



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 **hypodopaminergic™ conditions** or states that may accompany

PTSD (post traumatic stress disorder)

A **hypodopaminergic condition** or state often accompanies PTSD (see the right column).

After diagnosing a PTSD, formulate a differential diagnosis to rule out accompanying issues, including a **hypodopaminergic condition** or state.

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

Management of the **hypodopaminergic condition** or state which may accompany PTSD requires establishing dopamine concentrations higher than are possible with modification of the normal diet.

PTSD may be accompanied by symptoms arising from a **hypo-serotonergic™ condition** or a **hypodopaminergic condition**

Of secondary importance is finding safe methods to treat individuals already exposed to combat and known to have PTSD. **hypodopaminergic** function in the brain's reward circuitry due to gene polymorphisms is known to increase substance use disorder in individuals with PTSD. Blum, K. et al. Diagnosis and Healing In Veterans Suspected of Suffering from Post-Traumatic Stress Disorder (PTSD) Using Reward Gene Testing and Reward Circuitry Natural Dopaminergic Activation J Genet Syndr Gene Ther. ; 3(3): 1000116. doi:10.4172/2157-7412.1000116.

Furthermore, if PTSD involves a homeostatic imbalance of the approach-avoidance system then the same symptoms can be generated from different balance states, i.e., symptoms can emerge from both hyper and **hypodopaminergic** states based on the balance with the avoidance or norepinephrine system. Moreover, this balance need not be considered static; in fact, it should be expected that certain systems will predominate at different stages of illness (e.g., increased fear and avoidance early in the course of illness; increased anhedonia, isolation, and depression later). Stein, M. et al. Imbalance of Approach and Avoidance: The Yin and Yang of Anxiety Disorders Biol Psychiatry. 2009 December 15; 66(12): 1072-1074.

The genetic determinants of Post Traumatic -Stress Disorder (PTSD) are in fact the same sequence variations of polymorphic genes that support a **hypodopaminergic** trait (low dopamine function) that is also the mechanism of action of a list of Reward Deficiency (RDS) behaviors including Substance Use Disorder (SUD) [1,8,13]. Madigan, M. et al. Precision Behavioral Management (PBM) A Novel Approach to Combat Post-Traumatic Stress Disorder (PTSD) SOJ Psychol. 2018; 5(2): 10.15226/2374-6874/5/2/0014

Hypo-serotonergic / Hypodopaminergic 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.

