

just health

Basic tenets of stress physiology

As the physical, chemical and nutritional influences of stress become better understood, individuals can look at their own lifestyles and make informed choices for the future.

BY STEVEN BAILEY N.D.

Stress is something that exists in everybody's life. We cannot live without it, yet it causes many people harm. In nearly all cases, some stress is beneficial, and while we possess a wondrous capability to thrive in short term excessive stress, the effects of stress on health are an ever-increasing concern for the American public.

The word *stress* has many meanings and nearly all of them are correct. Hans Selye,

MD, Ph.D, D.Sc, whom many consider the "Father of Stress Physiology" defined stress thusly: "Systemic stress is used here to denote a condition in which — due to function or damage — extensive regions of the body deviate from their normal resting state."¹ Other current definitions include: "Importance, significance, or emphasis placed upon something." "A force that tends to deform a body," "A mentally or emotionally disruptive influence: Distress."²

The beneficial aspects of stress are quite obvious. At the most basic level they include the physical influences of gravity which help dictate calcium contribution to the bones, and influences muscle development. Others are the quite variable influences of exercise, the stimulus of education and experience, and our over-all personal growth involved in meeting our daily and lifetime challenges. Dr. Piaget, noted French psychologist, whose work has an unquestioned influence on American psychology, considers stress or "experience" as the causative agents of the "assimilation and accommodation" processes involved in the development of morality, language, socialization, conceptualization: in essence, as with the "Behavioralist" branch of psychology, nearly all learning experience.

While some stress is definitely beneficial, excessive stress, and the individual response to stress, presents a growing health problem that we need to both acknowledge and effectively treat within our state health care system.

The appointment of Ted Kulongoski to the position of insurance commissioner leaves me more comfortable that our state system will recognize the very real influences of stress and its relationship with individual health.

Current scientific research has begun to verify many of the long standing concepts about the influence of stress. Many of the positive influences of aerobic exercise are now understood, but more importantly, the physical and chemical response to stress are become understood. We now know that the cumulative response to stress includes both positive and negative influences.

If we are accustomed to a rather quiet lifestyle, the changes involved in a new job, new home, etc., may present themselves as significant stresses. Likewise, the loss of a job, of a loved one, interpersonal difficulties, or illness may all significantly contribute to one's over-all stress level.

Many people do not consider their lives stressful enough to influence either their short term or long term health. Many of these people have developed lifestyles and habits that help them tolerate a much higher level of stress, but a good number of these people are choosing to ignore the importance of stress in their lives.

The physical, chemical and nutritional influences of stress are becoming more clearly understood by our scientific and public communities. While there are countless direct effects of stress on the body and even more indirect effects resulting from these influences, there are some basic tenets of stress physiology that can help us look at our own lifestyle and aid in choosing how we live in the future.

One of the key influences of stress is its ability to stimulate the adrenal glands.

These two glands are attached to the two kidneys (renal is Latin for kidney; ad refers to it being added on to the kidney), and secrete chemical substances that activate certain stress responses within the body. This response, known as the adrenocortical response, significantly alters the body from its resting and nutritive state. The body begins a "fight or flight" response known as the "sympathetic nervous system."

In other words, the changes in your body enhance your ability to do physical life-saving activities. In exchange for this dramatic increase in physical ability, the body sacrifices blood and oxygen from the digestive system and other areas not involved in muscular and neurological activity (your response also favors quick reflexes and thought responses). The body also increases its existing energy conversion processes which, I compare to burning a candle at both ends. While one may momentarily get a brighter light, the length of burning is always shortened unless we re-wax the candle.

Short term acute stress is well-tolerated by the healthy individual, but our systems were not made to tolerate long-term fight and/or flight stimulus. Yet we now know that the mental stimulus of financial problems, a difficult boss, a specially demanding job and even new and exciting events, activate the sympathetic nervous system. The long-term influences of chronic stress are known to cause many negative responses in the body. These include nutritional losses both with impaired digestion and with increased use, cardiovascular concerns, immunologic loss, fatigue, psychological and emotional change, insomnia, constipation and/or diarrhea, and a multitude of other changes from the norm.

¹Selye, Hans, *Stress*, 1950.

²American Heritage dictionary.

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