

KING SAUD UNIVERSITY COLLEGE OF MEDICINE

WEEK 1 – RESPIRATORY BLOCK B (Male)

Week (1) Starting:

20/2/2010 (6/3/1431H)

CHAIR PERSON : Dr.Sami Al-Nassar

CO-CHAIR: Prof.Abdulmajeed Kambal

Saturday	Sunday	Monday	Tuesday	Wednesday
8:00 ~ 9:00 am Muscles Involved in Respiratory Dr.Ahamed Fathallah	8:00-9:00pm Respiratory Ventilation (Phys1) Dr. Tariq	8:00 ~ 9:00 am Pharmacological Treatment of Asthma and COPD (1) Prof. Al-Haider	8:00 ~ 9:30 am Nasal Cavity, Larynx and Trachea Dr.Essam	8:00 ~ 9: 30 am Pharmacological Treatment of Asthma and COPD (2) Prof. Al-Haider
9:00 ~ 11:00 am (Practical) Thoracic wall , Intercostals Space	9:00 – 10:30 am Small Group Discussion	9:00 – 10:00 am Respiratory Ventilation (Phys2) Dr. Tariq	9:30 ~ 10:30 am Small Group Discussion	9:30- 10:30 am Chronic Obstructive Airways Diseases (Path) Dr.Ammar AL-Rikabi
		10:00 – 11:00 am Drugs for Treatment of T.B (1) Dr.Saeed		
11:00- 12:00pm Functions and Organization of the Respiratory System(Phys) Dr. Tariq	10:30 ~ 12:00pm Independent Learning	11:00 ~ 12:00pm Histology of the Nasal Cavity, Larynx and Trachea Dr.Ali Mohammed	10:30 ~ 12:00 am (Practical) Nasal Cavity, Larynx and Trachea Room 118 1st Floor	10:30 ~ 12:00pm (Practical) Chronic Obstructive Airways Diseases Dr.Ammar AL-Rikabi Dr.Amer Al-Shafi Pathology Dept. Student Lab Room 051142
Lunch	Lunch	Lunch	Lunch	Lunch
1:00-2:00 pm Mechanism of Breathing (Phys) Dr. Tariq	1:00 ~3:00pm Salam	1:00-2:00 pm (Practical) Histology of the Nasal Cavity, Larynx and Trachea Room 122 1st Floor	1:00 ~ 3:00 pm Independent Learning	1:00-3:00pm Salam
2:00-3:00pm Atopy , Allergic Disease and Anaphylaxis (Immunology) Prof.Gad El-Rab		2:00-3:00 pm Bronchial Asthma(Path) Dr.Ammar AL-Rikabi		

LECTURE THEATER :

Room No. 236- Level 2- Seat Cap.153

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WEEK 2 – RESPIRATORY BLOCK B (Male)

Week (2) Starting:

27/2/2010 (13/3/1431H)

CHAIR PERSON : Dr.Sami Al-Nassar

CO-CHAIR: Prof.Abdulmajeed Kambal

Saturday	Sunday	Monday	Tuesday	Wednesday
8:00 - 9:00 am Lung and Pleura Dr.Saeed	8:00 - 9:00 am Tuberculosis (Micro) Prof . KAMBAL	8:00 - 9:00 am Mediastinum Dr.Saeed	8:00 - 9:00 am Histology of the Lung (Anatomy)	8:00 - 10:00am (Practical) Lung volumes and Capacity
9:00 - 11:00 am (Practical) Lung and Pleura	9:00 – 10:30 am Small Group Discussion	9:00 - 11:00 am (Practical) Mediastinum	9:00 – 10:30 am Small Group Discussion	
	10:30 - 12:00 pm Independent Learning		10:30 - 12:30 pm (Practical) Histology of the Lung Room 122 1st Floor	10:00 - 11:00am Alveolar-Arterial Equation (Phys) Dr. Tariq
11:00 - 12:00pm Fatty acid oxidation Dr.Sherif Salih		11:00 - 12:00pm Utilization of ketone bodies Dr.Sherif Salih		11:00 - 12:00pm Tuberculosis Treatment (Micro) Prof . KAMBAL
Lunch	Lunch	Lunch	Lunch	Lunch
1:00-2:00pm Development of Larynx, Trachea, Bronchi Dr.Mojahed	1:00- 3:00 pm Salam	1:00-2:00pm Gas Transfer (Phys) Dr. Tariq	1:00 - 3:00 pm Independent Learning	1:00 -3:00pm Salam
2:00-3:00pm Immunologyof T.B Prof.Gad El-Rab		2:00-3:00 pm Oxygen Transport Carbon Dioxide Transport (Phys) Dr. Tariq		

LECTURE THEATER :

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WEEK 3 – RESPIRATORY BLOCK B (Male)

Week (3) Starting:

6/3/2010 (20/3/1431H)

CHAIR PERSON : Dr.Sami Al-Nassar

CO-CHAIR: Prof.Abdulmajeed Kambal

Saturday	Sunday	Monday	Tuesday	Wednesday
8:00 ~ 9:00 am Restrictive Lung Diseases (Path) Dr.Ammar AL-Rikabi	8:00 ~ 9:00 am Respiratory tract Infections (1) (Pharmacology) Prof. Al-Humayyd	8:00 ~ 9:00 am Bacteria Causing Upper Respiratory Tract Infection Dr Ali Somily	8:00 ~ 9:00am Control of Breathing (Phys) Dr. Tariq	8:00 ~ 9:00 am Cancers of the Lung (1) (Path) Dr.Ammar AL-Rikabi
9:00 ~ 11:00 am (Practical) Restrictive lung Diseases (Path - Dr.Ammar AL-Rikabi Dr.Amer Al-Shafi Pathology Dept. Student Lab Room 051142	9:00 ~ 10:30am Small Group Discussion	9:00 ~ 10:00 am Candidiasis (Micro) Prof. Saleh Al-Hedaithy	9:00 ~ 10:30am Small Group Discussion	9:00 ~ 10:00 am Effect of Low and High Gas Pressure on the Body (Physiology) Dr. Tariq
11:00 ~ 12:00pm Viral Infection of the Respiratory Tract(Influenza, Adenoviruses) Dr M. Arif	10:30 ~ 12:00pm (Practical) History taking & principles of Respiratory examination Group (1) Medical education department, skills lab., level 2 & 3	10:00 ~ 11:00 am Preferential utilization of energy by tissues Dr.Azhar	10:30 ~ 12:30pm (Practical) Dynamic Spirometry	10:00 ~ 11:00 am Respiratory Tract Infection (2) (Pharma) Prof. Al-Humayyd
		11:00 ~ 12:00pm Respiratory Chain Dr.Azhar	Room 2149 2 nd Floor Room 3149 3 rd Floor	11:00 ~ 12:00pm Pulmonary Infections (Path) Dr.Ammar AL-Rikabi
Lunch	Lunch	Lunch	Lunch	Lunch
1:00-2:00 pm Alveolar-Arterial Equation (Phys) Dr. Tariq	1:00 ~ 3:00pm Salam	1:00 -3:00pm (Practical) Microbiology (Staph and Strep Infections) Dr Ali Somily Dr Al-Khattaf	1:00 ~ 3:00 pm (Practical) History taking & principles of Respiratory examination Group (2) Medical education department, skills lab., level 2 & 3	1:00 ~ 3:00 pm Salam
1:00-3:00 pm Bacteria Causing Lower Respiratory Tract Infection Dr Ali Somily				

➤ **Thursday: (11/3/2010) (25/3/1431H)**

Mid-Exam

10:00am-12:00pm

At the M1 and M2 and L1 and L2 and A Halls and B Halls

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WEEK 4 – RESPIRATORY BLOCK B (Male)

Week (4) Starting:

13/3/2010 (27/3/1431H)

CHAIR PERSON : Dr.Sami Al-Nassar

CO-CHAIR: Prof.Abdulmajeed Kambal

Saturday	Sunday	Monday	Tuesday	Wednesday
8:00 – 9:00 am Cancers of the Lung (2) (Path) Dr.Ammar AL-Rikabi	8:00 – 9:00 am Pharmacological Treatment of Acute and Chronic rhinitis and Cough (1) Dr.Saeed	8:00 – 9:00 am Radiological Anatomy of the Chest (1) Dr.Essam	8:00 – 9:00 am Parameters for Measuring Work Capacity (Phys) Dr. Tariq	8:00 – 9:00 am Independent Learning
9:00 – 11:00 am (Practical) Cancers of the lung Dr.Ammar AL-Rikabi Dr.Amer Al-Shafi Pathology Dept. Student Lab Room 051142	9:00 – 10:30 am Small Group Discussion	9:00 – 10:00 am Drugs for Treatment of T.B (2) Dr.Saeed	9:00 – 10:30 am Small Group Discussion	9:00 – 10:00 am Pharmacological Treatment of Acute and Chronic Rhinitis and Cough(2) Dr.Saeed
11:00 – 12:00pm Independent Learning	10:30 – 12:00 pm Independent Learning	10:00 – 12:00 pm Skills Lab (System Examination Respiratory)	10:30 – 12:00pm Independent Learning	10:00 – 11:00am Independent Learning
Lunch	Lunch	Lunch	Lunch	Lunch
1:00-2:00 pm Effect of Exercise on the Respiratory System Dr. Tariq	1:00-3:00 pm Salam	1:00-2:00pm Respiratory Fungal Infection (Aspergillosis) Prof. Saleh Al-Hedaithy	1:00 – 2:00 pm Diagnosis of Type I Allergy (Immunology) Prof.Gad El-Rab	1:00 -3:00 pm Salam
2:00-3:00 pm Phospholipids of clinical significance(1) Dr.Azhar		2:00-3:00pm Globular proteins hemoglobin and myoglobin (Bio) Dr.Waheed	2:00-3:00pm Phospholipids of linositol and phospholipases (2) Dr.Azhar	

LECTURE THEATER :

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BIOCHEMISTRY

Respiratory: (4 weeks)

1. **ATP production(3)**
 - Fatty acid oxidation
 - Utilization of ketone bodies
 - Preferential utilization of energy by tissues
2. **Respiratory chain(1)**
3. **Phospholipids (2)**
 - Phospholipids of clinical significance
 - Phosphatidylinositol and phospholipases
4. **Globular proteins: Hemoglobin and myoglobin (2)**

ANATOMY

1. **Muscles involved in respiration**
2. **Nasal Cavity.Larynx and Trachea**
3. **Lung and Pleura**
4. **Meduastinum**

Topics of Histology

1. **Histology of the Nasal Cavity, Larynx and Trachea**
2. **Histology of the Lung**

Topics of Embryology

1. **Development of Larynx, Trachea and bronchi**

PHARMACOLOGY

Pharmacotherapeutics of Pulmonary Disorders: 8 hours

1. Pharmacological treatment of Asthma and COPD: (4)

Discussion of the ANS Pharmacology of the Respiratory tract is pivotal before starting especially the foundation course is ANS Pharmacology-Free. Histamine and Leukotrienes are two main autacoids which are better briefly explained before starting. Therefore the general objectives would be.

- Adrenergic and Cholinergic Molecular Targets in Respiratory Airway
- Histological and Leukotrienes Pharmacology
- What are the main problems of concern to be pharmacologically targeted?
- Pharmacological Treatment, Strategies and Goals
- Main Treatment Modalities in Asthma:
 - Beta 2 Adrenergic Agonists
 - AntiCholinergic Agents
 - Corticosteroids, Inhalation vs. Systemic
- Alternative Pharmacologic Treatment
 - Methylxanthines
 - Mast Cell Stabilizers
 - Leukotriene Modifiers

Monoclonal Antibody Therapy

Combinations

Future Potential Therapies (PDE-IV Inhibitors?)

At the end, Asthma Classes according to NIH would be briefly discussed and drugs allocated into different categories to make a link with coming therapeutic course

2. Pharmacological Treatment of acute and Chronic Rhinitis and Cough (2)

Refer to applied physiology and anatomy of the nose as a start point

What are the main concerns to be pharmacologically targeted?

Pharmacological Treatment Strategies and Goals

Main treatment Modalities in Rhinitis:

- Antihistamine Drugs
- Nasal vs. Oral Antihistamines
- Cromolyn Therapy
- Intranasal Corticosteroids
- Leukotriene Modifiers
- Subcutaneous Immunotherapy (SIT)

Cough Treatment

- Mucokinetic Agent
- Mucolytic therapy
- Opioid and Non-Opioid Antitussives
- Local acting Antitussives; Demulcents, Local Anesthetic and steam Aerosols

3. Respiratory Tract Infections: (2) (Integrated with Microbiology)

Bronchial Infections Treatment

Pneumonia Treatment

Different types of Pneumonia

Chemotherapy Treatment in Pneumonia

4. Tuberculosis Treatment (1)

PHYSIOLOGY

Learning Objectives.

Lecture 1: Functions and Organization of the Respiratory System

By the end of this lecture the Students should be able to:-

- 1- Understand the difference between internal and external respiration.
- 2- Describe the structures and functions of the conductive and respiratory zones.
- 3- Understand functions of the respiratory system, including non- respiratory functions, like clearance mechanism by mucus and cilia, production of surfactant and converting enzyme.

Lecture 2: Mechanics of breathing

By the end of this lecture the students should be able to:

- 1- List the muscles of respiration and describe their roles during inspiration and expiration.
- 2- Understand the importance of the following pressures in respiration:
Atmospheric, alveolar, intrapleural, and transpulmonary
- 3- Explain why intrapleural pressure is always subatmospheric under normal conditions, and the significance of the thin layer of the intrapleural fluid surrounding the lung.
- 4- Describe pneumothorax.
- 5- Describe the pressure and volume relationships in a single respiratory cycle.
- 6- Define lung compliance and list the determinants of compliance.
- 7- Describe the physiological significance of surfactant and provide an example of abnormal lung function due to a deficiency of surfactant.

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Lectures 3 & 4: Respiratory ventilation

By the end of these lectures the students should be able to: -

- 1-Define the various Lung Volumes and capacities and provide typical values for each.
- 2-Define ventilation rate, their typical values, and their measurement.
- 3- Describe FEV_{1.0} and its role in differentiating obstructive and restrictive lung diseases
- 4- Understand air movement and airway resistance:

 Definition, determinants, role of autonomic nervous system and mechanical factors
- 5- Describe the types of dead space. State a volume for the anatomical dead space.
- 6- Define the term minute ventilation and state a typical value.
- 7- Distinguish minute ventilation from alveolar ventilation.
- 8-Understand the work of breathing

Lecture 5: Gas Transfer

By the end of this lecture the students should be able to: -

- 1-Define partial pressure of a gas. Describe how partial pressure of a gas is influenced by altitude.
- 2- Understand that the pressure exerted by each gas in a mixture of gases is independent of the pressure exerted by the other gases (Dalton's Law)
- 3- Understand that gases in a liquid diffuse from higher partial pressure to lower partial pressure (Henry's Law)
- 4- Describe the factors that determine the concentration of a gas in a liquid.
- 5- Describe the components of the alveolar-capillary membrane (i.e., what does a molecule of gas pass through).
- 6- Knew the various factors determining gas transfer: -

Surface area, thickness, partial pressure difference, and diffusion coefficient of gas.

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7- State the partial pressures of oxygen and Carbon dioxide in the atmosphere, alveolar gas, at the end of the pulmonary capillary, in systemic capillaries, and at the beginning of a pulmonary capillary.

Lecture 6: Oxygen and Carbon dioxide Transport

By the end of this lecture the students should be able to: -

- 1- Understand the forms of oxygen transport in the blood, the importance of each form and,
- 2- Describe: -
 - a- The relationship between PO_2 and % saturation of hemoglobin with oxygen (Oxygen- hemoglobin dissociation curve), and the significance of the shape of this relationship
 - b- How DPG, temperature, H^+ ions and PCO_2 affect affinity of O_2 for Hemoglobin and the physiological importance of these effects.
- 3- Differentiate between O_2 capacity, O_2 content and O_2 saturation.
- 4- Define the P_{50} and its significance.
- 5- Know the significance of fetal Hb and adult myoglobin.
- 6-Describe the three forms of Carbon dioxide that are transported in the blood, and the chloride shift.
- 7- Describe the role of the enzyme carbonic anhydrase, and the CO_2 dissociation curve.
- 8- Describe how H^+ is transported in the blood.
- 9- Define respiratory acidosis and respiratory alkalosis, and explain how these are related to hypoventilation and hyperventilation respectively.
- 10- Enumerate the differences between the dissociation curves for O_2 and CO_2 .

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Lecture 7: Control of breathing

By the end of this lecture the students should be able to: -

- 1- Understand the role of the medulla oblongata in determining the basic pattern of respiratory activity.
- 2- Describe the pacemaker activity of the medullary inspiratory neurons.
- 3- List some factors that can modify the basic breathing pattern like e.g.
 - a- The Hering-Breuer reflexes, b- The proprioceptor reflexes, and c- The protective reflexes, like the irritant, and the J-receptors.
- 4- Understand the respiratory consequences of changing PO_2 , PCO_2 , and pH.
- 5- Describe the locations and roles of the peripheral and central chemoreceptors.
- 6- Compare and contrast metabolic and respiratory acidosis and metabolic and respiratory alkalosis.

Lecture 8 & 9: Alveolar - Arterial equilibration

By the end of this lecture the students should be:-

- 1-Define hypoxia and list its various causes.
- 2-Define hypo and hyper-ventilation in terms of arterial PCO_2 and PO_2 .
- 3 Define cyanosis
- 4-Understand regional variations in alveolar ventilation and blood flow.
- 5-List causes of abnormal ventilation/perfusion (V_A/Q) ratios.

Lecture 10: Effects of low and high gas pressure on the body

By the end of this lecture the students should be able to: -

- 1-Describe the effects of exposure to low and high barometric pressures on the body.
- 2- Describe the body acclimatization to low barometric pressure.
- 3-Define decompression sickness and explain how it can be avoided.
- 4-Understand the effects of high nitrogen pressure, and nitrogen narcosis.

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Lecture 11: Effects of exercise on the respiratory system.

By the end of this lecture the students should be able to: -

1-Understand the difference between dynamic and isometric exercise.

1- Describe the effects of moderate and severe exercise on oxygen consumption, and ventilation volumes.

2-Describe the effects of exercise on arterial PO_2 , PCO_2 and H^+ ions.

3- Define the diffusing capacity of the respiratory membrane, and its typical values at rest, and explain its changes in exercise.

4-Explain causes of hyperventilation in exercise.

Lecture 12: Parameters for measuring work capacity.

By the end of this lecture the students should be able to: -

1-Know aerobic and anaerobic energy sources.

2-Understand the relationship between exercise intensity and energy sources.

3-Know energy expenditure at rest and during exercise.

4-Understand the factors determining aerobic fitness.

5-Understand the other major components of physical fitness

6-Know how to measure total body fat and lean body mass.

7-Define oxygen debt, and oxygen deficit, and explain how they differ between athletes and non-athletes.

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PATHOLOGY

RESPIRATORY SYSTEM BLOCK (six lectures) (4 weeks)

1. Lectures 1 and 2:

- Chronic obstructive airways diseases:
 - * General manifestations of chronic obstructive airway diseases.
- Bronchial asthma, chronic bronchitis, pulmonary emphysema and bronchiectasis:
 - * Definitions, classification, pathological findings and pathogenesis with principal complications.

2. Lecture 3 :

- Pulmonary infections: pathology of lobar pneumonia, bronchopneumonia, primary atypical (interstitial) pneumonia, pneumocystis Carinii pneumonia and lung abscess.

3. Lecture 4 :

- Restrictive lung diseases: pathology of acute respiratory distress syndrome, pneumoconiosis (anthracosis, silicosis and asbestosis), hypersensitivity pneumonitis (extrinsic allergic alveolitis) and idiopathic pulmonary fibrosis.

4. Lectures 5 and 6 :

- Cancers of the lung: general considerations regarding primary and metastatic cancers. Pathology of the various types of bronchogenic carcinoma, carcinoid and carcinoma metastatic to the lung.

5. Lectures 7 :

- Viral Infection of the Respiratory Tract(Influenza, Adenoviruses)

6. Lectures 8 :

- Respiratory Fungal Infection (Aspergillosis)

7. Diseases of the pleura with special emphasis on mesothelioma.

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Microbiology

1. Tuberculosis
2. Tuberculosis Treatment
3. Bacteria Causing Lower Respiratory Tract Infection
4. Candidacies
5. Tuberculosis

Immunology

1. Atopy , Allergic Disease and Anaphylaxis
2. Immunology of T.B (1)
3. Diagnosis of Type I Allergy