

Primary Locus Intervention Therapy (*PLI Therapy*)

A novel approach to treating
functional neuroendocrine
deterioration associated with aging

Why is it called PLI Therapy

- PLI is an acronym for Primary Locus Intervention.
- The therapy is called Primary Locus Intervention because it is designed oppose the progressive, age-related decline in hormone production at the highest neuroendocrine level possible, not by simply replacing lost hormone(s).
- Unlike end-product HRT, PLI restores endogenous hormone production / secretion and also feedback and other normal physiological relationships within the brain-neuroendocrine complex.

What is PLI therapy?

It is pharmacological method for enhancing production of brain catecholamines and thereby promoting health and function of the pituitary gland

What is the relationship between brain catecholamines and pituitary function?

- **Adrenergic neurotransmitters control pituitary functions responsible for regular reproductive cycles.** Mohandumar PS et al. Correlations of Catecholamine Release in the Medial Preoptic Area with Proestrous Surges of Luteinizing Hormone and Prolactin: Effects of Aging* Endocrinology 135: 119-126,1994)
- **Hypothalamic catecholamines mediate pituitary growth hormone secretion.** Blackard WL, Heidingsfelder SA: Adrenergic Receptor Control Mechanism for Growth Hormone Secretion. Journal of Clinical Investigation Volume 47 1968 1407-1414

How does aging affect neurotransmitters?

- Steady state concentrations and turnover of dopamine and norepinephrine in medial basal hypothalamic regions responsible for control of pituitary function are significantly lower in old individuals compared with young ones
- Turnover of hypothalamic serotonin is greater in old animals than in young ones. Increased hypothalamic serotonin is associated with reduced pituitary function

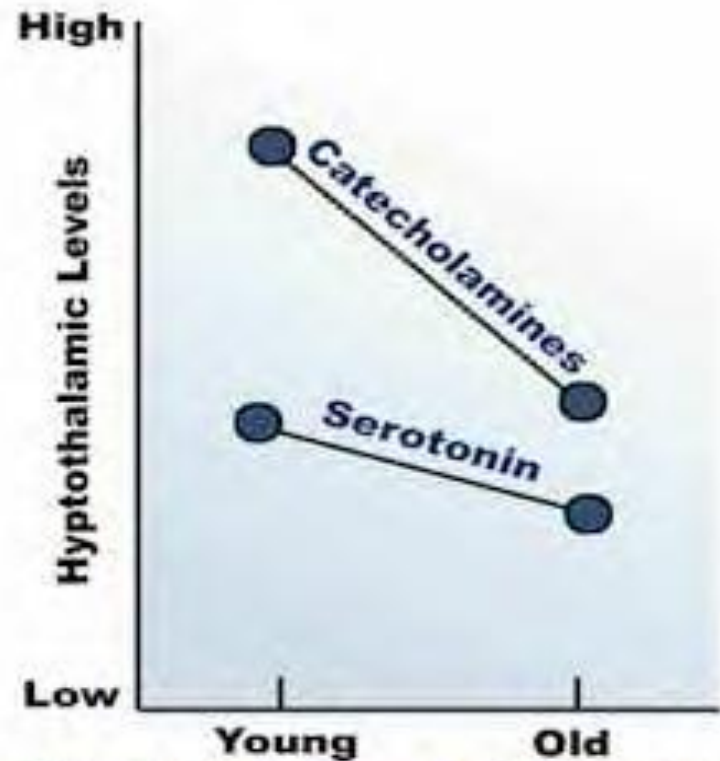


Fig. 2. Alteration in balance of serotonergic and dopaminergic neurotransmitters with age (Dilman and Dean, 1992).

Why are hypothalamic catecholamines reduced during aging?

- Synthesis is reduced due to inadequate availability of catecholamine precursors. Meites J: Aging, hypothalamic catecholamines, neuroendocrine-immune interactions, and dietary restriction. Proceedings of the Society for Experimental Biology and Medicine, Vol 195, 304-311, 1990
- Catabolism is increased due to enhanced activity of monoamine oxidase B. Benedetti MS, Keane PE, J. Neurochem 35:1026-1032, 1980

How can the age-related decline in catecholamines be treated?

- Low dose catecholamine precursors increase dopamine and norepinephrine while reducing serotonin. Cotzias GC et al., Science 168:849-850 (1970)
- Monoamine oxidase inhibitors reduce turnover of catecholamines thereby increasing concentrations of these neurotransmitters.

Do treatments that increase hypothalamic catecholamines improve endocrine function?

- Catecholamine precursors increase pituitary/serum growth hormone concentrations and restore youthful episodic patterns of secretion. Sonntag et al., *Neuroendocrinology* 34:163-168, 1982
- Catecholamine precursors restore the anabolic effects of growth hormone upon the body. Sonntag et al: *J. Gerontol* 40:689-694 1985
- MAO inhibitors improve neuroendocrine function and extend life. Ruehl WW et al., *Life Sciences*; 61(11):1037-44, 1997

VivoPlextm is the cornerstone of PLI Therapy. It opposes age-related loss of brain neurotransmitter balance and thereby functions as a Primary Locus Intervention therapy in aging

How does VivoPlextm work?

By providing a combination of ingredients that increase brain catecholamines and enhance pituitary function

LongeviPlextm Formulation

- Mucuna pruriens – provide catecholamine and acetylcholine precursors
- Lycium chinense, Uncaria rhynchophylla and Ginkgo biloba inhibit monoamine oxidase
- Dimethylaminoethanol - inhibits acetylcholinesterase to increase brain acetylcholine
- Lepidium meyenii or Maca – directly stimulates production of important pituitary hormones
- Somatostatin inhibitory amino acids
- Anti-oxidants to support cellular membrane integrity

For more detailed information on
Primary Locus Intervention Therapy
please go to www.plitherapy.com