

**THIS APPROACH:** When low serotonin or dopamine concentrations exist on an optimal diet, a relative nutritional deficiency of the naturally occurring aromatic amino acids or cofactors is always present.™

## PREFACE Low serotonin on an optimal diet is always associated with a relative nutritional deficiency.™

A relative nutritional deficiency occurs when an optimal diet does not meet the needs of the system™. 1-11

When low serotonin concentrations are present on an optimal diet, a serotonin-related relative nutritional deficiency™ is always present. 1-13

When low serotonin concentrations exist on an optimal diet, always present is insufficient serotonin synthesis™. 1-13

Increasing synthesis requires nutrients; drugs do nothing to increase the synthesis which is required to increase serotonin concentrations. 5-12

### AN OPTIMAL DIET

Since the synthesis of serotonin from L-tryptophan is rate-limited by serotonin shutting down the tryptophan hydroxylase enzyme, an optimal diet for serotonin synthesis™ requires increasing L-tryptophan intake to the point where serotonin concentrations no longer increase. 1-14

Studies have demonstrated that 5-HTP is of no benefit in the management of depression-like symptoms along with several other states. These studies used only 5-HTP in the endogenous state. 9 This approach deals with the simultaneous administration of properly balanced serotonin and dopamine precursors, known as the competitive inhibition state. **TAKE NOTE: Observations made in the endogenous state have no predictability for observations made in the competitive inhibition state.** Those that believe they understand administering these nutrients because they used them in the endogenous state have no understanding of how to achieve optimal results in the competitive inhibition state. 8,12 \*

Low serotonin concentrations have been reported in depressed individuals (27, 28). Moreover, low serotonin concentrations have also been associated with anxiety (29), especially in depressed patients (30).  
Suarez, E Psychosomatic Medicine 61:273-279 (1999)

This relationship is also supported from clinical studies where a stronger LDAEP has been found in conditions associated with low serotonin, including patients with depression (Buchsbbaum *et al.*, 1971), generalised anxiety disorder (Senkowski *et al.*, 2003), MDMA users (Tuchtenhagen *et al.*, 2000; Croft *et al.*, 2001) and personality traits thought to be associated with abnormal or reduced serotonergic function, such as novelty seeking (Zuckerman *et al.*, 1988; Hegerl *et al.*, 1989).  
Nathan, P. *et al.* Hum Psychopharmacol Clin Exp 2006; 21: 47-52.

Such observations appear to suggest that CTH, like migraine, is a low serotonin syndrome. The low level of circulating serotonin reflects the low content of the amine in platelets. 17  
Anthony, M. Journal of Neurology, Neurosurgery, and Psychiatry 1989;52:182-184

This association led to the discovery of the link between low serotonin levels and fibromyalgia  
Sarac, A. Current Pharmaceutical Design, 2006, 12, 47-57

Serotonin has been implicated in compulsive behaviors and emotional regulation. Low serotonin function is associated with impulsive aggression, self-injurious behavior (SIB), and suicidal behavior  
Giurgiuca, A. Rom J Leg Med [25] 205-210 [2017]

There is also evidence of low serotonin function in a subset of depressed patients who had anger attacks, compared with other depressed patients (Fava *et al.*, 2000). Indeed, low serotonin function also has long been implicated in suicidal behaviors (e.g., Ågren, 1980).  
Carver, C. Psychiatry Research 144 (2006) 1-15

15-Suarez, E. Relations of Trait Depression and Anxiety to Low Lipid and Lipoprotein Concentrations in Healthy Young Adult Women Psychosomatic Medicine 61:273-279 (1999)  
16-Pradeep, N. *et al.* Direct evidence that acutely enhancing serotonin with the selective serotonin reuptake inhibitor citalopram modulates the loudness dependence of the auditory evoked potential (LDAEP) marker of central serotonin function Hum Psychopharmacol Clin Exp 2006; 21: 47-52.  
17-Anthony, M. *et al.* Plasma serotonin in patients with chronic tension headaches Journal of Neurology, Neurosurgery, and Psychiatry 1989;52:182-184  
18-Sarac, A. Complementary and Alternative Medical Therapies in Fibromyalgia Current Pharmaceutical Design, 2006, 12, 47-57  
19-Giurgiuca, A. Suicide risk is associated with low levels of platelet serotonin in bipolar I disorder Rom J Leg Med [25] 205-210 [2017]  
20-Carver, C. *et al.* Relations of serotonin function to personality: Current views and a key methodological issue Psychiatry Research 144 (2006) 1-15

Once in this competitive inhibition state scientific observations of the endogenous state are no longer valid