

Mood and relaxation: Can dietary supplements be helpful?



*With all the stress associated with our current health crisis and the dislocation and financial impact of enforced social distancing, we could all use this helpful advice on natural mood modulators from our good friends at **Protocol for Life Balance**.*

–Dr. Hoffman

This article contains content from one of our trusted sponsors.

Feeling stressed, tense, under the weather, or blue is a perfectly normal and healthy reaction to environmental stressors. While these feelings can be normal, they are unpleasant and many of us may wish to minimize them when they occur. There are dietary supplements available that have been clinically proven to help minimize occasional negative feelings.* It would not be possible to list all the dietary supplements available to support a healthy reaction to temporary environmental psychological stress in one article, so we will focus here on three compounds that you might not have thought about: melatonin, S-adenosylmethione (SAME), and **magnesium**, each with a different mode of action that could help you cope with temporary stressful situations.*†

In order to be able to cope with normal daily stress, it is important to sleep properly. **Melatonin** is an important regulator of our internal circadian rhythms.* Endogenous melatonin is involved in many physiological functions in the brain, and data from animal models suggest that melatonin is able to stave off local oxidative stress.* It also has an inhibitory effect on HPA axis activity and interacts with GABA's function of inducing tranquility.*(1) The effect of melatonin on the ability to handle a stressful situation has been investigated in individuals as preparation before a minor surgical procedure.* In the study, 40 volunteers received either 10 mg melatonin or placebo 90 minutes before the procedure. Various subjective scores were recorded before and during the intervention. Volunteers in the melatonin group expressed significantly less distress than patients in the placebo group.*(2) While this study was performed in a very unique situation and is limited in scope, it indicates that melatonin supplementation may be helpful in acute situations where normal individuals are typically expected to experience a normal spike in agitation.*

SAME is another compound naturally produced in the body and found in the brain, that is a critical component of many biochemical reactions, including the metabolism of

folate and vitamin B₁₂.^{*} It is known as the universal methyl donor in more than 100 methyltransferase reactions.^{*} Methylation involves the transfer of a methyl group (CH₃) to an acceptor molecule, including DNA bases, proteins, phospholipids, free amino acids, and neurotransmitters. DNA methylation can turn gene transcription “on” or “off.” Similarly, methylation of proteins results in the regulation of enzyme activity. Methylation of phospholipids is necessary for cell-membrane integrity and optimal function of receptors in the lipid membrane bilayer. In animal models, SAME dose-dependently increases concentrations of central nervous system (CNS) monoamine neurotransmitters, serotonin and norepinephrine.^{*} Animal studies also show that chronic SAME administration increases dopaminergic tone in certain regions of the brain, and increases CNS beta-adrenergic receptor density and activity.^{*} SAME may also have modulatory effects on cell signaling pathways in the CNS.^{*} These biological properties typically results in positive animal behavioral changes consistent with mood improvement.^{*(3)}

A clinical study exploring the electroencephalographic (EEG) effect of a daily dose of 400 mg SAME for 15 days on healthy elderly volunteers has shown an accelerated dominant alpha wave frequency, as well as other dominant alpha wave frequency modifications after SAME supplementation.^{*} These changes are consistent with EEG modifications seen with ingestion of compounds typically known to positively affect the mood.^{*} (4) While we are still waiting for the publication of randomized clinical trials exploring the effect of SAME on the mood of healthy individuals, the results of this EEG study are encouraging, because they suggest that SAME plays an important role in the maintenance of positive mood.^{*}

Finally, **magnesium** is an essential nutrient that is known to be lacking in the typical American diet. It plays a major role in cellular metabolism and is critical for normal nervous system function.^{*} Magnesium (Mg) helps to regulate neuronal synapse density and availability of Mg in the brain is necessary for the stability and adaptability of these neuronal connections.^{*} Mg is also known to antagonize the NMDA receptor and exhibits GABA_A receptor agonist activity.^{*} While there are many dietary supplements that provide magnesium, not all magnesium forms are created equal, and when choosing for magnesium supplementation for brain health, it is important to choose a form that is known to cross the blood-brain barrier. **Magnesium L-Threonate (Magtein™)** is a form of magnesium that crosses the blood-brain barrier and is readily utilized in the brain.^{*} Preclinical studies indicate that Magnesium L-Threonate may support healthy cognitive function, learning, and memory and may promote a relaxed mood.^{*}

Melatonin, **S-adenosylmethione (SAME)**, and **Magnesium L-Threonate** are three dietary supplements to consider when dealing with a temporary stressful situation.^{*}

Protocol For Life Balance® offers **Melatonin** 10 mg vegetable capsules, **SAME** 400 mg tablets, and **Protosorb™ Magnesium** providing 2,000 mg Magnesium L-Threonate per serving in vegetable capsules. Protocol For Life Balance® also has an extensive line of products useful for mood and temporary stress support such as 5-HTP, Myo-Inositol, GABA, Adrenal Cortisol Support™, and Herbal Menopause.^{*}

References:

1. Zhang L, Guo H-L, Zhang H-Q, Xu T-Q, He B, Wang Z-H, et al. Melatonin prevents sleep deprivation-associated anxiety-like behavior in rats: role of oxidative stress and balance between GABAergic and glutamatergic transmission. American

journal of translational research. 2017;9(5):2231.

2. Ismail SA, Mowafi HA. Melatonin provides anxiolysis, enhances analgesia, decreases intraocular pressure, and promotes better operating conditions during cataract surgery under topical anesthesia. *Anesthesia & Analgesia*. 2009;108(4):1146-51.
3. Sharma A, Gerbarg P, Bottiglieri T, Massoumi L, Carpenter LL, Lavretsky H, et al. S-Adenosylmethionine (SAME) for neuropsychiatric disorders: a clinician-oriented review of research. *The Journal of clinical psychiatry*. 2017;78(6):e656.
4. Arnold O, Saletu B, Anderer P, Assandri A, di Padova C, Corrado M, et al. Double-blind, placebo-controlled pharmacodynamic studies with a nutraceutical and a pharmaceutical dose of ademetionine (SAME) in elderly subjects, utilizing EEG mapping and psychometry. *European neuropsychopharmacology*. 2005;15(5):533-43.

* Dietary supplements work even better when associated with other methods of relaxation such as aromatherapy, meditation, exercise, yoga, breathing techniques, and counseling. This article does not address the pathological side of stress and anxiety requiring professional mental health support.

*** These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.**