



## Stress and Sleep

### Stress Defined

A person's stress response describes the condition caused by a reaction to physical, chemical, emotional or environmental factors. Stress can refer to physical effort and mental tension. It's hard to measure emotional or psychological stress in a precise way.

We do know that stress can alter the levels of hormones in the body and affect the immune system. The body reacts to stress by releasing hormones, such as adrenaline which prepares the body to respond to a challenge. Unfortunately, during times of stress, the body also releases the "killer" stress hormone – cortisol which is designed to help our body utilize proteins, carbohydrates and fats to produce energy to respond to whatever is causing stress. Unnaturally high levels of cortisol can result in blood sugar irregularities and increase the risk of anxiety, depression, fatigue, immune system deficiencies, obesity, diabetes, ulcers, heart disease, cancer and for most people, sleeplessness.

Fortunately, natural stress relief remedies, such as adaptogens, have been shown to help the body eliminate the damaging effects of stress. All people feel stress, but they feel it in different amounts and react to it in different ways.

### Sleeplessness Study

One of the first casualties of stress is a disruption of our sleep patterns. After an 8-12 hour work day, and four hours of meals, family time and catching up on our daily events, we fall asleep and our mind begins to race. Stress leads to sleeplessness which leads to a lessened ability to handle stress which leads to more sleeplessness and so the vicious cycle continues.

It is encouraging to note that in 2004, the Better Sleep Council reported the results of a survey that focused on women's wellness and results showed that 27% of women say sleep is the most important component of their overall well-being. 45% of women agree they feel refreshed after a good night's sleep. The problem continues that while sleep is recognized as valuable, especially with women, most are unable to achieve their goal of a good night's sleep.

Not surprisingly, in the same study, 65% of Americans said they are losing sleep due to stress. In the same study, 32% of Americans said they are losing sleep at least one night per week and 16% of Americans experience stress-induced insomnia. 26% of women report trouble sleeping at least once a week compared to only 16% of men. 19% of individuals ages 45-64 admit to losing sleep due to stress a few nights per week. 2% claim to worry about current events; 16% claim personal finances keep them up at night and 23% claim family issues.

Too much stimulation such as stress, and too little down time tell us we are not ready for bed even though our body requires the sleep. Experts such as Dr. Ward Flemons, director of the Long Association Sleep Center at Calgary Foothills Hospital says that 30-40% of Canadians receive sufficient sleep.

### Nervous System Study

Although the link between a stressful day and a restless night is well known, in a study funded by the National Institute of Mental Health, scientists continued to search for the exact ways that stress affects sleep. A new study suggests that stress may disrupt the nervous system's natural rhythms during various sleep stages. Stressed sleepers experience more arousal during sleep, Martica Hall, Ph.D. of the University of Pittsburgh and colleagues write in the journal *Psychosomatic Medicine*. Sleepers who were less relaxed during sleep also woke up more often and had fewer episodes of deep sleep, according to the researchers.



Hall and colleagues measured the central nervous system changes by monitoring heart rate variations and noted that certain heart rate variations provided an indirect glimpse into the activity of the involuntary nervous system, which directs the function of organs like the heart and lungs. It was noted by Hall and his colleagues that Insomniacs have heart rate variability patterns similar to those seen in the stressed students, which may suggest that similar pathways of nervous system disruption are at work during the period of sleeplessness. The study was funded by the National Institutes of Mental Health.

## Stress Hormone Studies

When you are constantly reacting to stressful situations without making adjustments to counter the effects, you will feel stress which can threaten your health and well-being. Too much stress can cause relatively minor illnesses like insomnia, backaches, or headaches, and as noted, can contribute to potentially life-threatening diseases like high blood pressure and heart disease.

It is fairly obvious that stress can affect proper sleep, but researchers at Pennsylvania State University College of Medicine have found another reason why people may be losing sleep. It's not just because of what they worry about. According to Dr. Alexandros. N. Vgontzas it is about an increased risk of sleep deprivation caused by stress hormones.

The Penn State study of middle-aged men showed they become more sensitive to the stimulating effects of cortisol. When both young and middle-aged men were administered cortisol, the older men remained awake longer and slept less deeply.

Vgontzas and his colleagues suggested that an increased prevalence of insomnia in middle-age may, in fact, be the result of deteriorating sleep patterns associated with increased sensitivity to arousal-producing stress hormones, such as cortisol.

In another study, the Penn State researchers compared patients with insomnia to those without sleep disturbances. They found that insomniacs with the highest degree of sleep disturbance secreted the highest amount of cortisol. This suggested that chronic insomnia is a disorder associated with a sustained hyper arousal of the body's stress response system.

A 1989 study reported in the Journal of Clinical Endocrinology and Metabolism reported that increased levels of cortisol significantly reduced the time spent in rapid eye movement (REM) sleep (deep sleep) and significantly enhanced the time spent in lighter sleep patterns suggesting that cortisol influences sleep effectiveness.

A February 2000 study by the European Psychiatry and Clinical Neuroscience reported that in the event of sleep deprivation and recovery sleep, normal or unusually high cortisol levels are not effected, reinforcing the notion that sleep, in of itself does not lead to a reduction of stress which would lead to a more normal level of cortisol.

## Stress Damages Sleep

As noted, emotional stress, on the other hand, is bad for you especially if it is severe enough or chronic enough. There is a fair amount of evidence and new studies that chronic emotional stress can be directly associated with sleeplessness.

While emotional stress is a protective mechanism, people were designed with a hormonal surge of adrenaline - a fight or flight mechanism when facing danger such as confrontation with a saber-tooth tiger. As stated earlier, there is also a surge of the killer hormone, cortisol.

But in modern times, saber-tooth tigers are far and few between. The fight or flight response is not always the appropriate reaction to everyday stressful situations, let alone chronic or traumatic stress. Today, the adrenaline and cortisol surge that accompanies stressful situations builds up and has a damaging effect on the body – and can directly lead to sleeplessness. Natural stress relief remedies such as Vitalife adaptogens can help eliminate the damaging effects of stress.

