

ALVEOLI & GAS EXCHANGE

Respiratory System Mechanics

ALVEOLUS

O₂, →

← CO₂,

OXYGEN (O₂)

Diffuses from the alveoli into the red blood cells within the capillaries. Higher concentration in inhaled air drives movement into the blood.

CARBON DIOXIDE (CO₂)

Diffuses from the blood plasma into the alveoli to be exhaled. Waste product of cellular respiration moving down the concentration gradient.

Surface Area

Millions of alveoli provide a massive surface area for efficient gas diffusion.

Membrane Thickness

The alveolar-capillary barrier is only two cells thick (approx. 0.5 μm).

Moist Lining

Surfactant and moisture allow gases to dissolve and pass through membranes easily.

Capillary Network

Dense blood vessel coverage ensures continuous removal of O₂, and supply of CO₂.