

Programme: BSc Health and Social Care

Module: Introduction to Physiology

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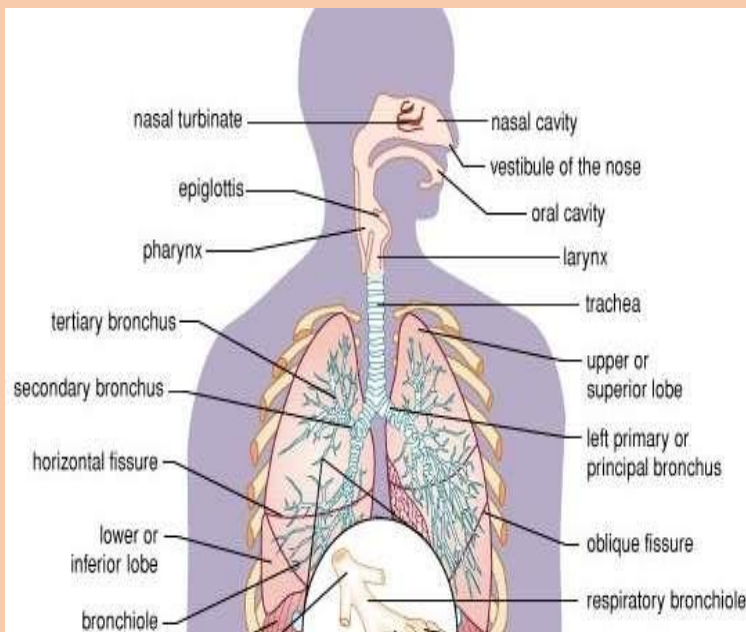
Assignment section: Task 1 Part 2

Poster Presentation: Respiratory System

Lecturer's name: Mumtaz Goolam

Date: 19th November 2021

Presentation Poster- Respiratory System



Respiratory System Physiology and Anatomy

The respiratory system is responsible for both the oxygenation of the body and the elimination of waste products generated during metabolism. Stabilizing blood PH is another benefit. Cells and the outer world exchange oxygen and carbon dioxide. Breathing occurs approximately every three to five seconds. Gases are exchanged between the lungs and the blood.

The blood, however, moves the gases through the body. There are two types of internal respiration, cellular metabolism, and gas exchange.

The two lungs take up a large amount of space. The mediastinum contains the heart and prominent veins. The right lobe has three lobes, while the left has two.

Respiratory System: Functions, Facts, Organs & Anatomy (2021)

Structure and Function

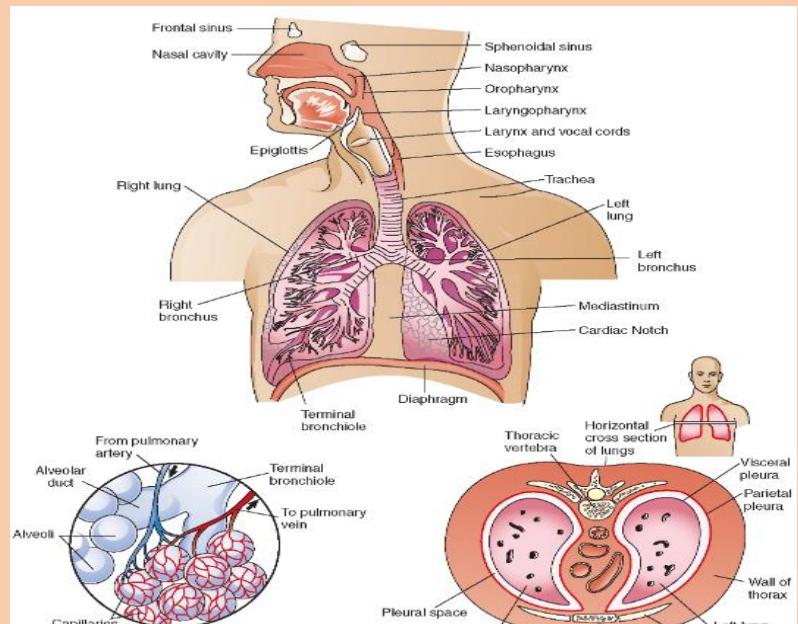
Structure

Respiratory organs and structures let us breathe by taking in oxygen and exhaling carbon dioxide, which is why we have the respiratory system. Many air passages can be found throughout the body; these include the lungs, nose, sinuses, and blood arteries. Organs and tissues that help you breathe are all part of the respiratory system, including the lungs. The respiratory system's primary function is to bring in the fresh air and remove waste gases from your body. **Ratini (2019)**

Function

There are two main functions of the human respiratory system: to bring in fresh oxygen and to deliver it into our lungs. Besides receiving and exhaling waste Carbon Dioxide, it also accepts and exhales blood. This section explains how the airways work and how oxygen enters the circulation.

The Respiratory System - Diagram, Structure & Function (2021)



The Respiratory System Structure and Function, Nursing Part 1, (2021)

Gaseous-Exchange

The blood and lungs exchange oxygen and carbon dioxide (CO₂). Providing oxygen to the tissues and removing carbon dioxide helps the respiratory system work efficiently. Alveolar air diffuses oxygen into the circulation. The alveoli release blood carbon dioxide into the air.

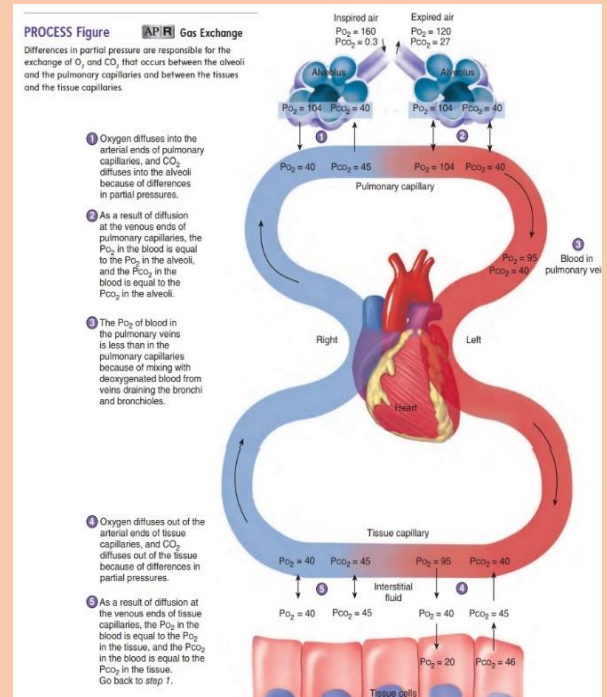
The mechanics of breathing:

Inhalation happens when the larynx opens, and evacuation occurs when the alveolar gaps are inflated. Breathing depends on pressure differentials. Variations in pressure cause air to travel faster or slower. Because atmospheric pressure is constant mainly, flow is determined by lung pressure.

human respiratory system - The mechanics of breathing, (2021)

Gas Exchange in five steps:

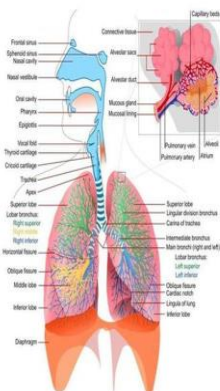
- Pulmonary Ventilation
- Exhaled Breath
- Gases are carried by blood
- Internal Beathing
- Cellular respiration



Cinnamon VanPutte and System, (2021)

Homeostasis

How the respiratory system maintains homeostasis in the body



The respiratory system helps maintain homeostasis by regulating the intake of air into the body and by removing carbon dioxide from the blood. This then aids the circulatory system's function and many other operations in the body. Without these internal systems being properly balanced it can lead to a number of issues in the human body, including death, depending on the severity of the imbalance.

To provide oxygen and eliminate carbon dioxide, respiratory and cardiovascular systems work together to exchange gases between the lungs and the rest of the body. The oxygen intake and carbon dioxide expulsion and the homeostasis are disrupted when either system fails, triggering fast cell death from oxygen shortage and waste product build-up.

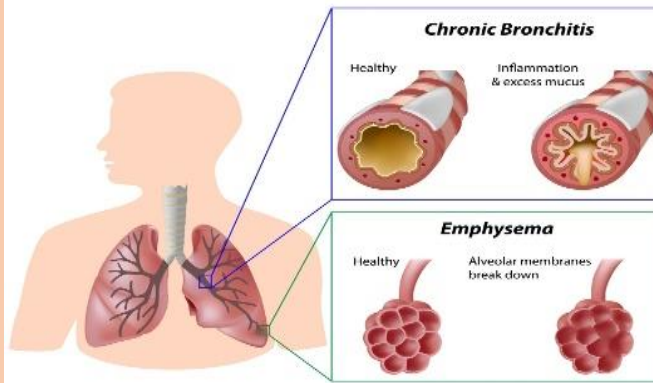
The respiratory system regulates blood pH, contains scent receptors, filters inhaled air, makes sounds, and eliminates water and heat from exhaled air. The capillary blood capillaries have a broad area of contact with the external environment. This contact area constantly renews and replenishes the body's internal fluid environment.

UKEssays (2018)

Ethan, (2021)

Respiratory System Disease

Chronic Obstructive Pulmonary Disease (COPD)



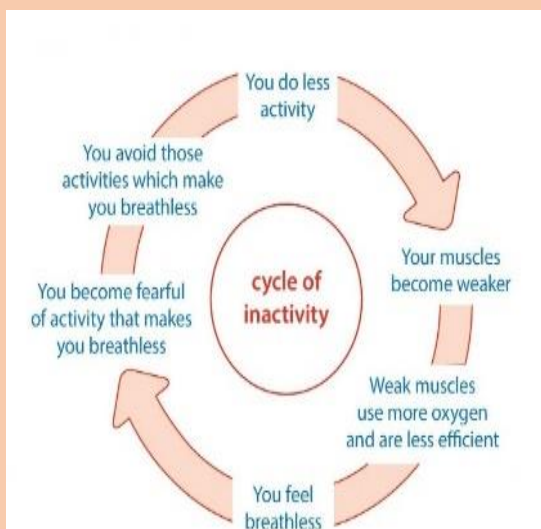
Oliver and mine, (2014)

The most prevalent cause of lung airflow restriction is a chronic obstructive pulmonary disease. Sputum coughing and wheezing are common. The most prevalent explanation is long-term exposure to irritating chemicals or particles, usually from cigarette smoke. Chronic obstructive pulmonary disease raises the risk of heart disease, lung cancer, and other diseases and Emphysema and persistent bronchitis are other prominent causes of Chronic obstructive pulmonary disease. Breathing difficulties, especially with complex activity.

- Respiratory infections are prevalent. Squeezing of ribs coughing up mucus that may be clear, white, yellow, or green.
- Inadvertently losing weight

COPD - Symptoms and causes, (2021)

Benefits and Limitation



Hewlett and Hewlett (2021)



A recent study by Boutellier et al. (1992) found that untrained respiratory systems restrict submaximal exercise is 64% peak oxygen use endurance in inactive subjects. To see if regular, endurance-trained people could benefit from respiratory training. Eight subjects had their VO_{2max} , anaerobic threshold, and breathing and cycle endurance tested. These subjects improved their breathing and cycling endurance by over 300 percent after isolated respiratory training.

The respiratory muscle endurance can be significantly enhanced, and muscle fatigue causes hyperventilation, limiting anaerobic threshold performance. Short-term respiratory training lowered minute ventilation and increased anaerobic threshold cycle performance. These findings suggest that the respiratory system limits exertion in ordinary endurance-trained individuals.

Respiratory restrictions in health and social care

Respiratory muscle exhaustion and sympathetic-mediated blood flow distribution. The benefit of exercise enhances lung capacity. When you exercise, your lungs get extra oxygen because your blood flow increases.

It is claimed by Bolzani et al (2017). As a primary physiologic obstacle to breathing, breathing training solutions focus on gentle, extended exhalation and slower, deeper breathing, as well as breathing in and out. Pursued-lip, diaphragmatic and respiratory muscle training are examples of breathing techniques.

While the exact process by which a cooling breeze or fan might alleviate breathlessness is still a bit of a mystery, it may have something to do with the diving response, which induces a decrease in breathing when trigeminal. Nasopharyngeal sensors in the face are chilled.



Bolzani et al (2017)

Healthy Living



NewMe Healthy Lifestyle | LBBD (2021)

A person's bodily and mental well-being are in harmony when they live a healthy lifestyle. However, a well-balanced diet of protein, vitamins and minerals, calcium, carbohydrate, sugar, and fats are vital for the body's health. It helps keep the organs and the entire body functioning properly.



Staff, (2021)

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