

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 a lot 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 Vivas

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 a lot 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 McMinn's 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