



Hypo-serotonergic™ conditions occur when serotonin concentrations are not enough, low, inadequate, depleted, deficient, or suboptimal on a modified normal diet.™

Hypo-dopaminergic™ conditions occur when dopamine concentrations are not enough, low, inadequate, depleted, deficient, or suboptimal on a modified normal diet.™

Hypo-glutathionemia™ conditions occur when glutathione concentrations are not enough, low, inadequate, depleted, deficient, or suboptimal on a modified normal diet.™

- Giving only *serotonin precursors* can deplete dopamine and glutathione.™
- Giving only *dopamine precursors* can deplete serotonin and glutathione.™
- Giving only *glutathione or glutathione precursors* can deplete serotonin and dopamine.™

The centrally acting monoamines (monoamines) are serotonin, dopamine, norepinephrine, and epinephrine.

For the management of **hypo-serotonergic™ conditions** or states that may accompany

ANXIETY

A **hypo-serotonergic condition** or state often accompanies anxiety (see the right column).

After diagnosing anxiety, formulate a differential diagnosis to rule out accompanying issues, including a hypo-serotonergic condition or state.

Consider using an empirical trial of the **hypo-serotonergic-hypo-dopaminergic** condition starting point protocol.

Management of the **hypo-serotonergic** condition or state which may accompany anxiety requires establishing serotonin concentrations higher than are possible with modification of the normal diet.

Anxiety may be accompanied by symptoms arising from a **hypo-serotonergic** condition or a **hypo-dopaminergic™** condition

"Finally, it should also be noted that associations of low serotonin function with high anxiety proneness, rather than low, completely contradict the idea that the absence of anxiety is what results in the impulsive behavior." Carver, C. et al. Relations of serotonin function to personality: Current views and a key methodological issue *Psychiatry Research* 144 (2006) 1 – 15

"On the other hand, low serotonin is also implicated in depression and anxiety", Crockett, M. et al. Serotonin and aversive processing in affective and social decision-making, *Current Opinion in Behavioral Sciences* 2015, 5:64–70

"when relations do emerge in the data, then low serotonin tends to relate to high anxiety, as well as to depression and high impulsiveness." Tops, M et al. Serotonin: Modulator of a drive to withdraw *Brain and Cognition* 71 (2009) 427–436

"Low serotonin concentrations have been reported in depressed individuals. Moreover, low serotonin concentrations have also been associated with anxiety, especially in depressed patients." *Psychosomatic Medicine* 61:273–279 (1999)

"Serotonin regulates processes as diverse as cardiovascular and respiratory activity, sleep, aggression, sexual behaviour, nutrient intake, anxiety, mood, motor output, neuroendocrine secretion and analgesia." Pretorius, E. Corticosteroids, Depression and the Role of Serotonin *Reviews in the Neurosciences*, 15, 109-116 (2004)

"Impulsive and aggressive behaviours are frequently associated with ADHD, which is associated with a reduction in serotonergic function. Relatively low platelet serotonin levels have been reported in patients with ADHD. TPH (tryptophan hydroxylase) is a rate-limiting enzyme in the synthesis of serotonin from tryptophan."

Sheehan, K. et al. Tryptophan hydroxylase 2 (TPH2) gene variants associated with ADHD, *Molecular Psychiatry* (2005) 10, 944–949

Hypo-serotonergic / Hypo-dopaminergic Condition Starting Point™ Protocol

		AM	NOON	4 pm
Day-0	Level 1	3 R&R	---	3 R&R
Day-7	Level 2	3 R&R	3 R&R	2 R&R Sans
Day-14	Level 3	3 R&R	3 R&R	4 R&R Sans
Day-21 - If symptoms are still present after seven days on level 3 submit a specimen for serotonin and dopamine assay to DBS Labs, 1-877-476-7229				

Figure 1: If symptoms have resolved completely after seven days on any level, do not increase to the next level, do not order testing. Increase to the next level if symptoms are still present after seven days. **Order lab testing after seven days on level 3 if symptoms are still present. Lab testing determines if the serotonin or dopamine protocol is required.** Dosing levels 1-3 do not require lab testing. Do not increase to level 4 through level 9 or switch to the dopamine protocol without first obtaining a serotonin and dopamine assay.

