Stress

& HPA Axis Dysfunction

When under stress, the body elicits a series of physiological changes that help us deal with that stress and return to a normal state once the stress is over. In the brain, stress activates the hypothalamus to release corticotropin-releasing hormone (CRH). CRH stimulates the pituitary gland to release adrenocorticotropic hormone (ACTH), which in turn signals the adrenal glands to release cortisol, dehydroepiandrosterone (DHEA) and several neurotransmitters: epinephrine (EPI), norepinephrine (NE), serotonin and gamma-aminobutryic acid (GABA).

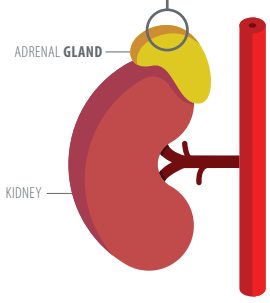
Acute stress causes the body to be in a "fight-or-flight" mode, allowing you to get away from danger. Repeated activation, whether several acute events or prolonged chronic events, elevate levels of cortisol. Increased cortisol for long periods of time are catabolic, meaning it breaks down the body and may cause extreme fatigue, joint and muscle pain and sleeplessness. Chronic stress causes nutrient depletion that slows healing and repair within the body, eventually leading to chronic disease conditions.

HORMONE **RELEASE**

CRH+ACTH

EPI+NE

CORTISOL+DHEA



ADRENAL **GLANDS**

PHYSICAL **EFFECTS**

FIGHT-OR-FLIGHT **RESPONSE**

Rise in blood pressure
Increased heart rate
Increased anxiety

PHYSIOLOGICAL **EFFECTS**

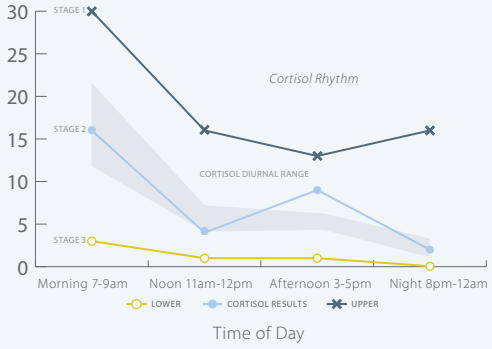
Blood sugar irregularities
Disrupted sleep/wake cycles
Suppressed immune system function
Decrease in thyroid hormone production
Decrease in sex hormone production

STAGES OF STRESS

STAGE 1: HYPER-CORTISOL
High stress reaction
Anxiety
Difficulty focusing
Insomnia
Immune suppression

STAGE 2: CORTISOL-DOMINANT
Irregular cortisol rhythm
High total cortisol
Difficulty concentrating
Mood, sleep cycle disturbance
Blood sugar imbalances

STAGE 3: HYPO-CORTISOL
Low cortisol
Fatigue, depression
Hormone imbalances
Pain, severe inflammation
Immune depletion



ACTH Adrenocorticotropic hormone **CRH** Corticotropin-releasing hormone **EPI** Epinephrine **DHEA** Dehydroepiandrosterone **NE** Norepinephrine

Lifestyle Recommendations

MOVEMENT

Aim for 150 minutes of walking per week or 10,000 steps per day

STRESS MANAGEMENT

Identify your stressors

Prioritize what is most important in your life

Schedule time off

Spend time in nature

DIET

Avoid sugar

Avoid inflammatory foods like gluten, dairy and soy

Eat three to five well balanced meals per day with lean protein, colorful vegetables and healthy fats

Eat within a 12-hour window or less and at least two hours before bed

SLEEP

Aim for at least 30 minutes of outdoor (even overcast) light each day with sunglasses off for some of the time

Aim for seven to eight hours of quality sleep each night

Avoid blue light from cell phones and screens at least two hours before bedtime

Keep the bedroom cooler for more restful sleep

Nutrient Recommendations

ACUTE STRESS

Ashwagandha
Bacopa
Phosphatidylserine

Adaptogenic ashwagandha supports the body's resistance to stress and supports sleep.

Nootropic bacopa has been shown to support focus, attention and memory while under stress.

Phosphatidylserine reduces elevated cortisol levels.

CHRONIC STRESS

Ashwagandha
Holy Basil
Licorice Root Extract

Adaptogenic ashwagandha supports the body's resistance to stress and supports sleep.

Adaptogenic holy basil improves the stress response, improves attention, increases energy and boosts immune function.

Licorice root maintains healthy cortisol levels and inflammatory pathways.

CALMING SUPPORT

PharmaGABA™
L-theanine
Taurine
Melatonin

PharmaGABA™, L-theanine and taurine boost calming neurotransmitter GABA and promote relaxation.

Melatonin is a hormone necessary for restful sleep.

OTHER REPLENISHING NUTRIENTS FOR STRESS

MULTI-VITAMIN/MINERAL

B-COMPLEX

MAGNESIUM
100-600 mg/day

DHEA
25-50 mg/day

PREGNENOLONE
30-50 mg/day

VITAMIN D
1,000-5,000 IU/day

ASHWAGANDHA
100-1,200 mg/day
BACOPA
100-640 mg/day
PHOSPHATIDYLSERINE
100-600 mg/day

ASHWAGANDHA
100-1,200 mg/day
HOLY BASIL
100-1,000 mg/day
LICORICE ROOT EXTRACT
100-250 mg/day

PHARMAGABA™
100-400 mg/day
L-THEANINE
100-400 mg/day
TAURINE
100-1,000 mg/day
MELATONIN
1 mg before bed*

*As recommended by your health care professional.

Lifestyle Matrix RESOURCE CENTER

SOS STRESS RECOVERY PROGRAM

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