Michael's NATUROPATHIC PROGRAMS
HealthCare Solutions

ADRENAL FACTORS™

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ABOUT THE ADRENAL

Like the snow-cap of a mountain, the pair of adrenal glands are located on top of the kidneys and are structurally and functionally differentiated into two regions.[1] The adrenal cortex is the outer part of the gland and secretes the hormones corticosteroids and androgens. The adrenal medulla is the inner part of the gland that secretes the hormones epinephrine and norepinephrine that act as neurotransmitters.

The adrenals are ductless glands of the endocrine system that are responsible for producing some of the most important hormones in the body. All glands of the body are classified as either endocrine or exocrine. The secretions of endocrine glands are always hormones, chemicals that regulate various physiological activities.[2]

THE PARTS

The adrenal cortex is stimulated by pituitary hormones, like ACTH, to produce three kinds of corticosteroids, which affect carbohydrate metabolism (hydrocortisone), electrolyte metabolism (aldosterone) and the sex glands (estrogens and androgens).[3] The cortex produced steroid hormones are essential for life, such as with aldosterone which helps control sodium homeostasis and plays a role in removing acids from the body.[4] This is just one of the vitally important adrenocortical produced steroid secretions-hormones that are essential for life.[5]

The adrenal medulla is stimulated by the part of the nervous system that controls involuntary bodily functions, the sympathetic nervous system, to produce its hormones.[6] The two principal hormones synthesized by the medulla are also called adrenaline (epinephrine) and noradrenaline (norepinephrine)—thought of as the "fright, flight, or fight" response indicators. Like the glucocorticoids of the adrenal cortex, these hormones help the body resist stress.[7] However, unlike cortical hormones, the medullary hormones are not considered essential for life.[8]

THE HORMONES

As an alarm reaction initiated by nerve impulses from the hypothalamus to the sympathetic nervous system, the medulla releases its hormones. Once the hormones norepinephrine and epinephrine are secreted into the blood, they are carried to virtually all tissues of the body.[9] The circulating norepinephrine causes constriction of essentially all the blood vessels of the body; it causes increased activity of the heart; inhibition of the gastrointestinal tract, dilation of the pupils of the eyes, and decreases nonessential activities.[10]

Epinephrine causes almost the same effects as norepinephrine, but differs in that it has a greater impact on cardiac activity; has a weaker constricting action on the blood vessels; and has a several times greater metabolic effect on tissue metabolism.[11] Epinephrine can increase the metabolic rate of every cell in the body by as much as 100% above normal, influencing other metabolic activities such as glycogenolysis in the liver and muscle and glucose release in the blood.[12]

The cortex is subdivided into three zones, each secretes a different group of steroid hormones. The outer zone secretes mineralocorticoids which affect mineral homeostasis-such as aldosterone affects sodium.[13] The middle zone secretes mainly glucocorticoids that affect glucose homeostasis.[14] The inner zone synthesizes a minute amount of hormones, mainly the sex steroids called gona-ocorticoids, primarily androgens such as testosterone.[15]

NUTRIENTS FOR THE ADRENAL

A gland is either an organ or a group of specialized cells that synthesize and secrete certain fluids for use in the body. The production of such substances, like the important adrenal hormones, always requires active work by the cells and results in an expenditure of energy.[16]

Homeostasis in the body requires a proper amount of vitamins and nutrients be available in the blood to allow for the quick response to an increase in cellular energy needs. When the body labors under any physical stress, homeostasis may be affected.

Homeostasis is defined as balance and harmony within the body. It is a condition created when each cell in the body functions in an internal environment that remains within certain physiological limits. This condition is not a static state; rather it is through continuous physiological adjustments that the body is able to retain this stability.

Homeostasis can be achieved when the body: 1) has the proper amounts of gases, nutrients, ions, and water; 2) maintains the optimal internal temperature and; 3) has an optimal fluid volume for the health of the cells.[17] When homeostasis is disturbed, illness may result.

The following nutrients play a role in the various functions and activities of the adrenals:

PANTOTHENIC ACID plays a role in the release of energy from carbohydrates; in gluconeogenesis; in the synthesis and degradation of fatty acids; and in the synthesis of such vital compounds as sterols and steroid hormones and porphyrins.[18]

FOLIC ACID is a water-soluble B vitamin that is important in both the production and synthesis of nucleic acids (RNA and DNA). Because the daily folate requirement is hinged to the daily metabolic and cell turnover rates, its need is increased by anything that increases the rate of either, such as physical stress.[19] Although folates are readily present in nearly all natural foods, it is highly susceptible to oxidative destruction and 50 to 95% of the folate content of food may be destroyed by cooking

or other processing.[20] Folic acid's metabolic role is interdependent with B-12 and both are required for cell growth and reproduction in the body.[21]

VITAMIN B-12 is water-soluble vitamin necessary for the synthesis of nucleic acids (RNA and DNA), the maintenance of myelin in the nervous system, and the proper functioning of folic acid.[22] Two important interrelationships exist between B-12 and folic acid. First, both are required for growth, which is dependent on cell replication, and cell replication is dependent on DNA synthesis.[23] Vitamin B-12 is also necessary for the transport and storage of folate in cells.[24]

VITAMIN C occurs in large concentrations in both parts of the adrenal gland.[25] It is essential in the production of the two active hormones epinephrine and norepinephrine by the adrenal medulla.[26] Even though the adrenals are rich in vitamin C, upon secretion of corticosteroids large amounts of vitamin C are lost from them.[27]

HOW TO OBTAIN NUTRITIONAL SUPPORT

MICHAEL'S® ADRENAL FACTORS™ is the ideal source for the synergistically complete components important to the proper functioning of the adrenal glands. **ADRENAL FACTORS™** contains nutrients, complemented with the herbs Gotu Kola and Licorice Root each known for their healthful attributes. Like every **MICHAEL'S®** supplement, this one is manufactured with all natural fillers, binders and coating.

ABOUT MICHAEL'S® PRODUCTS

Seasoned health food shoppers already know that a combination of nutrients is always more effective than taking single nutrients one at a time. Add in the cost savings of taking combinations, with herbs included, and the math proves to be more efficient, too. Combinations increase assimilation and reduce the amount of binders and fillers. That's why **MICHAEL'S®** created the **FACTORS OF LIFE®** programs. Your life is busy enough as it is. Why worry when synergistically complete nutrition is conveniently at hand?

MICHAEL'S® products include an expiration date to ensure freshness. He personally guarantees purity and specified content. Each product is hypo-allergenic with no artificial colors or flavors. The formulas contain cold-pressed or organically grown (when available) herbs to ensure the highest quality. Additionally there is no sugar, wheat, corn, gluten, sodium, or anything artificial in any of our supplements. These high-potency, all-natural products are even manufactured with food-grade fillers, binders and enteric coatings. Most are suitable for vegetarians and tell you so right on the front label. Every product is double safety sealed with an outer shrink wrap and inner bottle freshness seal. As is normal in all-natural products, some color and texture variations may occur, but do not affect product purity, potency or assimilation.

Above all else, all **MICHAEL'S® NATUROPATHIC PROGRAMS** are designed to produce physical results you can feel, due to the innovative nutritional supplementation with specific, targeted **FACTORS OF LIFE®** programs. As always, the newest developments, the finest ingredients and the most effective formulations for your total healthcare from **MICHAEL'S® NATUROPATHIC PROGRAMS**.

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Michael's®
NATUROPATHIC PROGRAMS

Adrenal Factors™

Supplement Facts
Serving Size: One (1) Tablet

Amount Per Serving		% Daily Value
Vitamin C (as ESTER-C®**)	250 mg	417%
Vitamin B-12 (as Cobalamin)	300 mcg	4998%
Pantothenic Acid (as Calcium Pantothenate)	150 mg	1500%
Folic Acid (as Folacin)	200 mcg	50%
Siberian Ginseng Root (Eleutherococcus senticosus)	200 mg	*
Ashwagandha Root (Withania somnifera)	100 mg	*
Turmeric Root (Curcuma longa)	100 mg	*
Juniper Berry (Juniperus communis)	100 mg	*
Licorice Root (Glycyrrhiza glabra)	100 mg	*

*Daily Value not established.

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OTHER INGREDIENTS: Dicalcium Phosphate, Microcrystalline Cellulose, Stearic Acid, Magnesium Stearate, Croscarmellose Sodium and Silica.

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