



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 **OCD**

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

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

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

Although much of the emphasis of pathophysiologic theories of OCD has been on serotonin, a growing body of evidence supports a role for dopaminergic neurotransmission in this disorder. Zasshi, S. et al. Pharmacological treatments for obsessive-compulsive disorder and the serotonin-dopamine hypothesis *Psychiatria et Neurologia Japonica*, 01 Jan 2011, 113(1):36-44

"Positive psychotic symptoms are reported to be associated with, negative symptoms with low dopamine (DA) activity and serotonin (5HT) activity may be altered in obsessive-compulsive disorder (OCD)."

Oades, R. et al. Monoamine activity reflected in urine of young patients with obsessive compulsive disorder, psychosis with and without reality distortion and healthy subjects: an explorative analysis. *J Neural Transm [Gen Sect]* (1994) 96: 143-159

"A role for dopamine in obsessions and compulsions has been discussed extensively in the literature, and the large number of treatment-resistant OCD cases may be further indicative of other primarily dopaminergic subtypes of OCD."

Khullar, A. et al. Quetiapine and obsessive-compulsive symptoms (OCS): case report and review of atypical antipsychotic-induced OCS. *J Psychiatry Neurosci* 2001;26(1):55-9.

"Tourette syndrome (TS) and obsessive-compulsive disorder (OCD) both are neuropsychiatric disorders associated with abnormalities in (low) dopamine neurotransmission."

Denys, D. et al. Dopaminergic activity in Tourette syndrome and obsessive-compulsive disorder *European Neuropsychopharmacology* Volume 23, Issue 11, November 2013, Pages 1423-1431

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.

