

D - Need for Nutrition + Modes of Nutrition in Animals

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Need for Nutrition

Why do organisms even need food?

Think of your body like a **machine + construction site + repair center** all at once.

Food = fuel + raw material + repair kit

Functions of Nutrition

1. Energy Production

- All life processes need energy:
 - Movement (walking, heartbeat)
 - Growth
 - Thinking (yes, even overthinking)

Energy is released by **cellular respiration**

2. Growth

- Formation of:
 - New cells
 - Tissues
 - Organs

Example:

- A child growing taller → needs proteins + nutrients
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3. Repair & Maintenance

- Cells constantly get damaged
- Food helps in:
 - Repairing tissues
 - Replacing dead cells

Example:

- Cut heals → protein involved
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4. Regulation of Body Functions

- Vitamins & minerals help regulate:
 - Hormones
 - Enzyme activity
 - Nerve impulses
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5. Storage of Energy

- Excess food stored as:
 - Glycogen (short-term)
 - Fat (long-term)
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Analogy (Super important)

Think of your body as a **smartphone**:

Function	Food Role
Battery	Energy
Software updates	Regulation
Hardware repair	Tissue repair

Function	Food Role
Storage	Fat

Modes of Nutrition in Animals

Animals are **heterotrophs**

= They cannot make their own food (unlike plants)

MAIN TYPES OF NUTRITION IN ANIMALS

1. Holozoic Nutrition

Seen in: Humans, dogs, lions, etc.

Steps involved:

- Ingestion → Digestion → Absorption → Assimilation → Egestion

Breakdown:

1. **Ingestion** → taking food in
2. **Digestion** → breaking complex food → simple molecules
3. **Absorption** → nutrients enter blood
4. **Assimilation** → used by cells
5. **Egestion** → removal of waste

Example:

You eating pizza → full holozoic process

2. Parasitic Nutrition

Organism depends on host

- **Parasite benefits**

- **Host is harmed**

Examples:

- Tapeworm → intestine
 - Leech → blood
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3. Saprophytic Nutrition

Feeding on **dead/decaying matter**

Examples:

- Some animals (like earthworms partially)
 - Mostly fungi & bacteria (important crossover)
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4. Symbiotic Nutrition

Both organisms benefit

Examples:

- Termite + microbes (digest cellulose)
 - Humans + gut bacteria
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SUPER SUMMARY

- Nutrition = energy + growth + repair + regulation
 - Animals = heterotrophs
 - Main type = **Holozoic nutrition**
 - Steps = INGESTION → DIGESTION → ABSORPTION → ASSIMILATION → EGESTION
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COMMON CONFUSION

- **Assimilation ≠ Absorption**

- Absorption → into blood
 - Assimilation → used by cells
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Memory Trick

"IDAAE"

(Ingestion, Digestion, Absorption, Assimilation, Egestion)

MCQ (Topic: Nutrition in Animals)

Question 1/10

Which of the following correctly represents the sequence of steps in holozoic nutrition?

- A. Digestion → Ingestion → Absorption → Assimilation → Egestion
 - B. Ingestion → Digestion → Absorption → Assimilation → Egestion
 - C. Ingestion → Absorption → Digestion → Assimilation → Egestion
 - D. Digestion → Absorption → Ingestion → Assimilation → Egestion
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Question 2/10

Which of the following is an example of **parasitic nutrition**?

- A. Cow grazing grass
 - B. Leech sucking blood
 - C. Human eating food
 - D. Termite digesting wood with microbes
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Question 3/10

Which step of holozoic nutrition involves the **movement of digested food into the bloodstream**?

- A. Ingestion
 - B. Digestion
 - C. Absorption
 - D. Assimilation
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Question 4/10

Which of the following best describes **assimilation**?

- A. Breakdown of food into simpler substances
 - B. Intake of food
 - C. Utilisation of absorbed nutrients by cells
 - D. Removal of undigested waste
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Question 5/10

Which of the following organisms shows **symbiotic nutrition**?

- A. Tapeworm
 - B. Human
 - C. Termite with gut microbes
 - D. Tiger
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Question 6/10

Which of the following nutrients is primarily responsible for **body-building and repair**?

- A. Carbohydrates

- B. Proteins
 - C. Fats
 - D. Vitamins
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Question 7/10

Which of the following is **NOT** a function of nutrition?

- A. Energy production
 - B. Growth
 - C. Reproduction of species
 - D. Repair of tissues
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Question 8/10

Which of the following correctly defines **heterotrophic nutrition**?

- A. Organism prepares its own food using sunlight
 - B. Organism depends on others for food
 - C. Organism absorbs inorganic substances
 - D. Organism performs chemosynthesis
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Question 9/10

Which of the following is correctly matched?

- A. Saprophyte – feeds on living host
- B. Parasite – feeds on dead matter
- C. Holozoic – ingestion of solid food
- D. Symbiosis – one benefits, other harmed

Question 10/10

Which of the following steps occurs **after absorption but before egestion**?

- A. Digestion
- B. Ingestion
- C. Assimilation
- D. Respiration