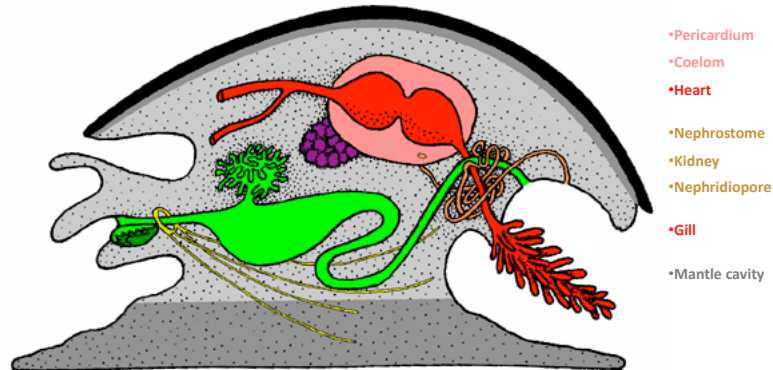


Metanephridial Excretory System



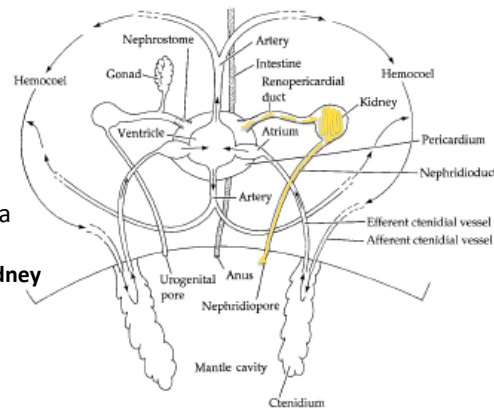
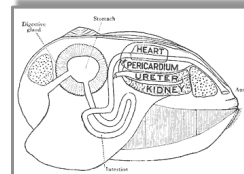
Mollusc

- Ultrafiltration of hemolymph across thin wall of **cardiac atrium** into **pericardial coelom**
- Paired **nephrostomes** draw coelomic fluid into metanephridia tubules consolidated into **kidney**
- Excretion via **nephridiopore** into mantle cavity
- **Probably not homologous to annelid metanephridia**
 - (annelid origin = mesoderm; mollusk origin = ectoderm)

Metanephridial Excretory System

Aquatic Mollusc (clam)

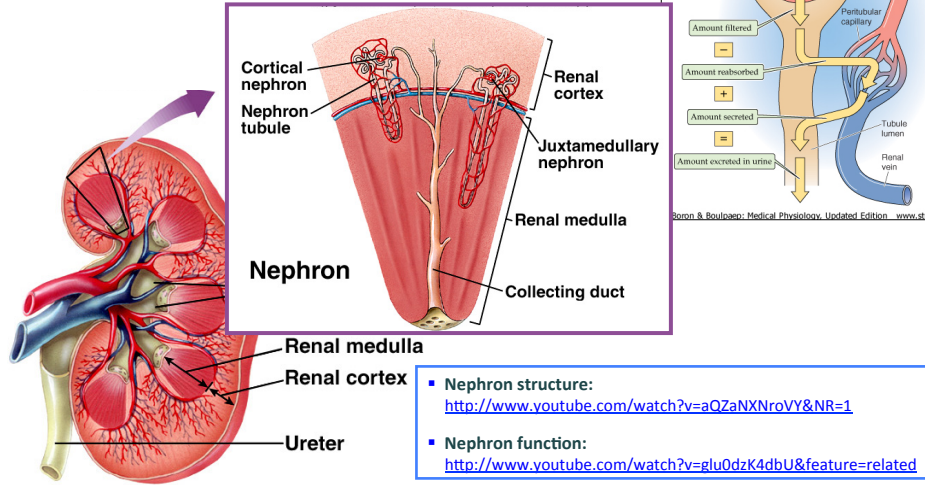
- Hemolymph drawn by afferent vein to gill (ctenidium)
 - Lose ammonia to water flowing through the mantle cavity
- Hemolymph continues from gill by efferent vein to atrium of heart
 - Water and small solutes permeate into pericardial (coelom) fluid
 - Cells, respiratory pigments, and proteins retained in hemolymph, pumped by ventricle to arteries
- Coelomic fluid drawn into tubules via ciliated **nephrostomes**
 - Essential solutes reabsorbed by **kidney**
- Excretion via **nephridiopore** into mantle cavity
 - Swept away via excurrent siphon



Mammal Renal Excretory System

Nephron: functional unit of the vertebrate kidney

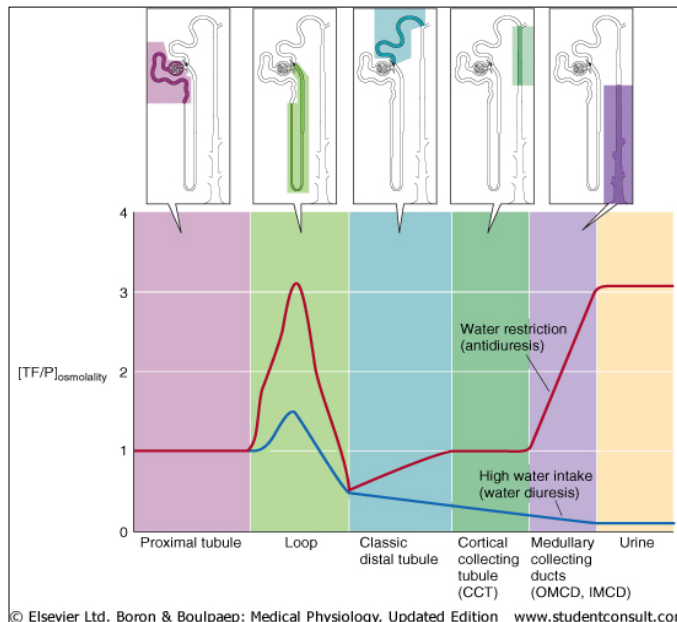
– Tubule + associated capillary beds



- Nephron structure:
<http://www.youtube.com/watch?v=aQZaNXNroVY&NR=1>
- Nephron function:
<http://www.youtube.com/watch?v=glu0dzK4dbU&feature=related>

Osmolality of fluid along nephron

- Red = water restriction
- Blue = high water intake



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