Ventilation-Perfusion Ratio (V/Q)

Shunt perfusion
Perfusion without ventilation
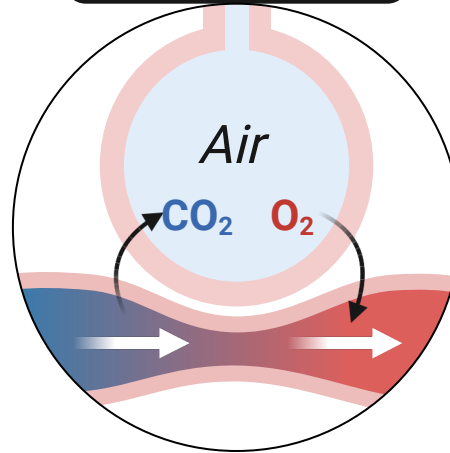
Normal
Perfusion and ventilation

Dead space ventilation
Ventilation without perfusion

Alveolus

Air

CO$_2$ O$_2$

Air
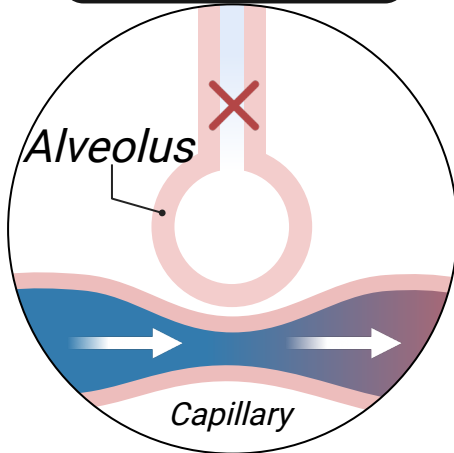
Capillary

Wasted perfusion
(e.g., airway obstruction, pneumonia)

Gas exchange between capillary and alveoli and blood oxygenation
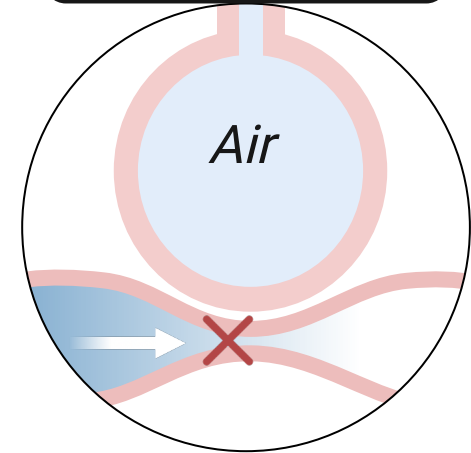
Wasted ventilation
(e.g., pulmonary embolism, cardiogenic shock)

Low V/Q

V/Q = 0.8

High V/Q

Zero   **V/Q**   *Infinity*