

UNIT 10 • BIOMOLECULES

Vitamins and Their Classification

Concept 14 — 10.4 & 10.4.1

Key Vocabulary

Fat-Soluble Vitamins

— Vitamins that dissolve in fats and oils; they are stored in the body's tissues.

Water-Soluble Vitamins

— Vitamins that dissolve in water; they are generally excreted and must be supplied regularly in the diet.

Fat-Soluble Vitamins

Vitamins A, D, E, K

Soluble in fats and oils, but
insoluble in water.

**Stored in liver and adipose
(fat-storing) tissues.**



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Water-Soluble Vitamins

B-group Vitamins and Vitamin C

Soluble in water. Must be supplied regularly in the diet.

**Readily excreted in urine;
cannot be stored in the body.**

Vitamin Deficiency Mapping (Table 10.3)

Vitamin	Sources	Deficiency Disease
Vit A	Fish liver oil, carrots, butter, milk	<i>Xerophthalmia, Night blindness</i>
Vit B1 (Thiamine)	Yeast, milk, green veg, cereals	<i>Beri beri</i>
Vit B2 (Riboflavin)	Milk, eggwhite, liver, kidney	<i>Cheilosis, burning skin</i>
Vit B6 (Pyridoxine)	Yeast, milk, egg yolk, cereals	<i>Convulsions</i>
Vit B12	Meat, fish, egg, curd	<i>Pernicious anaemia</i>
Vit C (Ascorbic acid)	Citrus fruits, amla, green leafy veg	<i>Scurvy</i>
Vit D	Sunlight, fish, egg yolk	<i>Rickets, Osteomalacia</i>
Vit E	Veg oils (wheat germ, sunflower)	<i>Fragile RBCs, muscular weakness</i>
Vit K	Green leafy vegetables	<i>Increased blood clotting time</i>

Watch for this: The B12 Exception

Water-soluble vitamins are excreted in urine and cannot be stored.

EXCEPTION: Vitamin B12

Vitamin B12 breaks its own group's rule. Even though it is a water-soluble B-group vitamin, it **IS** stored in the human body. Examiners frequently test this specific exception.

Key Takeaways

- **Vitamins are classified purely by solubility: AD ADEK are fat-soluble (stored in liver/adipose tissue), while B-group & C are water-soluble (regularly excreted).**
- **Always remember the exception: Vitamin B12 is the only water-soluble vitamin that is stored in the human body.**



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