

Role Vitamin-B Complex in the Periodontal Health - A Review

Darshana Dalaya, Yogesh Khadtare*, Priyanka Agrawal, Nilima Landge, Sayali Sonawane and Rinkoo Gupta

Department of Periodontology, Bharati Vidyapeeth Deemed to be University Dental College and Hospital, Pune, India

***Corresponding Author:** Yogesh Khadtare, Department of Periodontology, Bharati Vidyapeeth Deemed to be University Dental College and Hospital, Pune, India.

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Abstract

Periodontal research has attempted to understand and modify the factors that interfere with or slow down wound repair or regeneration after Periodontal therapy. Nutrients can be considered major or minor as determined by the amounts consumed in our diets. Our body stores Vitamins in small quantities and according to its use they are required so as to maintain the health and metabolic reactions necessary for normal physiological functions.

Keywords: Vit-B-Complex

Introduction

Vitamins usually function in order to increase the rate of various reactions in the body. They act as catalyst to regulate the metabolic reactions in the body to release energy from the food we consume. Protection of cell plasma membrane integrity, tissue synthesis processing are controlled by vitamins along with metabolism, health maintenance, growth and much more. Vitamins act as a catalyst which means chemical reaction occurs at a faster rate with less consumption of energy otherwise in normal conditions. However, if the vitamins are deficient, normal body functioning would be hindered, increasing a person's susceptibility to disease.

Definition

Vitamins are organic chemical compound which are found in tiny amounts in natural foodstuffs, these vitamins are needed and/or required by an organism as a vital nutrient to sustain life because they play an important role in normal metabolism process, growth and vitality. Usually we receive vitamins either from our diet which is considered as the major source or from vitamins supplements.

Classification

- Water soluble vitamins (Vitamin B complex including Vit B1, Vit B2, Vit B3, Vit B5, Vit B6, Vit B7, Vit B9, Vit B12 and Vit C) and
- Fat soluble vitamins (Vit A, Vit D, Vit E, Vit K).

Importance of vitamin B complex and dietary sources

Vitamin B complex consists of Thiamine, Riboflavin, Niacin, Pantothenic acid, Pyridoxine, Pyridoxal, Biotin, Folic acid, and Cobalamins. Vitamins are important in metabolism of cells, their repair and proliferation. In a study carried out by Neiva, *et al.* [1] on 30 individuals it was observed that periodontal wound healing accelerated on supplementation of Vitamin B complex.

- **Thiamine:** Helps for the muscles and nerves to function normally using glucose for energy. It could be found in potatoes, eggs, pork, oats, liver.
- **Riboflavin:** Helps in growth of muscles and hair. It could be found in bananas, dairy, green beans.
- **Niacin:** Helps in proper functioning of enzymes. It could be found in nuts, meat, mushrooms, fish, eggs.
- **Pantothenic Acid:** Wound healing is accelerated. Could be found in meat, avocados, broccoli.
- **Pyridoxine:** Acts as a co-enzyme for many chemical reactions. It could be found in meat, nuts, bananas, vegetables.
- **Biotin:** Helps in collagen synthesis, necessary for growth digestion and muscle function. It could be found in bread, cauliflower, chicken, fishes.
- **Folic Acid:** Folate delivers head to toe health advantages. It could be found in cereals, leafy vegetables.
- **Cyanocobalamin:** It is necessary to produce RBCs. It could be found in animal products.

Vitamin B deficiency

Vitamin B deficiency could be observed in oral mucosal lesions like angular cheilitis and glossitis as well as the skin diseases. Likewise, Vitamin B12 deficiency is known to be associated with gingival bleeding. In some studies it is generally associated with periodontitis stating the relation between serum Vitamin B 12 levels and severity of periodontitis.

Vitamin B toxicity

Vitamin B complex are easily soluble in water as water soluble that means they are not stored in your body but are excreted in your urine. Mostly, the toxic levels for these vitamins are low yet few side effects are noticed in a person with large consumption of these doses.

Side effects of vitamin B complex: Side effects may be experienced if doses are higher than tolerable upper intake levels.

Common side effects include: Black stools, abdominal pain, constipation, nausea, vomiting, change in color of urine, frequent urination, diarrhea, redness of skin, itching, excessive heat.

High serum cobalamin (vitamin B12) has long been a misunderstood and underestimated anomaly, being considered as irrelevant from a diagnostic and clinical standpoint. Clinically, it can be paradoxically accompanied by signs of deficiency, reflecting a functional deficiency linked to qualitative abnormalities, which are related to defects in tissue uptake and action of vitamin B12. High serum vitamin B12 is defined by a rate above 950 pg/ml (701 pmol/l), which corresponds by biological standards, to the upper limit of biological normality, in the absence of any sign and/or clinical anomaly [2-6].

In blood diseases like leukemia, polycythemia vera and hypereosinophilic syndrome, the cause is often an enhanced production of the transport protein haptocorrin, to which most of the circulating B12 in blood is bound. In liver diseases such as acute hepatitis, liver cirrhosis and liver cancer, elevated B12 values are often found because the liver is no longer capable of storing vitamin B12.

Elevated B12 values are always cause for further testing, but of course, to the contrary, it cannot be concluded that elevated levels after B12 injections leads to serious disease.

Lab analysis:

1. Microbiological Analytics
2. ELISA reader
3. ID- Vit assays [A novel method] [7].

Treatment

- Vitamin B1- contains 50 - 500 mg of Vitamin B1 per tablet.
- Vitamin B2- 25-100 mg per tablet.
- Vitamin B3- 20-500 mg per tablet.
- Vitamin B6- 5-500 mg per tablet.
- Vitamin B12- Treatment includes injectable B12 while folate given orally.

In neurologic cases, B12 is best given parentally at 1000 μ gm per day to start with, then on alternate days, and maintenance of 1000 μ gm once a month [8].

Conclusion

In order to improve the periodontal health, maintenance of nutrition through food or supplementation of vitamins is necessary. The results are better in adjunct with periodontal therapy.

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