



EFFECTS OF STRESS ON THE IMMUNE SYSTEM

Everyone experiences stress. Whether it is everyday hassles, such as being stuck in traffic, or more acute forms of stress, such as pain or traumatic experiences, stress plays a part in everyone's lives. A stressor is any stimuli that causes a nonspecific response in an individual, otherwise known as stress. There are two main categories of stress: acute and chronic. *Acute stressors* include uncontrollable situations, physical illness, surgery, and physically and emotionally traumatic experiences. *Chronic stressors* include sleep deprivation, daily "hassles", work overload, relationship issues, role strains, social isolation and financial worries. There are, of course, many more things that can cause stress, but these are the most common stressors.

Psychological stress has been shown to increase susceptibility to viral infection. Subjects exposed to stress showed increases in infection rates from 74% to 90%, and clinical colds rose from 27% to 47%. This is not surprising, as stress does suppress the immune system; this is supported by studies showing that colds and other infections manifest themselves on weekends after busy and stressful work weeks.

Additionally, studies on monkeys have shown that ulceration showed up most severely during the rest and recovery periods, rather than during the stress period itself (McEwen & Stellar, 1993). Studies by Manuck, et al in 1991 showed that psychological stressors induced cell division among CD8 (immune) cells, thereby increasing the number of CD8 cells and suppressing immune function. However, this response was only seen in those subjects who also showed high heart rate change and catecholamine (epinephrine, norepinephrine & dopamine) change during the stressors. This was consistent with the theory that there are two groups of people those who are "high reactors", and those who are "low reactors". High reactors are significantly affected by stress, as shown by a significant increase in heart rate, blood pressure, catecholamines, and CD8 cells. Low reactors show little or no change in those areas (Manuck, et al, 1991).

In conclusion, **psychological stress does have a significant effect on the immune system**. It raises catecholamine and CD8 levels, which suppresses the immune system. This suppression, in turn, raises the risk of viral infection.

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Facts About Stress

- Americans spend \$11.3 billion per year to cope with stress.
- Over 90% of disease is caused or complicated by stress.
- Stress has been linked to all leading causes of death, including heart disease, cancer, accidents and suicide.
- Long-term stress is strongly associated with depression, heart disease, gastrointestinal disorders and weakened immune systems.
- Over 43% of adults suffer adverse health affects due to stress.
- Stress can lead to diminished sexual desire, an inability to achieve orgasm in women, and impotence in men.
- Maternal stress during pregnancy has been linked to a 50% higher risk for miscarriage.
- Percentage of adults being treated for depression: 54%
- Job stress is estimated to cost U.S. industry \$300 *billion* annually.
- Over 19 million Americans ages 18-54 have anxiety disorders.
- 1,135,000 divorces occur in the United States annually.
- Number of psychotropic drug mentions in office practice per year: 100 million.
- Up to 60% of employee absences are due to psychological problems such as stress and depression.
- The number of Americans treated for depression rose from 1.7 million in 1987 to 6.3 million in 1997, and the proportion of those receiving antidepressants doubled.
- *Estimated percentage of American adults attempting to control stress: 95%*

(Source: American Institute of Stress)

Featured Herb:

Eleuthero, also known as, Siberian ginseng, has been used for centuries in Eastern countries, including China and Russia. Although a distant relative of American (*Panax quinquefolius*) and Asian ginseng (*Panax ginseng*), with some overlap in its uses, Siberian ginseng is a distinct plant with different active chemical components. Prized for its ability to restore vigor, increase longevity, enhance overall health, and stimulate both a healthy appetite and a good memory, it is widely used in Russia to help the body **adapt to stressful conditions** and to enhance productivity. The active ingredients in Siberian ginseng, called eleutherosides, are thought to increase stamina and to stimulate the immune system. Siberian ginseng may help the body deal with physically and mentally stressful exposures, such as heat, cold, physical exhaustion, viruses, bacteria, chemicals, extreme working conditions, noise and pollution. By strengthening the system it may also to prevent illness.