



Nutritional Influences on Illness

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Anxiety and the Vitamin B Complex

Deficiencies of members of the vitamin B complex appear to be common in patients with agoraphobia (fear of open spaces).¹ The same is likely to be true for other anxiety-related conditions. We will review the evidence suggesting that individual members of this family may affect the experience of anxiety.

Inositol Supplementation

Inositol is a key intermediate of the phosphatidyl-inositol cycle, a second-messenger system used by several noradrenergic, serotonergic and cholinergic receptors.² Since ingestion has been shown to raise inositol levels in the cerebrospinal fluid,³ this nutrient could potentially serve as an anti-anxiety agent.

Indeed, when a group of 21 patients with panic disorder either with or without agoraphobia received 12 grams daily of inositol or placebo in random order for 4 weeks each, the inositol supplement was associated with a significantly greater reduction in the frequency and severity of panic attacks and of agoraphobia than the placebo. Moreover, while the efficacy of the nutrient was judged to be comparable to that of imipramine, its side effects were minimal.⁴

Niacinamide Supplementation

Niacinamide has been shown in an animal study to have benzodiazepine-like actions including anti-conflict, anti-aggressive, muscle relaxant and hypnotic effects.⁵ In contrast to niacin, it passes readily from the plasma to the cerebrospinal fluid where it is taken up into brain cells by a high-affinity accumulation system,⁶ suggesting it is the preferred form of vitamin B3 for the treatment of anxiety.

Lactate (which is associated with anxiety) reacts with niacinamide-adenine dinucleotide [NAD⁺] to form pyruvic acid and reduced NAD (NADH + H⁺). The equilibrium of this reaction favors lactate and NAD⁺, but it can be driven by adding excess NAD⁺. It may be that supplementation with niacinamide helps to drive the reaction, thus reducing lactate concentrations.⁷

Anecdotal reports suggest that niacinamide has anxiolytic effects comparable to the benzodiazepines,⁸ and it may be particularly effective for patients whose anxiety is secondary to reactive hypoglycemia.⁹ Typical dosages are between 500 mg twice daily and 1,000 mg 3 times daily.⁹ Hoffer believes that the optimal daily dosage is just below the amount that produces nausea.¹⁰

Thiamine Deficiency

Elevated lactate may also be caused by inadequate pyruvate dehydrogenase activity resulting from a thiamine deficiency or dependency. In that case, the conversion of pyruvate to acetyl CoA is inhibited, fostering its conversion to lactic acid.¹¹ Symptoms of a prolonged moderate thiamine deficiency may include fearfulness progressing to agitation as well as emotional instability and psychosomatic complaints.¹²

When more than 1,000 healthy young men were studied, those who were chronically borderline thiamine-deficient were currently feeling significantly more anxiety – although they were not customarily nervous individuals.¹³ There are no published studies on the repletion of a borderline thiamine deficiency to treat anxiety.

Vitamin B6 Deficiency

Gamma aminobutyric acid (GABA), an inhibitory neurotransmitter which is involved in the regulation of anxiety, requires vitamin B6 for its synthesis; thus a deficiency of this vitamin may theoretically result in heightened anxiety. Vitamin B6 is also required for the conversion of tryptophan to serotonin, a neurotransmitter suspected of being involved in anxiety.¹⁴

When over 1,000 healthy young men were studied, those found to be chronically deficient in vitamin B6 had a significantly greater tendency to become anxious, although they were not significantly more anxious at the time of the study.¹³ Also, in an open trial, patients with hyperventilation syndrome who also had abnormal xanthurenic acid excretion (an indicator of vitamin B6 deficiency) improved following the administration of pyridoxine and tryptophan, suggesting that a marginal B6 deficiency, by causing serotonin depletion, may have produced the syndrome.¹⁵

Vitamin B12 Deficiency

Anxiety may be part of the neuropsychiatric syndrome seen in advanced cases of pernicious anemia which is well-known to be caused by B12 deficiency.¹⁶ When cobalamin levels of more than 1,000 healthy young men were studied, those who were chronically borderline vitamin B12-deficient were significantly more anxious at the time of the study – although they were not customarily nervous individuals.¹³ Whether B12 supplementation reduces anxiety when the vitamin is borderline deficient remains to be investigated.

Doctor Werbach cautions that the nutritional treatment of illness should be supervised by physicians or practitioners whose training prepares them to recognize serious illness and to integrate nutritional interventions safely into the treatment plan.

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Fortunately, this is the same window of time that 75%-90% of menopausal women experience the most intense systemic symptoms.

It is also important to emphasize other treatment options for menopause symptoms, including dietary influences, nutritional supplementation, herbal therapies, exercise and other lifestyle issues. Relieving menopause symptoms needs to be done in the context of also reducing the risk of menopause-related diseases such as heart disease, strokes, osteoporosis, breast cancer and Alzheimer's disease. Research continues to indicate that lifestyle factors such as healthy nutrition, exercise and emotional health have a substantial impact on the need for hormone therapy and how safely these therapies are tolerated.

I urge caution, when reading "best seller advice." The Somers book contains information that flies in the face of new research, global advice on generally unnecessary testing, and a very personal belief and choice as a path for all women to take. It may be misleading and potentially harmful for many women to embrace much of her advice, especially for breast cancer survivors.

Even though it is my assertion that bio-identical hormones are the safest forms of hormones to use, especially when using estriol with estradiol, my guidelines are to use the lowest dose possible, for the shortest amount of time that is needed to meet the treatment objectives. I encourage women to make an informed choice and utilize reliable medical information and the expertise of our experienced menopause clinicians in making decisions based on medical needs, concerns and personal risk factors.

Clinicians can call Women's International Pharmacy for a physician's packet containing articles and education on the use of bio-identical hormones at 1-800-279-5708.

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