

## **HORMONE EFFECTS ON NEUROTRANSMITTERS!**

- Estrogen: Serotonin Agonist, Dopamine Modulator
- Progesterone: GABA Agonist
- Testosterone: Serotonin Agonist, Dopamine Agonist
- DHEA: Dopamine, Norepinephrine, Serotonin Agonist  
Neuroprotective, Increases Neuronal Plasticity
- Thyroid: Serotonin Agonist
- Cortisol Excess: Blocks Serotonin and Tryptophan metabolism into Serotonin; Use 5-HTP to bypass
- Cortisol Deficiency: Decreases Serotonin, Epinephrine  
Increases Norepinephrine, Glutamate
- Insulin excess: Decreases Serotonin  
(Insulin Resistance) Increases Norepinephrine and Dopamine

## **NEUROTRANSMITTER EFFECTS ON HORMONES!**

- Serotonin: Increases Thyroid Function  
**Necessary to increase TSH appropriately for feedback loop stimulation of Free T3 and Free T4**
- GABA: Inhibits Thyroid Function
- Dopamine: Decreases Prolactin; Increases Growth Hormone
- Norepi excess: Acute; Increases Cortisol  
Chronic; Decreases Cortisol
- Epinephrine excess: Insulin Resistance—Increases Insulin