



**HinZ Medical Foods™ / NeuroResearch Centers, Inc.™**  
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**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

## PTSD (post traumatic stress disorder)

A **hypo-serotonergic 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 **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 PTSD requires establishing serotonin 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 **hypo-dopaminergic™** condition

"Post-traumatic stress disorder in adults is associated with low levels of serotonin." De Bellis, M. et al. *Biologic Findings of Post-traumatic Stress Disorder and Child Maltreatment Curr Psychiatry Rep.* 2003 Jun;5(2):108-17.

Our results are in line with other research studies that found correlations between low serotonin levels and suicide in schizophrenia, schizoaffective disorder, post-traumatic stress disorder (PTSD) and depression. Giurgiuca, A. et al. *Suicide risk is associated with low levels of platelet serotonin in bipolar I disorder Rom J Leg Med [25] 205-210 [2017]*

Low serotonin concentration has been linked to some moods and behaviours associated with complex PTSD including depression, impulsivity, and aggressive behaviour. Heide, K. et al. *Biology, childhood trauma, and murder: Rethinking justice International Journal of Law and Psychiatry 29 (2006) 220-233*

"In conclusion, our results have shown that suicidal veterans with combat related PTSD and comparison psychiatric non-PTSD patients, had lower platelet 5-HT (serotonin) concentration than non-suicidal patients."

Kovacic, Z. et al. (2008) Platelet serotonin concentration and suicidal behavior in combat related posttraumatic stress disorder. *Progress in Neuro-Psychopharmacology and Biological Psychiatry, 32 (2).* pp. 544-551.

Indirect peripheral evidences for the altered efficacy of serotonergic system in PTSD are decreased serum serotonin concentration and altered number of platelet serotonin transporters.

Muck-Seler, D. et al. *Serotonin, Periodicum Biologorum Vol. 113, No 1, 29-41, 2011*

### 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 <b>DBS Labs, 1-877-476-7229</b>				

**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.

