



**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

## Insomnia

Insomnia may be accompanied by symptoms arising from a **hyposerotonergic™** condition or a **hypodopaminergic** condition

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

After diagnosing insomnia, formulate a differential diagnosis to rule out accompanying issues, including a **hypodopaminergic** condition or state.

Consider using an empirical trial of the **hyposerotonergic-hypodopaminergic** condition starting point protocol.

Management of the **hypodopaminergic** condition or state which may accompany insomnia requires establishing dopamine concentrations higher than are possible with modification of the normal diet.

"Although there is likely a large degree of equifinality, we hypothesize that the mesolimbic dopamine (DA) system is an attractive starting point in the effort to unravel common mechanisms, given its direct role in the regulation of the hallmark symptoms of insomnia, chronic pain, and depression."

Finan, P. et al. The Comorbidity of Insomnia, Chronic Pain, and Depression: Dopamine as a Putative Mechanism Sleep Med Rev. 2013 June ; 17(3): 173-183.

"Dopamine concentration was negatively correlated with insomnia, depression and Kupperman total score (P < 0.05), while betaendorphin concentration was negatively correlated with insomnia, anxiety and Kupperman total score (P < 0.05)."

Jing, Z. et al. Effects of Tai Chi Chuan on the changes of bone mineral density of perimenopausal women Chinese Journal of Tissue Engineering Research >> 2020, Vol. 24 >> Issue (2): 176-180

"For example, insomnia is etiologically associated with psychopathology through its reciprocal relationship to emotion regulation and the interplay between e.g., the dopamine and serotonin systems across sleep disturbances and several psychiatric disorders (Harvey et al., 2011)."

Sivertson, B. et al. The Epidemiology of Insomnia and Sleep Duration Across Mental and Physical Health: The SHoT Study Frontiers in Psychology, June 2021, Volume 12, Article 662572

Literature notes, "The 24-h plasma NE level was lower in insomnia patients than in good sleepers, and the decreased NE level was associated with poorer sleep quality in the insomnia group."

Gong, L. et al. The Abnormal Functional Connectivity in the Locus Coeruleus-Norepinephrine System Associated With Anxiety Symptom in Chronic Insomnia Disorder, Front. Neurosci. 15:678465. doi: 10.3389/fnins.2021.678465

### Hypo



		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.