



Hinz Medical Foods™ / NeuroResearch Centers, Inc.™
 1150 88th Ave. West - Duluth, MN +1-218-626-2220 | www.HinzMedicalFoods.com

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 **ADHD**

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

After diagnosing a ADHD, 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-hypodopaminergic** condition starting point protocol.

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

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

"In this study, diminished central nervous system 5-HT synthesis as indexed by ATD affected target/non-target discrimination ability and sustained attention in adult subjects with ADHD." Zimmermann, M. et al. The impact of acute tryptophan depletion on attentional performance in adult patients with ADHD Acta Psychiatr Scand 2013; 128: 124-132

"Relatively low platelet serotonin levels have been reported in patients with ADHD." Seehan, K. et al. Tryptophan hydroxylase 2 (TPH2) gene variants associated with ADHD Molecular Psychiatry (2005) 10, 944-949

"A decrease of the serotonin level in the serum was also found in ADHD patients and their parents exhibiting symptoms of hyperkinetic disorder. Patients with oppositional defiant disorder and ADHD showed lower serum 5-HT (serotonin) level than patients with only ADHD."

Koudelová, I. et al. Biochemical markers and genetic research of ADHD Neuroendocrinol Lett 2005; 26(4):423-430

"Low platelet serotonin concentrations were identified in children with ADHD more than 20 years ago; increasing serotonin levels to within the normal range repeatedly lessens ADHD symptoms in children with low serotonin levels."

*Strauss, L. Attention Deficit/Hyperactivity Disorder, Journal of Biomedical Therapy 2010 | Vol. 4, No. 1 18-22

"Spivak and co-workers in 1999 also mentioned that peripheral measures of blood serotonin have been reported as reduced in children with attention deficit hyperactivity disorder (ADHD)."

Pretorius, E. et al. Corticosteroids, Depression and the Role of Serotonin Reviews in the Neurosciences, 15, 109-116 (2004)

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: Increase to the next level if symptoms are still present after seven days. If symptoms have resolved completely after seven days on any level, do not increase to the next level, do not order testing. **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 on level 3 dosing with symptoms still present.