



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 **Depression**

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

After diagnosing depression, 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 depression requires establishing dopamine concentrations higher than are possible with modification of the normal diet.

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

“Firstly, dopaminergic hypofunction is a common pathophysiologic thread linking RLS and depression, as well as the more severe **hypodopaminergic** condition of Parkinson’s disease.”

Li, Y. et al. Prospective Study of Restless Legs Syndrome and Risk of Depression in Women Am J Epidemiol. 2012;176(4):279–288

“Psychomotor inhibition, reduced facial expression and decreased speech production in depression are in line with a **hypodopaminergic** state of the respective motor areas.”

Clausius, N. et al. The relevance of dopamine agonists in the treatment of depression, Neuropsychiatr. 2009;23(1):15-25.

“Low dopamine has been associated with extrapyramidal motor signs, cognitive impairment and depression within each of these disorders.

Wolfe, N. et al. Neuropsychological profile linked to low dopamine: in Alzheimer's disease, major depression, and Parkinson's disease” Journal of Neurology, Neurosurgery, and Psychiatry 1990;53:915-917

“In conclusion, this study showed that serotonin and catecholamines have common and differential roles in the pathophysiology of depression. ”

Homan, P. et al. Serotonin versus catecholamine deficiency: behavioral and neural effects of experimental depletion in remitted depression. Translational Psychiatry volume 5, pagee532(2015)

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.



Mucuna Medical Food™
 Active ingredient L-dopa
 Contains no carbidopa.

For the management of **hypodopaminergic conditions** when the modified normal diet does not meet the system's needs.