

Unit Timetable

Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Lecture Unit Introduction	Lecture 2.1 Anatomy of the respiratory system	Lecture 3.1 Mechanics of Breathing	Lecture 4.1 Oxygen in the blood	Lecture 5.1 Chemical control of breathing	Lecture 6.1 COPD
Lecture 1.1 Introduction to the Respiratory	Dissection Anatomy of the Thoracic Cavity	Group work Mechanics of Breathing	Group work Oxygen in the blood	Group work Control of breathing	Group work Asthma & COPD
Tutorial: Gp 1- 12 & GS 1-4 Surface anatomy Tutorial: Gp 13-24 & GS 5-8 Surface anatomy Lecture 1.2 Histology of Respiratory Tract	Lecture 2.2 Ventilation of the lungs	Lecture 3.2 Lung function Testing	Lecture 4.2 Carbon dioxide in the blood	Lecture 5.2 Hypoxia & Respiratory Failure Lecture 5.3 Asthma	Lecture 6.2 Tuberculosis
Session 7	Session 8	Session 9	Session 10	Session 11	
Lecture 7.1 Lower Respiratory Tract Infection & Pneumonia	Lecture 8.1 Radiology of the Chest	Group work Radiology Clinical Educators	Group work History Taking in Groups' Spirometry Practical' Self-study workbook problems	Lecture 11.1 Respiratory Failure & Overview	
Group work Pneumonia & TB	Group work Lung Cancer	Lecture 9.1 Respiratory system - History taking & Examination		Group work Examination of the Respiratory System Spirometry Practical Self-study workbook problems	
Lecture 7.2 Lung Cancer	Lecture 8.2 Pleural disease & Interstitial Lung Disease				

Introduction

Broad Aim of the Unit

To understand the normal structure and function of the respiratory system, how that is altered by disease, how respiratory function is assessed, and how, in principle, respiratory disorders are managed

The study of respiratory conditions will continue into Phase 2 of the course in the 'Cardio-Respiratory' Block, and in the 'Acute Care' block and, as respiratory disease is common. It is essential therefore to develop a good understanding of the system at this stage.

Overall intended learning outcomes for the Unit

- describe the structure and the respiratory function of the nose, the paranasal sinuses, pharynx and larynx and describe the connections between the nose, paranasal sinuses, pharynx, auditory tube & middle ear,
- describe the structure of the pleural cavity and lines of pleural reflection, the lobes of the lung and their surface marking, structure and arrangement of airways and blood vessels in the lungs, and the histology of the lung airways.
- describe the structure of a typical thoracic vertebra and rib, the relations and arrangement of muscles in the thoracic wall and diaphragm, and the function and distribution of the intercostal nerves, arteries and veins.

- describe the mechanism of inspiration and expiration, the measurement of lung volume and capacities, and common tests of lung function.
- describe the carriage of oxygen in the blood, explain the role of carbon dioxide in blood and its role in acid base balance, and describe the neural and chemical control of breathing, with particular reference to different types of respiratory failure.
- describe the conditions of asthma, and chronic obstructive pulmonary disease; its presentation, diagnosis, cell biology, epidemiology and treatment with bronchodilators and other drugs.
- describe the defenses of the lung against infection, the immunology of the lung, and the microbiology of common lung infections.
- describe the classification, microbiology and principles of diagnosis and treatment of pneumonias, and tuberculosis.
- describe the definition and classification of interstitial lung disease, its relationship to occupational lung disease, its pathology and the principles of diagnosis and treatment.
- describe the pathology of lung cancers, their classification, and the principles of their diagnosis and management.
- describe common diseases of the pleura and chest wall.
- describe the changes in various types of respiratory failure and explain their physiological consequences.
- describe and be able to recognise the key features of a plain film radiograph of the chest, describe the features of and recognise uncomplicated lobar collapse, pneumothorax, consolidation, space occupying lesions in the lung and pleural effusion and estimate the cardiac index.

Structure of the unit

Sessions consist of lectures and work group. Early sessions followed by time in the dissecting room, where you will learn about the anatomy of the respiratory system, and in later sessions by group work. During group work sessions you will work through material in the workbook with the help of tutors. Group work is followed by a second lecture.

The second half of the unit is strongly clinical, and group work will consist of case-based discussions. The case studies are designed to link the basic science presented in the early part of the unit to the way in which you will work in Phase 2 and throughout clinical career. They will help to begin to understand respiratory medicine, and that understanding will develop further as the course progresses.

It is essential that the students prepare for each session if they are to obtain maximum benefit from the experience. This preparation involves reading of the relevant textbooks related to the session and also examination of the workbook, including, in particular, the small group session material.

Later sessions in the unit relate to the history taking and examination skills.

The dissecting room

You will work in your usual groups in the dissecting room, though there will be new clinical educators. You should not forget the codes of behaviour and dress for the dissecting room. Please take care to follow these rules.

Small group work

In these sessions you will work on problems in your groups. Tutors, usually clinical educators, will be around to help you. Workbook material will be provided for all the sessions. **You will need to refer to textbooks during group work.**

Self-directed learning

Once you have been presented with ideas and concepts in lectures, and worked upon them collaboratively in your groups, you will begin to have some understanding of these concepts. This will only develop into **useable** knowledge and understanding if you keep working on the ideas in your own time. The key process is to re-organise material so that it fits with mental structures you have created for yourself by an active reflective process. Simply going over the material in the same form time and time again will not help.

Reading

The first half of the unit deals with normal structure (anatomy, histology) and function (respiratory physiology). It is essential that you should read the relevant sections from your **standard anatomy, histology & physiology** textbooks listed below or similar.

Anatomy:

Clinically oriented Anatomy by *Moore, KL & Dalley, AF* **OR**

Gray's Anatomy for students by *Drake, Vogl and Mitchell* (or similar textbooks)

Histology:

Colour Atlas of Histology by *Leslie P. Gartner & James L. Hiatt*

Respiratory Physiology:

Lippincott's Illustrated reviews: Physiology by *Robin Preston & Thad E Wilson*, published by Walters Kluwer/Lippincott, Williams & Wilkins. OR Gannon's Review of Medical Physiology by *Barrett, Brooks, Boitano & Barman*

The second half of the unit is strongly clinical. The following **standard cross modular textbooks** will be helpful to structure & supplement your knowledge in these areas:

Respiratory Medicine:

Clinical Medicine by Kumar P & Clarke M

History Taking & Clinical Examination of the Respiratory system:

Macleod's Clinical Examination by Douglas G, Nicol F & Robertson C Clinical Skills by Cox N, Roper TA

Pharmacology:

Pharmacology by Rang HP, Dale MM, Ritter JM & Moore PK

Other Books:

'The Respiratory System at a Glance' by Ward JPT, Ward J and Leach RM published by Blackwell publishing A good introduction which covers both basic science and clinical topics, in a concise format.

'Pulmonary Physiology & Pathophysiology: an integrated case-based approach' by West J.B. Published by Lippincott Williams & Wilkins.

This book provides an in depth discussion of respiratory physiology and explains respiratory disease in terms of basic sciences, as disordered structure & function.

Useful Websites & Resources

<http://www.netanatomy.com>

Acland's Video Atlas of Human Anatomy

These are two excellent resources for gross anatomy and normal radiology of the chest, available via the library website.

<http://www.pathcal.ac.uk/>.

A good resource for the clinical topics in respiration containing cross modular material covering the pathophysiology, clinical, radiological, pathological & relevant microbiological details. Available via the library website.

http://athome.harvard.edu/programs/hse/video/hse2_5_frame.html?module

Useful animation for understanding the flow volume loop (part of lung function testing).

Other useful animations are listed on the left had side of the screen – also look at Demo IX -

Rib motions in respiration, and Demo VII – Single alveolus in context of normal lung

meded.ucsd.edu/clinicalmed/lung.htm

This is a good resource on clinical examination of the respiratory system. It includes an audio file of breath sounds.