Stress and Well-Being

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The Nature of Stress

“Life is either a daring adventure, or nothing at all.”

— Helen Keller
“I cannot and should not be cured of my stress, but merely taught to enjoy it.”
—Hans Selye
Times of Change and Uncertainty
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- Typically, people don’t like change!
- We are living in a confluence of many changes coming together. People are feeling overwhelmed.
- This, on top of personal stressors, compounds stress.
- Where there is change, however, there is opportunity!
The 24/7, on-demand, rushed lifestyle often leaves people overwhelmed, tired, burnt out, and frustrated—STRESSED!
The association between chronic stress and a host of health-related issues is now undisputed.
Figure 1.1. Leading Causes of Death in America.

Figure 1.5. The Yerkes-Dodson Curve:
Beyond the optimal point, stress will surely affect performance and health.
Definitions of Stress
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When “stress” is mentioned – what descriptive words does it bring to mind?
Definitions of Stress

• Stress is any change you encounter
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- Stress is wear and tear on the body
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- *Stress* is the inability to cope with problems
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- Stress is the loss of emotional control
- Stress is the absence of inner peace
Definitions of Stress

Stress is a perceived threat (real or imagined) to our mind, body, spirit, or emotions.
Types of Stress
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- Eustress (good stress)
Types of Stress

- Eustress (good stress)
- Neustress (neutral stress)
Types of Stress

- **Eustress** (good stress)
- **Neustress** (neutral stress)
- **Distress** (bad stress)
Types of Stress

- Acute Stress
  (short in duration; minutes, but intense)
Types of Stress

• Acute Stress
  (short in duration; minutes, but intense)

• Chronic Stress
  (much longer in duration; days, weeks, etc., but nowhere near as intense)
What Causes Stress?

- Daily events – traffic congestion, deadlines, personal conflicts
- Environmental stressors – pollution, weather extremes or excessive noise
- Physical stressors – physical injury, chronic pain, hunger
- Life events – death of a loved one, birth of a child, moving
Life Events and Health

Fig. 1.—Mean illness rates and standard errors of the mean for equal divisions of the total range of life change units.

Holmes & Rahe, 1967
“To understand the stress response, we must possess a fundamental knowledge not only of psychology but physiology as well.” — George Everly
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Through a chain-command of neural and hormonal events, the body prepares to fight or flee...beginning with the central nervous system.

The term “psychophysiology” refers to this mind-body connection.
The Fight-or-Flight Response
The Stress Response
by Walter Cannon
Stage 1: Stimuli is sent to the brain
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Stage 2: Brain deciphers stimuli: THREAT!
Nervous system is activated for survival
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Stage 1: Stimuli is sent to the brain
Stage 2: Brain deciphers stimuli: THREAT!
   Nervous system is activated for survival
Stage 3: Body stays activated until threat is over
Stage 4: Body returns to homeostasis
   (physiological calmness, once the threat is gone)
The Stress Response

Physical Symptoms

- Increased blood pressure
- Increased heart rate
- Increased vasodilatation to periphery
- Increased serum glucose for energy metabolism
- Increased free fatty acids for energy metabolism
- Increased blood clotting ability
- Increased neural activity to muscles (contraction)
- Decreased gastric activity
- Increased perspiration (to cool body temp)
More blood flows to brain; senses sharpen
Hearing ability increases
Perspiration increases
Respiration rate increases
Digestive system slows as blood supply is diverted to more critical areas
Blood-clotting ability increases
Immune system activity decreases
Pupils dilate to bring in more light and increase visual perception
Salivation decreases
Heart rate and blood pressure increase
Liver and fat tissues release energy-producing substances (such as glucose) into bloodstream
More blood flows to muscles; muscles tense
Urine production decreases
Can the Flight or Flight be Harmful?

- Many of our stressors today trigger activation of the flight or fight response, but neither fight nor flight is necessary
- Examples?
- Excessive stress (overactivation of these systems) is related to headache, upset stomach, racing heartbeat, and even depression
Why Zebras Don’t Get Ulcers
The Central Nervous System
The Central Nervous System (CNS) consists of the brain and spinal column while the peripheral nervous system (PNS) comprises all neural pathways to the extremities.
The Central Nervous System

• The Neocortical Level
  (The conscious power to override the stress response is here)
The Central Nervous System

- **The Neocortical Level**
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- **The Limbic System**
  *(Fight or flight is activated here!)*
The Central Nervous System

• The Neocortical Level
  (The conscious power to override the stress response is here)

• The Limbic System
  (Fight or flight is activated here!)

• The Vegetative Level
Figure 3.1. The three levels of the human brain include the vegetative level, the limbic system, and the neocortical level.
The Autonomic Nervous System

Sympathetic Nervous System
(Stress Response)

Parasympathetic Nervous System
(Relaxation Response)
Figure 3.3. The sympathetic and parasympathetic nervous systems. Internal organs are typically innervated by neural fibers from both sympathetic and parasympathetic divisions.
The Endocrine System
The Endocrine System

The endocrine system is made of many hormonal glands. Stress triggers the pituitary, hypothalamus, and adrenal glands. The adrenal gland is often called the stress gland for its role in the fight-or-flight response.
Figure 3.5. The adrenal glands sit on top of each of the kidneys and are cone-shaped in appearance.
The Adrenal Gland
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The adrenal gland has two parts; the medulla and cortex. The medulla releases epinephrine and norepinephrine. The cortex releases corticosteroids (e.g., cortisol) which then help prepare the body’s energy production for flight or flight.
Figure 3.4. The physiological response to stress.
A Parable of Psychophysiology

(Your body has several physiological dynamics to ensure your physical survival)
The immediate, intermediate, and prolonged effects of the stress response.

<table>
<thead>
<tr>
<th>Immediate effects</th>
<th>Intermediate effects</th>
<th>Prolonged effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text message or phone call</td>
<td>Email</td>
<td>Overnight delivery</td>
</tr>
<tr>
<td>Flushed face</td>
<td>Nauseous feeling in stomach</td>
<td>Suppressed immune system</td>
</tr>
<tr>
<td>Rapid heart rate</td>
<td>Muscle tension</td>
<td></td>
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</tbody>
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The table lists the immediate, intermediate, and prolonged effects of the stress response.
Stress Physiology:
Take Home Message
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- Cortisol plays a huge role in the stress response.
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• The strength of the “stress-hormone cocktail” depends on the intensity and duration of stress.
Stress Physiology: Take Home Message

• The stress response involves a cascade of stress hormones throughout the body.

• The strength of the “stress-hormone cocktail” depends on the intensity and duration of stress.

• Repeated (chronic) stress shrinks (atrophies) brain cells.
Tax Season

Friedman, Rosenman, & Carroll, 1958
Holistic Wellness Paradigm

“The integration, balance, and harmony of mind, body, spirit, and emotions where the whole is always greater than the sum of the parts.”
Figure 1.10. Two different perspectives of the same wellness model paradigm.
“I’m an old man now. And I have known a great many problems in my life...

most of which never happened.

—Mark Twain
Questions?

I THINK IT'S STRESS!!