

CHAPTER F — DIGESTION PHYSIOLOGY

F1 — The Chewing Efficiency Puzzle

A physiotherapy student observing a patient with missing molars notices that the patient swallows food quickly with minimal chewing. Later, the patient complains of early satiety and discomfort. The tutor asks which physiological function of mastication is most affected.

Options

- A. Enzymatic digestion of proteins
- B. Mechanical breakdown increasing surface area
- C. Absorption of nutrients
- D. Secretion of gastric acid

Reasoning

Mastication increases surface area for enzyme action; poor chewing impairs digestion efficiency.

Correct: B

F2 — The Swallowing Coordination Issue

During a videofluoroscopic swallow study observation, a physiotherapy intern notices delayed closure of the laryngeal inlet. The mentor asks which physiological phase of deglutition is under voluntary control.

Options

- A. Pharyngeal phase
- B. Esophageal phase
- C. Oral phase
- D. Reflex phase

Reasoning

Only the oral phase is voluntary; others are reflex.

✓ **Correct: C**

F3 — The Dry Mouth Observation

A patient undergoing prolonged physiotherapy sessions complains of dry mouth. The student is asked which salivary function is most compromised.

Options

- A. Protein digestion
- B. Lubrication and bolus formation
- C. Fat emulsification
- D. Vitamin absorption

Reasoning

Saliva lubricates food and forms bolus; dryness impairs swallowing.

✓ **Correct: B**

F4 — The Gastric Secretion Debate

Two interns debate which phase of gastric secretion begins before food enters the stomach. The mentor asks for clarification.

Options

- A. Gastric phase
- B. Intestinal phase
- C. Cephalic phase
- D. Chemical phase

Reasoning

Cephalic phase is triggered by sight, smell, and thought of food.

✓ **Correct: C**

F5 — The Enzyme Activation Puzzle

A physiotherapy student is asked why pancreatic enzymes do not digest the pancreas itself. The tutor expects a physiological explanation.

Options

- A. Enzymes are inactive proenzymes
- B. Enzymes require bile for activation
- C. Pancreatic juice is acidic
- D. Rapid enzyme degradation

Reasoning

Proteolytic enzymes are secreted as inactive zymogens.

✓ **Correct: A**

F6 — The Role of Bile

During a digestion lecture, a student asks why bile is essential for fat digestion despite containing no enzymes.

Options

- A. Bile hydrolyzes triglycerides
- B. Bile emulsifies fats increasing surface area
- C. Bile activates pancreatic lipase
- D. Bile neutralizes gastric acid only

Reasoning

Bile salts emulsify fats, aiding enzymatic digestion.

✓ Correct: B

F7 — The Intestinal Movement Insight

A physiotherapy intern observes rhythmic intestinal contractions during a lab demonstration. The mentor asks which movement primarily mixes intestinal contents.

Options

- A. Peristalsis
- B. Segmentation
- C. Mass movement
- D. Anti-peristalsis

Reasoning

Segmentation mixes chyme for digestion and absorption.

✓ Correct: B

F8 — The Nutrient Absorption Question

A student notices that glucose absorption occurs rapidly in the small intestine. The mentor asks which transport mechanism is primarily involved.

Options

- A. Passive diffusion
- B. Facilitated diffusion
- C. Secondary active transport
- D. Pinocytosis

Reasoning

Glucose uses Na⁺-dependent secondary active transport.

✓ Correct: C

F9 — The Defecation Reflex

During pelvic floor rehabilitation observation, a physiotherapy student is asked which component of defecation is under voluntary control.

Options

- A. Internal anal sphincter
- B. Rectal stretch receptors
- C. External anal sphincter
- D. Enteric nervous system

Reasoning

External anal sphincter is voluntary skeletal muscle.

Correct: C

F10 — The Post-Meal Fatigue

After a heavy meal, a patient undergoing physiotherapy feels drowsy. The mentor asks which physiological mechanism explains this.

Options

- A. Reduced cerebral blood flow
- B. Increased parasympathetic activity
- C. Reduced oxygen saturation
- D. Increased metabolic rate

Reasoning

Postprandial parasympathetic dominance promotes digestion and rest.

Correct: B