

Anxiety Checklist & Treatment Options

- 1) Reduce sympathetic overdrive: by reducing stimulants: caffeine, MSG, NutriSweet, sugar, refined carbohydrates, see Dr. Blaylock's work on excitotoxins. Neurotransmitters to limit are aspartic acid and glutamic acid.
- 2) Enhance parasympathetic system by developing regular practices of prayer, exercise, meditation, rhythmic deep abdominal breathing, etc. etc.
- 3) Drops in blood sugar; cause compensatory increases in epinephrine and norepinephrine which although will raise blood sugar will cause fight or flight reactions which can manifest as anxiety, palpitations, sweating, hunger and irritability. Some authors feel this is the ultimate cause of anxiety. Smaller more frequent meals that have both protein and healthy fats as part of the meal and nutrients that support blood sugar regulation should be considered if anxiety is worse or centers around the absence or the delay of a meal. Uses **Bio-Glycozyme**, 2- 3 tid between meals if possible.
- 4) Reduce Inflammation;
 - a. 3-Step Detox diet.
 - b. **Biomega-3 Liquid**, 1 tbsp for two months and then switch to a balanced form like **Optimal EFAs** or **EFA-Sirt Supreme**. Research suggests 2.5-3 grams.
 - c. Look for leaky gut and or food sensitivities.
- 5) Full spectrum multivitamin, **ProMulti-Plus**, 3 bid to provide vitamin mineral cofactors to facilitate the conversion of amino acids to neurotransmitters, i.e. GABA, acetylcholine, dopamine.
- 6) **Neuro-5-HTP**, 2 bid provide L-Theanine and 5-HTP and the cofactors to make neurotransmitters. Take on an empty stomach whenever possible due to the theanine. 5-HTP can be taken with food.
- 7) **De-Stress**, 1-2 capsules as needed to reduce symptoms. My clinical experience is that this is necessary short term up to 8 per day. See [Tuesday Minute #141](#) for more information on De-Stress.
- 8) Make sure B6 is increased until patients remember their dreams, whether their multiple or individual supplementation. Consider the P-5-P form as in **B6 phosphate**, 20 mg per tablet.
- 9) Consider using the attached neurotransmitter questionnaire to assess baseline anxiety. Replete with nutrients as discussed above and retest after 60 days of treatment. If results are not satisfying to the patient, redo the questionnaire and add the supplementation to the above based on the neurotransmitters that appear deficient.
- 10) Other nutrients to consider based on Dr. Alan Gaby's Nutritional Medicine Textbook, Fritz Perlberg Publishing, Concord, NH. pages 1011-1015
 - a. Niacinamide or Niacin 500 mg, bid to 1000 mg tid.
 - b. Magnesium to bowel tolerance.
 - c. B12, folate.
 - d. DHEA, 5-15 mg for women; 10-20 mg for men. A therapeutic trial may be efficacious however periodic lab testing to monitor levels should be a part of the therapeutic regimen.

Summaries of Articles that pertain to discussion

"n-3 Polyunsaturated Fatty Acids Decrease Anxiety Feelings in a Population of Substance Abusers," Buydens-Branchev L, Branchev M, J Clin Psychopharmacol., 2006; 26(6): 661-665. (Address: New York Harbor Healthcare System, Brooklyn Campus, Brooklyn, NY, USA).

Summary: In a randomized, double-blind, placebo-controlled study involving 24 subjects with substance use and anxiety disorders, supplementation with omega-3 polyunsaturated fatty acids (n-3 PUFAs) was found to decrease feelings of anxiety. The subjects were randomized to one of two groups for 3 months: (1) PUFA group (n=13) receiving 3 g of omega-3 PUFAs (eicosapentaenoic acid + docosahexaenoic acid) daily; (2) placebo group (n=11) receiving placebo daily. Subjects in the PUFA group showed a progressive decline in anxiety scores (anxiety feelings were assessed on a scale), with no decline observed in the placebo group. After intervention end, in a 3-month follow-up of 6 subjects from the PUFA group and 8 subjects from the placebo group, anxiety scores remained significantly decreased among the subjects from the PUFA group alone. Thus, the authors of this study conclude, "these preliminary data indicate that n-3 PUFA supplementation could be beneficial in the treatment of some patients with anxiety disorders."

"Omega-3 supplementation lowers inflammation and anxiety in medical students: A randomized controlled trial," Kiecolt-Glaser JK, Belury MA, et al, Brain Behav Immun, 2011 July 19; [Epub ahead of print]. (Address: Institute for Behavioral Medicine Research, Ohio State University College of Medicine, OH, USA).

Observational studies have linked lower omega-3 (n-3) polyunsaturated fatty acids (PUFAs) and higher omega-6 (n-6) PUFAs with inflammation and depression, but randomized controlled trial (RCT) data have been mixed. To determine whether n-3 decreases proinflammatory cytokine production and depressive and anxiety symptoms in healthy young adults, this parallel group, placebo-controlled, double-blind 12-week RCT compared n-3 supplementation with placebo. The participants, 68 medical students, provided serial blood samples during lower-stress periods as well as on days before an exam. The students received either n-3 (2.5 g/d, 2085 mg eicosapentaenoic acid and 348 mg docosahexanoic acid) or placebo capsules that mirrored the proportions of fatty acids in the typical American diet. Compared to controls, those students who received n-3 showed a 14% decrease in lipopolysaccharide (LPS) stimulated interleukin 6 (IL-6) production and a 20% reduction in anxiety symptoms, without significant change in depressive symptoms. Individuals differ in absorption and metabolism of n-3 PUFA supplements, as well as in adherence; accordingly, planned secondary analyses that used the plasma n-6:n-3 ratio in place of treatment group showed that decreasing n-6:n-3 ratios led to lower anxiety and reductions in stimulated IL-6 and tumor necrosis factor alpha (TNF- α) production, as well as marginal differences in serum TNF- α . These data suggest that n-3 supplementation can reduce inflammation and anxiety even among healthy young adults. The reduction in anxiety symptoms associated with n-3 supplementation provides the first evidence that n-3 may have potential anxiolytic benefits for individuals without an anxiety disorder diagnosis. ClinicalTrials.gov identifier: NCT00519779.

"Choline in anxiety and depression: the Hordaland Health Study, Bjelland I, Ueland PM, et al, Am J Clin Nutr, 2009, 90(4): 1056-60. (Address: Department of Child and Adolescent Psychiatry, Haukeland University Hospital, Bergen, Norway).

In a cross-sectional study involving 5,918 individuals (2 groups: 46-49 year olds and 70-74 years olds), an inverse association was observed between plasma choline concentrations and anxiety. Information on plasma choline levels and symptoms of anxiety and depression (Hospital Anxiety and Depression Scale) were collected. After adjusting for potential confounders, a significant inverse association was observed between plasma choline concentrations and anxiety levels alone (no significance found for depression). Thus, the authors of conclude, "In this large population-based study, choline concentrations were negatively associated with anxiety symptoms but not with depression symptoms."

"Regular exercise, anxiety, depression and personality: a population-based study," De Moor MH, Beem AL, et al, Prev Med., 2006; 42(4): 273-9. (Address: Department of Biological Psychology, Vrije Universiteit, van der Boechorststraat 1, 1081 BT, Amsterdam, The Netherlands. E-Mail ...

In a population-based study involving 19,288 adolescent and adult twins and their families from The Netherlands Twin Registry, regular exercise was associated with lower neuroticism, anxiety and depression, and higher extraversion and sensation seeking. The participants completed self-report questionnaires, which were used to assess exercise participation, anxiety, depression and personality. The overall prevalence of exercise participation (with a minimum of 60 minutes per week at 4 METs [Metabolic Energy Expenditure Index]) among the participants was 51.4%. Exercise participation was observed to rapidly decrease with age, from 70% in young adolescents to 30% in older adults. Among adolescents, exercise participation was higher in boys, while among adults, exercise participation was higher in women. Exercisers were found to be, on average, less anxious, depressed and neurotic than non-exercisers. Furthermore, exercisers were, on average, more extraverted and had higher dimensions of sensation seeking than non-exercisers. While these differences between exercisers and non-exercisers were modest, they were consistent across gender and age. Thus, this study suggests that regular exercise is associated with lower neuroticism, anxiety and depression and higher extraversion and sensation seeking in a population.

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"Effects of L-theanine on attention and reaction time response"

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Results of the test showed that highly anxious students receiving the L-Theanine displayed a slowing of their heart rate, improved attention and better reaction times, compared to members of the same group receiving placebo. This is a significant improvement over many conventional anti-anxiety treatments that often have side effects of drowsiness, slowed reflexes or impaired concentration. (No significant benefits were observed in those with minimal anxiety, however.) L-Theanine appears to work by changing the electrical activity in the brain by increasing alpha waves, measured by EEG.

"L-5-Hydroxytryptophan in the Treatment of Anxiety Disorders," Kahn RS, Westenberg HGM, J Affect Disord, 1985;8:197-200.

In 5 male and 5 female subjects suffering from anxiety disorders for over a year in an uncontrolled, open trial lasting 12 weeks, subjects were treated initially with carbidopa at a dose of 50 mg, 3 times daily, and from the second day onward, the addition of L-5-hydroxytryptophan (5-HTP) was started at 20 mg/day and increased to 300 mg/day. Nine patients clinically improved, with panic attacks almost completely disappearing. The pretreatment frequency of panic attacks was 45 per month in 1 patient, 12 per month in 5 patients, and 1 per month in 1 patient. The anxiolytic effects were apparent after 4 weeks of treatment, and the anxiety scores declined up to week 8. This study showed that in 10 subjects with anxiety disorders, subjects were treated successfully with 5-HTP, which is the immediate precursor of serotonin.