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

Hyposerotonergic™ conditions occur when serotonin concentrations are not enough, low, inadequate, delpeted, deficient, or suboptimal on a modified normal diet.™

Hypodopaminergic™ conditions occur when dopamine concentrations are not enough, low, inadequate, depleted, deficient, or suboptimal on a modified normal diet.™

Hypoglutathionemia™ 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

Parkinson's disease

A **hypodopaminergic** condition or state often accompanies Parkinson's disease (see the right column).

After diagnosing Parkinson's disease, formulate a differential diagnosis to rule out accompanying issues, including a **hypodopaminergic** condition or state.

Identify the presence of a **hypodopaminergic** condition or state with an empirical trial of the **hypodopaminergic** condition or state protocol (see page 2).

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

In this case (Parkinson's disease), the **hypodopaminergic** state would be associated with decreased cortical physiological efficiency in information processing; that is, a larger neuronal pool may be required to carry out the task in the dopamine depleted state than during the dopamine-replete state.
Mattay, V. et al. Dopaminergic Modulation of Cortical Function in Patients with Parkinson's Disease Ann Neurol 2002;51:156–164

Hypodopaminergic states are hypothesized to be associated with apathy, depression, and anxiety.
Getz, S. et al. Cognitive and Neuropsychiatric Features of Early Parkinson's Disease Archives of Clinical Neuropsychology 32 (2017) 769–785

The imaging data revealed a robust bilateral amygdala response in NCs (normal controls) that was absent in PD (Parkinson's disease) patients during the **hypodopaminergic** state. Tessitore A., et al. Dopamine Modulates the Response of the Human Amygdala: A Study in Parkinson's Disease J of Neuroscience, October 15, 2002, 22(20):9099–9103

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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.

R&R Medical Food is for managing **hyposerotonergic™** conditions or states which may accompany Parkinson's disease or be induced by L-dopa when the modified normal diet does not meet system needs. The recommended starting dose is one pill per day with Mucuna Medical Food.

TO ORDER FOR THE CLINIC, PHARMACY, OR INITIATE PATIENT ONLINE ORDERING CONTACT NEURORESEARCH CENTERS +1-218-626-2220 1150 88TH AVE W, DULUTH, MN | BRENDA@NEUROASSIST.COM Mucuna Medical Food and R&R are medical food administered enterally under the supervision of a healthcare professional for the specific dietary management of **hypodopaminergic** or **hyposerotonergic** conditions or states.