



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

Cognitive Impairment: Alzheimer's Disease

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

After diagnosing Alzheimer's, 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 Alzheimer's requires establishing serotonin concentrations higher than are possible with modification of the normal diet.

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

"Serotonin (5-HT) is an essential neurotransmitter for cognitive functions and formation of new memories. A **deficit in 5-HT (serotonin)** dependent neuronal activity is somewhat specific for **Alzheimer's disease.**" *J Biol Inorg Chem* (2014) 19:1355-1365

"Examined whether trazodone, a serotonergic antidepressant with α_2 -adrenergic blocking activity, would relieve the behavioral and affective disturbance putatively **associated with central serotonin (5-hydroxytryptamine [5-HT]) depletion in dementia of the Alzheimer type (DAT).**" Lebert, F., Pasquier, F., & Petit, H. (1994). Behavioral effects of trazodone in Alzheimer's disease. *The Journal of Clinical Psychiatry*, 55(12), 536-538.

"Our study suggests that **reduced serotonin levels** and increased serotonin 1A receptor density **are markers for accelerated cognitive decline in AD (Alzheimer's Disease)**, and provides support for the use of serotonin 1A antagonists in the treatment of AD." *NeuroReport* 13:1175-1178 ©2002 Lippincott Williams & Wilkins.

Significant reduction of the serotonin level and its oxidation leading to neurotoxicity **are common phenomena in the pathology of AD (Alzheimer's Disease).**"

Ishita, Pal, et al. Formation of compound I in heme bound A β -peptides relevant to Alzheimer's disease, *Chem. Sci.*, 2019, 10, 8405-8410

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.

