

Benefits of Vitamin B₁₂ and Its Nutritional Sources

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ABSTRACT

Vitamin B₁₂, also known as cobalamin, is a water-soluble vitamin, similar to other B vitamins. One of its significant functions is its role in the metabolism of the cells of the human body, in the cell division, and in the normal activity of the erythrocytes as well. Furthermore, it contributes to creating normal activity of the nervous system and to protect osteoporosis and diabetes mellitus. In case of Vitamin B₁₂ deficiency, megaloblastic anemia is most common, together with it several deficiency symptoms might occur in the organism. The reason is mainly nutritional failure or following special diet (vegetarian and vegan), it means avoiding meat and animal products totally. For these reasons, this manuscript is intended to reveal mainly the features of vegetarian and vegan dietary means. It is followed by focusing on the diet suitable to treat diseases in connection with Vitamin B₁₂ deficiency, which is a special applicable dietary recommendation as part of normal diet. This diet contributes to maintain balanced human organism, to prevent diseases, or to treat evolved diseases.

Key words: Anemia, dietary sources, healthy diet, vegan, vegetarian, Vitamin B₁₂

INTRODUCTION

Vitamin B₁₂ is a water-soluble vitamin, similar to other B vitamins. Deficiency can cause symptoms of pale skin, reduced energy and load tolerance level, fatigue, annihilation, and heart-throb among others, may be experienced. In most cases, these symptoms refer to hematogenesis disorder or megaloblastic anemia. The significance of this vitamin was examined beside osteoporosis, diabetes mellitus, nerval diseases, and kidney disease.^[1-5] There are age groups, where particular attention should be paid on the amount of active substance intake. Vitamin B₁₂ supplementation and the applied referring diet have a significant role in treating diseases in connection with Vitamin B₁₂ deficiency and in preventing the disease. This state can be connected to the diet in most cases. Vegetarians' and vegans' diet are an excellent example, since they contain just moderate amount of animal-sourced foods, or even not any. The most significant

intake sources of Vitamin B₁₂, namely, consuming meat and animal products is totally avoided in this diet. Hence, in that case, if terminalis ileum - the key element, which helps the vitamin to absorb – is intact, the active substance cannot get into the organism. Nowadays, several products are enriched with Vitamin B groups, also with Vitamin B₁₂, that provide potential possibility to live healthier and more balanced life. After introducing vegetarian and vegan diet, this manuscript focuses on the dietary sources of cobalamin. Hopefully, my manuscript will contribute to the prevention of Vitamin B₁₂ disorder and to the expansion of applicable dietotherapy knowledge.

FEATURES OF VEGETARIAN AND VEGAN DIET

The term vegetarian originates from the Latin word "vegetabilis." Vegetarians follow the practice of abstaining from the consumption of meat, which requires killing

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animals, therefore, they mostly consume plant foods. During human history, mainly doctrines of some religion followers included signs referred to such diet. In this nutritional case, it is basically typical to avoid meat and animal products, however, there are several variations when the individual consumes milk and dairy products or eggs (e.g., ovo-lacto vegetarian). Vegan diet followers avoid every kind of animal products, and they believe not only in this type of nutrition but also in the philosophical viewpoint.

The nutritional issues based on vegetal raw material are the basis of several researches. They mainly study the physiological function of the diet, and its role in diseases in connection with vitamins or minerals deficiency. Among these anomalies, the most common is Vitamin B₁₂ deficiency.^[6] To have a balanced, healthy diet and to avoid Vitamin B₁₂ deficiency – the most important part of this manuscript – particular attention should be paid on consuming products enriched with vitamins and on diversified diet.

DIETARY SOURCES OF VITAMIN B₁₂

The most important dietary sources of Vitamin B₁₂ are animal-sourced foods, such as meat and meat products, liver, fish, eggs, milk, and dairy products. Dietary use of single-cell proteins produced from microorganisms, mostly yeast (for example, *Saccharomyces* spp.), acts a significant role in dietotherapy. The most well-known form of *Saccharomyces cerevisiae* is baker's yeast. Besides, active substance content of microalgae has also been confirmed by several researches.^[7] Supplementing cobalamin is also possible by enriching certain foods (e.g., plant-based milk or flour enriched with vitamins).^[8] There are such B₁₂ deficiency statuses that do not occur due to anatomical deformation, id est due to the deficiency of terminalis ileum. In these cases, the abovementioned dietary sources play a great role. The followers of certain nutritional forms, such as vegetarian or vegan diet, might be in at high risk, and they should pay particular attention to their balanced diet to avoid deficiency diseases.

CONCLUSIONS

This manuscript introduces the details of symptoms and diseases related to B₁₂ deficiency and also presents those

special diets, such as vegetarian and vegan ones, whose followers are at highest risk due to deficiency statuses. It was considered as important to determine those dietary recommendations, which contribute to the treatment of diseases in connection with active substance failure. I am concerned that in those cases when the deformation is not anatomical, id est B₁₂ deficiency exists due to intestinal abscission, dietotherapy might have the most important role in the treatment.

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