Standard Process
WHOLE FOOD NUTRIENT SOLUTIONS

Nutritional Support Protocol

Support for Healthy Adrenal Function

Developed and reviewed by the clinical, chiropractic, and naturopathic members of the Standard Process team

Adrenal Gland Physiology

The adrenal glands are essential for life. They assist in regulating metabolism, immune function, and blood pressure. They are also particularly important in mediating the body's response to stress. The adrenal glands are composed of an inner medulla and an outer cortex; the medulla produces catecholamines (epinephrine and norepinephrine), while the cortex produces adrenocortical hormones (glucocorticoids, mineral corticoids, and androgens). Cortisol is a key steroid hormone produced in the adrenal cortex. The adrenal glands are part of the hypothalamic-pituitary-adrenal (HPA) axis: a complex endocrine system that regulates the stress response and many other body systems.

Chronic adrenal stimulation and stress, exposure to toxins, infection, autoimmune processes and metabolic derangement can deplete adrenal reserves and leave the glands vulnerable to hypertrophy, hyperplasia, and fatty infiltration. Adrenal "fatigue" is associated with compromised HPA axis function and hormone production, resulting in functional hypoadrenocorticism. Suboptimal cortisol production can contribute to an array of signs and symptoms, including reactive hypoglycemia, postural hypotension, cravings for salt and sweets, digestive problems, fatigue, and heart palpitations.

Lifestyle and nutritional interventions can support healthy adrenal function by replenishing the gland with nutrients, mitigating chronic stress, and promoting healthy function of hormone and HPA axis systems.

Supportive Lifestyle Practices

- Incorporate mind-body therapies such as yoga to support adrenal health. A yoga practice that includes gentle physical postures, breathwork, and meditation can activate the parasympathetic nervous system, regulate the HPA axis, and modulate cortisol and catecholamine release.[1]
- Encourage adult patients to regularly get between 7-9 hours of sleep per night to support parasympathetic tone and HPA axis function. Even short-term sleep deprivation negatively impacts the cortisol awakening response.[2]

Whole Foods Nutritional Recommendations

- Encourage consumption of foods rich in pantothenic acid like avocados, eggs, oats, legumes, and nuts. Pantothenic acid — also known as vitamin B5 — plays a key role in adrenal cortex structure and function and helps to modulate cortisol release.[3,4]
- Increase intake of magnesium-rich foods like whole grains, legumes, leafy greens, and seeds to support adrenal function. Physical and psychological stressors increase the body's need for magnesium to maintain homeostasis. Magnesium modulates the HPA axis and supports the synthesis of adrenal hormones like DHEA, aldosterone, and cortisol.[5]
- Encourage patients to consume foods high in antioxidants like vitamin C to support adrenal health. The adrenal glands are among the organs with the highest concentration of vitamin C in the body and this nutrient is a cofactor required in adrenal hormone production.[6] Because of their high metabolic activity, the adrenal glands are vulnerable to oxidative stress which can impact cortisol release. Foods rich in vitamin C include citrus fruit, papaya, cherries, and red peppers.

Dietary Supplement Regimen

Adrenal Complex

Suggested Use: **1 tablet 2-3 times daily**

Adrenal Complex is a stress support formula containing Licorice and Rehmannia. These herbs have been traditionally used in herbal preparations to:

- Restore adrenal function*
- Support adrenal gland health*
- Help the body adapt to the challenges of everyday life*

B Vitality with CoQ10

Suggested Use: **3 capsules per day**

- Contains American ginseng, an adaptogenic herb, and Cordyceps sinensis mushroom*
- Contains B vitamins, to fuel cells and participate in numerous body processes that contribute to normal function*
- Provides nutrients that support antioxidant activity*
- Includes the enzyme bromelain from pineapple stems and juice that modulates pathways involved in the body's natural inflammatory response function*
- Contains coenzyme Q10 (CoQ10): a nutrient that is essential for generation of energy within the mitochondria of cells and that helps protect cells from free radicals*

Drenamin®

Suggested Use: **1 tablet per meal**

Drenamin is an adrenal function & energy production support supplement, with vitamins involved in production of neurotransmitters associated with emotional balance.*

- Contains a combination of key ingredients from Cataplex® C, Cataplex® B_2, and Drenatrophin PMG®
- Excellent source of riboflavin and niacin
- Good source of vitamin B6 and antioxidant vitamin C

Magnesium Lactate

Suggested Use: **3 capsules per day**

Magnesium Lactate contains magnesium to promote cellular energy production.*

- Provides cofactor support for more than 300 enzymes*
- Supports ion signaling across cell membranes*
- Supports the body's energy production, which is used by the central nervous, neuromuscular, and cardiovascular systems*
- Magnesium is involved in sleep pathways that support brain homeostatic sleep processes*
- Excellent source of magnesium

Assessment of Adrenal Health

In Office/Physical Exam

- Vital signs and heart rate variability (HRV)
- Lab studies: DHEA-S, serum cortisol, fasting blood glucose, 4-point salivary cortisol
- Signs/Symptoms: fatigue, "wired but tired," muscle weakness, cravings for sweets or salt, reactive hypoglycemia, low blood pressure, postural hypotension
- Medical History: acute and chronic stressors, infections, surgery, autoimmunity, exogenous corticosteroid use

REFERENCES

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4. Fidanaza, A., et al. (1981). Bollettino della Societa italiana di biologia sperimentale, 57(18), 1869–1872.
5. Pickering, G., et al (2020). Nutrients, 12(12), 3672.
6. Patani, A., et al (2023). Frontiers in endocrinology, 14, 1271521.

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*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.

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