Life enhancer

1 Product card

2 StressCare Drink

Double-action stress management supplementation with magnesium citrate and B-complex

Short description:

Stress management supplementation with magnesium citrate to modulate serotonin and cortisol levels related to stress and a complex of B vitamins for better effectiveness in cognitive tasks.

Ingredients:

1. Magnesium 400mg.
2. Vitamin B_1 (thiamine)
3. Vitamin B_2 (riboflavin)
4. Vitamin B_3 (niacin)
5. Vitamin B_5 (pantothenic acid)
6. Vitamin B_6 (pyridoxine)
7. Vitamin B_7 (biotin)
8. Vitamin B_9 (folic acid)
9. Vitamin B_{12} (cobalamin)

Problem statement:

Stress increases magnesium loss, causing a deficiency. Magnesium deficiency enhances the body's susceptibility to stress, resulting in a magnesium depletion, thus completing the vicious circle of magnesium deficiency.
Nearly two thirds of population in the western world suffering from hypomagnesemia.
The most characteristic signs and symptoms of magnesium deficiency are related to neural and neuromuscular hyperexcitability. Magnesium deficiency can increase the risk of physical and mental health illness over time.
Many supplements use magnesium oxide which is far less bioavailable than magnesium citrate, and also a more substantial trigger for diarrhea.
Generally, persons under stress are also dehydrated and it is recommended to supplement magnesium together with water.
Deficiency in B vitamins is related to the decrease of cognitive functions and mood disorders.
Most supplements do not combine magnesium and B complex, although they have related functions in relation to stress.

Intended use:

Magnesium and B-complex supplementation for stress management.

Benefits:

1. Magnesium citrate for best bioavailability.
2. Magnesium modulates serotonin levels.
3. Magnesium modulates cortisol levels.
4. B-complex affects brain regions related to attention and cognitive tasks.

Main target populations:

1. Working persons under stress.
2. Sportspeople.
3. Older adults.

Longer product description

Magnesium plays a key inhibitory role in the regulation and neurotransmission of the normal stress response. Low magnesium status has been reported in subjects suffering from psychological stress. Stress increases magnesium loss, causing a deficiency. In turn, magnesium deficiency enhances the body's susceptibility to stress, resulting in a magnesium depletion, thus completing the vicious circle of magnesium deficiency.[1]

Due to the stressful modern lifestyle, magnesium deficiency is one of the most common issues in the general population[2], with nearly two thirds of population in the western world suffering from hypomagnesemia.[3]
The most characteristic signs and symptoms of magnesium deficiency are related to neural and neuromuscular hyperexcitability.[4] Its deficiency can increase the risk of physical and mental health illness over time.[5]

Many supplements use magnesium oxide which is far less bioavailable than magnesium citrate, and also a more substantial trigger for diarrhea.
Generally, persons under stress are also dehydrated and drinking water with magnesium makes it more efficient. It is generally recommended to supplement magnesium with water.

Most supplements do not combine magnesium and B complex, although they have related functions in relation to stress.
Deficiency in B vitamins is related to the decrease of cognitive functions and mood disorders.

Active people under sustained workstress, sportspeople, and older adults are populations most affected by magnesium and vitamin B deficiency.

StressCare Drink 531 is a combination of magnesium citrate (400mg), which has the best bioavailability of all magnesium chemical forms, and B-complex with the full range of B vitamins. It is packaged in sachets to ensure stability of ingredients. BeautyCare 531 is a drink powder to mix with water so that the person also receives sufficient hydration.

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[1] Pickering, G., Mazur, A., Trousselard, M., Bienkowski, P., Yaltsewa, N., Amessou, M., Noah, L., Pouteau, E., Magnesium Status and Stress: The Vicious Circle Concept Revisited, Nutrients, Vol. 12, Issue 12 (2020), art. 3672.
[2] Pham, P. C., Pham, P. M., Pham, S. V., Miller, J. M., Pham, P. T., Hypomagnesemia in patients with type 2 diabetes, Clinical Journal of American Society of Nephrology, Vol. 2 (2007), pp. 366-373.
[3] Schwalfenberg, G. K., Genuis, S. J., The Importance of Magnesium in Clinical Healthcare. Scientifica (Cairo), Vol. 2017, art. 4179326.
[4] Galland, L., Magnesium, stress and neuropsychiatric disorders, Magnesium and Trace Elements, Vol. 10, Issues 2-4 (1991-1992), pp. 287-301.
[5] Pickering, G., Mazur, A., Trousselard, M., Bienkowski, P., Yaltsewa, N., Amessou, M., Noah, L., Pouteau, E., Magnesium Status and Stress: The Vicious Circle Concept Revisited, Nutrients, Vol. 12, Issue 12 (2020), art. 3672.

2. Health claims authorized by EFSA[6]

- Magnesium, Vitamins B2, B3, B5, B6, B9 and B12 contributes to a reduction of tiredness and fatigue.
- Magnesium and Vitamins B1, B2, B3, B6, B7, B12 contributes to normal functioning of the nervous system.
- Magnesium has a role in the process of cell division.
- Magnesium and Vitamins B1, B3, B6, B7, B9, B12 contributes to normal psychological function.
- Vitamin B1 contributes to the normal function of the heart.
- Vitamins B2, B6 and B12 contributes to the maintenance of normal red blood cells formation.
- Vitamin B2 contributes to the protection of cells from oxidative stress.
- Vitamin B5 contributes to normal mental performance and to normal synthesis and metabolism of steroid hormones, vitamin D and some neurotransmitters.
- Vitamin B6 contributes to the regulation of hormonal activity.

[6] EU, Register of nutrition and health claims made on foods, V.3.6, available at: https://ec.europa.eu/food/safety/labelling_nutrition/claims/register/public (last consultation December 02, 2022).

3. Explanation of ingredients and their benefits

Magnesium citrate

1. Optimised packaging for best stability

Magnesium chemical forms are generally stable. However, magnesium citrate, which is the best bioavailable form, is the least stable form.[7]

We package it in sachets that protect the compounds from oxidation and humidity, thus preserving the stability of magnesium.

2. Best solubility

Magnesium citrate is the most soluble form with substantially higher rates than magnesium oxide.[8]

3. The best absorption and bioavailability

Magnesium citrate has the best absorption and bioavailability of all magnesium chemical forms.[9]

4. Caution with side effects and intended use

Excess magnesium supplementation causes diarrhea and magnesium can be used or prescribed for treatment of constipation.[10]

If that is the intended use, two sachets, preferably on an empty stomach, should be taken.

If not, one sachet per day should be the limit, preferably with a meal. If dietary problems persist even with low doses, we recommend taking the supplement with synbiotics like our GastroCare Capsules 121.

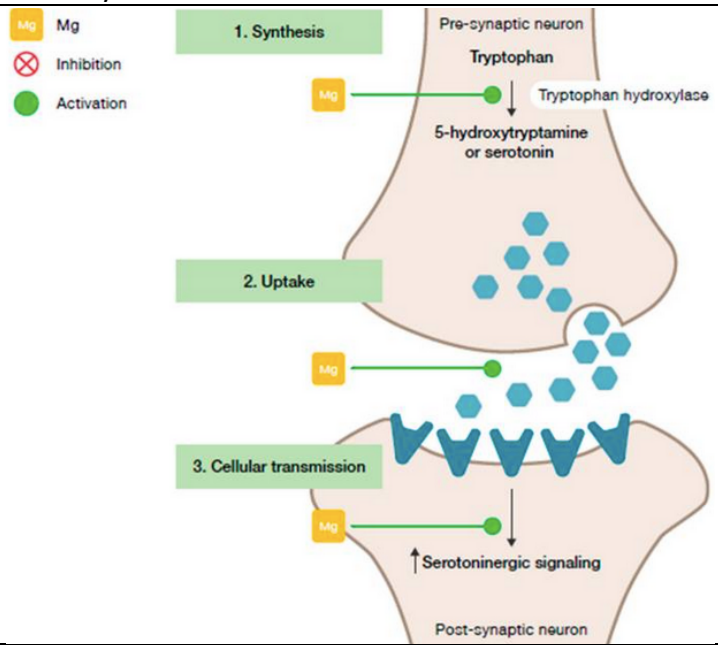
5. Adrenaline causes magnesium depletion without recovery

In an in vitro study adrenaline was injected into blood plasma. Magnesium levels during the injection and even hour later were reduced without any signs of recovery.[11]

6. Magnesium is a serotonine modulator

Magnesium directly enhances the interaction between serotonin and its membrane receptors, and it promotes the cellular transmission of the serotoninergic signal.[12]

Low serotonin levels are associated with psychological disorders and depression.



[7] Moisa, C., Tit, D. M., Uivarosan, D., Cadar, O., Moleriu, L., Cioca, G., Mosteanu, D., Aleya, L., Bungau, S., Assessment of Physical and Chemical Stability of Different Magnesium Compounds in Tablets, Revista de Chimie, Vol. 71, pp. 22-29.

[8] Lindberg, J. S., Zobitz, M. M., Poindexter, J. R., Pak, C. Y., Magnesium bioavailability from magnesium citrate and magnesium oxide, Journal of the Amercian College of Nutrition, Vol. 9, Issue 1 (1990), pp. 48-55.

[9] Ibid.

[10] Guerrera, M.P., Volpe, S. L., Mao, J. J., Therapeutic uses of magnesium, American Family Physician, Vol. 80, Issue 2 (2009), pp. 157-162.

[11] Whyte, K. F., Addis, G. J., Whitesmith, R., Reid, J. L., Adrenergic control of plasma magnesium in man, Clinical Science, Vol. 72 (987), pp. 135-138.

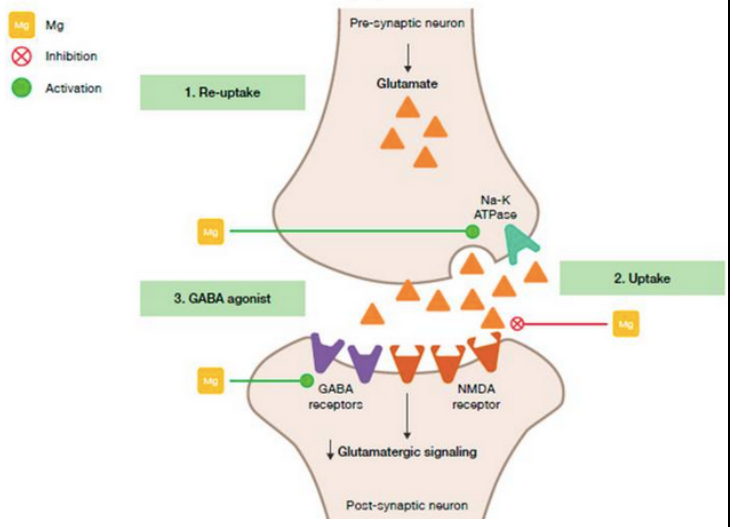
[12] Cuciureanu, M., Vink, R., Magnesium and stress, in Vink, R., Nechifor, M. (eds.), Magnesium in the Central Nervous System, University of Adelaide Press, Adelaide, 2011.

Furthermore, the cellular response to a stressor is increased release of serotonin.[13]

7. Magnesium causes cortisol decrease

Magnesium was shown to suppress hippocampal kindling, to reduce the release of adrenocorticotrophic hormone (ACTH) or cortisol, and to affect adrenocortical sensitivity to ACTH.

This function is mediated via magnesium's antagonistic effects on the N-methyl-D-aspartate (NMD).[14]



8. Magnesium as an anti-depressor and anxiety modulator

Studies suggest that elevation of brain magnesium can enhance synaptic plasticity in a regional-specific manner leading to enhancing the efficacy of extinction of fear memories without enhancing or impairing fear memory formation. It was recommended as a complement in therapy for treating anxiety, depression.[15]

B-complex

1. A full set of B vitamins

Vitamin B_1 (thiamine)
Vitamin B_2 (riboflavin)
Vitamin B_3 (niacin)
Vitamin B_5 (pantothenic acid)
Vitamin B_6 (pyridoxine)
Vitamin B_7 (biotin)
Vitamin B_9 (folic acid).
Vitamin B_{12} (cobalamin)

2. B vitamins as mood modulators

The integral role of B vitamins as cofactors in cellular processes such as the methionine and folate cycles have formed the basis for hypotheses relating B vitamin status with psychological.[16]

3. Rather clear clinical evidence of positive effects of B-complex on stress

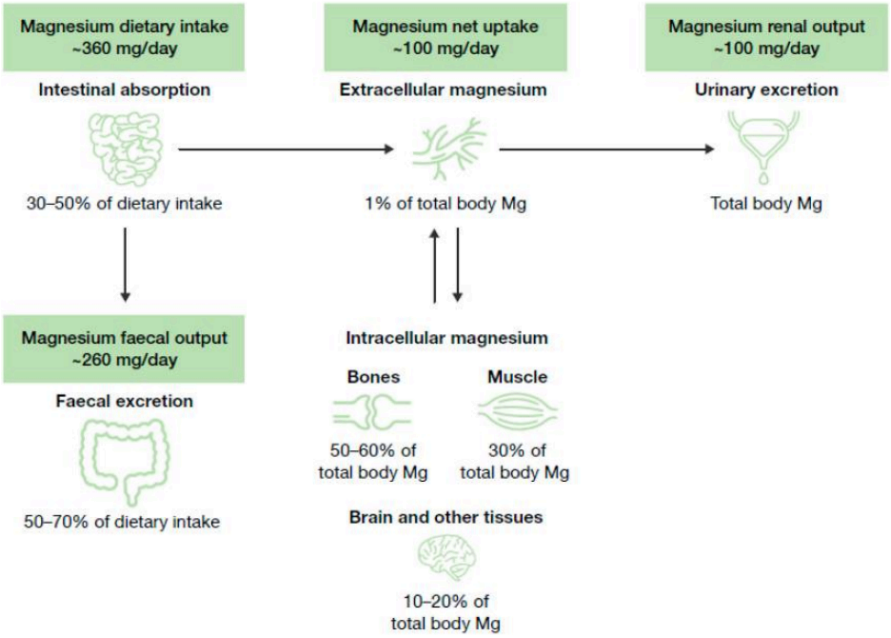
4. Affects brain regions related to attention and cognitive tasks

Studies investigating brain mapping following B-complex supplementation indicated increased

[13] Chaouloff, F., Berton, O., Mormède, P., Serotonin and Stress, Neuropsychopharmacology, Vol. 21 (Suppl. 1) (1999), pp. 28-32.
[14] Murck, H., Magnesium and affective disorders, Nutritional Neuroscience, Vol. 5, Issue 6 (2002), pp. 375-389.
[15] Abumaria, N., Yin, B., Zhang, L., Li, X. Y., Chen, T., Descalzi, G., Zhao, L., Ahn, M., Luo, L., Ran, C., Zhuo, M., Liu, G., Effects of elevation of brain magnesium on fear conditioning, fear extinction, and synaptic plasticity in the infralimbic prefrontal cortex and lateral amygdala, Journal of Neuroscience,Vol. 31, Issue 42 (2011), pp. 14871-14881.
[16] Reynolds, E. H., Carney, M. W., Toone, B. K., Methylation and mood, Lancet, Vol. 2 (984), pp. 196-198.

A meta-review provided evidence for the benefit of B vitamin supplementation in healthy and at-risk populations for stress.[17]	functional activity in brain regions related to processing of attention, executive control, and working memory during cognitive tasks.[18]

4. The presence of magnesium in the human body



Magnesium homeostasis and its presence in different body parts[19]

5. Explanation of benefits for the target populations

Working persons under stress

People under workstress release more magnesium and can easily succumb to the vicious cycle of magnesium deficiency.[20]

[17] Young, L. M., Pipingas, A., White, D. J., Gauci, S., Scholey, A., A Systematic Review and Meta-Analysis of B Vitamin Supplementation on Depressive Symptoms, Anxiety, and Stress: Effects on Healthy and 'At-Risk' Individuals, Nutrients, Vol. 11, Issue 9 (2019), art. 2232.

[18] Sarris, J., Mehta, B., Óvári, V., Ferreres Giménez, I., Potential mental and physical benefits of supplementation with a high-dose, B-complex multivitamin/mineral supplement: What is the evidence?, Nutricion Hospitalaria, Vol. 38, Issue 6 (2021), pp. 1277-1286.

[19] Pickering, G., Mazur, A., Trousselard, M., Bienkowski, P., Yaltsewa, N., Amessou, M., Noah, L., Pouteau, E., Magnesium Status and Stress: The Vicious Circle Concept Revisited, Nutrients, Vol. 12, Issue 12 (2020), art. 3672.

[20] Pickering, G., Mazur, A., Trousselard, M., Bienkowski, P., Yaltsewa, N., Amessou, M., Noah, L., Pouteau, E., Magnesium Status and Stress: The Vicious Circle Concept Revisited, Nutrients, Vol. 12, Issue 12 (2020), art. 3672.

A meta-review of scientific articles provided evidence for the benefit of B vitamin supplementation in healthy and at-risk populations for managing stress.[21]

Sportspeople

Because of magnesium's role in energy production and storage, normal muscle function, and maintenance of blood glucose levels, it has been studied as an ergogenic aid for athletes.[22] Cross-sectional surveys demonstrated a positive association between magnesium status and muscle performance, including grip strength, lower-leg power, knee extension torque, ankle extension strength, maximal isometric trunk flexion, rotation, and jumping performance.[23]

Thiamin (B_1), riboflavin (B_2), and pyridoxine (B_6) are necessary in the energy-producing pathways of the body, while folate (B_9) and cobalamin (B_{12}) are required for the synthesis of new cells, such as the red blood cells, and for the repair of damaged cells.
Active individuals with poor or marginal nutritional status for a B-vitamin can thus have decreased ability to perform exercise at high intensities.[2425]

Older adults

Several changes of magnesium metabolism have been reported with aging, including diminished magnesium intake, impaired intestinal magnesium absorption and renal magnesium wasting. Mild magnesium deficits are generally asymptomatic and clinical signs are usually non-specific or absent. Asthenia, sleep disorders, hyperemotionality, and cognitive disorders are common in the elderly with mild deficit, and may be often confused with age-related symptoms.[26]

Deficiencies of the vitamins B_7, B_{12} , and B_6 are associated with neurological and psychological dysfunction and in the elderly, cognitive impairment and incident dementia may be related to the high prevalence of inadequate B vitamin status.[2728]
Clinical evidence also indicates the effectiveness of B-complex supplementation in enhancing cognitive performance in older adults.[29]

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[21] Young, L. M., Pipingas, A., White, D. J., Gauci, S., Scholey, A., A Systematic Review and Meta-Analysis of B Vitamin Supplementation on Depressive Symptoms, Anxiety, and Stress: Effects on Healthy and 'At-Risk' Individuals, Nutrients, Vol. 11, Issue 9 (2019), art. 2232.
[22] Volpe, S. L., Magnesium and the Athlete, Current Sports Medicine Reports, Vol. 14, Issue 4 (201), pp. 279-283.
[23] Zhang, Y., Xun, P., Wang, R., Mao, L., He, K., Can Magnesium Enhance Exercise Performance?, Nutrients, Vol. 9,Issue9 (2017), art. 946.
[24] Woolf, K., Manore, M. M., B-vitamins and exercise: does exercise alter requirements?, International Journal of Sport Nutrition and Exercise Metabolism, Vol. 16, Isue 5 (2006), pp. 453-484.
[25] Joubert, L. M., Manore, M. M., The role of physical activity level and B-vitamin status on blood homocysteine levels, Medicine and Science in Sports and Exercise, Vol. 40, Issue 1 (2008), pp. 1923-1931.
[26] Barbagallo, M., Veronese, N., Dominguez, L. J., Magnesium in Aging, Health and Diseases, Nutrients, Vol. 13, Issue 2 (2021), art. 463.
[27] Selhub, J., Troen, A., Rosenberg, I. H., B vitamins and the aging brain, Nutrition Reviews, Vol. 68 (Suppl. 2) (2010), pp. S112-118.
[28] Ford, A. H., Almeida, O. P., Effect of Vitamin B Supplementation on Cognitive Function in the Elderly: A Systematic Review and Meta-Analysis, Drugs and Aging, Vol. 36, Issue 5 (2019), pp. 419-434.
[29] Calvaresi, E., Bryan, J., B vitamins, cognition, and aging: a review, Journal of Gerontology Series B Psychological Science and Social Sciences, Vol. 56, Issue 6 (2001), pp. P327-P339.