

# Optimizing the Upper GI:

**Mind, Mouth, and  
Stomach**

**Anatomy and  
Physiology of the  
GI Tract**

**With**

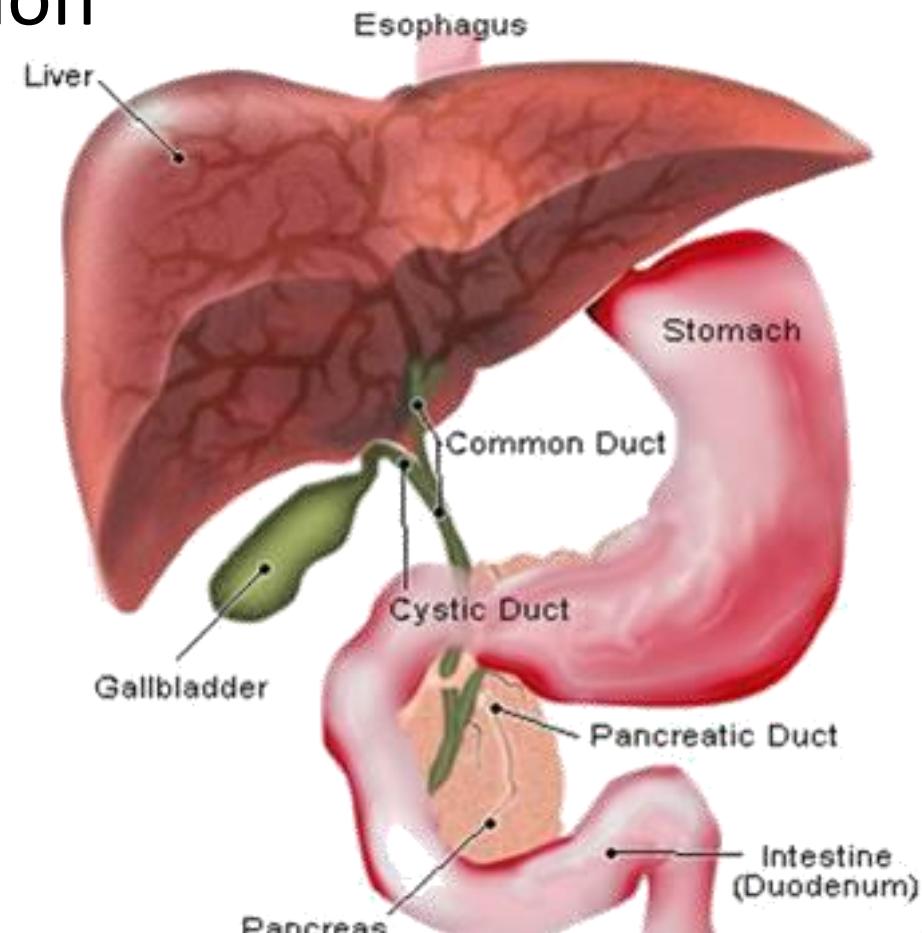
**Dr. Ritamarie Loscalzo**



**Medical Disclaimer:** The information in this presentation is not intended to replace a one-on-one relationship with a qualified health care professional and is not intended as medical advice. It is intended as a sharing of knowledge and information from the research and experience of Dr. Ritamarie Loscalzo, [drritamarie.com](http://drritamarie.com), and the experts who have contributed. We encourage you to make your own health care decisions based upon your research and in partnership with a qualified health care professional.

# Part 2: Optimizing Your Upper GI - Stomach Acid and Enzymes

- The structure and function of the upper GI tract
- The physiology of the upper GI tract – what it does and how it does it
- How to know when something is wrong
- How to correct what's wrong



# 3 Main Functions of the Digestive System

## Digestion

Breaks down food into molecules your body can use

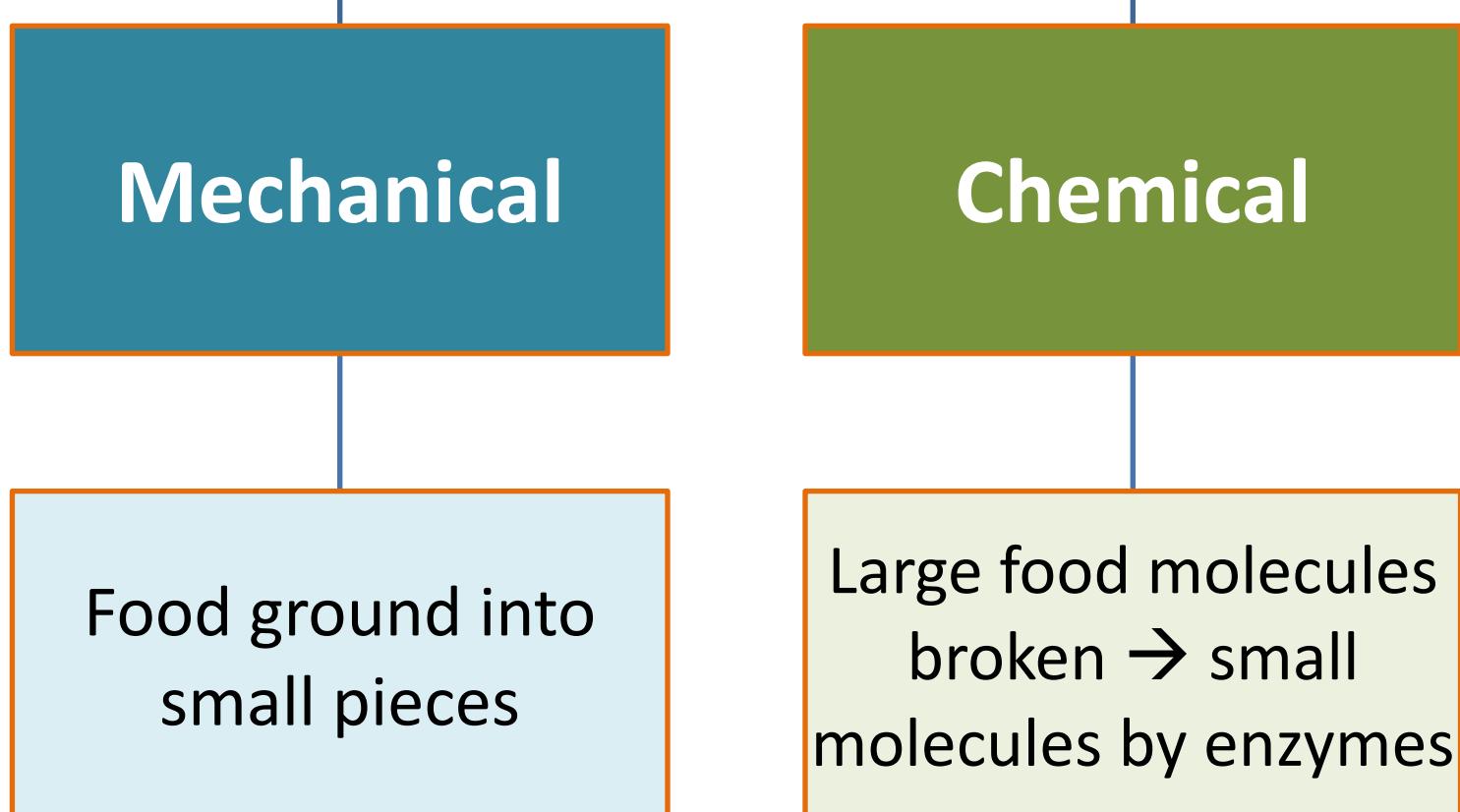
## Absorption

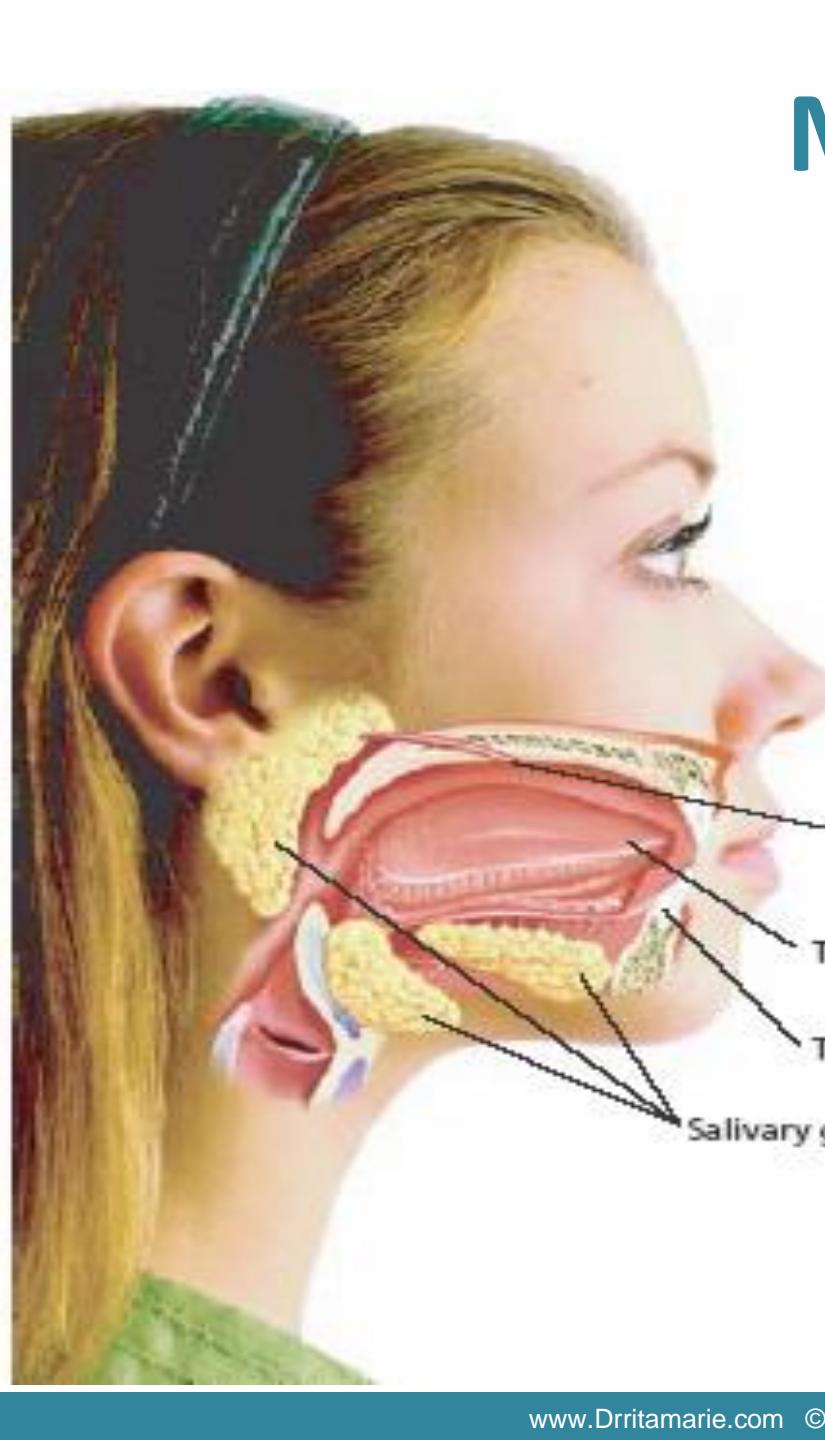
Molecules absorbed into the blood and carried through body

## Elimination

Wastes eliminated from the body

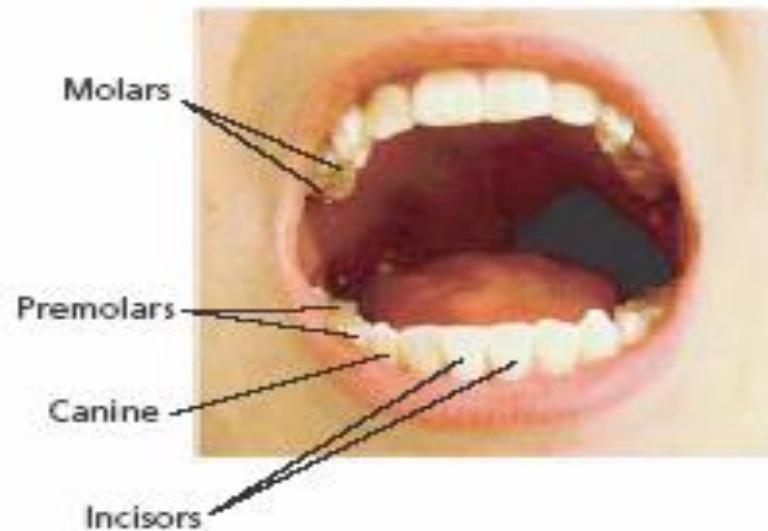
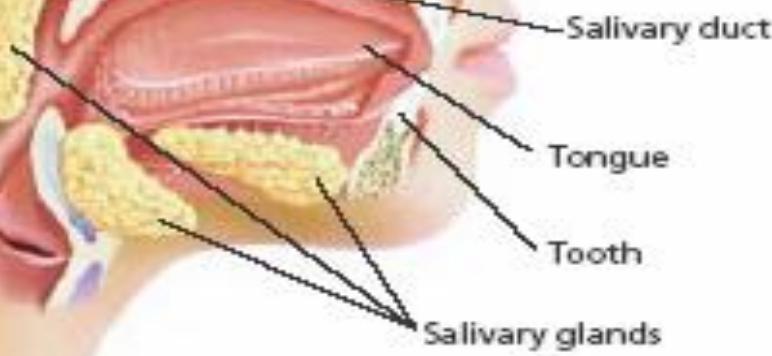
# 2 Kinds of Digestion:





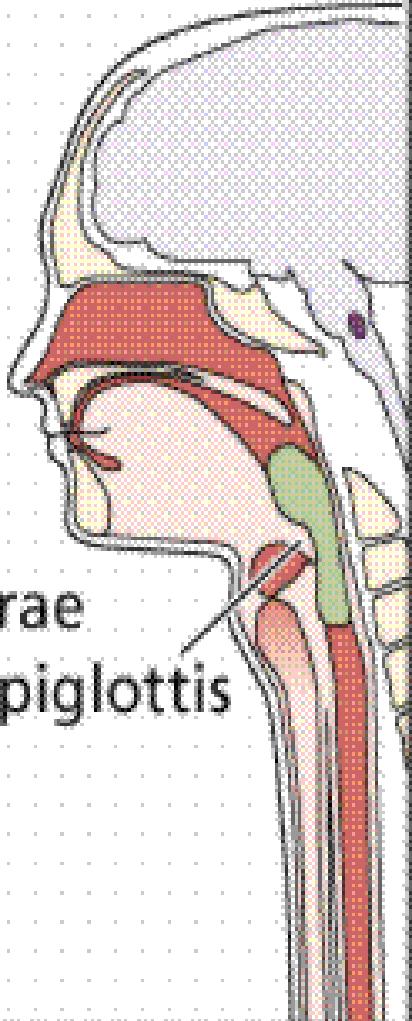
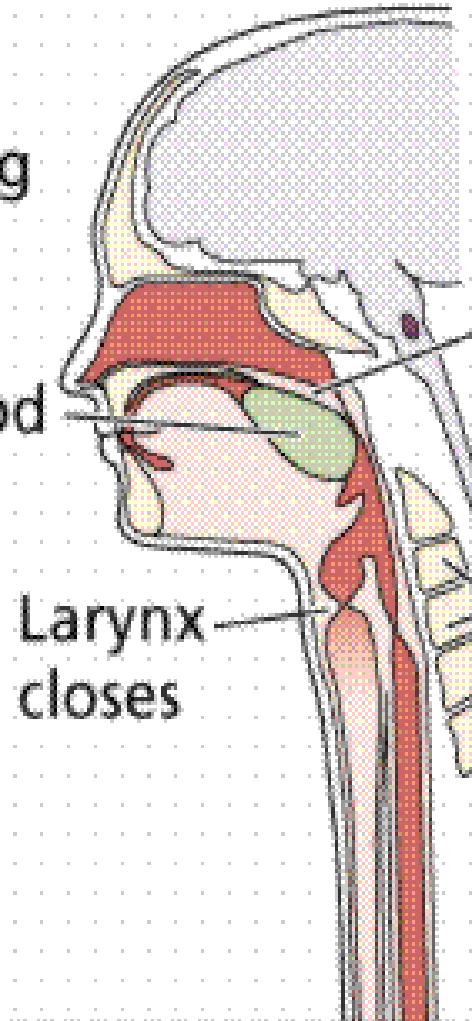
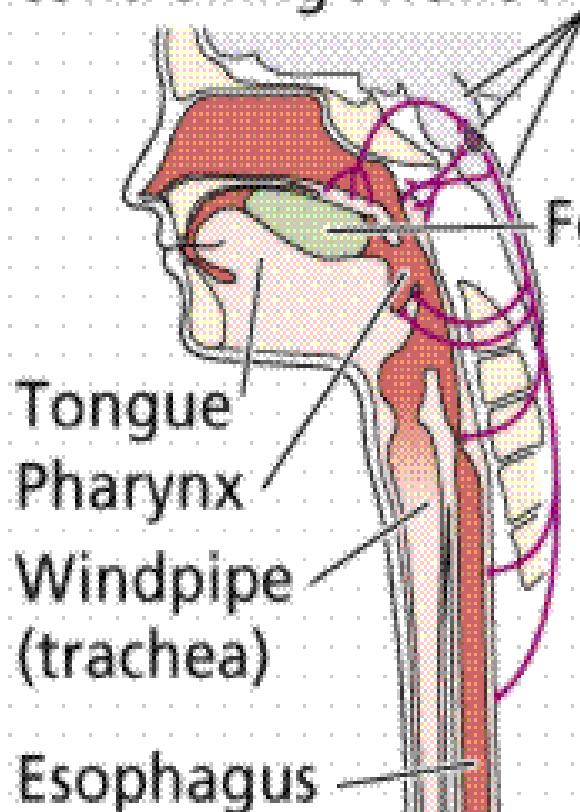
# Mouth

- ✓ Gateway
- ✓ Saliva: moistens food
- ✓ Teeth mechanically break it down



# Swallowing

Brainstem reflex center and nerves controlling swallowing



# Esophagus

- Muscular tube
- Connects mouth with stomach

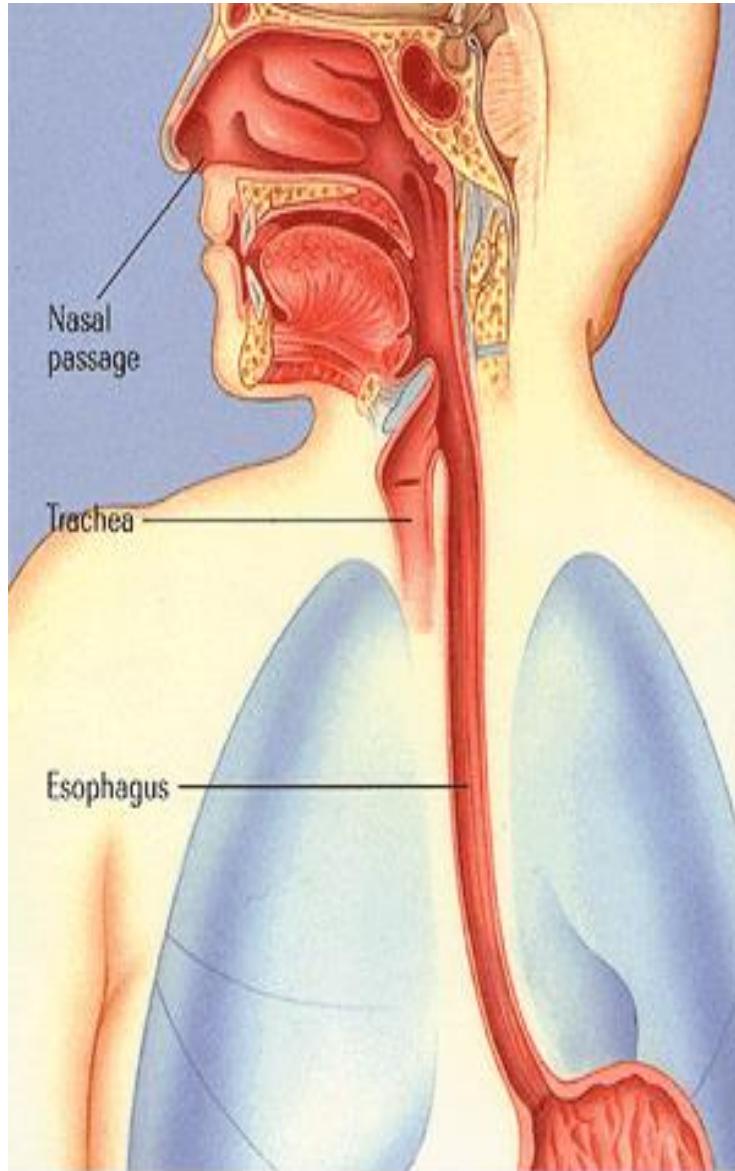


Image made available by a generous grant from Bristol-Myers Squibb

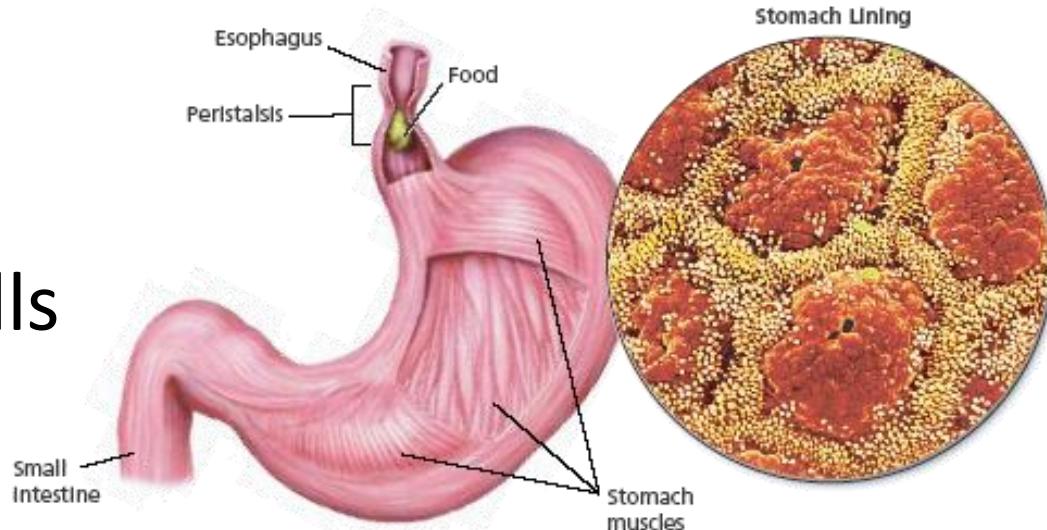
# Your Stomach's Job Description

- Mix and churn the food into chyme
- Make stomach acid to start digestion of protein and minerals
- Make intrinsic factor to escort B12 into your blood
- Secrete pepsinogen to begin digestion of proteins
- Kill pathogens on food
- Nudges the other digestive organs to get ready



# Stomach Secretions

- **Mucus:** mucous cells (protects)
- **Gastrin:** epithelial cells (stimulates acid)
- **Gastric Acid:** parietal cells (activates protein and mineral digestion)
- **Pepsinogen:** mucous and chief cells (protein)
- **Intrinsic Factor:**  
parietal cells (B12)
- **Ghrelin:** ghrelin cells  
(hunger)



# Pancreas and Enzymes

- Pancreas produces enzymes to chemically break down starches, proteins, fats, and help digest all fat-soluble vitamins (E,A,K, and D).
  - ✓ Proteases
  - ✓ Amylase
  - ✓ Lipase
- Produces bicarbonate to neutralize stomach acid
- Secrete juices into duodenum
- Function not related to digestion
  - insulin, glucagon

