

Vitamin B12: Pernicious Anemia and Red Blood Cell Maturation

Nutrition · Practice Test · 29 Questions

1. What is the primary role of Vitamin B12 in the context of red blood cells?

- A) Iron absorption enhancer
- B) Erythrocyte maturation factor
- C) Folate antagonist
- D) Hemoglobin synthesis inhibitor

2. What is the traditional term for the condition caused by Vitamin B12 deficiency, which is now more accurately described as microcytic hyperchromic anemia?

- A) Macrocytic anemia
- B) Pernicious anemia
- C) Sideroblastic anemia
- D) Aplastic anemia

3. Where are cobalamins (Vitamin B12) absorbed in the small intestine?

- A) Duodenum
- B) Jejunum
- C) Ileum
- D) Cecum

4. What is required for the absorption of cobalamins in the ileum?

- A) Intrinsic factor
- B) Parietal cells
- C) Gastric acid
- D) Pepsin

5. Which part of the stomach secretes intrinsic factor?

- A) Antrum
- B) Pylorus
- C) Fundus
- D) Cardia

6. Unlike most other B-vitamins, where can cobalamins be stored in significant amounts?

- A) Kidneys
- B) Muscles
- C) Liver
- D) Brain

7. Which of the following is NOT a manifestation of pernicious anemia?

- A) Anorexia
- B) Vomiting
- C) Jaundice
- D) Excessive appetite

8. What is the characteristic red blood cell defect in pernicious anemia?

- A) Microcytic hypochromic anemia
- B) Normocytic normochromic anemia
- C) Macrocytic hyperchromic anemia
- D) Spherocytosis

9. The term "pernicious" in pernicious anemia historically meant:

- A) Curable
- B) Incurable
- C) Common
- D) Rare

10. Which of these tissues has one of the highest concentrations of Vitamin B12?

- A) Skin
- B) Hair
- C) Bone marrow
- D) Lungs

11. Bacterial synthesis of cobalamin occurs, but it is not significant in:

- A) Cows
- B) Chickens
- C) Humans
- D) Rats

12. What is the most active and common form of cobalamin circulating in the blood?

- A) Cyanocobalamin
- B) Methylcobalamin
- C) Adenylcobamide
- D) Hydroxocobalamin

13. What is the Philippine Recommended Nutrient Intake (RNI) for Vitamin B12 per day for males and females 10 years and over?

- A) 1.4 mcg/day
- B) 2.0 mcg/day
- C) 2.4 mcg/day
- D) 3.0 mcg/day

14. How much additional Vitamin B12 is recommended per day for pregnancy according to the Philippine RNI?

- A) 0.1 mcg/day
- B) 0.2 mcg/day
- C) 0.3 mcg/day
- D) 0.4 mcg/day

15. What is the US-RDA for Vitamin B12 for adults per day?

- A) 2.0 mcg/day
- B) 2.4 mcg/day
- C) 3.0 mcg/day
- D) 4.0 mcg/day

16. In general, which type of food sources contain significant amounts of Vitamin B12?

- A) Plant sources
- B) Animal proteins
- C) Fungi
- D) Algae

17. Strict vegans have been observed to have deficiencies of Vitamin B12 because:

- A) They do not consume enough calories
- B) Plant sources have practically zero B12
- C) Their gut bacteria produce insufficient B12
- D) They have a higher metabolic rate

18. What is a symptom of nerve degeneration, especially of the spinal cord, in advanced cases of Vitamin B12 deficiency?

- A) Increased reflexes
- B) Numbness and tingling sensations (paresthesias)
- C) Improved coordination
- D) Enhanced vibratory sense

19. The discovery of Vitamin B12 as a specific therapeutic vitamin for pernicious anemia was considered a milestone in:

- A) Surgery
- B) Pediatrics
- C) Clinical nutrition
- D) Dermatology

20. What is the characteristic appearance of red blood cells in macrocytic hyperchromic anemia?

- A) Smaller than normal with less pigment
- B) Normal size and pigment
- C) Larger than normal with higher pigment
- D) Irregular shape with no pigment

21. Vitamin B12 is essential for the normal functioning of which of the following?

- A) Skin, hair, and nails
- B) Liver, kidneys, and spleen
- C) Nerves, bone marrow, and brain
- D) Lungs, stomach, and intestines

22. What is the term used to describe the increased size of red blood cells in pernicious anemia?

- A) Microcytic
- B) Normocytic
- C) Macrocytic
- D) Anisocytic

23. What is the term used to describe the higher level of pigment in red blood cells in pernicious anemia?

- A) Hypochromic
- B) Normochromic
- C) Hyperchromic
- D) Poikilocytic

24. The text mentions that Vitamin B12 cannot replace which other vitamin in treatment?

- A) Vitamin C
- B) Vitamin D
- C) Folic acid
- D) Niacin

25. What does the text state about antagonists of Vitamin B12?

- A) They are common
- B) They have been observed
- C) No antagonist has been observed
- D) They are primarily found in plant-based diets

26. Yellowish skin is one of the manifestations of:

- A) Iron deficiency anemia
- B) Pernicious anemia
- C) Folate deficiency anemia
- D) Vitamin C deficiency

27. Loss of vibratory sense is a symptom associated with:

- A) Vitamin A deficiency
- B) Vitamin B12 deficiency
- C) Vitamin K deficiency
- D) Vitamin E deficiency

28. What is the role of Vitamin B12 in preventing pernicious anemia?

- A) It directly increases iron absorption
- B) It is essential for erythrocyte maturation
- C) It acts as an antioxidant
- D) It stimulates bone growth

29. In terms of red blood cell production, Vitamin B12 is considered an:

- A) Erythrocyte destruction factor
- B) Erythrocyte production inhibitor
- C) Erythrocyte maturation factor
- D) Erythrocyte size regulator