

## Stress

Stress can be defined as any type of change that causes physical, emotional or psychological strain. Stress can trigger the body's response to perceived threat or danger, the fight-or-flight response. Originally named for its ability to enable us to physically fight or run away when faced with danger, it's now activated in situations where neither response is appropriate, like in traffic or during a stressful day at work. The long term consequences of unrelieved stress are devastating to all systems of the body. The physiological effects of stress are:

- Increased heart rate
- Increased cardiac output
- Increased rate and depth of breathing
- Increased metabolic rate
- Increased force of muscular contraction
- Delayed muscular fatigue
- Reduced blood flow to bladder (muscular walls relax and sphincters contract)
- Reduced blood flow to intestines
- Increased blood pressure
- Increased blood sugar
- Increased break-down of glucose for energy, especially in muscle cells
- Increased free fatty acids in the blood
- More oxidation of fatty acids to produce energy
- More ATP (the cells' primary energy compound) produced
- Blood vessel constriction

When faced with chronic stress and an over-activated autonomic nervous system, people begin to see physical symptoms. The first symptoms are relatively mild, like chronic headaches, increased susceptibility to colds, difficulty sleeping. With more exposure to chronic stress, however, more serious health problems may develop. These stress-influenced conditions include, but are not limited to:

- Depression
- Diabetes
- Heart disease
- Hyper or Hypothyroidism
- Hair loss
- Obesity
- Anxiety
- Sexual dysfunction
- Tooth and gum disease
- Ulcers

In fact, as many as 90% of doctor's visits are for symptoms that are at least partially stress-related. There are very few medical conditions that stress does not aggravate.

Managing stress during the cold and flu season is paramount. Studies show that elevated cortisol levels correspond with lower levels of secretory IgA present in one's mucous membranes. This is the immunoglobulin that is responsible for the first line of defense against invading bacteria and viruses.

Adrenal Fatigue is a common disorder caused by long term stress. The initial phase of the stress response is adaptive, but once the adrenals have worked over-time for too long and without adequate nutritional support they begin to function poorly. Determining whether or not you have adrenal fatigue can be accomplished by working with an experienced health care provider who is able to recognize its signs and symptoms and treat it accordingly.

## **Diagnosis**

Lab tests can be helpful for determining the degree of the problem. A comprehensive adrenal stress index includes cortisol, insulin, DHEA (a cortisol precursor), progesterone, gluten antibodies, and secretory IgA levels. Because poor adrenal function can affect so many systems it is important to work with a health care provider who can recognize the effects of stress on every organ system. Neurotransmitter testing can also be helpful to ensure that the body is producing adequate levels of excitatory and inhibitory neurotransmitters.

## **Treatment**

### **Magnesium**

Addressing one's calcium-magnesium balance can affect the body's response to stress. In a normal, healthy state the stress response occurs and then subsides when the trigger is over. During the stress response calcium is quickly mobilized into cells. Calcium is used for excitation of nerve cells, while magnesium is used to calm them down. The stress response subsides when the nerve cells' magnesium returns to its dominant levels inside the cell. If magnesium is not present in abundance or there is too much calcium competing with magnesium, then the nerve cells cannot return to their resting state. In this case, the stress response can occur even in the absence of an appropriate trigger. Magnesium therapy is, therefore, an excellent first line of treatment when dealing with stress. A daily supplement of 500mg of magnesium citrate can be helpful. Some people can take up to 1000mg. It is important to discuss this with a knowledgeable health care practitioner to make sure you are taking the right dose. Foods that are high in magnesium include:

- Dark leafy green vegetables
- Halibut
- Raw nuts and seeds
- Brown rice
- Oatmeal
- Wheat bran
- Blackstrap molasses
- Dark chocolate

### **Herbs**

Several herbs have been shown to support the adrenal glands and can reduce cortisol levels. They include, but are not limited to:

- Ashwaganda
- Magnolia bark
- Eleutherococcus
- Panax ginseng

### **Relaxation**

Naturally, relaxation techniques can do wonders at managing stress. These include meditation, breathing exercises, yoga and moderate exercise.