

Gaseous Exchange in Animals

This section provides the opportunity for investigating how the human breathing system allows the exchange of gases between alveoli and the blood capillaries. The effects of cigarette smoke on health are considered. Structure of the Breathing System

Alveoli and Gaseous Exchange

There are millions of alveoli, therefore large surface area surface lining is moist, so gasses can dissolve before diffusing Thin membrane pulmonary artery brings deoxygenated blood pulmonary vein brings oxygenated blood diffusion of oxygen and carbon dioxide into and out of the blood How we clean the air we breath

Lining the nose and lungs are goblet cells, which produce mucus dirt and germs get caught in the mucus and is flicked up back to the mouth by cilia.

Smoking and Lung Disease

CO - reduces the oxygen carrying capacity of the blood Nicotine - is addictive, relaxes muscles, raises blood pressure, and increases fatty substances in the blood Smoking causes smokers cough - mucus gets caught in bronchioles cilia, and are too clogged up to flick mucus back up Bronchitis - bursts alveoli walls (emphysema) therefore a reduced area for oxygen and carbon dioxide to diffuse. Cancer - carcinogens in tobacco cause cells to divide more than they should. This causes a tumour. Heart Disease - tendencies for blood to clot will increase, due to increased fat. Tar - clogs up cilia Composition of air breathed in and out

Inhaled

Exhaled

Oxygen

 21%

16%

CO₂ 0.04%

4%

Nitrogen

79%

79%

Water Vapour

Little

Lots

Breathing In

Intercostal muscles contract diaphragm moves down (contracts) Ribs move up and out Thorax volume increases, pressure decreases air drawn into lungs

Breathing Out

Intercostal muscles relax diaphragm relaxes Ribs move down and in Thorax volume decreases, pressure increases air forced out of lungs

Images from: www.biologymad.com/.../GaseousExchange.htm

and <http://users.tpg.com.au/users/amcgann/body/respiratory.html>

About the Author

Source: <http://crampuppy.com>