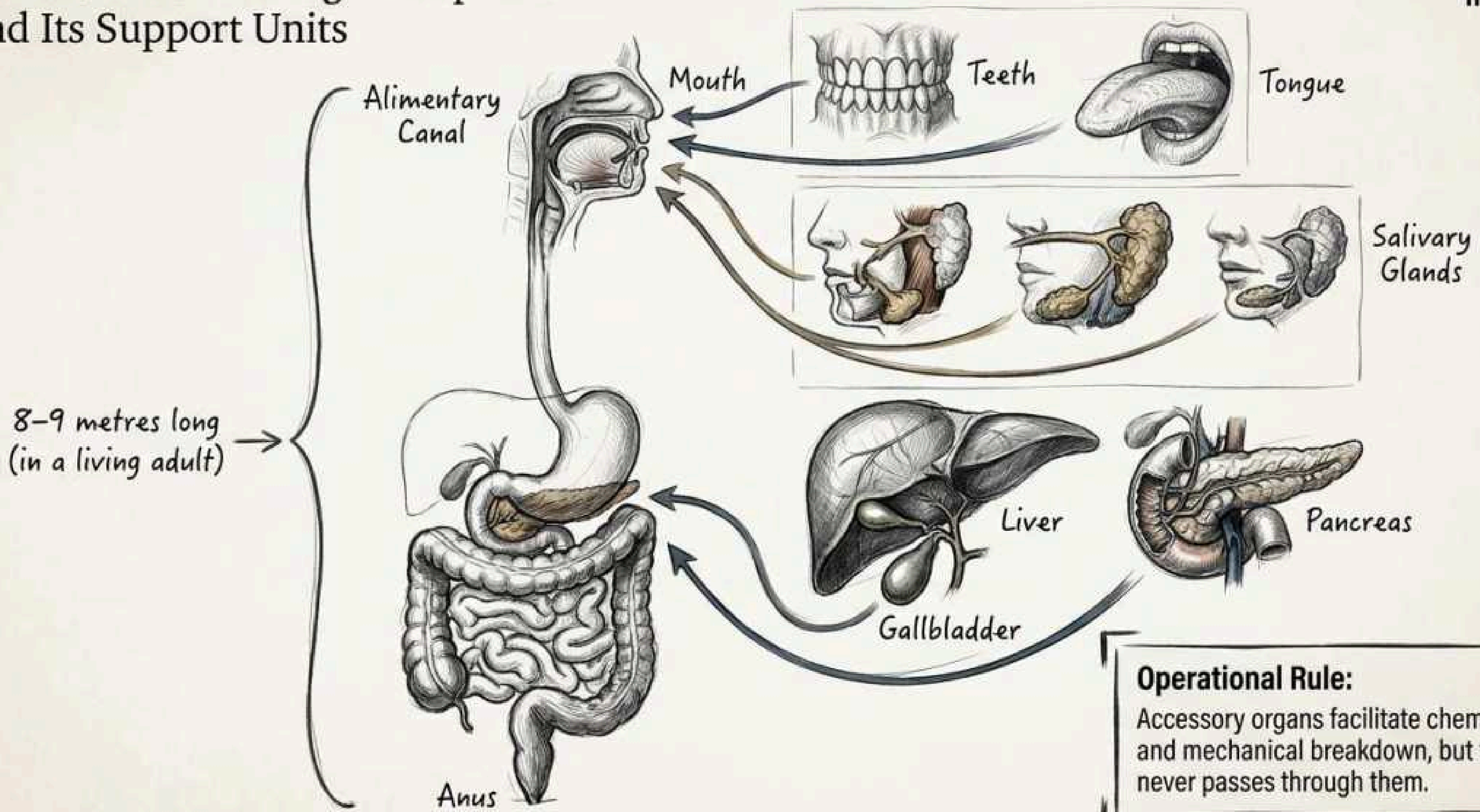
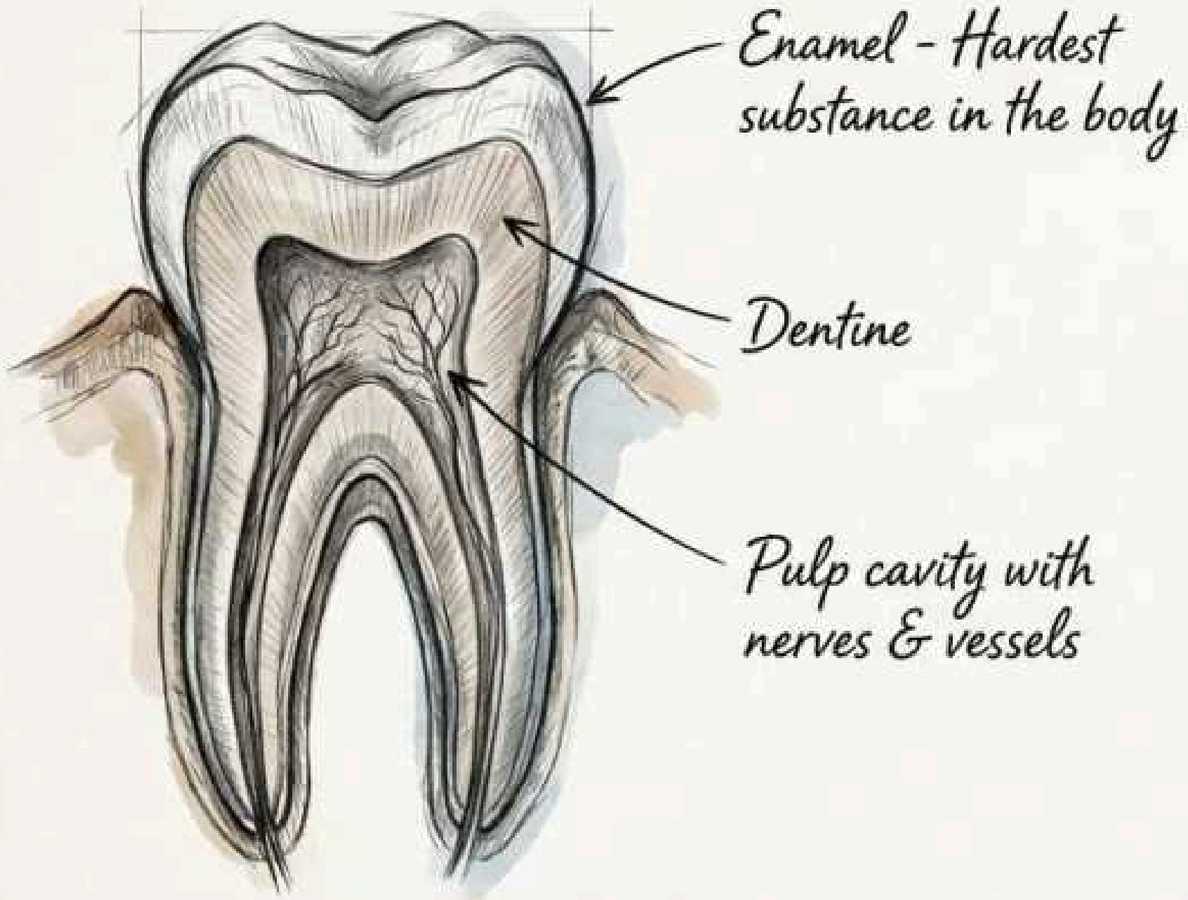
The 8-9 Metre Biological Pipeline and Its Support Units



Operational Rule:
Accessory organs facilitate chemical and mechanical breakdown, but food never passes through them.

Mechanical and Chemical Breakdown at the Intake Port

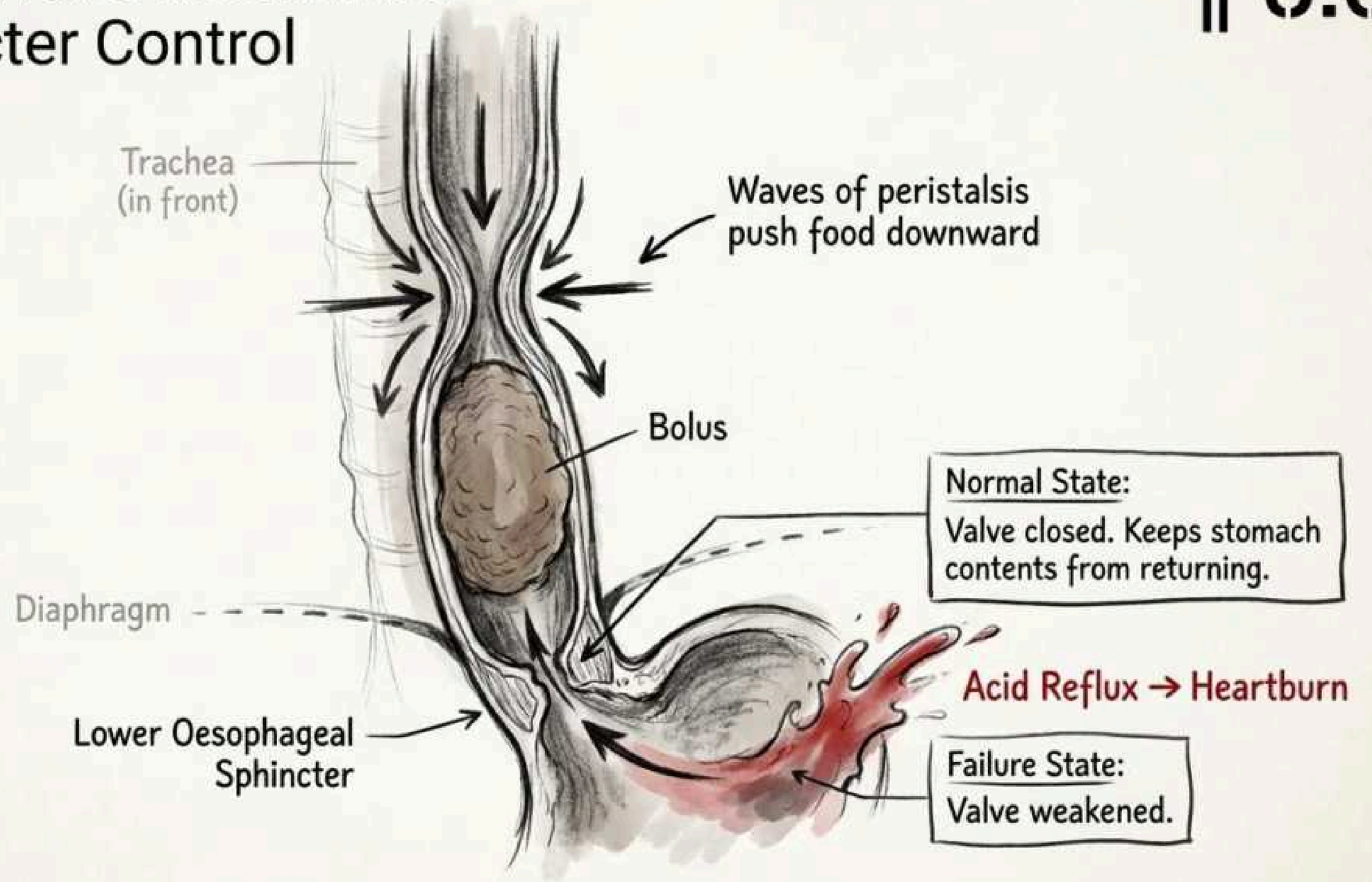


Dental Mechanics Matrix (32 Permanent Teeth)	
Type	Mechanical Function
Incisors	Cutting
Canines	Tearing
Premolars	Grinding
Molars	Grinding

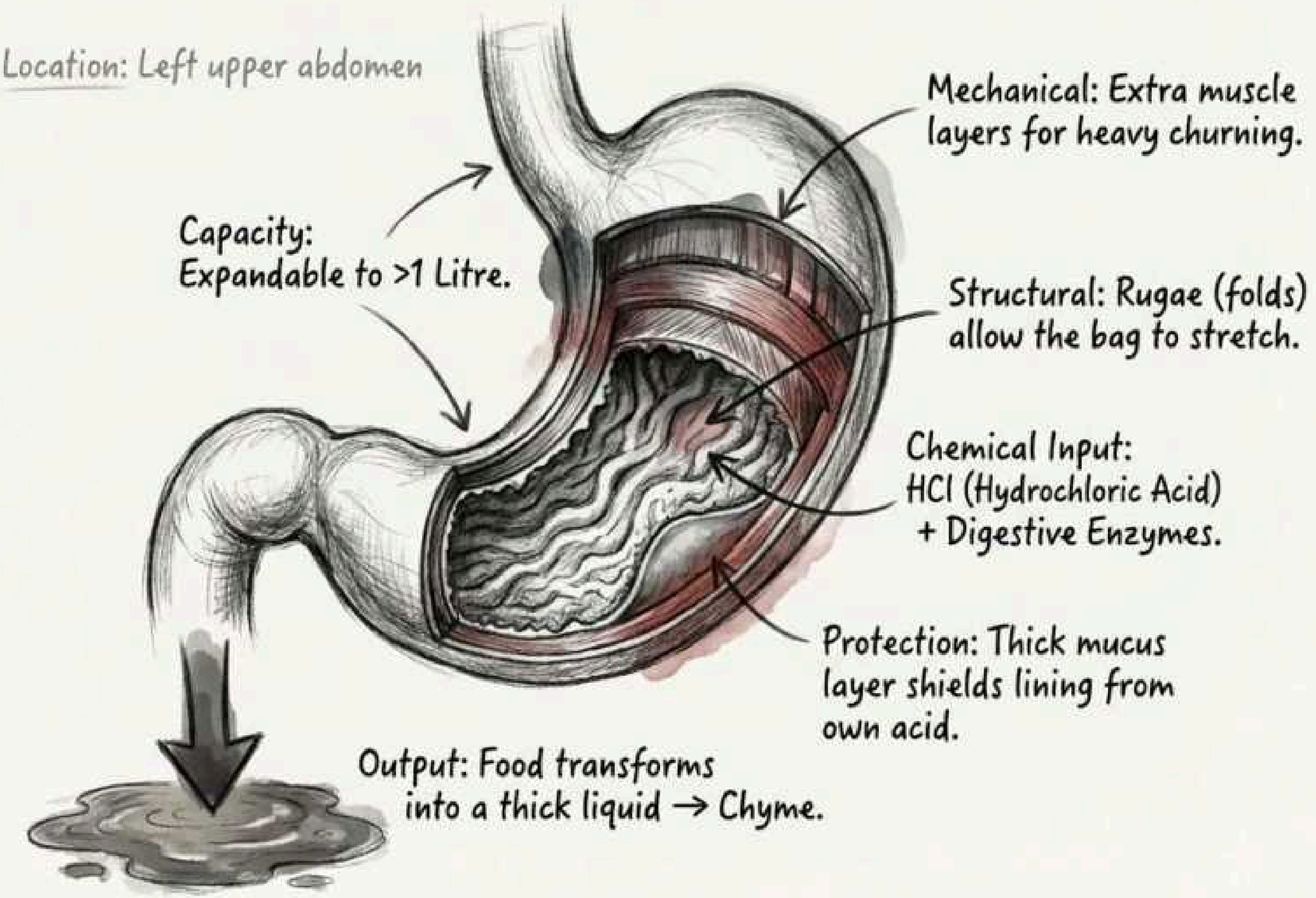
Saliva (from 3 gland pairs) + Food → Moistens + Begins Starch Digestion

Peristaltic Wave Mechanics and Sphincter Control

¶ 5.3

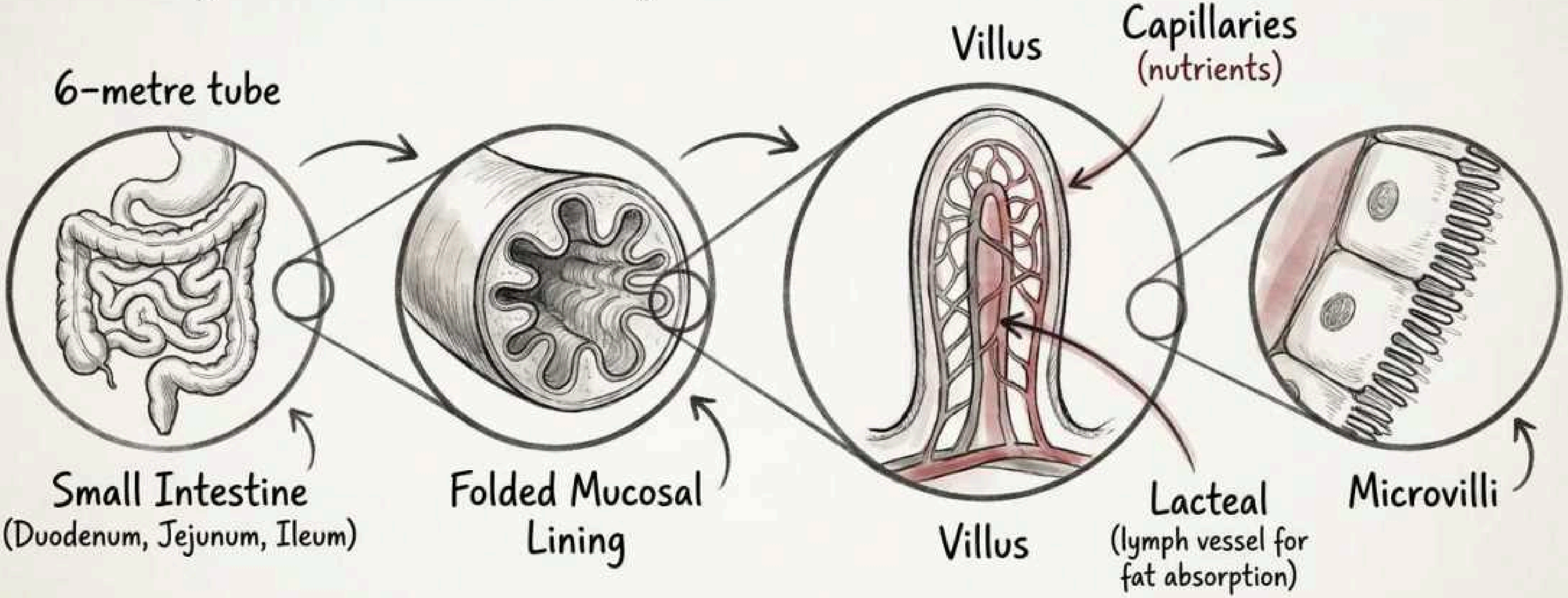


The Churning Vat: Chemical Processing in the Stomach



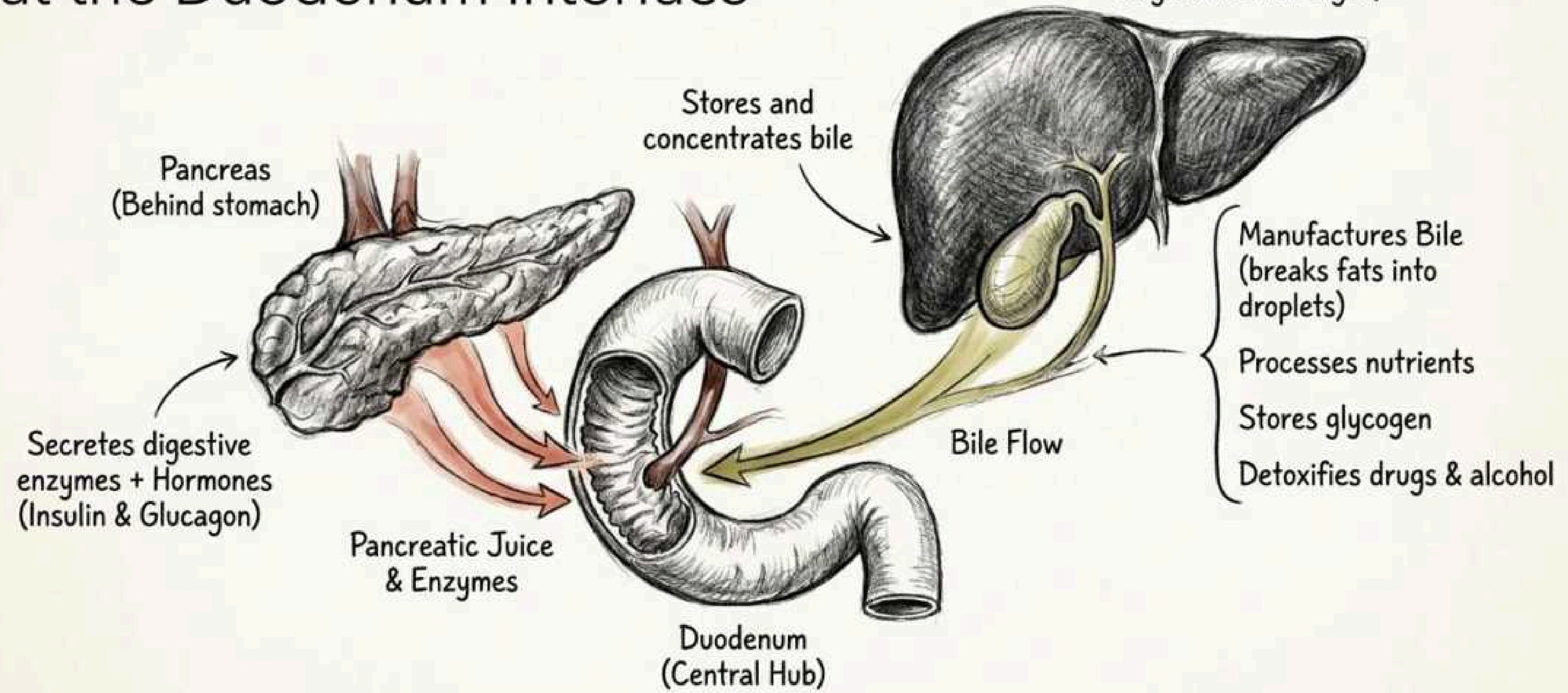
Maximizing Surface Area for Primary Nutrient Absorption

¶ 5.5



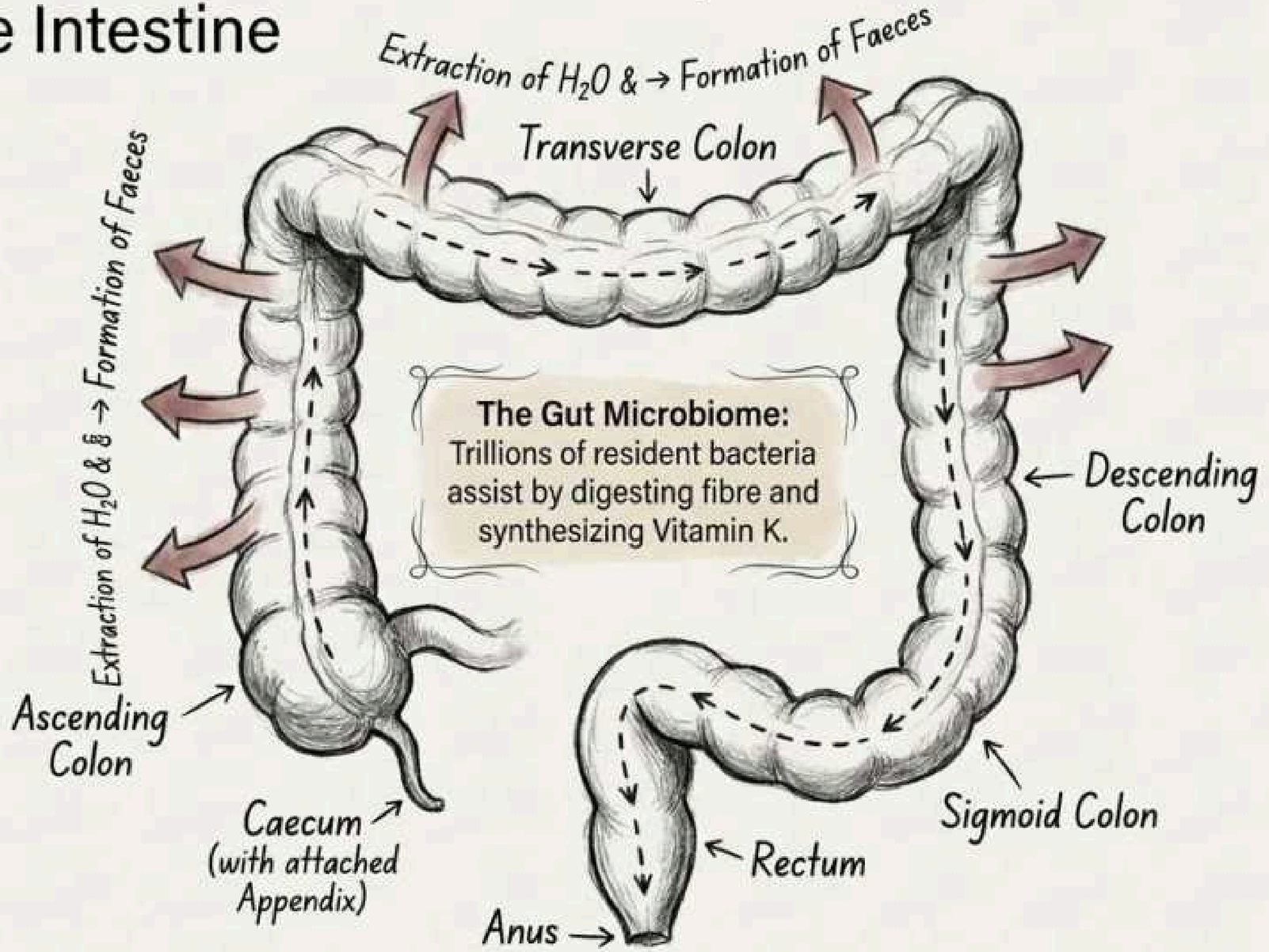
Folds + Villi + Microvilli = Vast Surface Area

Accessory Organ Secretions at the Duodenum Interface



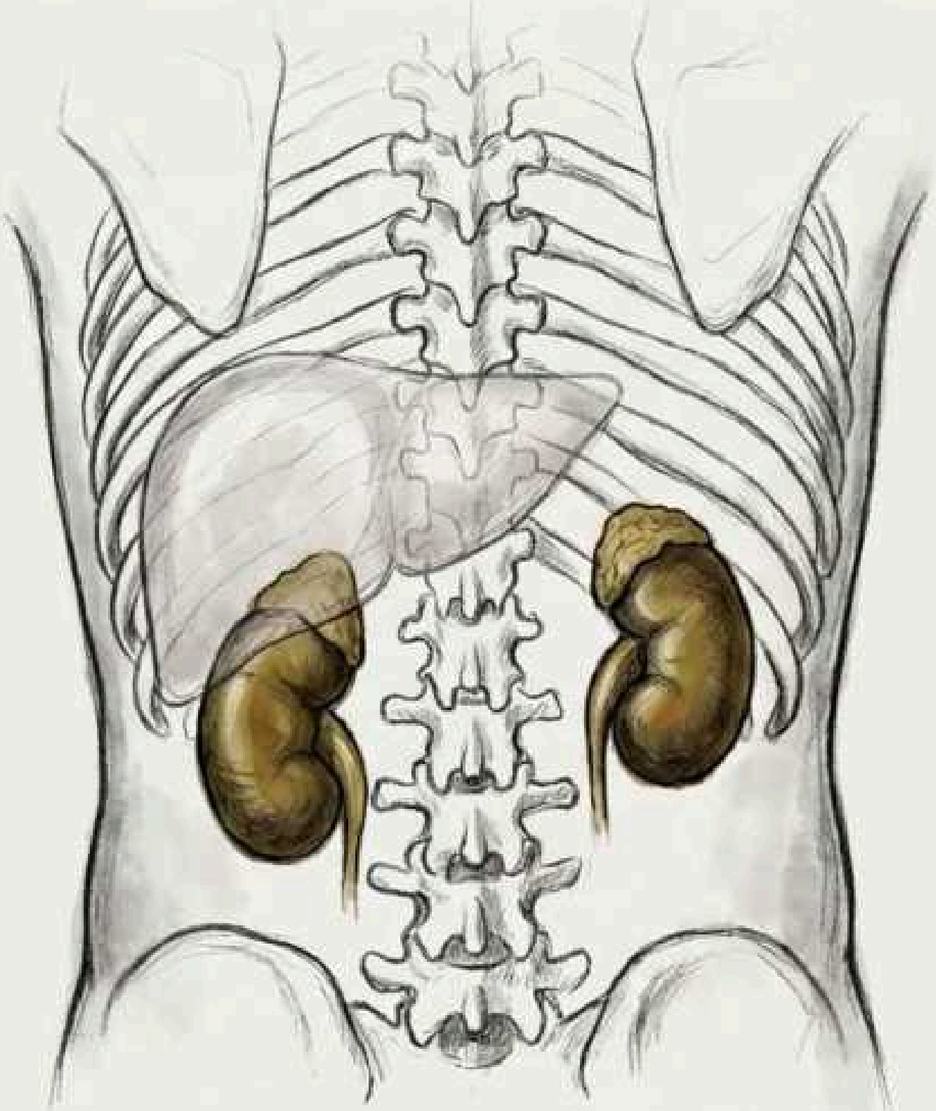
Water Extraction and Microbiome Synthesis in the Large Intestine

¶ 5.7



The Filtration Core: Fluid and Salt Homeostasis

¶ 5.8



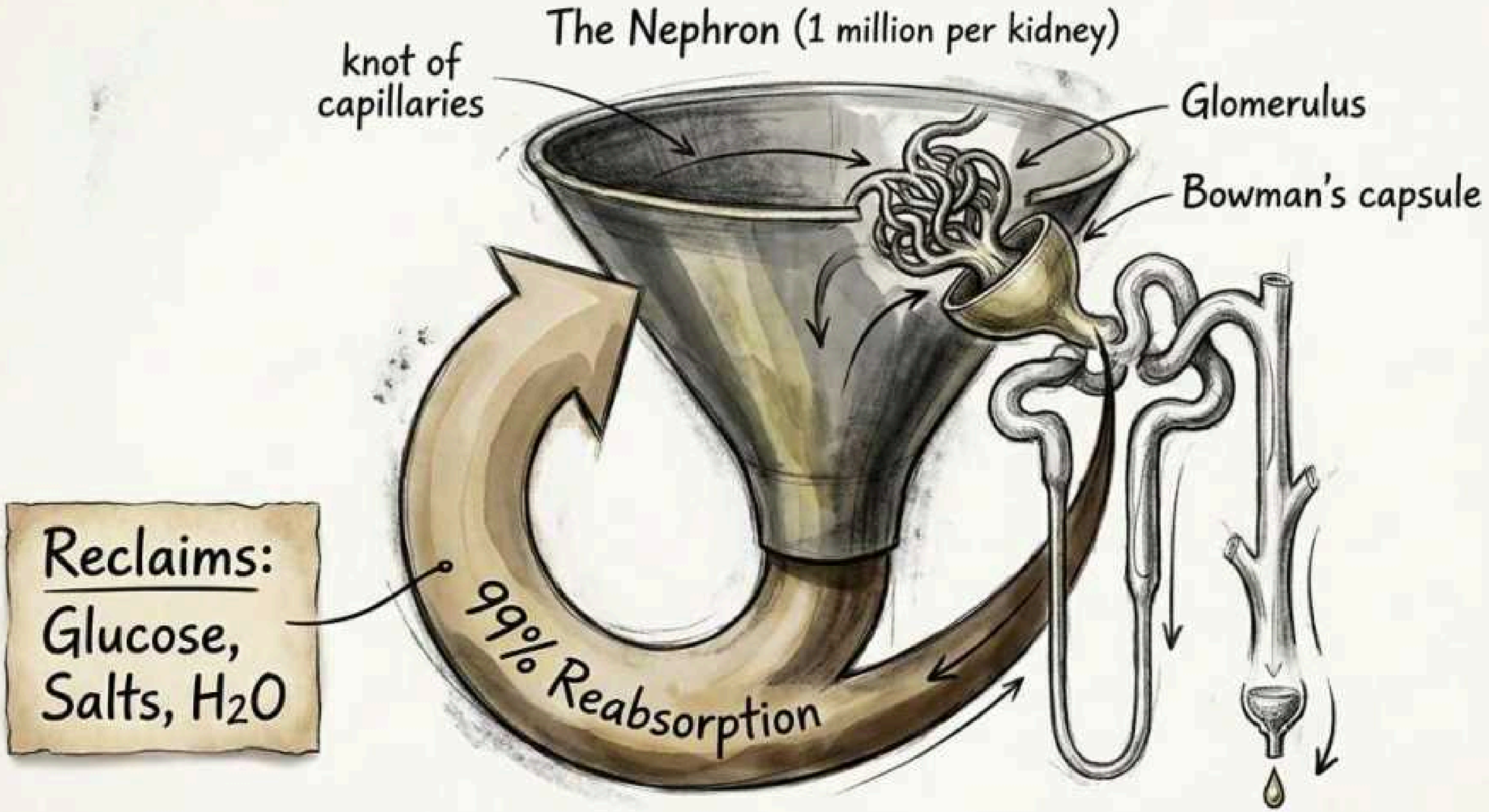
180 Litres Filtered / Day

→ Nearly all fluid returned to the blood

System Goal: Removes wastes and controls water/salt balance.

The Nephron Micro-Filter: Reclaiming the 99 Percent

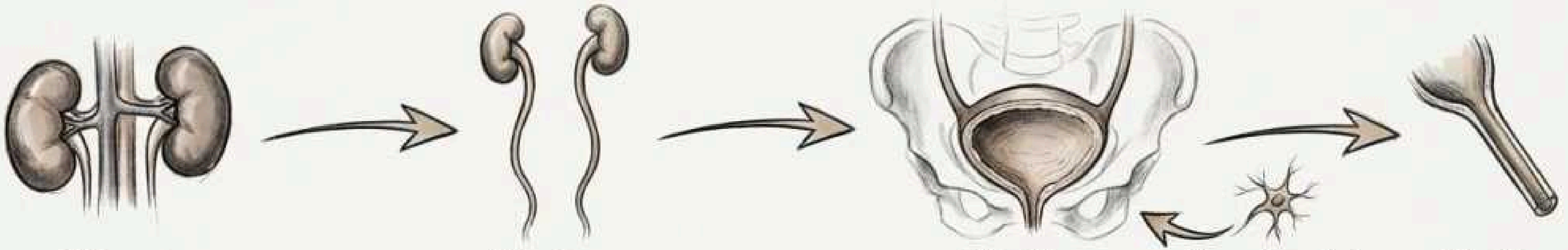
¶ 5.9

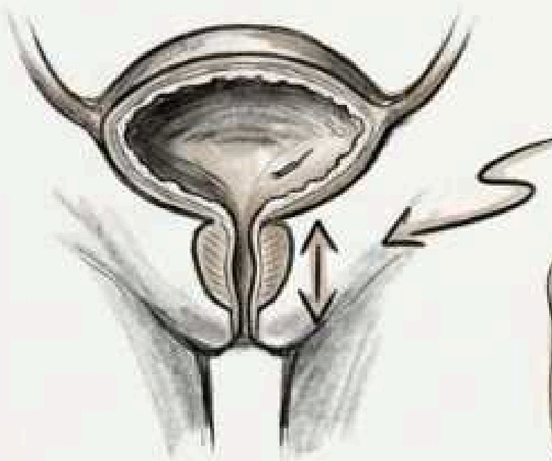
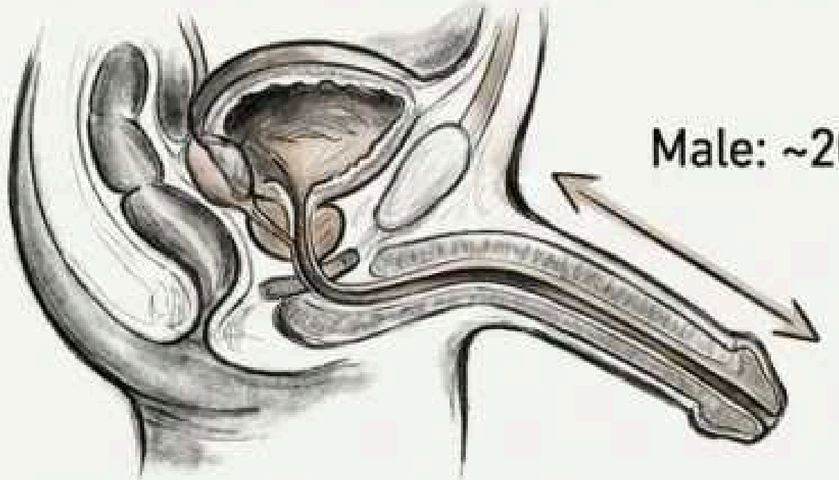


180L (Input) → Reabsorption Loop → 1-2L (Urine Output)

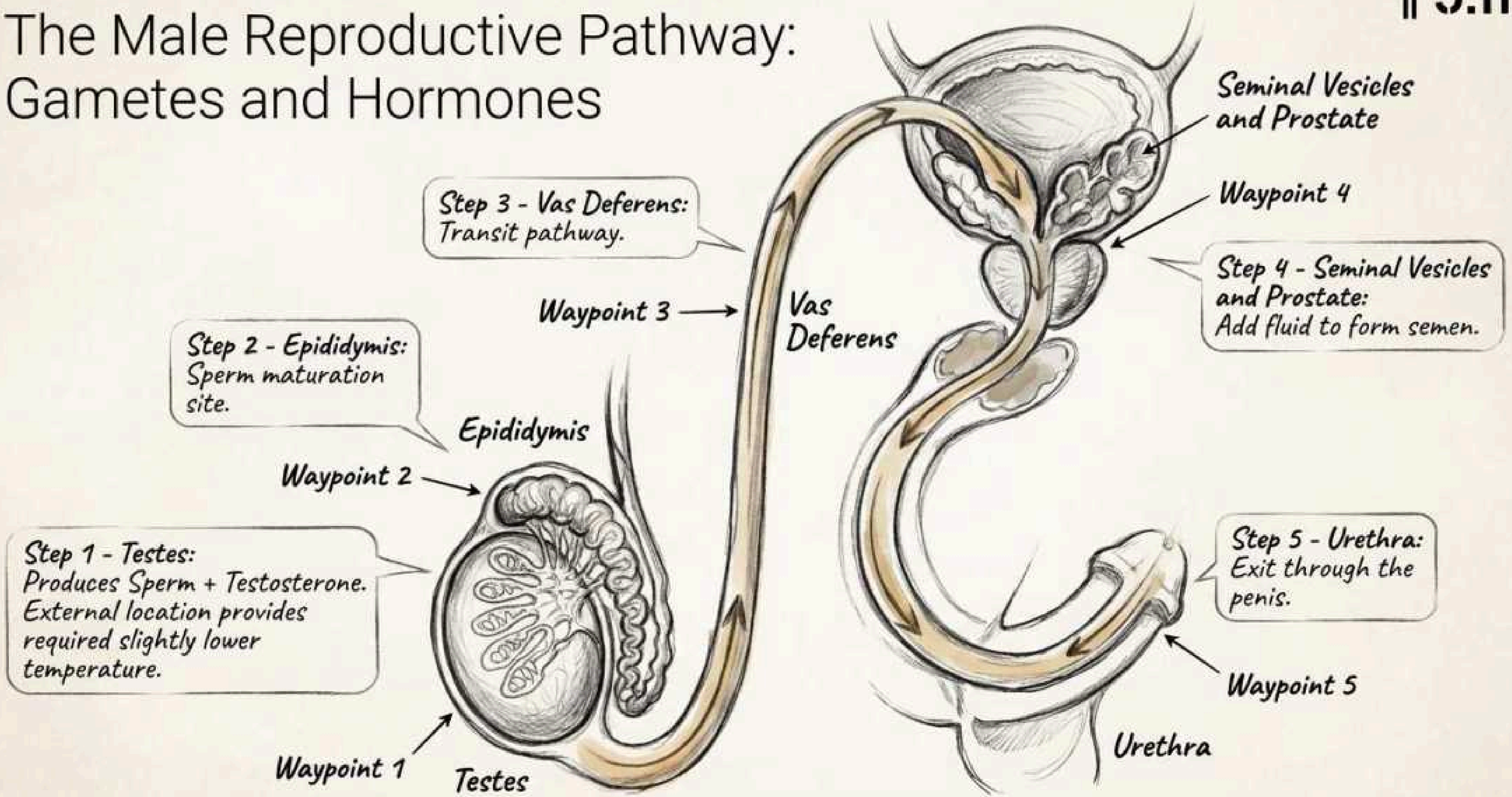
Urinary Drainage and Anatomical Dimorphism

¶ 5.10

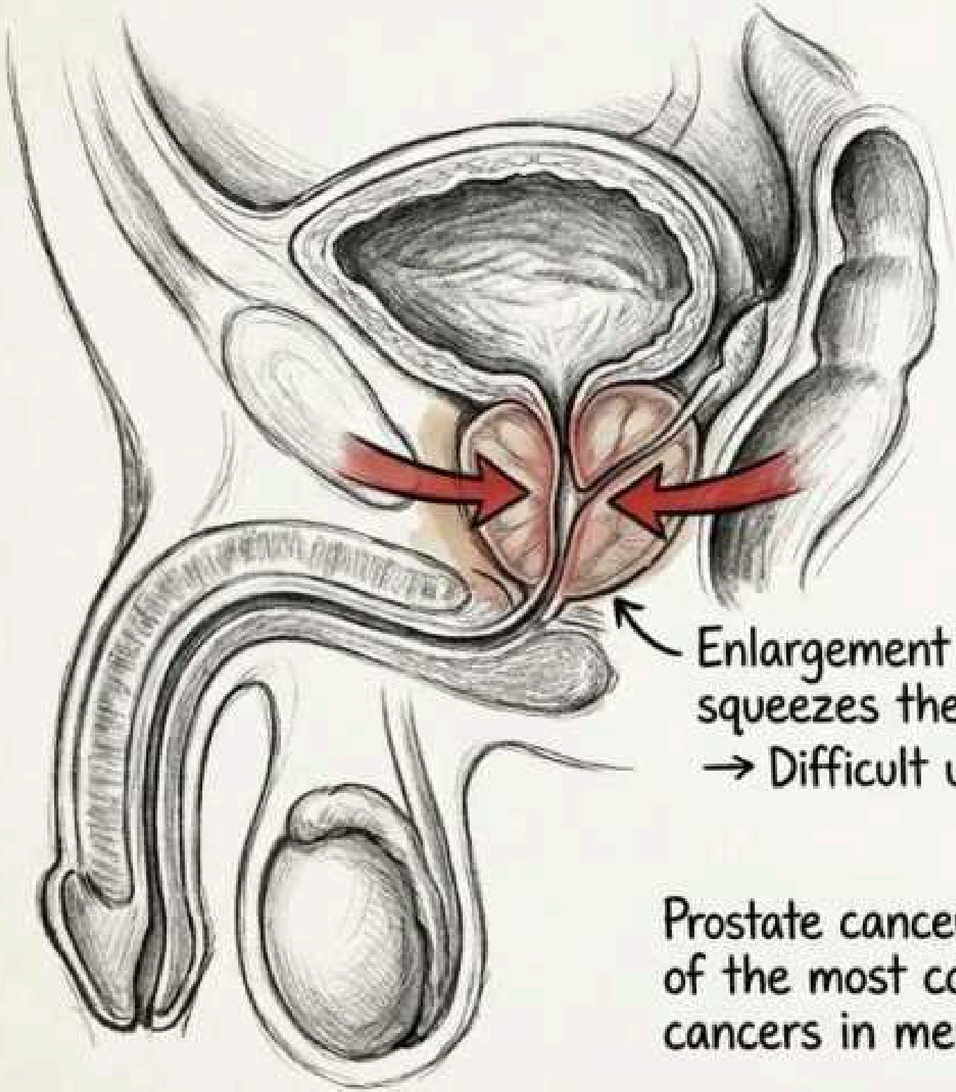


Female	Male
 Female: ~4 cm long Shorter transit path = Higher rate of bladder infections	 Male: ~20 cm long

The Male Reproductive Pathway: Gametes and Hormones

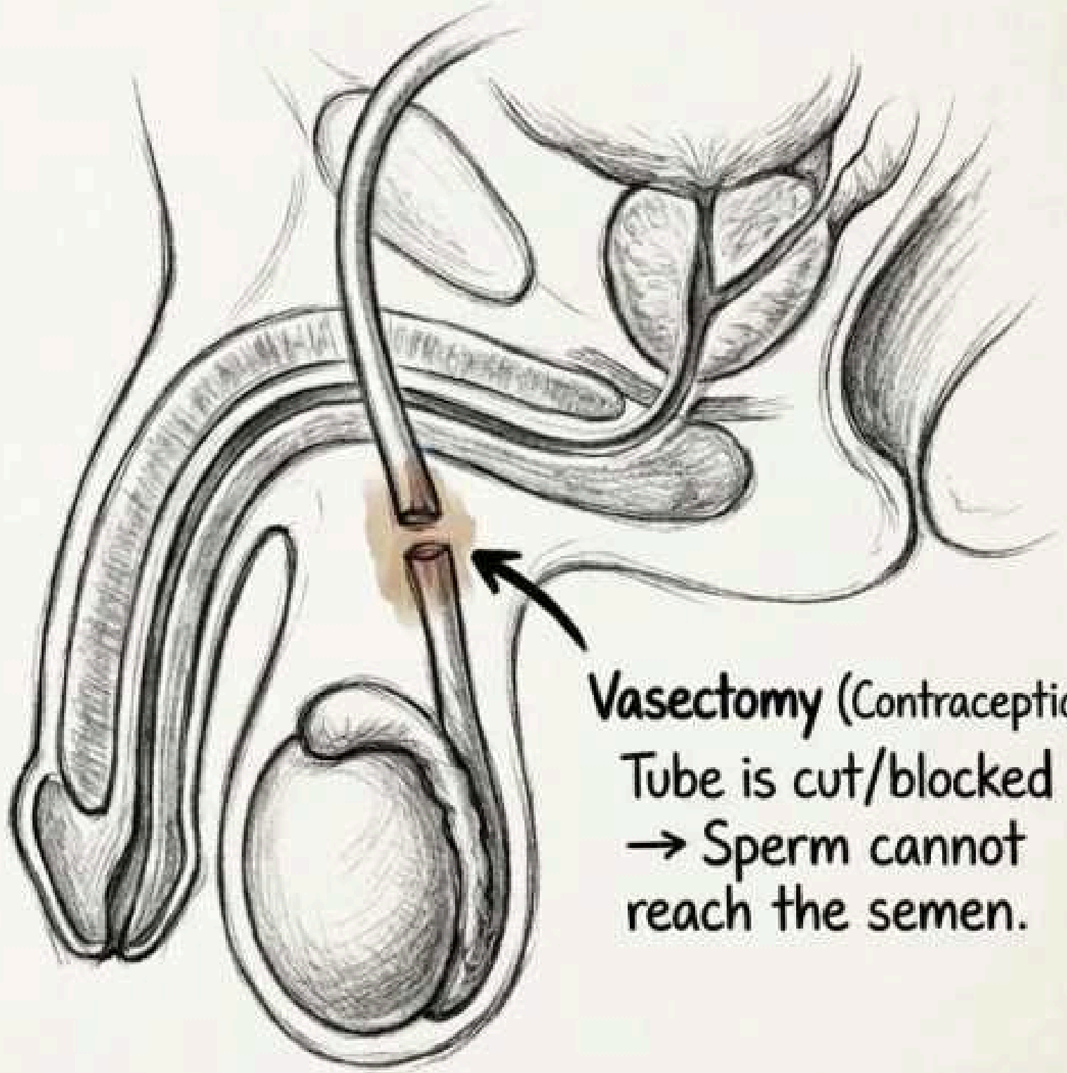


Choke Points and Interventions



Enlargement with age squeezes the urethra → Difficult urination

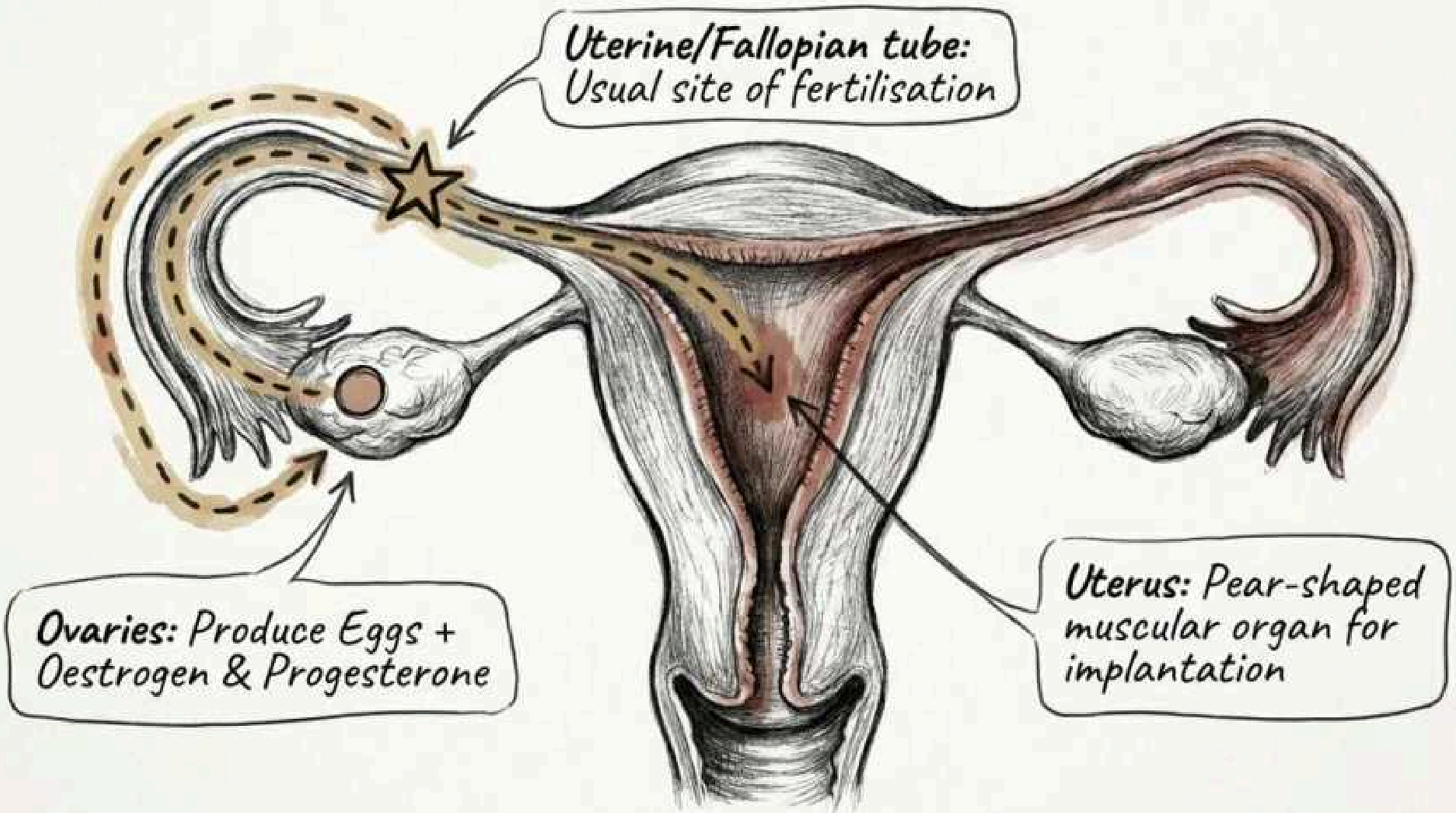
Prostate cancer is one of the most common cancers in men.



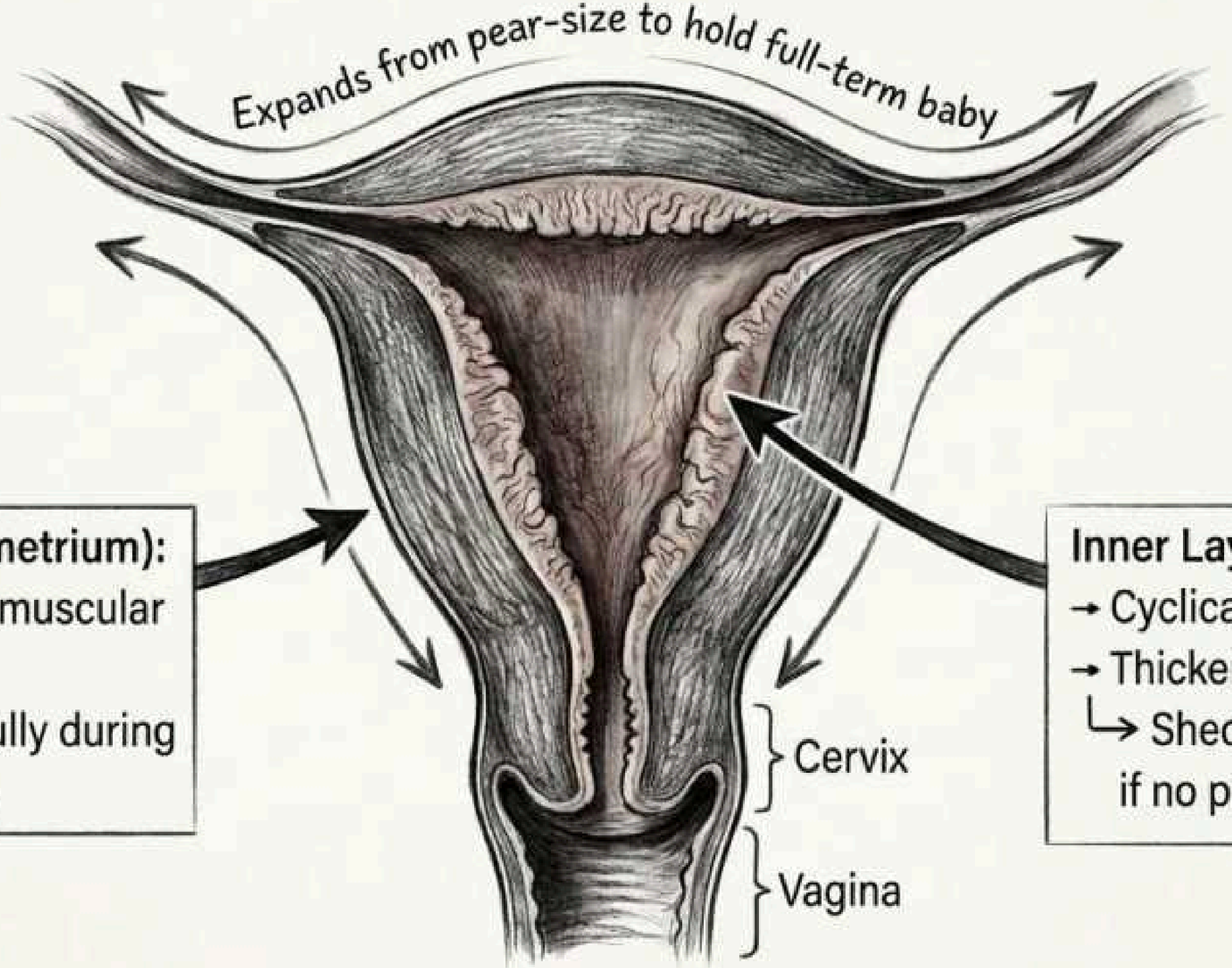
Vasectomy (Contraception): Tube is cut/blocked → Sperm cannot reach the semen.

The Female Reproductive Pathway: Preparation for Implantation

¶ 5.13



Uterine Dynamics: The Dual-Layered Architecture



Outer Layer (Myometrium):

- → Thick, permanent muscular wall.
- → Contracts powerfully during childbirth.

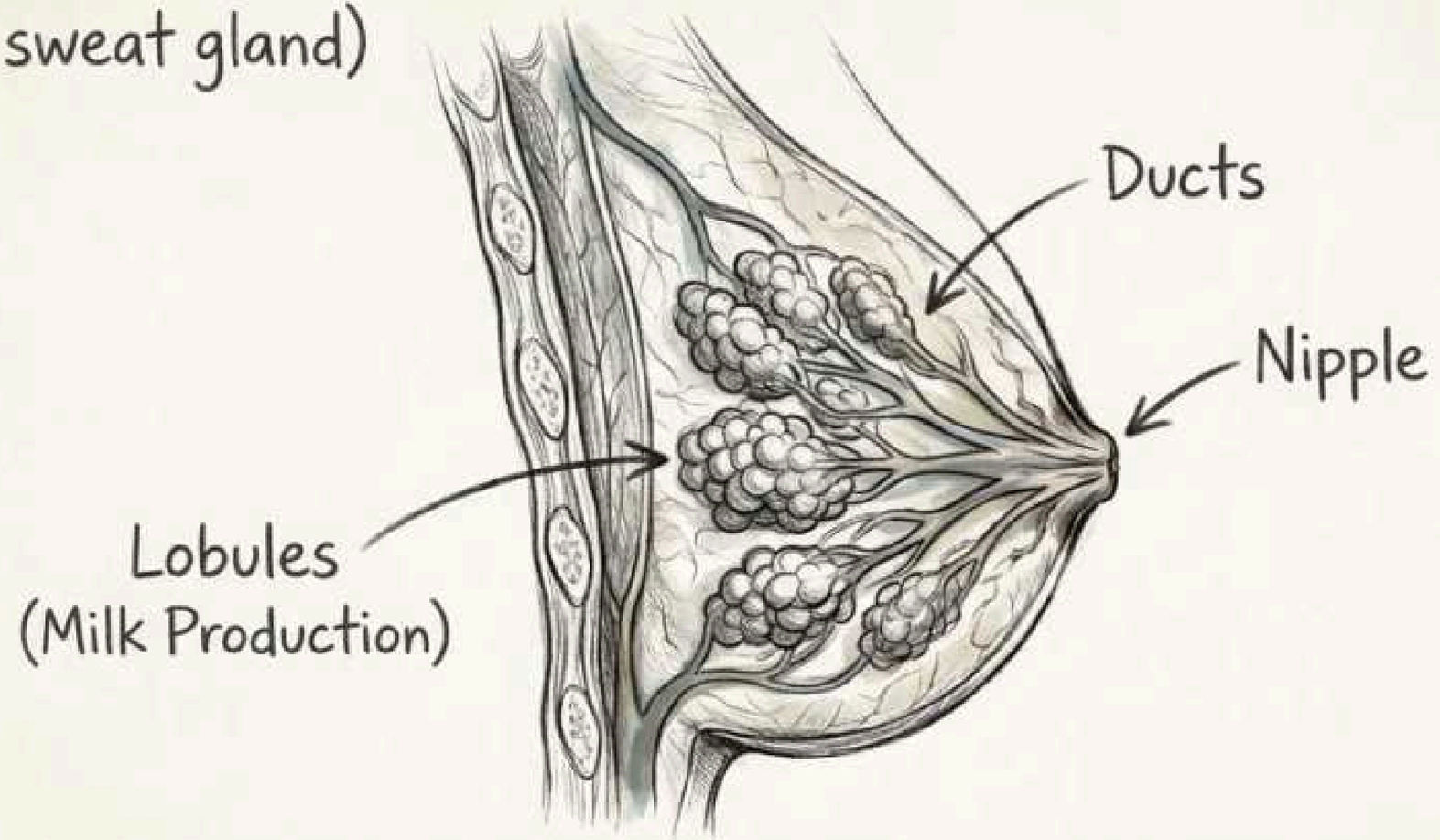
Inner Layer (Endometrium):

- → Cyclical inner lining.
- → Thickens each month
  - ↳ Shed in menstruation if no pregnancy occurs.

Mammary Gland Network and Fluid Transport

¶ 5.15

(Modified sweat gland)



Clinical Notes:

- Development is driven entirely by hormones.
- Regular screening recommended: Breast cancer is one of the most common cancers in women.

Master Synthesis: The Biological Systems Interface

System	Core Components	Homeostatic Goal
Digestion	Alimentary Tract + Accessory Organs (Teeth to Pancreas)	Energy Extraction & Nutrient Absorption (via Villi)
Urination	Kidneys (Nephrons) + Drainage (Ureters to Bladder)	Blood Filtration & Water/Salt Balance
Reproduction	Male & Female Anatomical Pathways	Gamete/Hormone Production & Species Continuity

