Stress

Chapter Ten
What Is Stress?

- A stressor is any physical or psychological event or condition that produces stress.
- A stress response is the physiological changes associated with stress.
- Stress is the collective physiological and emotional responses to any stimulus that disturbs an individual’s homeostasis.
Actions of the Nervous System

- The Nervous System consists of the brain, spinal cord, and nerves
  - The autonomic nervous system is the branch of the nervous system that controls basic body processes, both sympathetic and parasympathetic divisions
  - The sympathetic division is the division of the autonomic nervous system that reacts to danger or other challenges by accelerating body processes
    - Neurotransmitter - norepinephrine
  - The parasympathetic division is the division of the autonomic nervous system that moderates the excitatory effect of the sympathetic division by slowing things down
Actions of the Endocrine System

- The endocrine system consists of glands, tissues, and cells that secrete hormones into the bloodstream and influences metabolism and body processes.
- The key chemical messengers or hormones involved are:
  - Norepinephrine: a neurotransmitter released by the sympathetic division to increase body functions, increases attention, awareness, alertness.
  - Epinephrine: a hormone secreted by the inner core of the adrenal gland also known as adrenalin.
  - Cortisol: a steroid hormone secreted by the outer layer of the adrenal gland, also known as hydrocortisone.
  - Endorphins: brain secretions that have pain-inhibiting effects.
How the Two Systems Work Together

- Together, the nervous system and the endocrine system prepare the body to respond to a stressor.
- Key hormones, such as cortisol and epinephrine, trigger a “fight or flight reaction.”
- Once a stressful situation ends, the parasympathetic division of the autonomic system returns the body to homeostasis—a state of stability and consistency in the person’s physiological functioning.
- The use of the “fight or flight” reaction in modern life is often inappropriate, leading to impairment of one’s emotional and physical health.
FIGURE 10.1 THE FIGHT-OR-FLIGHT REACTION

Pupils dilate to admit extra light for more sensitive vision.

Mucous membranes of nose and throat shrink, while muscles force a wider opening of passages to allow easier airflow.

Secretion of saliva and mucus decreases; digestive activities have a low priority in an emergency.

Bronchi dilate to allow more air into lungs.

Perspiration increases, especially in armpits, groin, hands, and feet, to flush out waste and cool overheating system by evaporation.

Liver releases sugar into bloodstream to provide energy for muscles and brain.

Muscles of intestines stop contracting because digestion has halted.

Bladder relaxes. Emptying of bladder contents releases excess weight, making it easier to flee.

Blood vessels in skin and viscera contract; those in skeletal muscles dilate. This increases blood pressure and delivery of blood to where it is most needed.

Endorphins are released to block any distracting pain.

Hearing becomes more acute.

Heart accelerates rate of beating, increases strength of contraction to allow more blood flow where it is needed.

Digestion, an unnecessary activity during an emergency, halts.

Spleen releases more red blood cells to meet an increased demand for oxygen and to replace any blood lost from injuries.

Adrenal glands stimulate secretion of epinephrine, increasing blood sugar, blood pressure, and heart rate; also spur increase in amount of fat in blood. These changes provide an energy boost.

Pancreas decreases secretions because digestion has halted.

Fat is removed from storage and broken down to supply extra energy.

Voluntary (skeletal) muscles contract throughout the body, readying them for action.
Emotional and Behavioral Responses to Stressors

- Responses to stress may include anxiety, depression, and fear, which will vary in intensity from person to person.
- Behavioral responses are controlled by the somatic nervous system, which manages our conscious actions under our control.
- What influences how we respond to stress emotionally and behaviorally:
  - Personality traits
    - Type A: Higher perceived stress level and more problems coping
    - Type B: Less frustrated by daily events and more tolerant
    - Type C: Suppression of anger, difficulty expressing emotions
  - Hardy personality
  - Past experiences
  - Gender
The General Adaptation Syndrome (GAS)

- The GAS is a predictable response pattern (Seyle, 1930) to all stressors.
- Hans Seyle recognized that stressors could be pleasant (eustress) or unpleasant (distress).
- The sequence follows 3 particular stages:
  - **Alarm**: fight of flight stage
  - **Resistance**: coping stage
  - **Exhaustion**: life threatening breakdown stage

![Figure 10.3](image-url)
Effects of the Stress Response

- **Allostatic load** is the long-term negative impact of the stress response on the body, especially long-term exposure to stress hormones like cortisol
  - High allostatic load increases susceptibility to heart disease, hypertension, obesity, and reduced brain and immune function

- **Psychoneuroimmunology (PNI)** is the study of the interactions among the nervous system, the endocrine system, and the immune system to stress responses
Links Between Stress and Specific Conditions

- Cardiovascular disease
- Altered functioning of the immune system
- Other health problems such as:
  - Digestive
  - Headaches
  - Insomnia
  - Injuries
  - Female reproductive issues
  - Psychological
Common Sources of Stress

- Major life changes
  - New school
  - New relationship
  - New job
  - New living situation
- Daily hassles
- College stressors
  - Academic stress
  - Interpersonal stress
  - Time pressures
  - Financial concerns
  - Worries about the future
- Job-related stressors
  - Interpersonal and social stressors
  - Environmental stressors
  - Physical and emotional status
Managing Stress

- Exercise
- Nutrition
- Sleep
- Social support
- Communication
- Spiritual wellness concepts

- Journaling/Diary
- Time management
- Relaxation techniques
  - Deep breathing
  - Progressive relaxation
  - Biofeedback
  - Mental imagery
- Massage
Dealing with Anger

- To express or not to express?
- Dealing with difficult people
- Try to focus on facts
- Who do you hang out with and spend your energy on?
Managing Stress: Time Management

- Set priorities
- Schedule tasks for peak efficiency
- Set realistic goals
- Budget enough time
- Break up long-term goals
- Visualize achievement of goals
- Track tasks you put off

- Do the least favorite tasks first
- Consolidate tasks
- Identify transitional tasks
- Delegate responsibility
- Say no when necessary
- Give yourself a break
- Avoid personal time sinks
- Just do it
Getting Help

- Peer Counseling and Support Groups
- Professional Help
  - Psychotherapy
- Is It Stress or Something More Serious?
  - Depression: a mood disorder characterized by loss of interest in usual activities, sadness, hopelessness, loss of appetite, disturbed sleep, and other physical symptoms
  - Depression is linked to suicide, one of the leading causes of death among college students.
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