Stress

Key Points

- In response to stress, the body reacts with a "flight or fight" response. Physiologic changes that occur with stress include the following:
  - Action of epinephrine and norepinephrine (short acting hormones)
    - ↑ heart rate
    - ↑ breathing rate
    - ↑ blood glucose
    - ↑ blood flow to muscles
    - ↓ blood flow to "unessential" organs, such as gut, reproductive organs
  - Action of cortisol (long acting hormone)
    - ↑ breakdown of proteins (muscle) for energy
- A certain amount of stress is associated with increased performance, but too much stress decreases performance (forms an inverted-U graph)
  - low stress = low performance
  - moderate stress = high performance
  - high stress = low performance
- Many chronic diseases (e.g., heart disease, asthma) are aggravated by high levels of stress; a compromised immune system is one of the earliest signs of too much stress (tendency to get a lot of colds, flu).
- Stress is a product of our life experiences + our personality + our learned responses to situations.
- Aggression, cynicism, isolation (toxic Type A) is the personality type most often linked to stress-related syndromes such as cardiovascular disease.

Define the following terms:
- Stressor
- Stress response
Autonomic nervous system
Somatic nervous system
Parasympathetic nervous system
Sympathetic nervous system
Endocrine system
Hormone
Eustress
Distress
Psychoneuroimmunology
Burnout

What nervous system reacts during the fight-or-flight response?
What nervous system returns the body to homeostasis?
What is the function of endorphins?
What are the three stages of the General Adaptation Syndrome?
Can positive experiences be a source of stress?

Be able to describe each of the following relaxation techniques:
Progressive relaxation
Visualization
Deep breathing
Meditation
Hatha yoga
T'ai chi ch'uan

Supplemental Knowledge

Stephen E. Ambrose is a remarkably prolific historian, with several best-sellers to his name. In the second chapter of his book, *Crazy Horse and Custer: The Parallel Lives of Two American Warriors*, Ambrose gives us an analysis of the American frontier work ethic. Ambrose points out that on the American frontier, natural resources seemed all but limitless, and American society as a whole had made a tremendous investment in proving to the world that the "noble experiment" of democracy was far superior to any social system previously known. To this end, white men were encouraged (while women and all minority group members were still kept out of position) to believe that they could rise as high as their energy and talent could take them. At the same time, however, there was also evidence that he could fall just as far. There were no barriers and there were no safety nets, and in this climate work became so imbedded in the national psyche that even recreational pursuits became a form of work, another arena in which men could compete in order to demonstrate their prowess over other men.

What is interesting to note is the degree to which the economic conditions of the frontier have been duplicated in recent decades, with larger opportunities and fewer safety nets. Arthur Levine, a researcher who has studied trends in undergraduate education since the 1960's, reports that since the mid-1970's, students have reflected
some of these changes in the national culture as they have shown more and more interest in preparing themselves for the material world, especially what Levine calls the "platinum professions" of medicine, business, and law (When Dreams and Heroes Died: A Portrait of Today's College Student).

The pressure to succeed – the stress – is enormous.

Many different things can increase the stress in our lives. Our physical environment (e.g., hot dorm room, loud neighbors) is a source of stress, as are time pressures (e.g., deadlines, overwork). Any kind of conflict is a source of stress (e.g., fight with a room mate), and frequently competition is a source of stress, as well (e.g., intramurals, competing for grades). One of the most profound sources of long-term stress is a sense of loneliness and isolation (e.g., no friends and family close by), as is irony, or outcomes in violation of our expectations (e.g., romance did not proceed, school career not progressing). Indeed, any source of change, whether good (e.g., a wedding) or bad (e.g., a divorce) is a source of stress. As mentioned previously, engaging in behaviors that conflict with our deepest values places stress upon us, and sources of stress tend to be additive, meaning a report deadline, a loud room mate, and a fight with the parents may combine to produce far more stress than any one event alone.

Physiologic signs that we may be experiencing too much stress include a dry mouth, an increased heart rate, nervous movements or muscle tension, a headache, gastrointestinal distress, or, since the immune systems is one of the first things damaged by too much stress, a tendency to "catch" every cold or flu "bug" that is going around.

Emotional signs that we may be experiencing too much stress include unwarranted aggression, anxiety, fearfulness, depression, emotional instability or impulsiveness, an inability to concentrate, or chronic fatigue.

People do a lot of things to try and cope with stress, most of which do not act to relieve the stress, and many of which have adverse consequences of their own. Often a person under stress will "self-medicate," turning to alcohol, tobacco, or other drug use in an attempt to deal with their stress. Excessive TV watching is a common stress response, since the television set "thinks for us," or distracts us from reality. Sleep and eating disturbances are common, either too much or too little, (insomnia or exhaustion, overeating or loss of appetite). Many people experience the urge to weep when they are under too much stress, and some people may experience sexual dysfunction as a result of stress (either turning to sex as a distraction – kind of like television – or a chronic lack of interest in sex).

Stress is partially a product of our life experiences – there is no arguing that some things are profoundly stressful – but it is also a product of our core personality and our learned responses to stressful situations. Our personality seems to be largely set at birth, or it is formed in our earliest years of life, such that we are not likely to experience much success in trying to change our core personality. Those born with a "type B" personality – those who are naturally happy, relaxed, and contented – are going to have an easier time controlling stress. On the other hand, you have undoubtedly heard about the "type A" personality, which in the past was described as someone who was ambitious and hard working. Since most Truman students are ambitious and hard working, you will be pleased to know the toxic type A personality has been re-defined as someone who is angry, cynical, and emotionally isolated. In recent years there has been talk of a "type C" personality, but I am not sure whether this is a personality type or a learned response. In
any case, the type C person is resistant to stress – even though they live their life with the motor revved and the clutch engaged – because they are committed to something they believe in, they are capable of fulfilling their obligations, and they are confident of their ability to perform (what sport psychologists call "self-efficacy").

If we have a stress-sensitive personality, we can try to avoid those things that we know will cause us stress, but some stress is part of the human condition. What we may have the most success at is learning coping skills, or new ways of dealing with stressful situations or of relieving stress. Some things work better for some people, and some things that may have worked for us in the past may no longer be effective.

One of the most highly recommended stress-relieving activities is vigorous exercise, the kind of exercise that makes you breathe hard and perspire. It seems that this kind of vigorous activity not only tends to dissipate stress hormones; it also acts to alleviate depression, which is something we will talk about more in the next lecture. And since isolation is so profoundly stressful to social animals like humans (another topic for a coming lecture), it is important to keep connections with other people, both inside and outside our family. Humor, while a highly individual response, is a great source of stress relief, although if you have a friend who continually pursues dark, bitter humor this may be a reflection of inner pain or fear. Any manner of pleasant diversion can be a form of stress relief, such as walking or other mild exercise, pursuing a hobby such as music or painting, or writing in a personal journal. Indeed, journaling is highly regarded not only as a diversion, but also as a means of sorting-out conflicting feelings.

In addition to engaging in forms of stress relief, there are a few habits that will go a long ways to increasing our resistance to stress. Studies have found that "clutter" is highly stressful, whether that is physical or mental clutter. Therefore, such habits as organizing one's possessions and keeping an appointment book tend to be stress-relieving in most people. In The Writer’s Block (2001), Jason Rekulak advises aspiring writers to use a few principles of "Feng Shui" (pronounced fung-shway) in their creative workspace, such as eliminate clutter and any broken or useless objects, and giving yourself at least 50% open space on your walls or desk, as well as surrounding yourself with things you love, things that bring happy memories and associations.

Since actions that violate our deepest values cause us stress, as mentioned above, logically the path of personal integrity is likely to be less stress producing than a path of personal duplicity. But in the end all of us are going to experience times when stress is all but unavoidable. We need to build up our reserves – build the body's ability to tolerate stress – for such times by engaging in a program of physical fitness, good nutrition, and obtaining adequate sleep.

As a final note, simply learning temporary measures to deal with the stress of the material world is an inadequate solution, as there doesn't seem to be a finish line, a time when we crest the top of the hill and begin to coast down the other side. Success always seems to be "out there," somewhere beyond the horizon, and when we are making $25,000 we think we would be happy with $50,000; when we are making $50,000 we think we would be happy with $100,000; and when we make $100,000 we wonder more and more what it would be like to be a millionaire. Many other goals – fame, power, status – are just as elusive. And, after a lifetime of chasing them, we may find they do not give us the satisfaction we once anticipated. As Stephen R. Covey has pointed out,
too many people spend their lives climbing the ladder, only to discover it was leaning against the wrong wall (Seven Habits of Highly Effective People).