CHAPTER PREVIEW

Our behavior as well as exposure to prolonged stress can increase our susceptibility to serious illness. Health psychology provides psychology’s contribution to behavioral medicine. Among its concerns are the effects of stress and how to control stress, how our emotions and personality influence our risk of disease, and the promotion of healthier living.

Walter Cannon viewed our response to stress as a “fight or flight” system. Hans Selye saw it as a three-stage, general adaptation syndrome. Modern research assesses the health consequences of various life experiences. Coronary heart disease has been linked with the anger-prone Type A personality. Stress may also affect the progression of other serious illnesses, including AIDS and cancer.

Several factors affect our ability to cope with stress including our feelings of personal control, our explanatory style, and our supportive connections. Stress management programs include training in aerobic exercise, biofeedback, and relaxation. Although biofeedback can sometimes help people control tension headaches and high blood pressure, simple relaxation exercises offer some of the same benefits. Researchers seek to identify “intervening variables” that may link spirituality and health.

In attempting to reduce cigarette smoking, psychologists have studied the social influences that motivate adolescents to start smoking and the reinforcers that maintain the habit. In studying obesity, psychologists have found that a number of physiological factors make it difficult to lose weight permanently. Those who wish to diet should minimize exposure to food cues, boost energy expenditure through exercise, make a lifelong change in eating patterns, and set realistic goals.

CHAPTER GUIDE

➤ Introductory Exercise: Fact or Falsehood?
➤ Project: Constructing a Family Health History
➤ Video: Discovering Psychology, Updated Edition: Health, Mind, and Behavior

1. Identify some behavior-related causes of illness and death, and describe health psychology’s contribution to the field of behavioral medicine.

Prolonged stress and unhealthy behavior contribute to heart disease, cancer, stroke, and chronic lung disease, the four leading causes of death in the United States today. By studying how our emotions and personality influence our risk of disease, the effects of stress, and the promotion of
healthier living, health psychologists contribute to behavioral medicine, the interdisciplinary field that integrates behavioral and medical knowledge.

Stress and Illness

➤ Exercises: Stress Level and Vulnerability to Stress; Stress Symptoms; The Stress Appraisal Measure; Emotion Regulation Scale; College Undergraduate Stress Scale; Hostility and Its Alleviation
➤ Lectures: Tend and Befriend; Hassles and Uplifts; Broken Heart Syndrome; Type A and Type B Personalities
➤ Transparencies: 139 Stress Appraisal; 140 Dual-Response System; 141 Selye’s General Adaptation Syndrome; 142 The Conditioning of Immune Suppression; 143 Stress Can Have a Variety of Health-Related Consequences

2. Discuss the role of appraisal in the way we respond to stressful events.

Stress is not just a stimulus or a response; rather it is the process by which we appraise and cope with environmental events. When perceived as challenges, stressors can arouse and motivate us to conquer problems. When perceived as threats, prolonged stressors can produce overwhelming feelings of anxiety and exhaustion.

3. Describe the dual-track system by which our body responds to stress, and identify the three phases of the general adaptation syndrome.

Walter Cannon observed that, in response to stress, the sympathetic nervous system activates the secretion of stress hormones, triggers increased heart rate and respiration, diverts blood to skeletal muscles, and releases sugar and fat from the body’s stores, all to prepare the body for either “fight or flight.” In addition to this first (and faster) track, the cerebral cortex operates on a slower track by stimulating the hypothalamus and the pituitary gland to trigger the release of glucocorticoid stress hormones, such as cortisol, from the outer part of the adrenals.

In Hans Selye’s general adaptation syndrome (GAS), the body’s adaptive response to stress is composed of three stages. In Phase 1, we experience an alarm reaction due to the sudden activation of our sympathetic nervous system. Heart rate increases and blood is diverted to the skeletal muscles. With our resources mobilized, we then fight the challenge during Phase 2, resistance. Temperature, blood pressure, and respiration remain high, and there is a sudden outpouring of stress hormones. If the stress is persistent, it may eventually deplete our body’s reserves during Phase 3, exhaustion. With exhaustion, we are more vulnerable to illness or even, in extreme cases, collapse and death.

4. Discuss the health consequences of catastrophes, significant life changes, and daily hassles.

Catastrophic floods, hurricanes, and fires are followed by increased rates of psychological disorders such as depression and anxiety. Those who experience significant life changes, such as the death of a spouse, divorce, or loss of a job, are vulnerable to disease. Experiencing a cluster of such crises puts one even more at risk. Daily hassles, such as rush-hour traffic, long lines at the bank or store, and aggravating housemates, may be the most significant source of stress. Over time, these little stressors take a toll on our health and well-being.

5. Discuss the role of stress in causing coronary heart disease, and contrast Type A and Type B personalities.

Stress can increase the risk of coronary heart disease, the leading cause of death in many developed countries. It has been linked with the competitive, hard-driving, and impatient Type A personality. The toxic core of Type A is negative emotions, especially the anger associated with an aggressively reactive temperament. Under stress, the body of the Type A person secretes more of the hormones that accelerate the buildup of plaques on the heart’s artery walls. The noncompetitive, relaxed, easy-going Type B personality is less physiologically reactive when harassed or
given a difficult challenge and less susceptible to coronary heart disease. Pessimism and depression also can have a toxic effect on a person’s health.

6. *Distinguish between a psychophysiological illness and hypochondriasis.*

*Psychophysiological illness* refers to any stress-related physical illnesses such as hypertension and some headaches. These real illnesses differ from *hypochondriasis*, in which people may misinterpret normal physical sensations as symptoms of a disease.

7. *Describe the effect of stress on immune system functioning.*

The secretion of stress hormones suppresses the immune system’s white blood cells, called *lymphocytes*. *B lymphocytes* are important in fighting bacterial infections, and *T lymphocytes* fight cancer cells, viruses, and foreign substances. Another agent of the immune system is the *macrophage*. When animals are physically restrained, given unavoidable electric shocks, or subjected to noise, crowding, cold water, social defeat, or maternal separation, they become more susceptible to disease. Studies suggest that stress similarly depresses the human immune system, making us more vulnerable to illness.

8. *Discuss the findings on the link between stress and AIDS.*

Stress and negative emotions correlate with a progression of HIV infection to AIDS and with the speed of decline in those infected. Efforts to reduce stress also help somewhat to control the disease. Educational initiatives, bereavement support groups, cognitive therapy, and exercise programs that reduce distress have had all had positive consequences for HIV-positive individuals.

9. *Discuss the findings on the link between stress and cancer.*

Although stress does not produce cancer cells, some researchers have reported that people are at risk for cancer a year or so after experiencing depression, helplessness, or bereavement. A large Swedish study found that people with a history of workplace stress had greater risk of colon cancer than those who reported no such problems. Although a relaxed, hopeful attitude may enhance the body’s natural defenses against a few proliferating cancer cells, merely maintaining a determined attitude is not likely to derail the powerful biological forces at work in advanced cancer.

10. *Describe the impact of learning on immune system functioning.*

Experiments show that conditioning can influence the immune system’s responses. For example, after researchers associated sweetened water with a drug that causes immune suppression, the inert substance alone triggered the immune response. Such conditioned immune suppression can triple an animal’s likelihood of growing a tumor when fed a carcinogen. Current research seeks to determine whether it is also possible to condition the immune system’s enhancement.

**Promoting Health**

- Lectures: The Health Belief Model; The Theory of Reasoned Action; Stress, Positive Emotion, and Coping; Social Relationships and Health; Pets; Writing About Life Goals; Biofeedback and the Treatment of Scoliosis; Fringe Medicine; Religion’s Costs and Benefits; Spirituality and Health; Preventing Smoking; College Eating Habits; Paul Rozin’s History of Eating; Environmental Factors in Obesity; Losing Weight; Maintaining Weight Loss; The National Weight Control Registry; A Twinkie Tax—Is Fighting Fat a Social Responsibility?
- Exercises: Unrealistic Optimism about Life Events; Coping with Health Injuries and Problems Scale; Assessing Coping Strategies; Perceived Control; Savoring; The Life Orientation Scale and Optimism; The Hardiness Scale; Social Support Scale; Self-Concealment Scale; The Relaxation Response; Meditation; Why Do You Smoke?; The Dieting Beliefs Scale; Antifat Attitudes Questionnaire
- Project: Biodots and Biofeedback in the Classroom
- Videos: Module 22 of *The Brain* series, 2nd ed.: Coping with Stress: Control and Manageability; Segment 34 of the Scientific American Frontiers Series, 2nd ed.; Sports Imports; Program 1 of Moving Images: Exploring Psychology Through Film: The Scientific Attitude: Testing Therapeutic Touch
- Feature Film: *The Shawshank Redemption* and Perceived Control
11. **Contrast problem-focused coping and emotion-focused coping.**

We cope with stress by finding emotional, cognitive, or behavioral ways to alleviate it. Through **problem-focused coping** we attempt to alleviate stress by changing the stressor or the way we interact with that stressor. We tend to use problem-focused strategies when we think we can change the situation, or at least change ourselves to more capably deal with the situation. Through **emotion-focused coping** we attempt to alleviate stress by avoiding or ignoring a stressor and attending to emotional needs related to our stress reaction. We tend to use emotion-focused strategies when we believe we cannot change a situation.

12. **Describe how a perceived lack of control can affect health.**

Rats that experience uncontrollable shock are more susceptible to ulcers and experience a lowered immunity to disease. Both animal and human studies show that loss of control provokes an outpouring of stress hormones that can contribute to health problems. Control may help explain the well-established link between economic status and longevity.

13. **Discuss the links among explanatory style, stress, and health.**

Optimism and pessimism influence stress vulnerability. Those with an optimistic explanatory style perceive more control, cope better with stressful events, and enjoy better health. In comparison to pessimists, optimists report less fatigue, have fewer aches and pains, and respond to stress with smaller increases in blood pressure. Optimists also tend to outlive pessimists. Laughter (but not hostile sarcasm) may reduce stress and strengthen the immune system.

14. **Describe some of the ways that social support acts as a stress buffer.**

Feeling liked, affirmed, and encouraged by intimate friends and family promotes both happiness and health. People with supportive friends and marriage partners eat better, exercise more, sleep better, and smoke less; thus they cope with stress more effectively. Social support strengthens immune functioning, calms the cardiovascular system, and lowers blood pressure. Even companionable pets help people cope with stressful events.

15. **Discuss the advantages of aerobic exercise as a technique for managing stress and fostering well-being.**

**Aerobic exercise**, sustained exercise that increases heart and lung fitness, can reduce stress, depression, and anxiety. It strengthens the heart, increases blood flow, keeps blood vessels open, and lowers both blood pressure and the blood pressure reaction to stress. Research has linked aerobic exercise to higher levels of neurotransmitters that boost moods, to enhanced cognitive abilities, and to the growth of new brain cells in mice. One estimate suggests that moderate exercise adds two years to one’s expected life.

16. **Compare the benefits of biofeedback and relaxation training as stress-management techniques, and discuss meditation as a relaxation technique.**

**Biofeedback**, a system of recording, amplifying, and feeding back information about subtle physiological responses, enables people to control specific physiological responses. Research suggests that biofeedback works best on tension headaches. Simpler methods of relaxation produce many of the technique’s same benefits. For example, research indicates that relaxation procedures can help alleviate headaches, hypertension, anxiety, and insomnia. In Type A heart-attack survivors, relaxation lowers rates of recurring attacks. Those experienced in meditation assume a comfortable position, breathe deeply, relax their muscles, close their eyes, and focus on a simple repeated phrase. The activity is associated with increased left frontal lobe activity and improved immune functioning.
Complementary and alternative medicine practices, such as homeopathy, acupuncture, and herbal remedies, are bound to seem effective, whether or not they are. People are likely to employ them when they are ill and, although they may seem to produce improvement, the return to health may merely reflect the body’s natural return to normal. Alternative medicine may seem especially effective with cyclical diseases as people seek therapy during the downturn and presume its effectiveness during the ensuing upturn. The placebo effect as well as the spontaneous remission of many diseases may also contribute to a treatment’s perceived effectiveness. The actual effectiveness of alternative medicine needs to be established.

17. Discuss the correlation between religiosity and longevity, and offer some possible explanations for this link.

Research indicates that those who attend religious services regularly live as many as 8 years longer than nonattenders. Investigators who attempt to explain the relationship have isolated three intervening variables. (1) Religiously active people have healthier life-styles, for example, they smoke and drink less. (2) Faith communities provide social support networks and often encourage marriage which, when happy, is linked with better health and a longer life span. (3) Religious attendance is often accompanied by a coherent worldview, sense of hope for the future, feelings of acceptance, and a relaxed meditative state. These may enhance feelings of positive emotions and decrease feelings of stress and anxiety.

18. Explain why people smoke.

Self-conscious adolescents may begin smoking to imitate cool models, to receive the social reward of being accepted by them, and to project a mature image. The smoking habit is hard to break because the craving and irritability that accompany nicotine withdrawal are aversive states that a cigarette relieves. Nicotine also boosts alertness and stimulates the central nervous system to release neurotransmitters that calm anxiety and reduce pain sensitivity. Finally, genes influence one’s propensity to cigarette addiction; twin studies indicate a 60 percent heritability.

19. Discuss ways of helping smokers to quit smoking—or preventing young people from ever starting.

Efforts to help people stop smoking are often effective only in the short run. Smoking cessation guidelines include setting a quit date, informing family and friends, removing all cigarettes, using a nicotine patch or gum, being totally abstinent, and avoiding places where others are likely to smoke. Strategies designed to prevent smoking have been more effective. Key ingredients in these programs are information about the effects of smoking; information about peer, parent, and media influences; and training in refusal skills through modeling and role playing. Another way to discourage smoking is to make it more immediately costly. Raising taxes cuts consumption, especially among teenagers.

20. Discuss the adaptive advantages and modern-day disadvantages of a body that stores fat.

Fat is an ideal form of stored energy. It is a high-calorie fuel reserve that can carry the body through periods of famine. In fact, where people face famine, obesity signals affluence and social status. However, the tendency to eat energy-rich fat or sugar becomes dysfunctional in a world of easily accessible food. Combined with a lack of exercise, the abundance of high-calorie food has led to higher rates of obesity, which raises the risk of illness and shortens life expectancy.

21. Describe some of the social effects of obesity.

Obesity affects both how you are treated and how you feel about yourself. Obese people, especially obese women, experience weight discrimination in job hiring, placement, promotion, compensation, discipline, and discharge. Similarly, they experience bias in searching for a romantic relationship and in interacting with family members. In studies of patients who were especially unhappy with their weight and who had undergone intestinal bypass surgery, 4 in 5 said their children had asked them not to attend school functions.
22. Discuss research findings on the role of heredity and environment in determining body weight.

Studies of twins and adopted children reveal a genetic influence on weight. For example, people’s weights resemble those of their biological parents and identical twins have similar weights, even when reared apart. Although genes influence body weight, they do not determine it. Some people are genetically predisposed to have more and larger fat cells than others, but in an obese person, the original fat cells double or triple in size and then divide, which is an irreversible environmental effect. People also differ in their resting metabolic rates, but once someone gains fat tissue, less energy is needed to maintain that tissue than is need to maintain muscle tissue. Finally, the genetic influence on weight is complex because it is governed by many different genes. Unquestionably, environmental factors such as often eating high-calorie foods and living a sedentary life-style also matter, as comparisons of similar people from different generations or different locations indicate.

23. Discuss the chances of success for an overweight person who wants to lose weight.

Research indicates that most people who succeed on a weight-loss program eventually regain most of the weight. Obesity is difficult to overcome because the number of fat cells is not reduced by diet, because the energy expenditure necessary for tissue maintenance is lower in fat than in other tissues, and because the overall metabolic rate decreases when body weight drops below its set point. Altering the environment (for example, by taxing junk food and using revenues to finance health-supportive nutritional advertising, as well as designing communities with walks and bike paths) may be one strategy for reducing obesity. Those who wish to diet should minimize exposure to food cues, boost energy expenditure through exercise, set realistic goals, eat healthy foods spaced throughout the day, make a lifelong change in eating patterns, and set realistic goals.