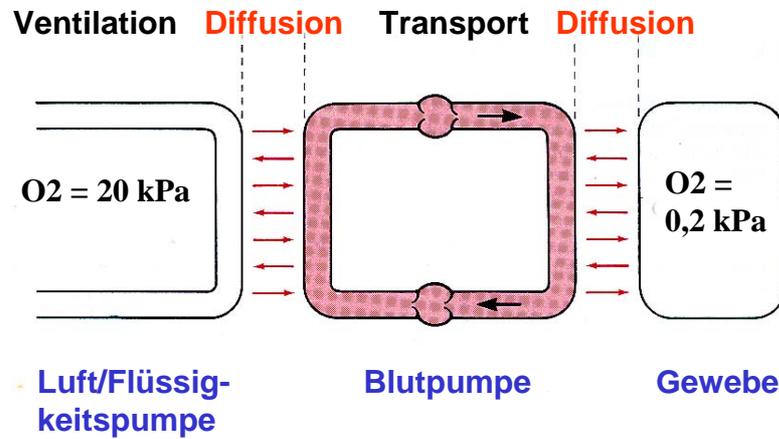


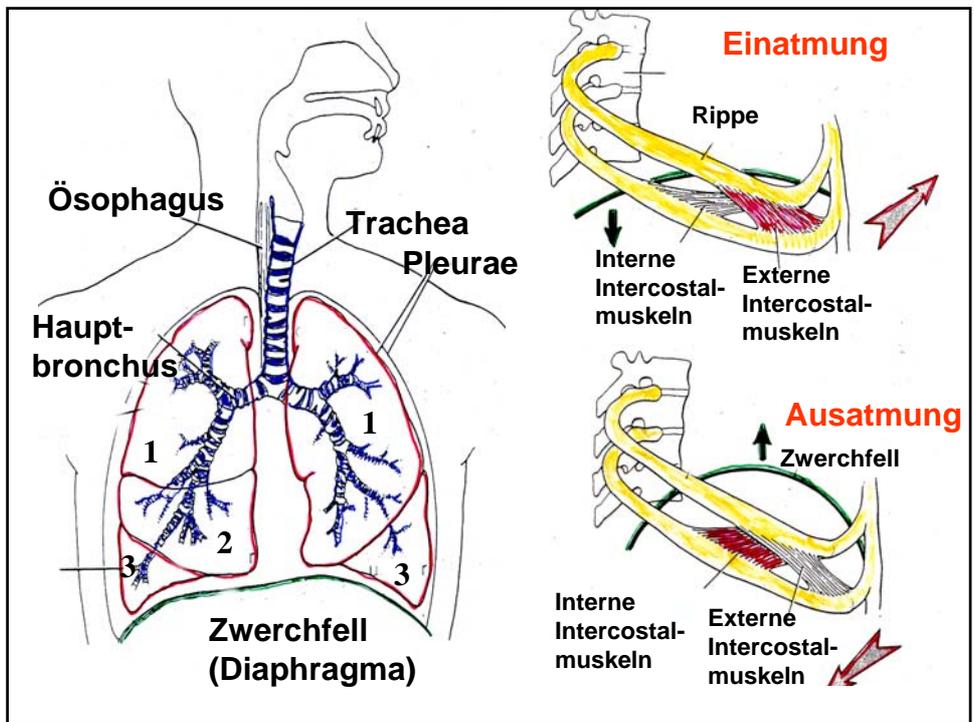
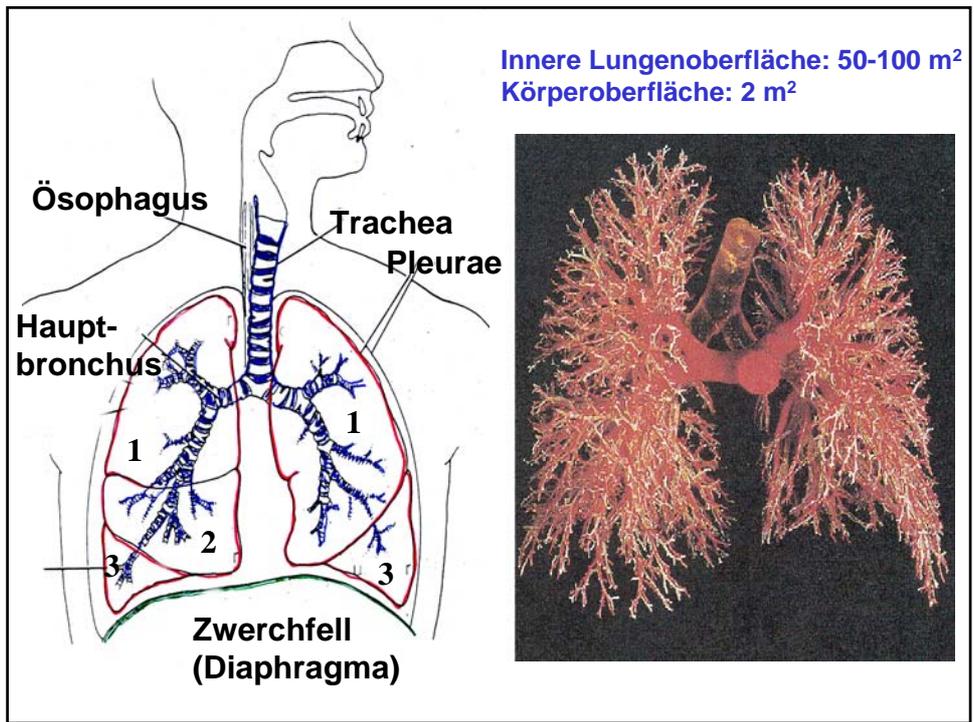
Prinzip des Gastransportsystems bei Wirbeltieren

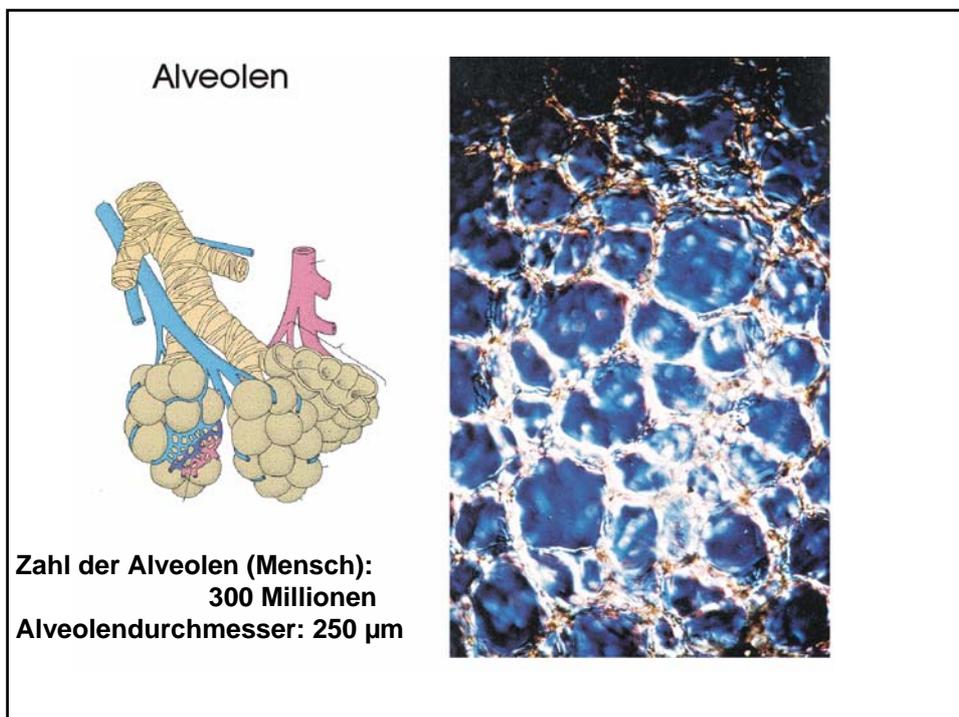
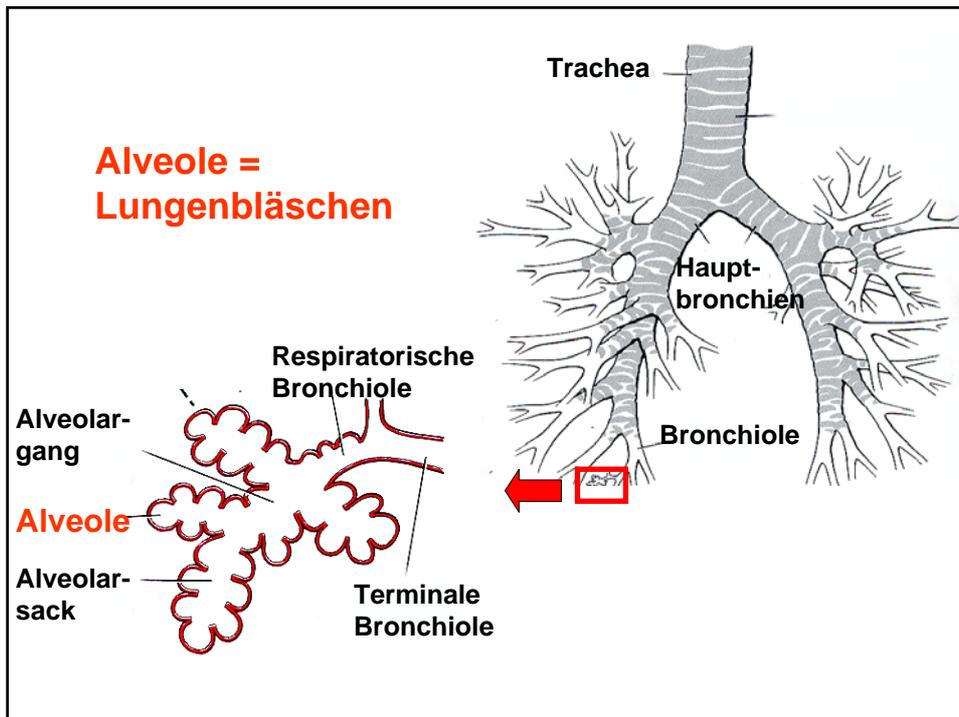


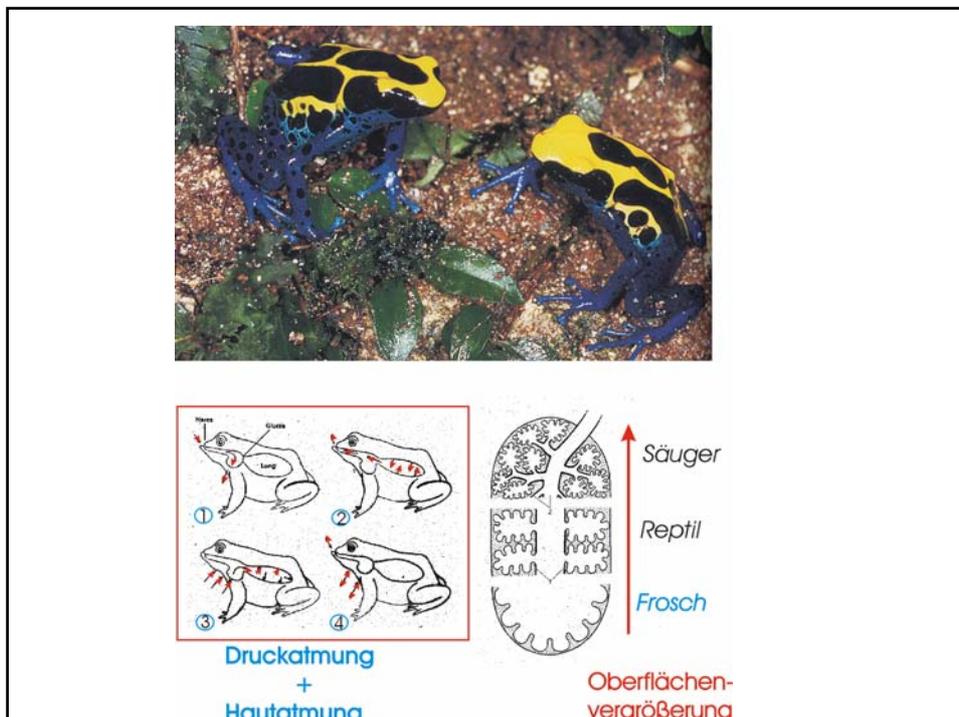
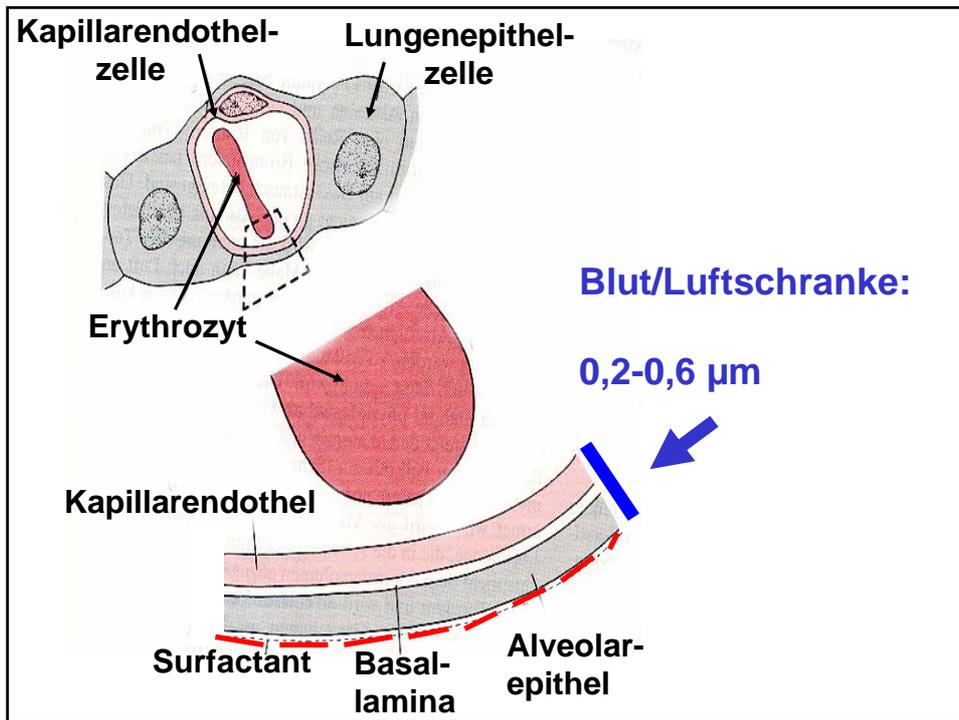
Eckert: Tierphysiologie

Atmungsorgane

- Körperoberfläche
- Lungen
- Kiemen
- Tracheen





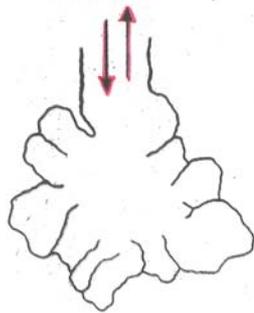




Gänsezug über Himalaya - fast 10000 m Höhe

Säugetier

Alveolen

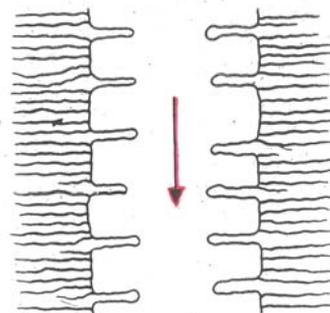


0.5 mm

**bidirektioneller
Luftstrom**

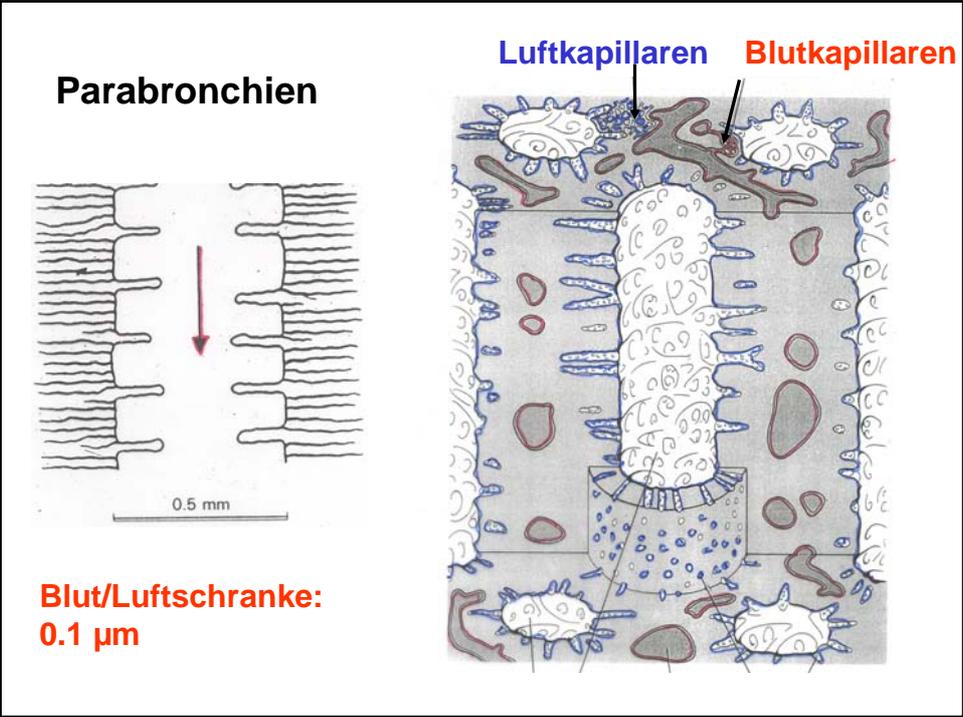
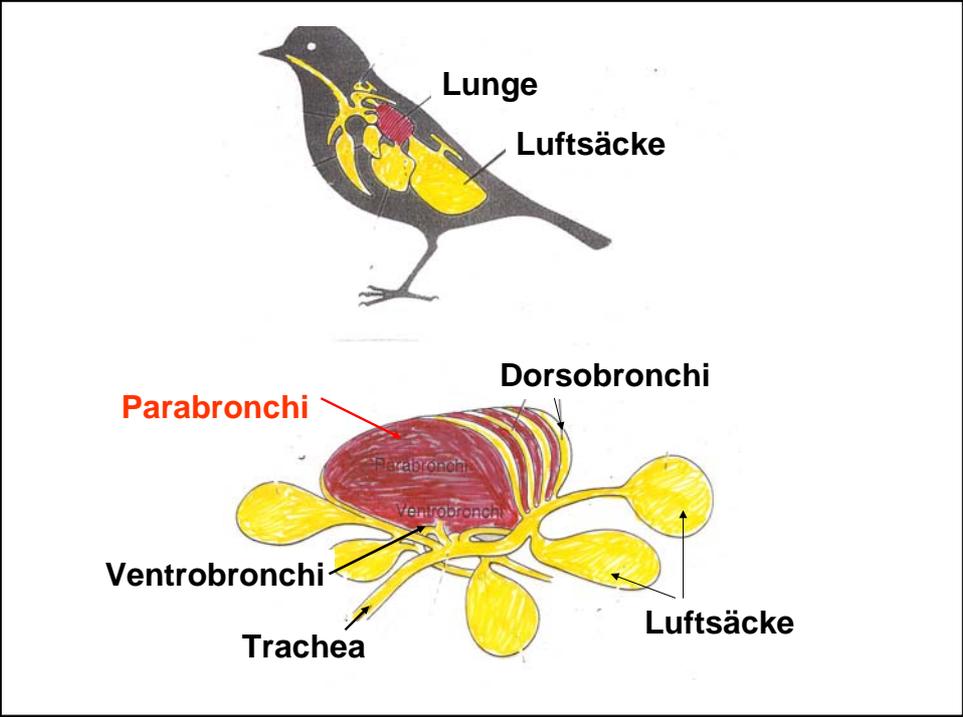
Vogel

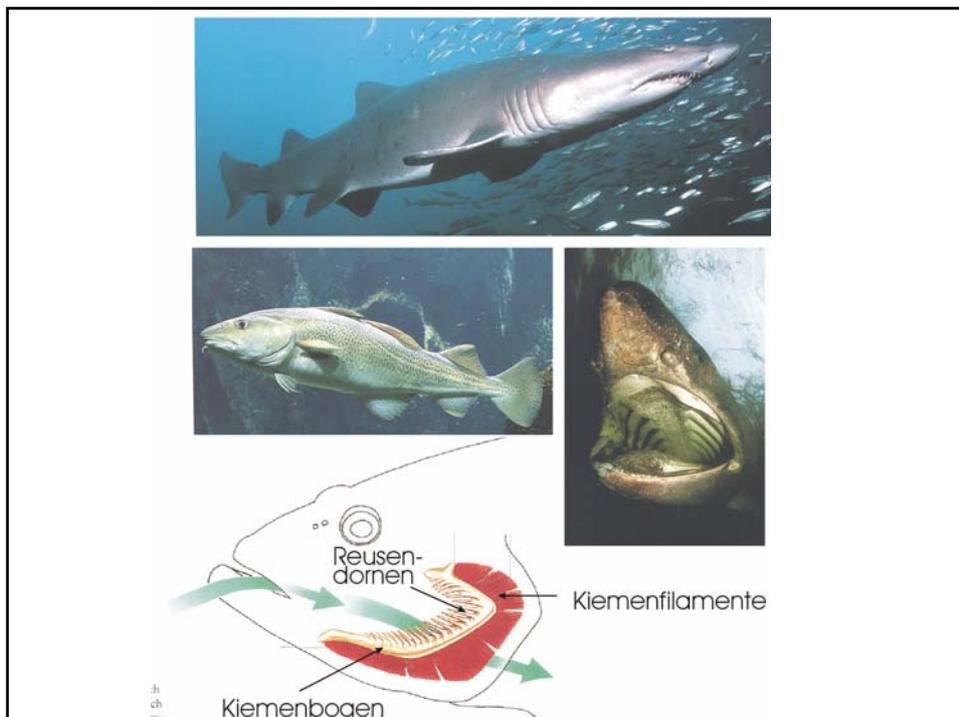
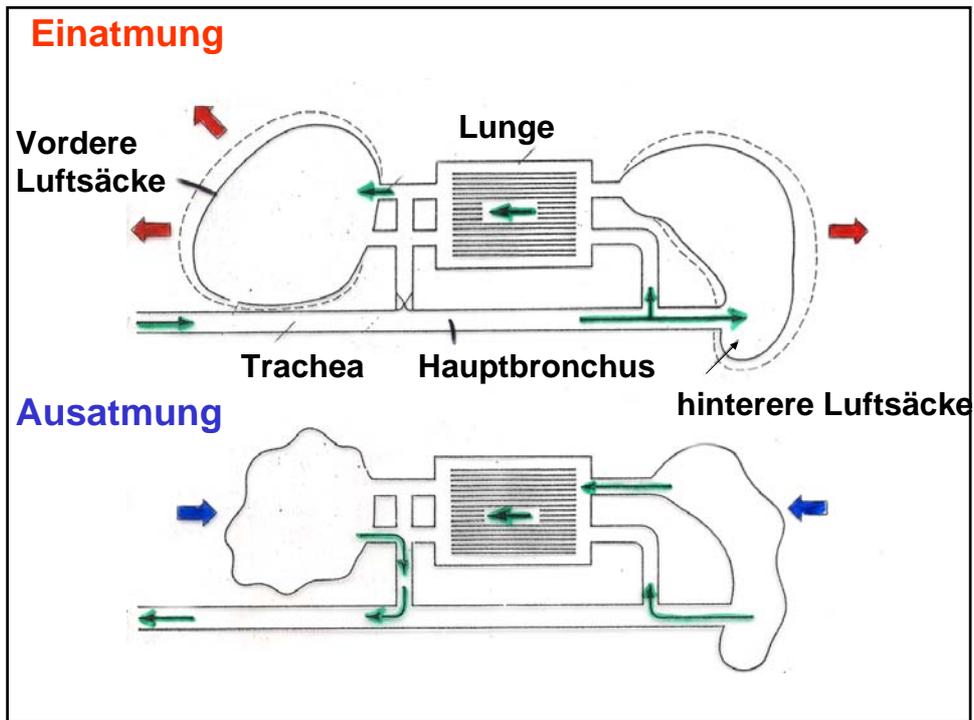
Parabronchien

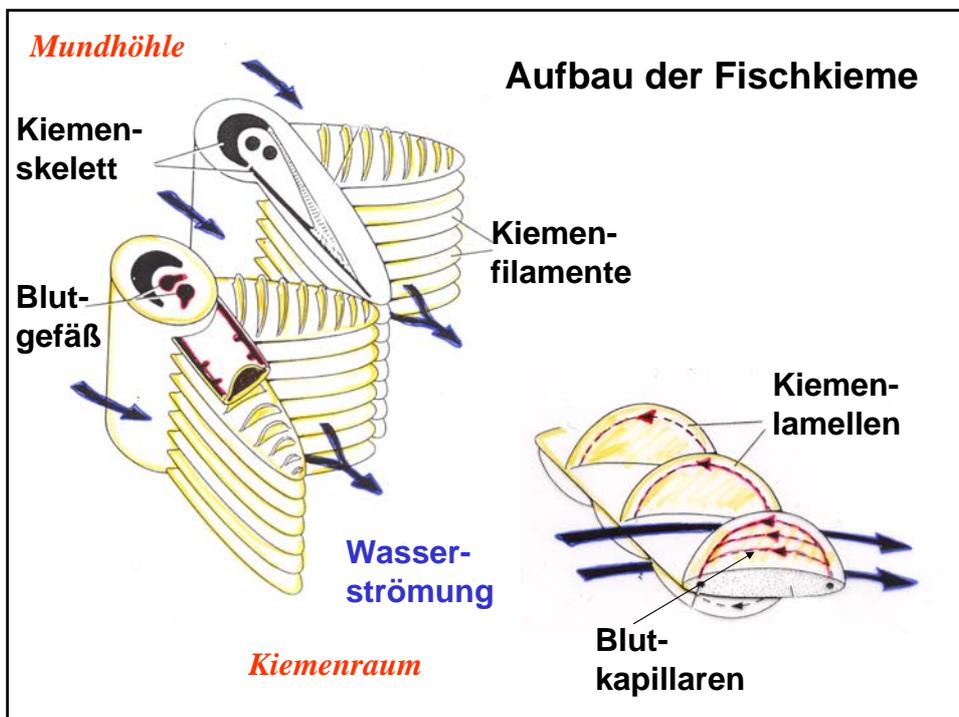
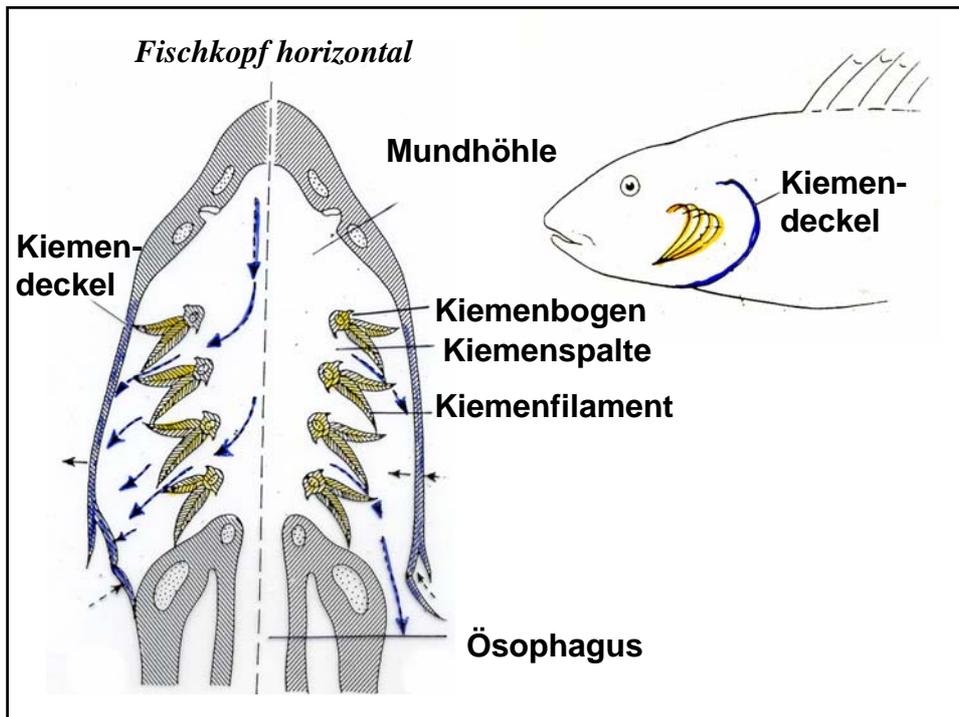


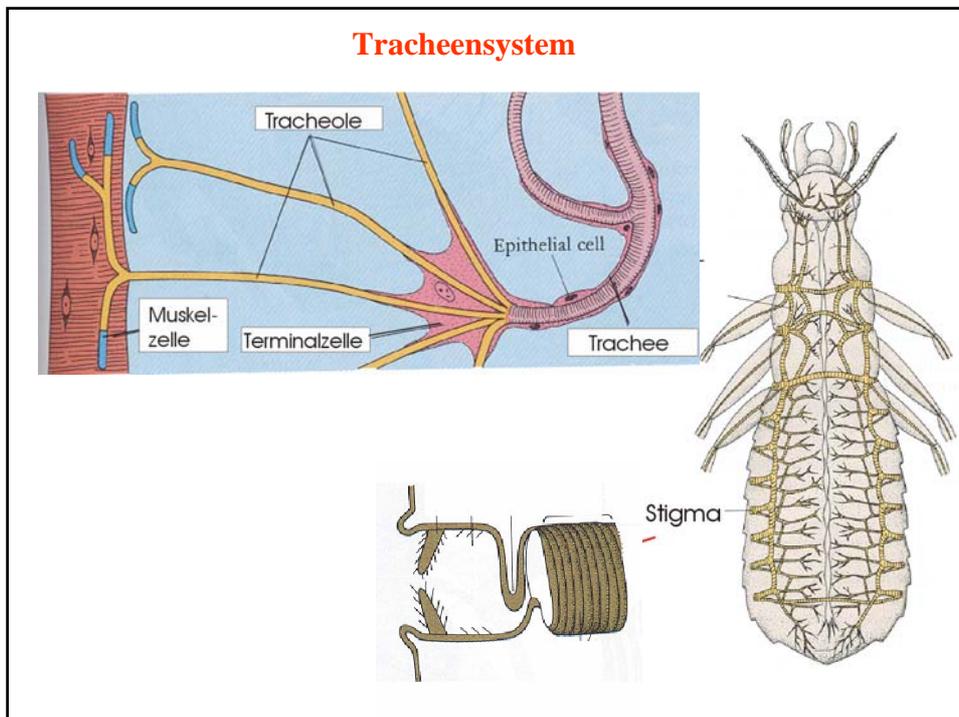
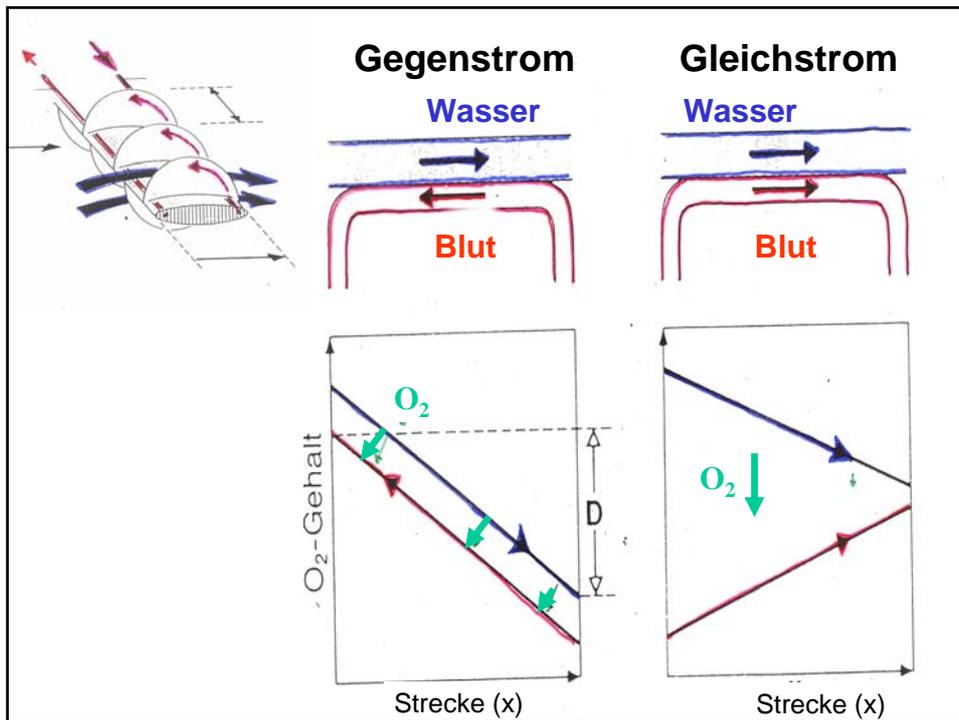
0.5 mm

**unidirektioneller
Luftstrom**

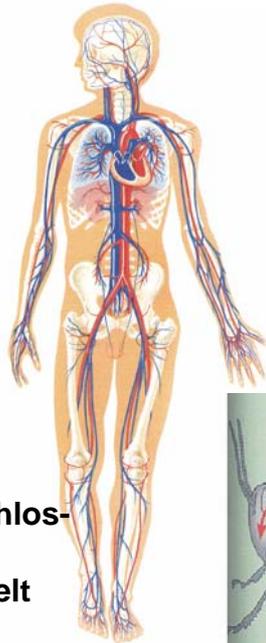




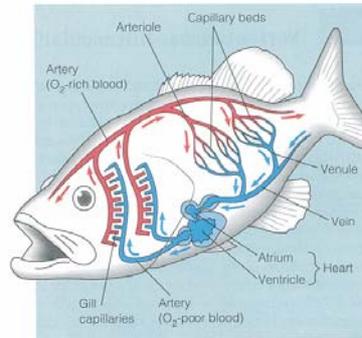




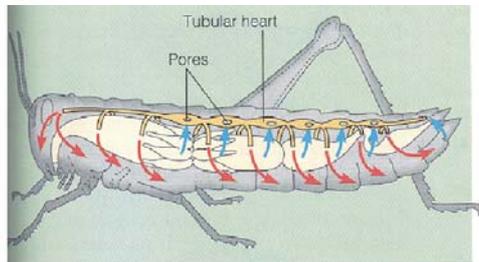
Kreislaufsysteme



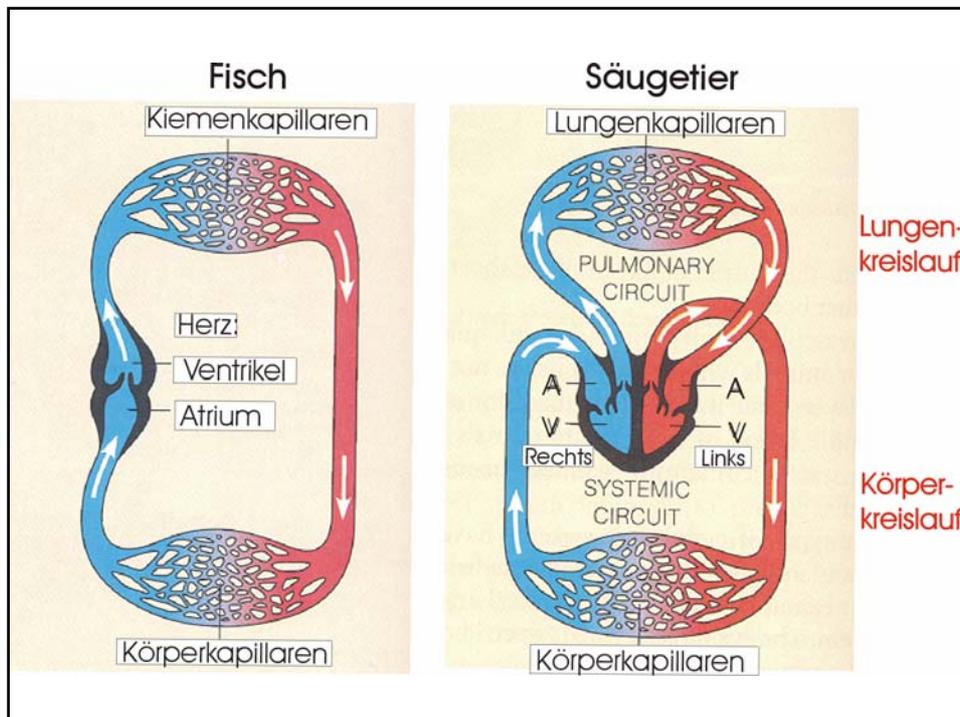
**Geschlossen,
doppelt**

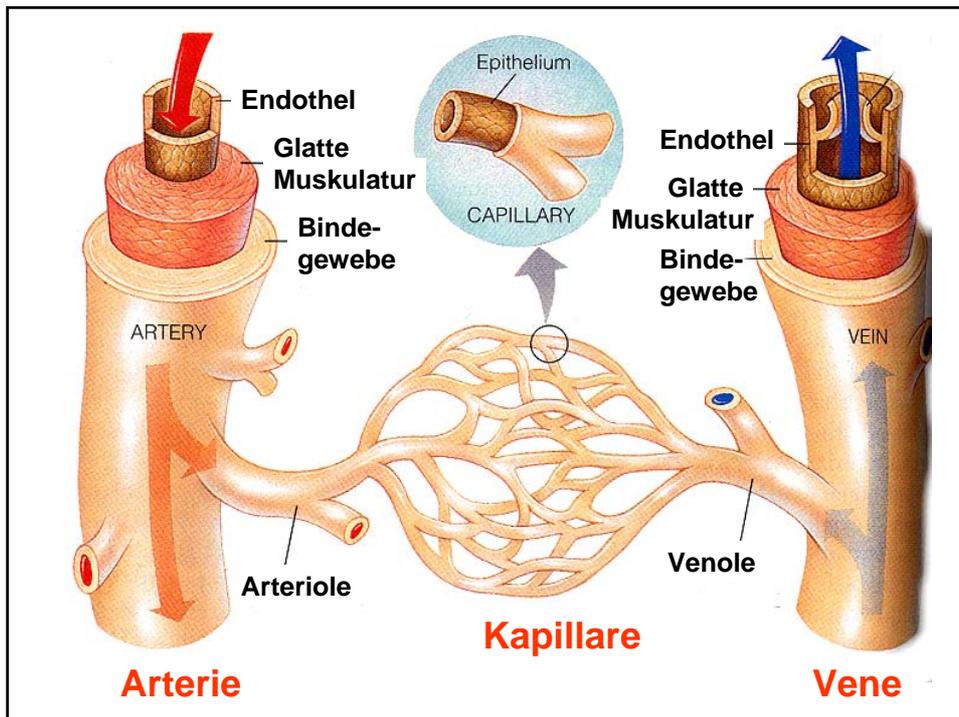


**Geschlossen,
einfach**



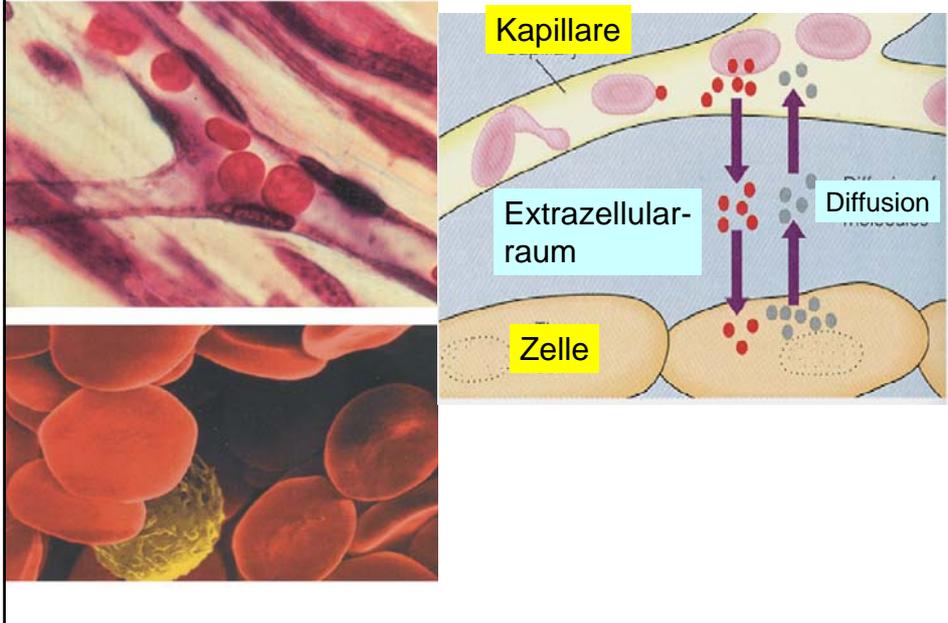
Offen



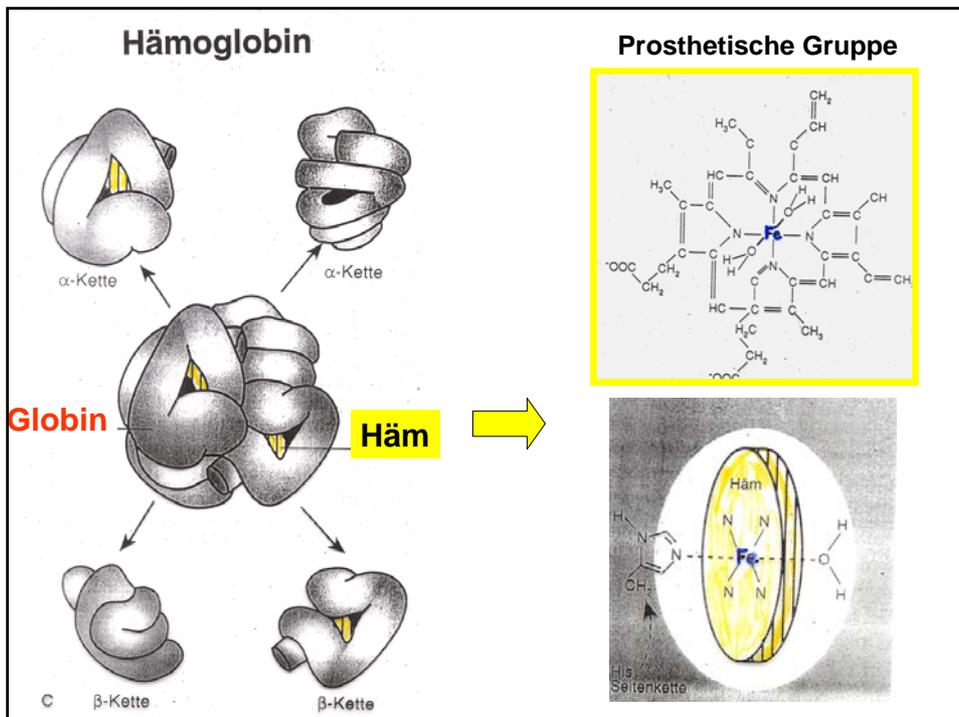


Sauerstofftransport

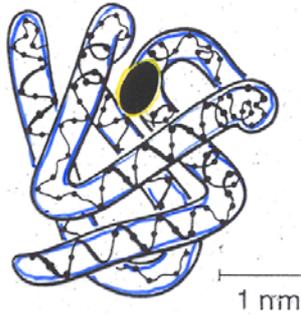
Erythrozyten der Säugetiere



Hämoglobin



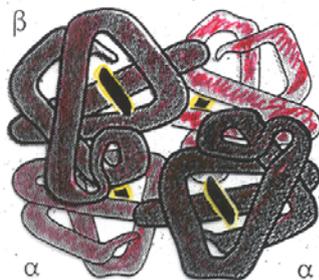
Myoglobin



**O₂-bindendes Protein
der Muskulatur**

- 1 Polypeptidkette
- 1 Häm

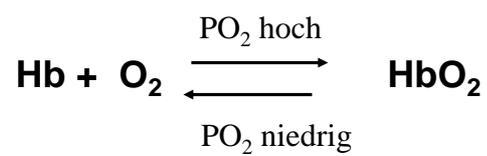
**Hämo-
globin**



**O₂-bindendes Protein
des Blutes**

- 4 Polypeptidketten
- 4 Häme

Oxygenierung von Hämoglobin



Desoxihämoglobin

Oxyhämoglobin

