOA 3

- Genetic disorders
- Diseases and disorders of the teeth and supporting structures
- Principles of diseases and disorders of childhood
- Cystic fibrosis
- Principles of common diseases and disorders of the skin
  - Rashes, lumps, lesions and ulcers
  - Other epidermal malignancies

Questions to consider

- Read chapter 10 briefly with a focus on SIDS and cystic fibrosis
- Outline the potential oral manifestations of systemic disease
- Briefly look at diseases affecting the teeth and supporting structures described in Chapter 16
- What is the breslow thickness?
- Look at Chapter 25 briefly - the malignancies and blistering disorders deserve more attention

Anatomy week 22 – Abdomen & Pelvis part 1

Contributes to 'Abdomen & Pelvis' which makes up 12.5% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 6
Supplementary Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 6

Structures passing through the diaphragmatic apertures is a common MCQ topic

This is a big week, make sure you keep up the pace

The inguinal region deserves some focussed study

Learning Outcomes LOA 1

- Inguinal region
- Spermatic cord, scrotum and testis
- Surface anatomy of the anterolateral abdominal wall
- Vessels and nerves of the diaphragm

Learning Outcomes LOA 2

- Cavities, regions and planes of the anterolateral abdominal wall
- Muscles and fascia of the anterolateral abdominal wall
- Nerves and vessels of the anterolateral abdominal wall
- Nerves and vessels of the posterior abdominal wall
- Overview of the abdominal viscera and digestive tract
- Oesophagus and stomach
- Small and large intestine
- Spleen
- Pancreas
- Liver, biliary duct and gallbladder
- Kidneys, ureters and suprarenal glands
- Summary of innervation of the abdominal viscera

Learning Outcomes LOA 3

- Internal surface of the anterolateral abdominal wall
- Subdivisions of the peritoneal cavity
- Diaphragmatic apertures
- Actions of the diaphragm
- Muscles and fascia of the posterior abdominal wall

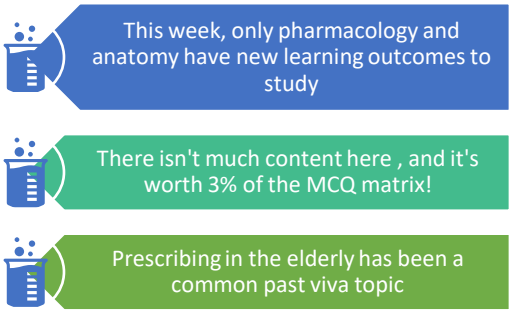
Questions to consider

- What are the borders and contents of the inguinal canal?
- What structures are present in the transpyloric plane?
- What pierces the diaphragm and at what level?
- For each organ consider its position, relations, vasculature, innervation and function
- What are the narrowest sections of the oesophagus?
- How is the mesentery organised? What is 'the policeman of the abdomen'?
- What structures are retroperitoneal?
- What is the course and branches of the aorta? The IVC? Why are varicoceles more common on one side? Which is it?
- Outline the portal venous system

Pharmacology week 23 – Principles of Prescribing

'Safe Prescribing' makes up 3% of the pharmacology MCQ matrix.

Reference: Katzung's Basic and Clinical Pharmacology, 14th edition. Chapters 59, 60
Supplementary Reference: eTG is an excellent resource for prescribing in pregnancy



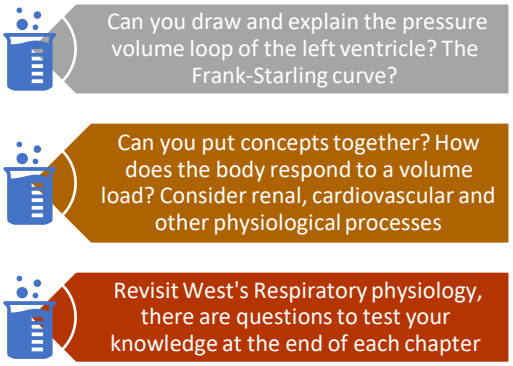
Learning Outcomes LOA 2

- Drugs in the elderly
- Drugs in children
- Drugs in pregnancy

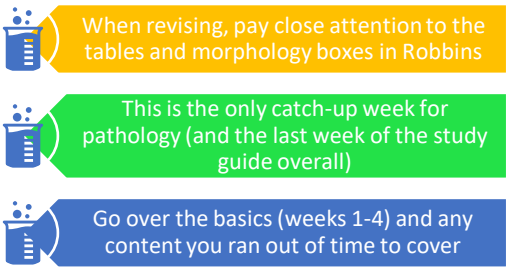
Questions to consider

- What are some important physiological changes in the elderly population? How does this influence prescribing practice? *(same consideration for the paediatric and pregnant population)*
- Tell me about the Australian categorisation for drugs in pregnancy

Physiology week 23 – Revision and Catch-up



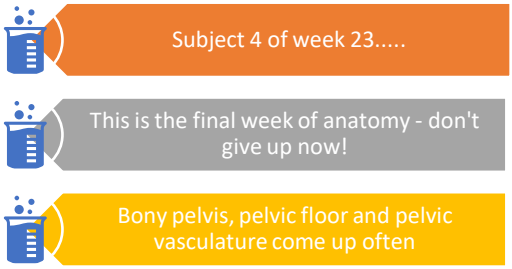
Pathology week 23 – Revision and Catch-up



Anatomy week 23 – Abdomen & Pelvis part 2

Contributes to 'Abdomen & Pelvis' which makes up 12.5% of the anatomy MCQ matrix.

Reference: Moore and Dalley's Clinically Oriented Anatomy, 8th edition. Chapter 5
Supplementary Reference: McMinn's clinical atlas of human anatomy 7th edition. Chapter 6



Learning Outcomes LOA 1

- Bones and features of the pelvic girdle

Learning Outcomes LOA 2

- Orientation of the pelvic girdle
- Joints and ligaments of the pelvic girdle
- Walls and floor of the pelvic cavity
- Peritoneum and peritoneal cavity of the pelvis
- Pelvic arteries and veins
- Pelvic nerves
- Urinary organs
- Rectum
- Female internal genital organs
- Male internal genital organs

Learning Outcomes LOA 3

- Pelvic fascia
- Pelvic lymph nodes
- Lymphatic drainage of the pelvic viscera
- Fascia and pouches of the urogenital triangle
- Male and female urogenital triangles
- Features of the anal triangle

Questions to consider

- Identify the bony landmarks on the model of the pelvis and its major ligamentous and muscular attachments
- What makes up the floor of the pelvis? What pierces it?
- For each organ consider its position, relations, vasculature, innervation and function
- What is the path of the ureters? What are its narrowest points?
- What is the pouch of douglas? What is its relevance clinically? Are there any other spaces like this in the pelvis?