LABRIX Newsletter

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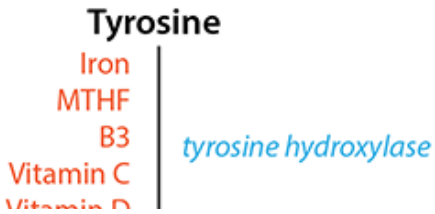
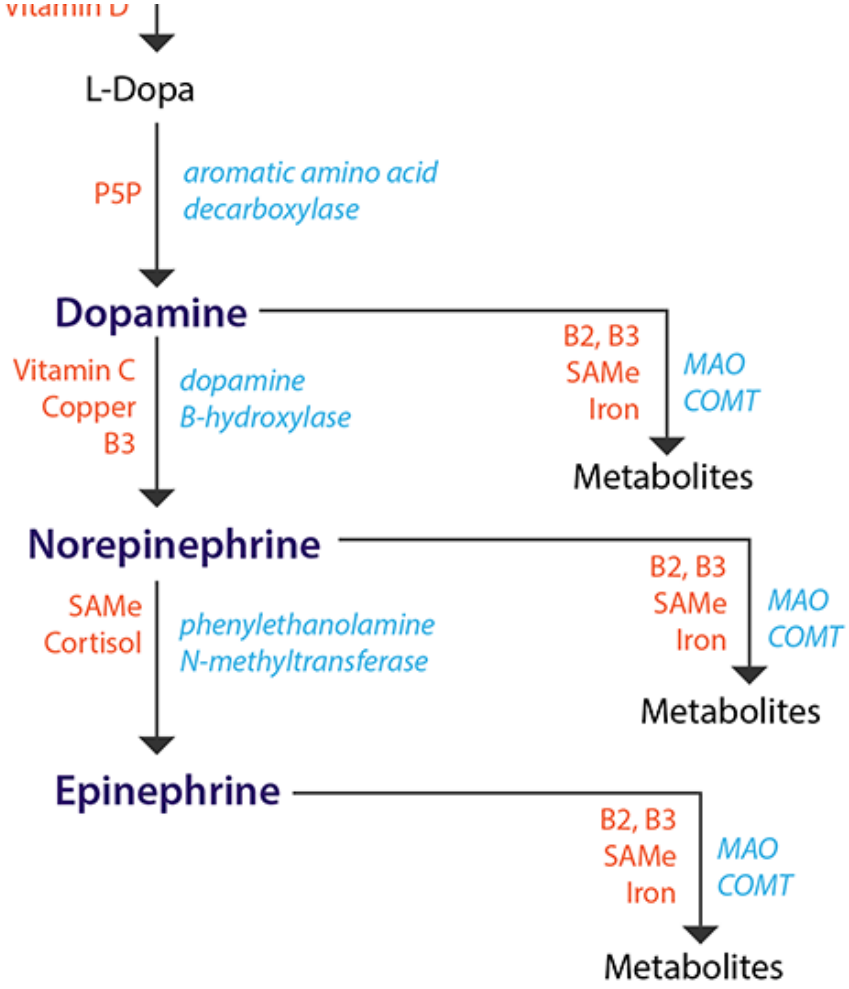
Catecholamines: Dopamine, Norepinephrine & Epinephrine

Neurotransmitters facilitate communication between neurons in the brain and in the body's glands, organs and muscles. Imbalanced neurotransmitter levels are a result of many factors and may be influenced by genetics, stress, diet, medications, supplements and more. When neurotransmitters are imbalanced, the impaired communications that result may present symptomatically as cognitive and mood concerns, stress, diminished drive, fatigue, sleep difficulties, cravings and pain issues. Clinically, these imbalances are associated with conditions ranging from depression and fibromyalgia to hyperactivity and autism. While serotonin is often the primary target of pharmaceutical treatment interventions for neurotransmitter imbalance, addressing imbalanced catecholamine levels is essential to successful treatment.

Catecholamines are neurotransmitters whose molecular structure contains a catechol group. The catecholamines include the excitatory neurotransmitters dopamine, norepinephrine and epinephrine. These neurotransmitters are essential in regulating the pleasure and reward pathway, attention and focus, heart rate and blood flow, and the stress response, in addition to playing an essential role in central nervous system modulation. Low levels of these neurotransmitters may manifest as difficulty concentrating, decreased ability to stay focused on tasks, low libido and a diminished sense of personal/professional drive as well as increased potential for addiction and participation in stimulation-seeking activities. Conversely, lack of mental focus may also be present when catecholamines are elevated; additionally, elevated levels may contribute to anxiety, insomnia, irritability, paranoia and hyperactivity. Similar in structure, the catecholamines are produced by a cascade of enzymatic activity starting with the synthesis of L-dopa from tyrosine. L-dopa then converts into norepinephrine by the addition of a hydroxyl group, which converts into epinephrine by the addition of a methyl group. Disturbances in this biochemical cascade can result in imbalances in the synthesis and metabolism of these neurotransmitters which may benefit from addressing the proper essential cofactors (see below).

As similar presenting symptoms may result from numerous neurotransmitter imbalances, results obtained from Labrix' neurotransmitter testing can guide a provider as to which pathway of neurotransmitter synthesis or metabolism would most benefit from support. Neurotransmitter imbalances are easily identified with a single, noninvasive urine sample. Testing provides a tool to understand each patient's specific neuroendocrine imbalances, which can be corrected with targeted nutritional therapy, diet, and lifestyle interventions.





References:

- *Bear MF, Connors BW, Paradiso MA. Neuroscience. Exploring the Brain, second edition*
- *Dvorakova M, et al. Urinary catecholamines in children with attention deficit hyperactivity disorder (ADHD): modulation by a polyphenolic extract from pine bark (pycnogenol). Nutr Neurosci. 2007; 10: 151-57.*
- *Schultz W. Dopamine signals for reward value and risk: basic and recent data. Behav Brain Funct. 2010; 6: 1-9.*

REGISTRATION IS OPEN!

Labrix Founder and Medical Director Dr. Jay Mead, CEO and Associate Medical Director Dr. Erin Lommen, and Staff Physicians Dr. Robyn Kutka, Dr. Lylen Ferris, and Dr. Sara Wood present the fundamentals of hormone balancing, broken down into simple core concepts and related in a single day of engaging presentations and discussions. This event is designed for the provider who is new to the field of hormone balancing or is looking to brush up on the basics.

Join us for this 8-hour training and leave with the tools and knowledge necessary to:

- Identify patients who would benefit from hormone balancing
- Understand the roles of major sex and adrenal hormones in men and women
- Appreciate the relationships between the various hormones and the entire endocrine system
- Recognize the role that sex and adrenal hormones play in several prominent disease processes
- Treat hormone imbalances with nutritional supplements, botanical medicines and BHRT

This event will be held on **Saturday, August 2nd, 2014** at:

Hilton Portland and Executive Tower

Labrix has secured a room block at the rate of $179/night.

If you are serious about adding this powerful tool into your practice, register to attend and secure your seat.

Registration is $150 and following successful completion of the course, you will receive a $100 credit on your testing account.

This event is a non-CME event.