INTRODUCTION

A relative nutritional deficiency occurs whenever an optimal diet does not meet the needs of the system.™

Whenever there are not enough (low, inadequate, depleted, deficient, or suboptimal) serotonin or dopamine levels on an optimal diet, a relative nutritional deficiency is always present.™
An **absolute nutritional deficiency** occurs when there is inadequate nutrient intake. Scurvy (vitamin C deficiency) is an example of an absolute nutritional deficiency. Returning vitamin C intake to normal is required to address the problem.

A **relative nutritional deficiency** occurs when an optimal diet does not meet the needs of the system. When inadequate dopamine concentrations occur with Parkinson’s disease on an optimal diet, symptoms of a Parkinson’s disease-like dopamine related relative nutritional deficiency™ is present. The optimal diet is achieved when increasing L-tyrosine intake no longer is associated with L-dopa and dopamine increases due to the regulation of the tyrosine hydroxylase enzyme by norepinephrine.
RELATIVE NUTRITIONAL DEFICIENCIES

This is the earliest writing referencing “relative nutritional deficiency” located.
**RELATIVE NUTRITIONAL DEFICIENCY**
A relative nutritional deficiency occurs when an optimal diet does not meet the needs of the system. The serotonin system (to include L-tryptophan and 5-HTP), the dopamine system (to include L-tyrosine and Mucuna Pruriens active ingredient L-dopa), and the glutathione system (to include all seven thiols) are heavily intertwined. Administering nutrients from only one system can deplete components of the other two systems. Depletion of any component on an optimal diet represents a nutrient-induced relative nutritional deficiency™ relating to the precursors or cofactors of the depleted systems. *

**Study the illustration below.** Everywhere the word “depletes” appears, it represents a nutrient-induced relative nutritional deficiency™. Administration of nutritional precursors and cofactors of serotonin, dopamine, and thiols need to occur in proper balance. When this happens, there is no depletion and no nutrient side effects. With the administration of one precursor, such as L-dopa or 5-HTP, induces a positive response, the depletion of other systems (nutrient-induced relative nutritional deficiency™) that occurs over time will cause the initially observed response to cease with associated side effects developing gradually. *

**Illustration from peer-reviewed literature posted on the National Institute of Health NCBI website.**

**Peer-reviewed scientific literature posted on the National Institute of Health NCBI website notes the following definition which is unique onto itself:**
A nutrient is any substance that facilitates normal system function. A drug is any substance that induces abnormal system function. A nutrient may become a drug. A drug may not become a nutrient. When the nutrient 5-HTP is administered as a single agent, dopamine depletion may occur. If dopamine depletion is induced, 5-HTP is no longer functioning as a nutrient; it is a drug. When L-dopa is administered as a single agent, it may deplete serotonin, and would then be considered a drug, not a nutrient. *

**DRUG VERSUS NUTRIENT**
There is a very sharp demarcation between the effects of nutrients and drugs. While it is very common to hear people inappropriately use drug attributes to describe nutrient outcomes they are hoping for (example, nutrients can treat a disease) a nutrient supports normal body function.

*The Food and Drug Administration (FDA) has not evaluated these statements. These nutrients are not intended to diagnose, treat, cure, or prevent any disease.
B6

The amount of time needed to recharge a Vitamin B6 system fully varies greatly. We observed a patient suffering with drug-induced vitamin B6 relative nutritional deficiency™ that required 1,200 mg of B6 a day to take 5 ½ months to get the RND™ symptoms under control. This calculates to a vitamin B6 deficit of 198,000 mg driving the drug-induced vitamin B6 RND™.

Disease-like symptoms can be caused by low serotonin or low dopamine. Whenever disease-like symptoms are present on an optimal diet, a relative nutritional deficiency always exist. This approach centers around managing these relative nutritional deficiencies.

Furthermore, low serotonin is itself related to aggressive behavior and impulsivity, which are suicide risk factors themselves (Mann, Brent, & Arango, 2001).

Dopamine deficiency might exhibit a characteristic neurobehavioural profile that cuts across the traditional diagnostic categories of Alzheimer’s disease, Parkinson’s disease, and major depressive disorders. Low dopamine has been associated with extrapyramidal motor signs, cognitive impairment and depression within each of these disorders. We suspected that low dopamine could be a common neurochemical pathology which accounts for similarities observed across these diagnostic groups.


Children with ADHD-like symptoms

<table>
<thead>
<tr>
<th>Young Children With Low Serotonin Levels</th>
<th>Young Children With Low Dopamine Levels</th>
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</thead>
<tbody>
<tr>
<td>• Sleep disturbances</td>
<td>• Listless behavior and possible delays in reaching milestones</td>
</tr>
<tr>
<td>• Erratic and changing moods (often crying with screaming and uncontrolled tantrums)</td>
<td>• Low metabolic rates may be seen, with a tendency toward constipation</td>
</tr>
<tr>
<td>• Compulsive repetitive behaviors</td>
<td>• Children rock back and forth to music (because they love rhythmic sounds), with sensitivity to loud and unexpected sounds</td>
</tr>
<tr>
<td>• A history of depression is often seen in 1 or both of the parents</td>
<td>• There may be a family history of addictive disorders</td>
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PERSPECTIVE: The Nutrients

Definition: A relative nutritional deficiency occurs when an optimal diet does not meet systemic needs.

The centrally acting monoamines (herein referred to as monoamines) are serotonin, dopamine, norepinephrine, and epinephrine (adrenaline).

The thiols are L-methionine, S-adenosylmethionine, S-adenosylhomocysteine, homocysteine, cystathione, L-cysteine, and glutathione.

When not enough (low, inadequate, depleted, deficient or suboptimal) serotonin or dopamine concentrations exist on an optimal diet, a related relative nutritional deficiency of dopamine precursors or cofactors is always present.

The naturally occurring aromatic amino acid L-dopa is classified as a drug, it is also the active ingredient in Mucuna Pruriens.

THE CENTRALLY ACTING MONOAMINES

Serotonin
Dopamine
Norepinephrine
Epinephrine

L-tyrosine, L-tryptophan, 5-HTP, and L-dopa are naturally occurring aromatic amino acids.

THE CENTRALLY ACTING MONOAMINES

L-tyrosine → L-DOPA (Dopamine)
Tryptophan → 5-hydroxytryptophan → (Serotonin)

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