Vitamin B12 Deficiency

Prelims – *Current events of National and International Importance| General Science.*

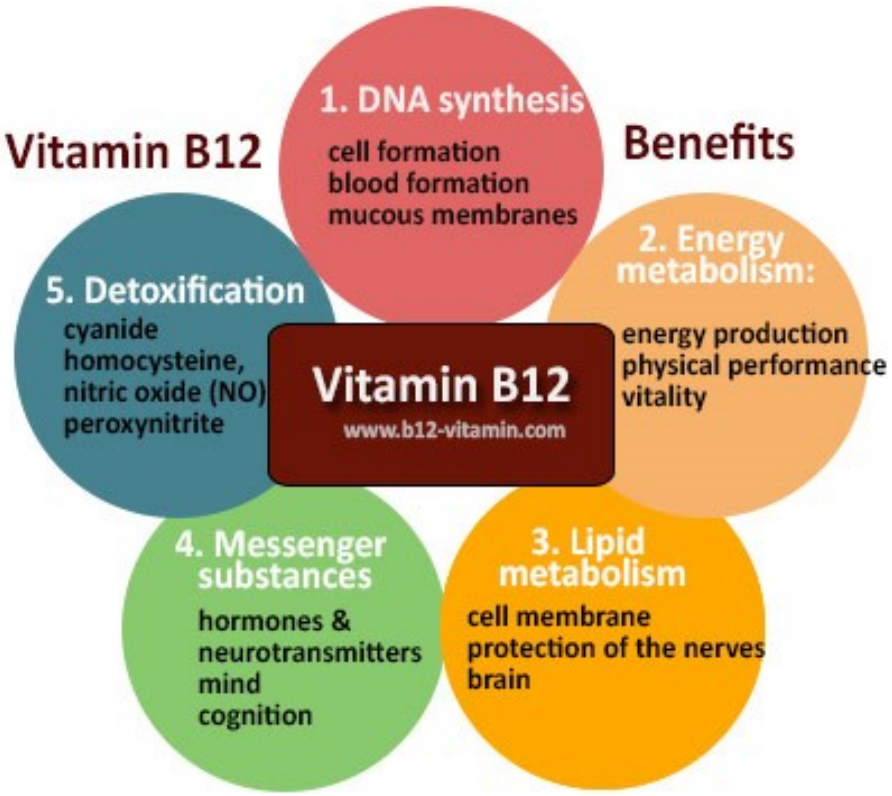
Why in News?

Recently, Population-based research, International Journal of Academic Medicine and Pharmacy, has identified a direct link between Vitamin B12 deficiency and cardiovascular health.

- **Vitamin B12 -** Vitamin B12, also known as ***cobalamin.***
- It serves essential functions in the body, including forming DNA and healthy red blood cells, maintaining proper nerve and brain function, and converting food into energy.
- It also serves ***to regulate Homocysteine,*** a blood amino acid.

Homocysteine (Hcy) *is a sulphur containing amino acid that is derived from methionine, an essential amino acid found in abundance in protein of animal origin.*

Vitamins B12, B6 and folate break down homocysteine to create other chemicals our body needs.



- **Healthy Parameters –** Normal vitamin B12 levels swing between 200 and 900 picograms per milliliter (pg/mL).
- Levels below 200 pg/mL are considered deficient, while those between 200 and 300 pg/mL can be considered borderline cases.
- **Diet –** B12 is largely present in animal food items like *eggs, milk, fish, poultry and meat.*
- Oral supplement or injections can be prescribed in people with absorption problems, for example, those with gastrointestinal conditions or older persons.
- **B12 deficiency –** It can result in a spectrum of symptoms and health complications, ranging from mild fatigue and weakness to severe neurological disorders and anaemia.
- When Vitamin B12 levels decline, blood pressure rises, which damages heart vessels over time.
- B12 deficiency leads to ***megaloblastic anemia,*** a condition that lowers the oxygen-carrying capacity of blood.
- **Impacts –** B12 levels are low, the body is unable to effectively convert homocysteine to useful compounds.
- High homocysteine is toxic to blood vessels, causing them to become rigid and less flexible.
- It leads to inflammation and damages the inner lining of arteries, which accelerates the process of atherosclerosis or deposition of plaque.
- Elevated homocysteine can also make the blood more likely to form clots, increasing the risk of blockages that cause heart attacks and stroke

Reference

The Indian Express| Vitamin B12 deficiency and Homocysteine

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