DEFINITION: A relative nutritional deficiency occurs when an optimal diet does not meet the needs of the system. 

The serotonin, dopamine (catecholamines), and the thiol systems are intertwined. Affect change on one system and the other two systems can become depleted. Depletion on an optimal diet represents a relative nutritional deficiency. 

THE CENTRALLY ACTING MONOAMINES

Serotonin
Dopamine
Norepinephrine
Epinephrine

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

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

Low serotonin, low dopamine, or low glutathione on an optimal diet always represents a relative nutritional deficiency of their precursors or cofactors. 

When serotonin or dopamine concentrations are low and increased synthesis is required, non-amino acid drugs cannot increase synthesis, only nutrients can. 

The endogenous state occurs when there is the administration of no nutrients or one nutrient precursor of the serotonin or dopamine.

The competitive inhibition state occurs when serotonin and dopamine precursors are administered simultaneously in significant amounts. 

Observations made in the endogenous state, while administering one precursor do not correlate with competitive inhibition observations.

THE OPTIMAL SEROTONIN DIET: Since the synthesis of serotonin from L-tryptophan is rate-limited by serotonin shutting down the tryptophan hydroxylase enzyme, an optimal diet for serotonin synthesis requires increasing L-tryptophan intake to the point where serotonin concentrations no longer increase.

THE OPTIMAL DOPAMINE DIET: Since the synthesis of dopamine from L-tyrosine is rate-limited by dopamine shutting down the tyrosine hydroxylase enzyme, an optimal diet for dopamine synthesis requires increasing L-tyrosine intake to the point where dopamine concentrations no longer increase.

THE THIOLS

(SULFUR CONTAINING AMINO ACIDS)

L-Methionine
Cystathione
S-adenosyl-L-methionine
L-cysteine
S-adenosyl-homocysteine
Glutathione
Homocysteine

When low serotonin, dopamine, or glutathione concentrations exist on an optimal diet, insufficient synthesis is always present.

Increasing serotonin, dopamine and glutathione concentrations by increasing synthesis require naturally occurring amino acids and cofactors.

THIS APPROACH: When low serotonin or dopamine concentrations exist on an optimal diet, a relative nutritional deficiency of the naturally occurring aromatic amino acids or cofactors is always present.