



Vitamin B 12

Dr. Khalid



HYPOALLERGENIC
Vegetarian

VITAMIN B-1

Vitamin Supplement



Vitamin B₁₂

Synonym: Cyanocobalamin.

Specimen: Serum

Reference Value:

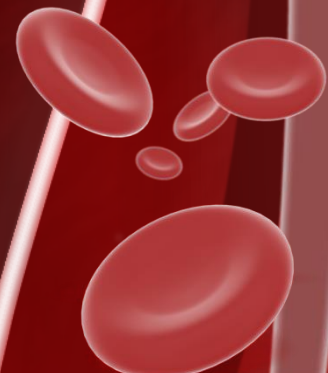
- ❑ Newborn 160–1300 pg/mL
- ❑ Adult 200–900 pg/mL

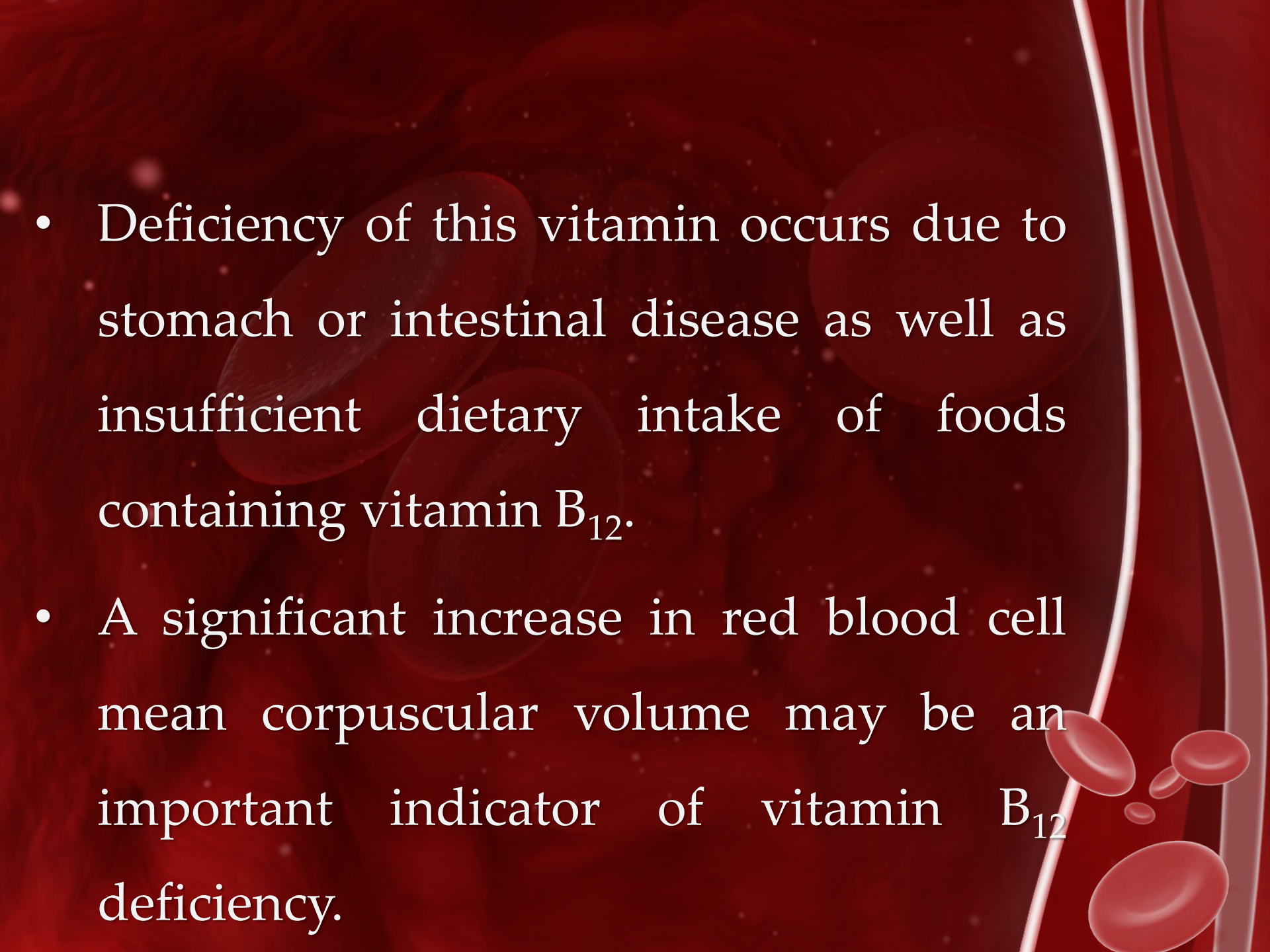
Method: Radioimmunoassay



Description:

- It is essential in DNA synthesis, hematopoiesis, and central nervous system integrity.
- It is derived from dietary intake. Animal products are the richest source of vitamin B₁₂.
- Its absorption depends on the presence of intrinsic factor.



- Deficiency of this vitamin occurs due to stomach or intestinal disease as well as insufficient dietary intake of foods containing vitamin B₁₂.
 - A significant increase in red blood cell mean corpuscular volume may be an important indicator of vitamin B₁₂ deficiency.
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- The background of the slide is a deep red color with a subtle pattern of small white dots. On the right side, there is a vertical, glowing white line that represents a blood vessel. Several red blood cells are depicted as 3D, biconcave discs in various sizes and orientations, some appearing to be in motion or falling from the vessel.

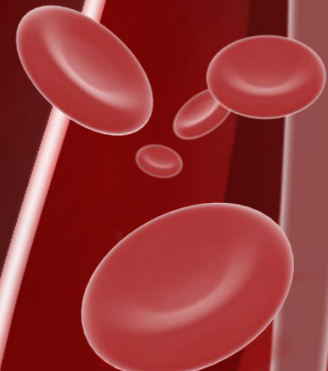
Indications

- ❑ Assist in the diagnosis of central nervous system disorders
- ❑ Assist in the diagnosis of megaloblastic anemia
- ❑ Evaluate malabsorption syndromes

Interpretation

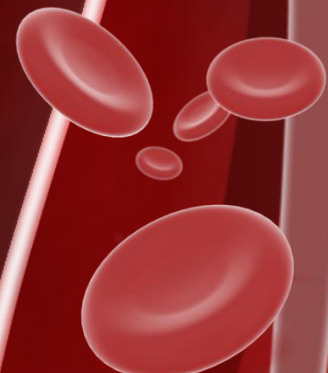
Increased in:

1. Chronic granulocytic leukemia
2. Chronic renal failure
3. Diabetes



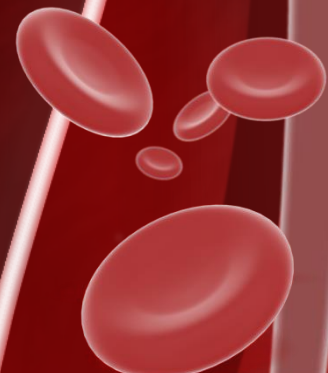
Interpretation

4. Leukocytosis
5. Liver cell damage (hepatitis, cirrhosis)
6. Obesity
7. Polycythemia vera



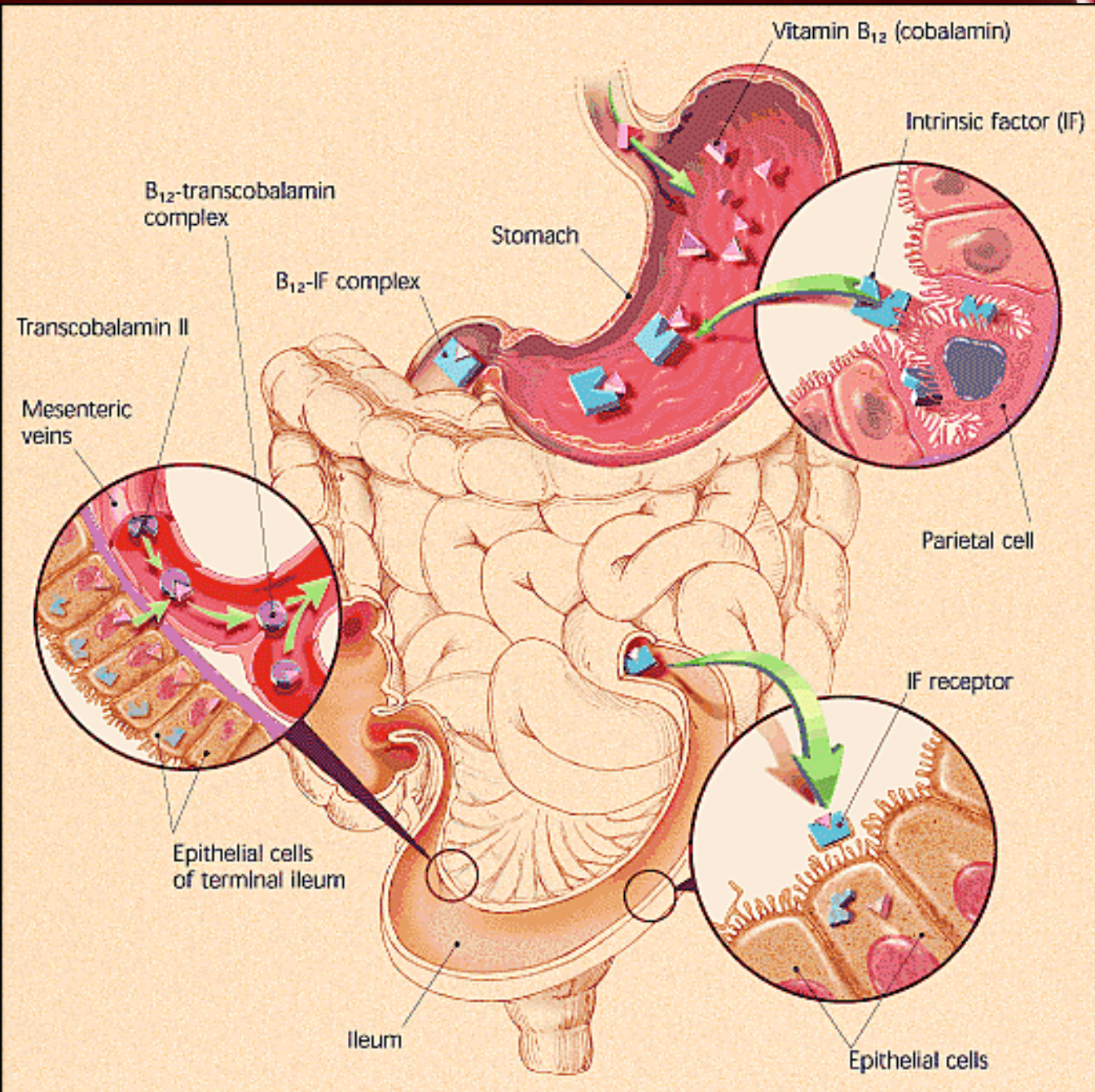
Decreased in:

1. Abnormalities of cobalamin transport or metabolism
2. Bacterial overgrowth
3. Dietary deficiency (e.g., in vegetarians)
4. *Diphyllobothrium* (fish tapeworm) infestation
5. Gastric or small intestine surgery



6. Hypochlorhydria
7. Inflammatory bowel disease
8. Intestinal malabsorption
9. Intrinsic factor deficiency
10. Late pregnancy
11. Pernicious anemia



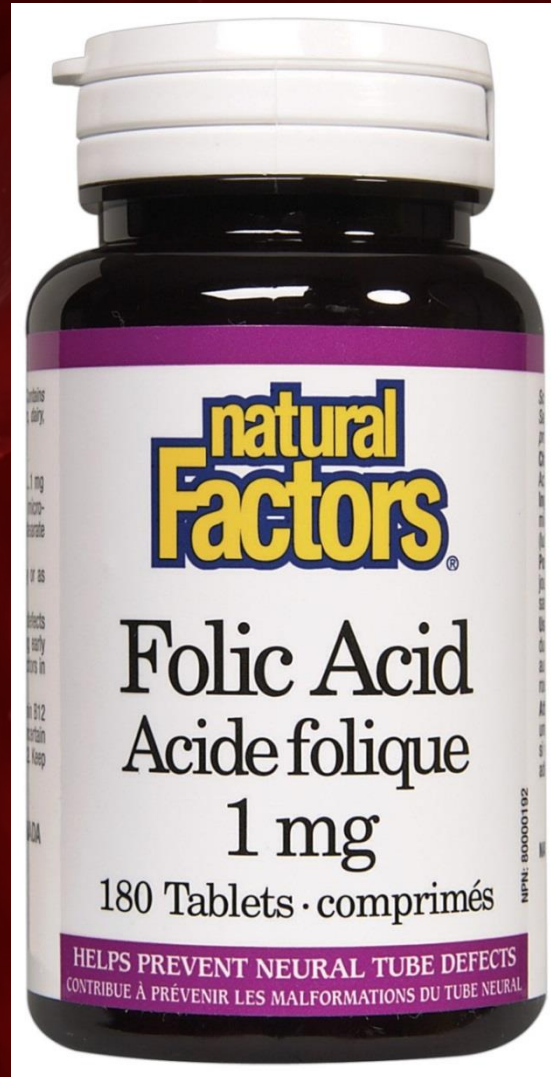


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Folic Acid

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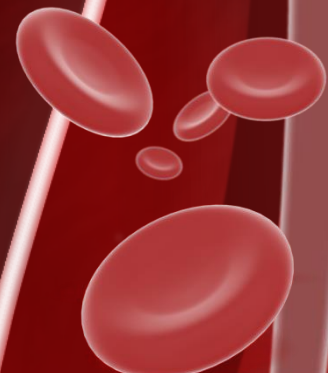
Folic acid

Synonym: folate

Specimen: Serum

Reference Value: > 2 ng/mL

Method: Radioimmunoassay



Description

- Folate, a water soluble vitamin, is produced by bacteria in the intestines and stored in small amounts in the liver.
- Folate is necessary for normal red blood cell and white blood cell function, DNA replication, and cell division.
- Folate levels are often measured in association with serum vitamin B₁₂ determinations

Interpretation

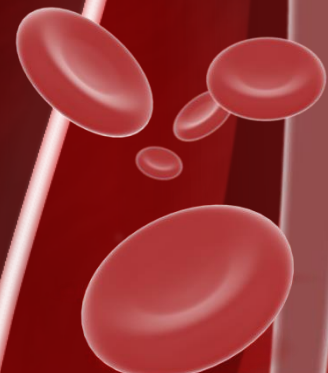
Decreased in:

- Dietary folate deficiency
- B₁₂ deficiency (50–60%, since cellular uptake of folate depends on B12).
- malabsorption, malnutrition, liver disease, cancer.

Interpretation

Increased in:

- ❑ Excessive dietary intake of folate or folate supplements





Fibrinogen

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Fibrinogen kit



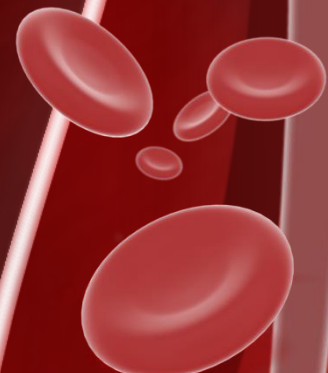
Fibrinogen

Synonym: Factor I.

Specimen: Plasma collected in
sodium citrate

Reference Value: 150–400 mg/dL

Method: ELISA



Description

- ❑ Fibrinogen is synthesized in the liver.
- ❑ In the common final pathway of the coagulation sequence, thrombin converts fibrinogen to fibrin, which then clots blood as it combines with platelets.
- ❑ In normal, healthy individuals, the serum should contain no residual fibrinogen after clotting has occurred



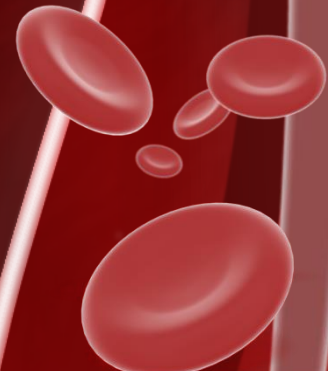
Interpretation

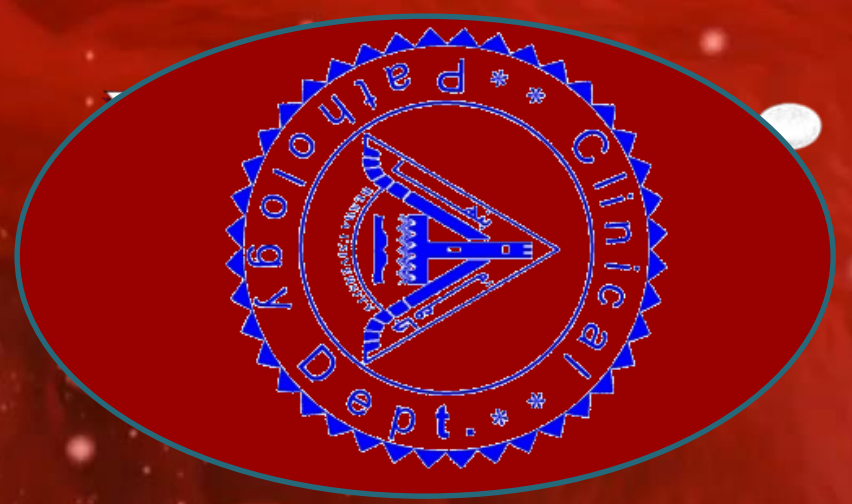
Decreased in:

- ❑ Congenital fibrinogen deficiency
- ❑ DIC
- ❑ Liver disease (Decreased hepatic synthesis)
- ❑ Primary fibrinolysis

Increased in:

- ❑ Inflammation (acute phase reactant),
- ❑ Multiple myeloma
- ❑ Pregnancy
- ❑ Tissue necrosis



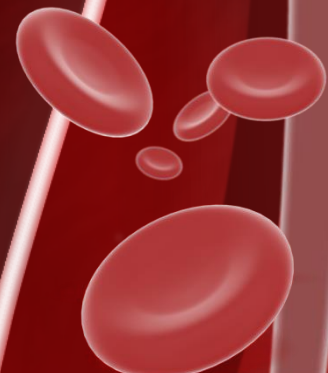


Fibrin Split Products

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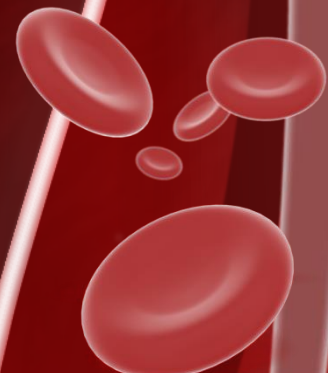
Fibrin Split Products

- **Synonyms:** Fibrin Degradation Products, fibrin breakdown products, FDP, FSP, FBP.
- **Specimen:** Plasma
- **Reference Value:** $<5 \mu\text{g/mL}$;
- **Method:** Latex agglutination

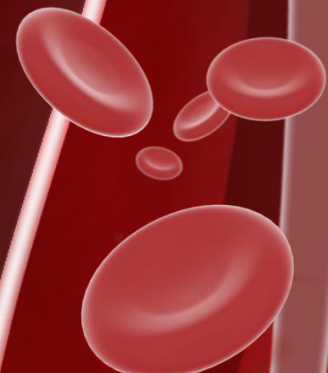


Description

- This coagulation test evaluates fsp that interfere with normal coagulation and formation of the hemostatic platelet plug.
- After a fibrin clot has formed, the fibrinolytic system prevents excessive clotting. In the fibrinolytic system, plasmin digests fibrin.



- ❑ Fibrinogen also can be degraded.
- ❑ Seven substances labeled *A, B, C, D, E, X,* and *Y* result from this degradation, which can indicate abnormal coagulation.
- ❑ Under normal conditions, the liver and reticuloendothelial system remove fibrin split products from the circulation



Interpretation

Increased in:

- DIC
- Excessive bleeding
- Liver disease
- Pulmonary embolism

