

Vitamin B and Depression; Effective or Ineffective?

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Abstract

Due to the increase in depression in the present age, especially with the Prevalence of coronavirus, finding a way to reduce or treatment of this issue has been considered by experts. It seems that a lack of some vitamins in the human body can cause depression in people, one of these vitamins is vitamin B. Vitamin B affects immune system and nervous system. Since, the immune system has important role on mental health disorders, it seems that Vitamin B also affects these disorders. According to many studies, there is a direct correlation between Vitamin B and depression and even some of the studies suggested the affects of Complex B as a treatment for stress and depression. Studies in a group of people treated with vitamin B12 showed that although B12 deficiency was common in people with depressive symptoms, treatment with this vitamin had no effect on improving the disorder. In another experiment, depressed people improved significantly by being treated with a substance containing vitamins B6, B9 and B12, and suggested it as a treatment for depression. It has also been hypothesized that B6 may be effective in controlling hormone-related depression due to its association with carbohydrate and sex steroid metabolism, but no precise information is available on the process of this effect. This article examines the effectiveness of B vitamins on depression.

Introduction

Vitamin B is required for the proper functioning of the methylation cycle, the production of monoamine oxidases, DNA synthesis, and the repair and persistence of major phospholipids such as myelin [1-8]. Vitamin B complex is one of the foundations of the balance of the immune and nervous systems. Vitamin B deficiency is associated with several neurological disorders, including depression, anxiety, dementia, and Alzheimer's disease. There are complex interactions between the nervous system and the immune system, and it is clear that the immune system plays an important role in the pathogenesis of mental health disorders (including cognitive decline, anxiety, mood swings, depression, etc.) [9-14].

Lindsay Allen, a nutritionist at the US Department of Agriculture, reported that low levels of vitamin B9 were associated with symptoms of dementia and "cognitive decline" in brain

function [15,16]. Although the only officially recognized disorder associated with B12 deficiency is megaloblastic anemia, it has now been suggested that many neurological and psychiatric symptoms may also be due to vitamin B12 [17]. Ataxia, muscle weakness, spasticity, incontinence, hypotension, vision problems, dementia, psychosis, and mood disorders are some of the disorders that have recently been associated with possible vitamin B12 deficiencies [18-28].

The researchers also found that women with lower levels of vitamin B9 were worse off than men [29,30].

Pharmacological treatment of depression, mainly with selective serotonin reuptake inhibitors, has been made possible with or without psychotherapy over the past twenty years. Complementary and alternative medicine; Suggests therapies including nutrients, meditation, massage, homeopathy and other methods beyond the scope of conventional clinical care. These

include interventions for depression, dietary interventions, supplements, and vitamins, especially B vitamins. Deficiencies and b1, b9, B12 and B6 in psychiatric symptoms have been shown and their appropriate complement is known [31-35].

Some people with depression may not be able to get the amount of B vitamins they need for good health through their diet because there is a major metabolic problem or other illness that requires more B vitamins, like many disorders. Digestive On the other hand, studies have reported that folic acid and vitamin B12 supplementation may be associated with an increased risk of colon cancer.

Vitamin B effective in depression or ineffective?

According to research conducted on a group of Danes, researchers have found that cognitive impairment and, in some cases, depression are common in people with low vitamin B12. To prove that vitamin B therapy has no effect on improving depression and cognitive function, four tests were used: MDI, MMSE, CAMCOG and twelve-word learning test. Those who used the placebo were very similar, except in one case where in the twelve-word learning test after fifteen minutes, we had a significantly better improvement in the placebo group than in the treatment group. Finally, although vitamin B12 deficiency was common in subjects with cognitive impairment and depressive symptoms, treatment with this vitamin had no effect on improving the disorder and symptoms [36,37].

But in an experiment to assess chronic stress that may lead to depression, more people improved in the group treated with hormones and environmental conditions with vitamin B complex therapy than in the untreated group. In this trial, depressed people had a significant improvement with Tri_B treatment, which includes vitamins B6, B12, and B9, and it was found that this substance is probably one of the ways to treat depression [38]. There is also other research that confirms the effect of vitamin B in reducing depressive symptoms. Among the research is Klemp, Melissa L, published in 2016. Here, the hypothesis that vitamin B supplementation reduces depressive symptoms is confirmed [39].

The role of B vitamins in depression caused by hormonal disorders Based on the relationship between vitamin B6 deficiency and common depressive symptoms and its function, it was hypothesized that this vitamin may play a role in controlling depression caused by hormonal disorders [38]. Although it does not explain the exact mechanism of low estrogen levels and depressive symptoms, it appears to be related to the blocking properties of dopamine and serotonin, as well as their involvement in the release of several other neurotransmitters [40]. Despite this ambiguity, effects research Different surgical and medical treatments indicate a positive relationship. For example, the symptoms of PMS have been reduced through hysterectomy and oophorectomy [41] in the treatment of hormone-related depression, based on the association between B-6 deficiency and

concomitant depressive symptoms and its role in carbohydrate and glandular steroid metabolism [42].

B6 deficiency has been shown in women with hormone-induced depression, for example, premenstrual syndrome and premenstrual dysphoric disorder, and is associated with symptoms of discomfort. Based on the relationship between B6 deficiency and common depressive symptoms and its function in glandular carbohydrate and steroid metabolism, it has been hypothesized that B6 may be used successfully in the management of hormone-related depression [38].

The Effect of B Vitamins on Depression

According to studies on a group of older people in relation to the intake of vitamins B6 and B12, women with a higher intake of B6 than food and men with a higher intake of B12 than food are at a lower rate of depression compared to their peers [43]. Another experiment examined the association between serum levels of vitamins in 700 women 65 years of age and older and found that depressed women had lower levels of vitamin B12 than non-depressed women. In this population, vitamin B12 deficiency is associated with a double risk of major depression [44].

In a study of people with moderate depression, the association between b9 levels and vitamin B12 and homocysteine in older depression was examined. Researchers have found that depression is associated with low levels of vitamin B12 and high levels of homocysteine [45]. New evidence has emerged of a link between low b9 and depression, which is known to affect brain function [46]. Vitamin B6 deficiency leads to an increase in homocysteine levels and consequently a decrease in depression [47]. This is probably a compensatory mechanism to eliminate the effect of vitamin B6 deficiency on the occurrence of depression.

Folate and vitamin B12 levels are positively related to homocysteine levels. There was a consistent and unchanging relationship between acute depression and low levels of vitamin B12 [45].

Vitamin B6 status is inversely related to the severity of depression in US women of childbearing age. This association could mean that vitamin B6 protects against depression or that depression negatively affects vitamin B6 status [48]. Vitamin B treats anxiety and depression like behavior caused by PM2 exposure. Reduces 5 pregnancies in adolescent mice ; Vitamin B12 plays a vital role in the normal functioning of the brain and nerves, and its deficiency can be associated with bipolar disorder; Folic acid acts as an antidepressant by acting on norepinephrine and serotonin receptors in the brain [47].

The Effect of B Vitamins on the Immune System and Depression

There are complex interactions between the nervous system and the immune system, and it is clear that the immune system plays an important role in the pathogenesis of mental health

disorders (including cognitive decline, anxiety, mood swings, depression, etc.). Vitamin B plays an important role in regulating the body's immune response. In patients with depression, pro-inflammatory responses have been reported. Hence, there is a discontinuous relationship between B vitamins, the immune system, inflammation, and depression [49].

B Vitamins, Stress and Depression

According to studies by Gustavo and Charles in 2016, there is an important relationship between chronic stress and depression in each person. Dietary intake of vitamins, especially B vitamins, including B6, B9, and B12 may have a significant effect on mood and stress. Reducing the rate of depression helps [38]. The following results were obtained during a 60-day study period in which one group received a supplement and the other a placebo group; The supplement group in BAI showed more progress 25% compared to 22%

While the placebo group showed a greater improvement in BDI 34% compared to 39% However, the supplement group experienced a more persistent decrease, while the placebo group had less progress or no improvement from 30 to 60 days ; This is a confirmation of the findings of Gustavo and Charles. The results of studies show that the use of vitamin B can have a positive effect on reducing depressive symptoms [50].

Cobalamin, an Unreliable Indicator

Dr. Delva, an assistant professor of medicine at Kingston University, warns that blood cobalamin levels are an unreliable indicator of deficiency, and vitamin levels may be very low while normal blood cobalamin levels are. The best test for B12 deficiency involves measuring the levels of homocysteine and methylmalonic acid. If levels of these two precursors are high in cobalamin-controlled metabolic reactions, vitamin B12 levels are low.

Vitamin B, Improves Depression

One of the ways to intervene for depression is to have a diet rich in vitamins, especially vitamins B6, B12 and folate. Consumption of vitamins, especially B vitamins such as B6, B9, B12 significantly affect stress and depression [38]. Folic acid plus vitamin B12 supplementation is effective in reducing depressive symptoms. In long-term intervention to prevent depression, folic acid and vitamin B12 are recommended as dietary supplements in various doses. However, the use of these supplements as a strategy to prevent mental disorders for the elderly seems limited [51].

An anxiety or depressive behavior such as PM2 exposure. In mice, it can be improved with vitamin B supplementation by suppressing apoptosis, oxidative damage, and neuroinflammation [47]. Vitamin B6, including pyridoxal, pyridoxamine, and pyridoxine, is an alternative treatment that may play a role in the

treatment of depression. Studies have shown the potential effect of combining vitamin B complex and agar wood chemicals as a treatment for stress and depression [38]. Tri-B is more effective than Agar Wood extract compared to epinephrine-induced stress. The results of animal studies were confirmed by human study findings [51].

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