



Research Brief

Stress

Question: How does stress affect learning?

Summary of Findings:

Stress is a normal process we use to appraise and attempt to cope with emotional threats and challenges. Stressors--events and situations--may be blamed for the uncomfortable effects of stress. But the way we perceive stressors determines whether stress is experienced as a panic or a challenge. While normal stress protects the body in times of threat, prolonged stress may potentially damage the body, including the brain.

According to the ERIC Digest on stress management for learning disabled students (Rubenzer,1988):

School-related stress is the most prevalent, untreated cause of academic failure in our schools. It is believed to afflict an alarming 6 to 10 million children a year (Barker 1987). In a classroom of 25 students, between one and three students are at high risk for developing stress-related problems which would probably interfere with learning (Hill and Sarason 1966).

Sometimes, the presence of sustained stressors--abuse, fighting, perceived unrealistic pressures, illness, anger-producing situations--can have markedly damaging effects on the body and the brain. Robert Sapolsky at Stanford University, and others, have investigated stress and health and report that a prolonged flood of stress hormones can actually cause shrinking in certain brain areas, particularly in the hippocampus.

A major role of the hippocampus is in memory. It is not unusual for persons with prolonged stress to report forgetfulness and difficulty learning. Sapolsky describes what he terms "the devastating effects of chronically secreted stress hormones in the brain." "Chronic," is the key word; stress hormones secreted into the brain can actually make you think more clearly over the short term. The student cramming for a final exam initially benefits from increasing oxygen delivery and nutrients to the brain. But by the six-hour mark that student would be thinking less clearly, the neurons not working as well and the capacity for memory retrieval fading.

Brainsource (http://www.brainsource.com/stress_&_health.htm) offers the following advice for coping with stress:

- Exercise strengthens the body. It can reduce the experience of stress, depression, and anxiety. Dozens of scientific studies have demonstrated the relationship between exercise and mood. Exercise promotes arousal and relaxation, and improves quality of sleep. These conditions help the body recover from the stress response.
- Relaxation through meditation, biofeedback, and a variety of other activities and techniques promotes lower blood pressure, slower respiration, reduced metabolism and muscle tension. These counteract the effects of stress.
- Social contacts, friends, and family relationships can help in creating emotional trust, support, and relaxation. Even caring for a pet can provide significant emotional comfort that helps reduce stress.
- Attitudes of confidence, positive ability to solve problems, and balance allow the cycle of stress response to resolve now and then instead of being sustained.



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Online Resources:

(Note: ERIC documents can be found by going to <http://www.eric.ed.gov/> and entering the ERIC ID#)

Stress--A Capsule Description

Numerous medical and psychological studies have suggested a large proportion of visits to the doctor's office are due to psychological problems, many the result of acute or chronic stress. Stress is a normal process we use to appraise and attempt to cope with emotional threats and challenges. Stressors--events and situations--may be blamed for the uncomfortable effects of stress. But the way we perceive stressors determines whether stress is experienced as a panic or a challenge. While normal stress protects the body in times of threat, prolonged stress may potentially damage the body, including the brain.

http://www.brainsource.com/stress_&_health.htm

Why Zebras Don't Get Ulcers

by David Ruenzel

Dr. Robert Sapolsky is a Professor of Neurology at Stanford University. Dr. Sapolsky Spoke at the Brain Connection to Education Spring Conference 2000. If Robert Sapolsky wasn't a bit of a comedian as well as a celebrated neuroscientist, he may have had his audience clenching their teeth rather than bursting into fits of laughter. For his presentation on the effects of stress on the human body and brain contained a powerful message: stress kills slowly, suppressing the immune system, shutting down growth, and eroding memory and the ability to learn.

<http://www.brainconnection.com/topics/?main=fa/zebras>

Stress Management: Tips For Reducing Stress

University of Texas Austin Learning Center

Great resource! Describes 10 tips for reducing stress.

<http://www.utexas.edu/student/utlc/lrmres/handouts/1439.html>

Help for Stressed Students

Pope, Denise Clarke; Simon, Richard;

Educational Leadership;v62 n7 p33-37 Apr 2005

The authors argue that increased focus and pressure for high academic achievement, particularly among more highly-motivated and successful students, may have serious negative consequences. They present a number of strategies designed to help reduce both causes and consequences associated with academic stress and improve students' mental and physical health and well-being.

ERIC #: EJ725965

Stress Management for the Learning Disabled. ERIC Digest #452.

Rubenzon, Ronald L.

School-related stress is the most prevalent, untreated cause of academic failure in our schools. It is believed to afflict an alarming 6 to 10 million children a year (Barker 1987). In a classroom of 25 students, between one and three students are at high risk for developing stress-related problems which would probably interfere with learning (Hill and Sarason 1966).

ERIC Identifier: ED295396

<http://www.ericdigests.org/pre-928/stress.htm>

Student Stress: Effects and Solutions. ERIC Digest 85-1.

Whitman, Neal A. - And Others

One model that is useful in understanding stress among students is the person-environmental model. According to one variation of this model, stressful events can be appraised by an individual as "challenging" or "threatening" (Lazarus 1966). When students appraise their education as a challenge, stress can bring them a sense of competence and an increased capacity to learn. When education is seen as a threat, however, stress can elicit feelings of helplessness and a foreboding sense of loss.

ERIC Identifier: ED284514

<http://www.ericdigests.org/pre-926/stress.htm>



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What does teen stress feel like?

The effects of stress make daily tasks such as school, work, and even socializing, difficult. Stress affects the performance of the brain. When people are under stress, their memory suffers. Stress can cause irritability and nervousness.

<http://www.clarocet.com/teens/stress.htm>

Stress: Interference to Learning

August 2000

By E. Simon Hanson

Taking a final exam can be a stressful experience for any student. As the moment arrives when the tests are handed out and procrastination is no longer an option, nervous attentiveness and the flushed pallor that accompanies an increased heart rate can clearly be observed in some students. How do stress and anxiety affect a student's performance on exams? Does stress affect a student's ability to learn?

<http://www.brainconnection.com/topics/?main=fa/stress-interference>

Stress in the Classroom

<http://www.brainconnection.com/topics/?main=fa/stress-interference3>

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<http://www.principalspartnership.com>

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