CHAPTER OVERVIEW

Behavioral factors play a major role in maintaining health and causing illness. The effort to understand this role more fully has led to the emergence of the interdisciplinary field of behavioral medicine. The subfield of health psychology focuses on questions such as: How do our perceptions of a situation determine the stress we feel? How do our emotions and personality influence our risk of disease? How can psychology contribute to the prevention of illness?

Chapter 14 addresses key topics in health psychology. First and foremost is stress—its nature, its effects on the body, psychological factors that determine how it affects us, and how stress contributes to heart disease, infectious diseases, and cancer. The chapter concludes by looking at physical and psychological factors that promote good health, including exercise and social support, and examining two illness-related behaviors: smoking and obesity.

NOTE: Answer guidelines for all Chapter 14 questions begin on page 372.

CHAPTER REVIEW

First, skim each section, noting headings and boldface items. After you have read the section, review each objective by answering the fill-in and essay-type questions that follow it. As you proceed, evaluate your performance by consulting the answers beginning on page 372. Do not continue with the next section until you understand each answer. If you need to, review or reread the section in the textbook before continuing.

Introducing Stress and Health (p. 549)

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

1. The four leading causes of serious illness and death in the United States are ______________________
   ______________________, ______________________, ______________________, and ______________________.

2. Today, half the mortality from the 10 leading causes of death can be traced to people’s ____________________.

3. List several of the behaviors that have been linked to the leading causes of death: ______________________

4. The field that integrates behavioral and medical knowledge relevant to health and disease is ______________________.

5. The subfield of psychology that contributes to behavioral medicine is called ______________________ psychology.
Stress and Illness (pp. 549–561)

David Myers at times uses idioms that are unfamiliar to some readers. If you do not know the meaning of any of the following words, phrases, or expressions in the context in which they appear in the text, refer to pages 378–379 for an explanation: tense . . . clenching teeth . . . churning stomach; slippery concept; heart rate zooms; uprooting; a cluster of crises; Daily Hassles; mellow and laid-back; after the honeymoon period; “combat ready”; headless horseman; hyping.

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

1. Out of every ten people, ______________ (how many?) report experiencing frequent stress.

2. Stress is not merely a ______________ or a ______________. Rather, it is the ______________ by which we perceive and respond to environmental threats and challenges.

3. This definition highlights the fact that stressors can have ______________ (only negative/both positive and negative) effects, depending on how they are perceived.

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

4. In the 1920s, physiologist Walter ______________ began studying the effect of stress on the body. He discovered that the hormones ______________ and ______________ are released into the bloodstream in response to stress. This and other bodily changes due to stress are mediated by the ______________ nervous system, thus preparing the body for ______________.

5. Physiologists have discovered that in response to stress the cerebral cortex, via the ______________ and the ______________ gland, triggers the outer part of the ______________ to release ______________ stress hormones such as ______________.

6. Another common response to stress among women has been called “______________,” which refers to the increased tendency to ______________.

7. In studying animals' reactions to stressors, Selye repeatedly found three physiological effects: enlargement of the ______________ cortex, shrinkage of the ______________ gland, and bleeding ______________. He referred to this bodily response to stress as the ______________. ______________.

8. During the first phase of the GAS—the ______________ reaction—the person is in a state of shock due to the sudden arousal of the ______________ nervous system.

9. This is followed by the stage of ______________, in which the body's resources are mobilized to cope with the stressor.

10. If stress continues, the person enters the stage of ______________. During this stage, a person is ______________ (more/less) vulnerable to disease.

11. One recent study found that women who suffered enduring caregiver stress had especially short ______________, which are pieces of ______________ at the end of ______________ that are important in allowing cells to ______________. In another study, people who suffered a prolonged flood of stress had a shrunken ______________, the brain structure responsible for explicit memories.

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

12. In the wake of catastrophic events, such as floods, hurricanes, and fires, there often is an increase in the number of ______________.
13. Research studies have found that people who have recently been widowed, fired, or divorced are (more/no more) vulnerable to illness than other people.

14. For most people, the most significant sources of stress are _____________________________. The stresses that accompany poverty and unemployment, for example, often compounded by ____________________________, may account for the higher rates of ____________________________ among residents of urban ghettos.

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

15. The leading cause of death in North America is _____________________________. List several risk factors for developing this condition: _____________________________.

16. Friedman and Rosenman discovered that tax accountants experience an increase in blood ____________________________ level and blood- ____________________________ speed during tax season. This showed there was a link between coronary warning indicators and _____________________________.

18. An experiment by Williams showed that when Type A students were challenged, their output of stress hormones was (greater than/the same as) that of their Type B classmates. These hormones may increase the buildup of ____________________________ in the artery walls. The hardening of the arteries that may result is called ____________________________.

19. When a ____________________________ (Type A/Type B) person is angered, blood flow is diverted away from the internal organs, including the liver, which is responsible for removing ____________________________ and fat from the blood. Thus, such people have elevated levels of these substances in the blood.

20. The Type A characteristic that is most strongly linked with coronary heart disease is ____________________________, especially ____________________________.

21. Another toxic emotion is ____________________________; researchers have found that ____________________________ are more than twice as likely to develop heart disease as ____________________________.

22. Depression ____________________________ (increases/has no effect on) one's risk of having a heart attack or developing other heart problems.

Objective 6: Distinguish between a psychophysiological illness and hypochondriasis.

23. In ____________________________ illnesses, physical symptoms are produced by psychological causes. This is distinct from the misinterpretation of normal physical sensations as symptoms of a disease, called ____________________________.

24. Examples of such illnesses are certain types of ____________________________ and ____________________________.

25. The term ____________________________ was once used to describe such illness. However, this term implied that symptoms were ____________________________.
Objective 7: Describe the effect of stress on immune system functioning.

26. The body’s system of fighting disease is the __________________ system. This system includes two types of white blood cells, called __________________________, which fight bacterial infections, and the __________________________, which form in the __________________________ and attack viruses, cancer cells, and foreign substances. Another immune agent, called the ______________________, pursues and ingests foreign substances.

27. Responding too strongly, the immune system may attack the body’s tissues and cause __________________________ or an __________________________ reaction. Or it may __________________________, allowing a dormant herpes virus to erupt or __________________________ cells to multiply.

28. __________________________ (Women/Men) are the immunologically stronger gender. This makes them less susceptible to __________________________, but more susceptible to __________________________ diseases such as __________________________ and __________________________.

29. Stress can suppress the lymphocyte cells, resulting in a(n) __________________________ (increase/decrease) in disease resistance. Stress diverts energy from the __________________________ to the __________________________ and __________________________, mobilizing the body for action.

Objective 8: Discuss the findings on the link between stress and AIDS.

30. Worldwide, the fourth leading cause of death is __________________________, caused by the __________________________, which is spread primarily through the exchange of __________________________ and __________________________.

31. Stressful life circumstances __________________________ (have/have not) been shown to accelerate the progression of this chronic disease.

32. Educational initiatives, support groups, and other efforts to control stress __________________________

Objective 9: Discuss the findings on the link between stress and cancer.

33. Stress __________________________ emotions __________________________ (have/have not) been shown to have positive consequences on HIV-positive individuals.

34. When rodents were inoculated with __________________________ cells or given __________________________, tumors developed sooner in those that were also exposed to __________________________ stress.

35. Stress __________________________ (does/does not) create cancer cells.

Objective 10: Describe the impact of learning on immune system functioning.

36. Experiments by Ader and Cohen demonstrate that the functioning of the body’s immune system __________________________ (can/cannot) be affected by conditioning.

37. In Ader and Cohen’s classic experiment, the unconditioned stimulus was the __________________________, and the unconditioned response was __________________________.

38. When stress is momentary, the health costs are __________________________ (still heavy/negligible).

39. It is important to remember that psychological states are __________________________ events that influence other parts of our __________________________ system.

Promoting Health (pp. 562–592)
Objective 11: Contrast problem-focused coping and emotion-focused coping.

1. People learn to _____________ with stress by finding _____________, _____________, or _____________ ways to alleviate it.

2. When we cope directly with a stressor, we are using _____________ coping.

3. When we attempt to alleviate stress by avoiding it and attending to emotional needs, we are using _____________ coping.

4. People tend to use _____________ coping when they feel a sense of _____________ over a situation. They turn to _____________ coping when they cannot or believe they cannot _____________ a situation.

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

5. Negative situations are especially stressful when they are appraised as _____________. Control may explain why poorer people are more at risk for premature _____________ than those who are more affluent.

6. With higher economic status comes lower risks of infant _____________, a low _____________, _____________, smoking, and _____________.

7. In animals and humans, sudden lack of control is followed by a drop in immune responses, a(n) _____________ (increase/decrease) in blood pressure, and a rise in the levels of _____________.

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

8. People who have an _____________ explanatory style are less likely than others to suffer ill health.

9. Researchers have found that life events may be less stressful for people who have a good sense of _____________.

10. One study found that laughter caused improved _____________ and increased _____________.

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

11. Another buffer against the effects of stress is _____________ support.

12. Longitudinal research reveals that a _____________ at age 50 predicts healthy aging better than _____________ at the same age.

State several possible reasons for the link between health and social support.

13. James Pennebaker has found that emotional _____________ can adversely affect our physical health, while _____________ suppressed thoughts may promote well-being.

14. Health can also be improved by _____________ about personal traumas in a diary.

15. Another way to reduce stress is to talk about it. In another study by Pennebaker, Holocaust survivors who were the most _____________ had the most improved health.

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

16. Sustained exercise that increases heart and lung fitness is known as _____________ exercise.
17. Experiments ______________________
(have/have not) been able to demonstrate conclusively that such exercise reduces anxiety, depression, and stress.

18. Exercise increases the body’s production of mood-boosting neurotransmitters such as ______________________, ______________________, and the ______________________. It also modestly enhances cognitive abilities, such as ______________________.

19. By one estimate, moderate exercise adds ______________________ (how many?) years to one’s life expectancy.

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

20. A system for recording a physiological response and providing information concerning it is called ______________________. The instruments used in this system ______________________ (provide/do not provide) the individual with a means of controlling physiological responses.

21. Lowered blood pressure, heart rate, and oxygen consumption have been found to be characteristic of people who regularly practice ______________________. The ______________________ response accompanies sitting quietly, with closed eyes, while breathing deeply.

22. Brain scans of experienced meditators reveal decreased activity in the ______________________ lobe and increased activity in the ______________________ lobe.

23. (Thinking Critically) Acupuncture, massage therapy, homeopathy, and similar treatments comprise the growing health care market called ______________________ ______________________. In China, ______________________ therapies have flourished for centuries, as have acupuncture and acupressure therapies that claim to correct imbalances in the flow of the energy called ______________________.

24. (Thinking Critically) Critics of alternative medicine point out that such treatments seem especially effective with ______________________ diseases such as arthritis and ______________________, as well as with diseases that disappear naturally—a phenomenon called ______________________ ______________________. Critics also argue that the seeming effectiveness of alternative medicine is due to a ______________________ effect.

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

25. Until fairly recently in history, the healing traditions of ______________________ and ______________________ have worked ______________________ (together/separately).

26. Surveys reveal that most family physicians ______________________ (believe/do not believe) that religion and spirituality are related to health and healing.

27. Several recent studies demonstrate that religious involvement ______________________ (predicts/ does not predict) health and longevity.

State two possible intervening variables that might account for the “faith factor” in health.

Objective 18: Explain why people smoke.

28. Fewer than ______________________ percent of visits to primary care physicians are for problems that are clearly ______________________. Most visits are presumed to be for problems that involve ______________________ factors.
State several of the physical and psychological problems that are correlated with smoking.

29. Smoking usually begins during ________________ and is especially common among those who _________________. Those who start smoking have friends who serve as ________________ and whose behavior they _________________.

30. As with other addictions, smokers become ________________ on nicotine, develop ________________ to its effects, and experience ________________ symptoms when attempting to quit.

31. By terminating an aversive state, smoking provides a person with a powerful ________________. In addition, nicotine triggers the release of epinephrine and norepinephrine, which increase ________________ and mental ________________, and of neurotransmitters that calm ________________ and reduce ________________.

32. Consistent with the ________________ approach, twin studies indicate a ________________ percent heritability of smoking addiction. Smokers and nonsmokers also may differ in a ________________ that influences responses to the neurotransmitter ________________.

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

33. Most programs to help people quit smoking ________________ (are not) very effective in the long run. The decline in the smoking rate among Americans is most pronounced among ________________ (males/females) and those at ________________ (higher/lower) socioeconomic levels.

34. Worldwide, per-person cigarette consumption is near an all-time ________________ (low/high). Rates of smoking are increasing most dramatically in ________________ countries where many people are unaware of the dangers of smoking.

35. Successful educational programs to prevent adolescents from ever starting smoking include three key ingredients:
   a. ________________
   b. ________________
   c. ________________

36. Another effective technique for discouraging smoking is to make it more immediately ________________.

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

37. In developing societies where people face ________________, obesity is considered a sign of ________________ and ________________.

Cite some of the ways in which obesity is a threat to health.

38. The risks of obesity are greater for people who carry their weight at their ________________. It also has been linked in women to their risk of late-life ________________ disease and brain tissue loss.

39. People who are overweight at age 40 die ________________ years (how many?) earlier than those who are not.
Objective 21: Describe some of the social effects of obesity.

40. Obese people are often stereotyped as _________________, _________________, and _________________.

41. One study found that obese women earned _________________ than a control group of nonobese women and were less likely to be _________________.

42. In one experiment, job applicants were rated as less worthy of hiring when they were made to appear _________________.

Objective 22: Discuss some research findings on the role of heredity and environment in determining body weight.

43. The energy equivalent of a pound of fat is approximately ________________ calories. The immediate determinant of body fat is the size and number of ________________ one has. This number is, in turn, determined by several factors, including ________________.

44. The size of fat cells ________________ (can/cannot) be decreased by dieting; the number of fat cells ________________ (can/cannot) be decreased by dieting.

45. Fat tissue has a ________________ (higher/lower) metabolic rate than lean tissue. The result is that fat tissue requires ________________ (more/less) food energy to be maintained.

46. The body weight “thermostat” of obese people ________________ (is/is not) set to maintain a higher-than-average weight. When weight drops below this setting, ________________ increases and ________________ decreases. Explain why, metabolically, many obese people find it so difficult to become and stay thin.

47. Studies of adoptees and twins ________________ (do/do not) provide evidence of a genetic influence on obesity.

48. Recent experiments reveal that obese mice have a defective ________________ for producing the protein ________________. Increased levels of this protein signal the ________________ to curbing ________________ and increase ________________. When obese mice are given injections of this protein, they become ________________ (more/less) active and ________________ (gain/lose) weight.

49. Obesity is ________________ (more/less) common among lower-class than upper-class women and ________________ (does/does not) vary from culture to culture.

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

50. Most obese persons who lose weight ________________ (gain/do not gain) it back.

51. People who try repeatedly to lose weight are ________________ (more/no more) likely to succeed.

52. (Close-Up) State several pieces of advice for those who want to lose weight.

PROGRESS TEST 1

Circle your answers to the following questions and check them with the answers beginning on page 373. If your answer is incorrect, read the explanation for why it is incorrect and then consult the appropriate pages of the text (in parentheses following the correct answer).

1. Behavioral and medical knowledge about factors influencing health form the basis of the field of:
   a. health psychology.
   b. holistic medicine.
   c. behavioral medicine.
   d. osteopathic medicine.
2. The stress hormones epinephrine and norepinephrine are released by the _______ gland in response to stimulation by the _______ branch of the nervous system.
   a. pituitary; sympathetic
   b. pituitary; parasympathetic
   c. adrenal; sympathetic
   d. adrenal; parasympathetic

3. During which stage of the general adaptation syndrome is a person especially vulnerable to disease?
   a. alarm reaction
   b. stage of resistance
   c. stage of exhaustion
   d. stage of adaptation

4. The leading cause of death in North America is:
   a. lung cancer.
   b. AIDS.
   c. coronary heart disease.
   d. alcohol-related accidents.

5. Researchers Friedman and Rosenman refer to individuals who are very time-conscious, supermotivated, verbally aggressive, and easily angered as:
   a. ulcer-prone personalities.
   b. cancer-prone personalities.
   c. Type A.
   d. Type B.

6. One effect of stress hormones is to:
   a. lower the level of cholesterol in the blood.
   b. promote the buildup of plaques on the artery walls.
   c. divert blood away from the muscles of the body.
   d. reduce stress.

7. Genuine illnesses that are caused by stress are called _______ illnesses.
   a. psychophysiological
   b. hypochondriacal
   c. psychogenic
   d. psychotropic

8. Stress has been demonstrated to place a person at increased risk of:
   a. cancer.
   b. progressing from HIV infection to AIDS.
   c. bacterial infections.
   d. all of the above.

9. Stress is defined as:
   a. unpleasant or aversive events that cannot be controlled.
   b. situations that threaten health.
   c. the process by which we perceive and respond to challenging or threatening events.
   d. anything that decreases immune responses.

10. In one experiment, both "executive" rats and "subordinate" rats received identical electric shocks, the only difference being whether the shocks could be:
    a. predicted.
    b. weakened.
    c. shortened.
    d. controlled.

11. In studies of obese mice, researchers have found that some mice:
    a. had a defective gene for producing leptin, a fat-detecting hormone.
    b. had abnormally high levels of insulin, a hunger-triggering hormone.
    c. could be conditioned to avoid fatty foods.
    d. had fewer-than-normal receptor sites for a fat-detecting hormone.

12. Attempting to alleviate stress directly by changing a stressor or how we interact with it is an example of:
    a. problem-focused coping.
    b. emotion-focused coping.
    c. managing rather than coping with stress.
    d. hypochondriasis.

13. A study in which people were asked to confide troubling feelings to an experimenter found that participants typically:
    a. did not truthfully report feelings and events.
    b. experienced a sustained increase in blood pressure until the experiment was finished.
    c. became physiologically more relaxed after confiding their problem.
    d. denied having any problems.

14. Research suggests that _______ influences often lead a person to start smoking, whereas _______ influences become important in explaining why people continue to smoke.
    a. biological; social
    b. social; biological
    c. biological; cognitive
    d. cognitive; biological

15. Research on genetic influences on obesity reveals that:
    a. the body weight of adoptees correlates with that of their biological parents.
    b. the body weight of adoptees correlates with that of their adoptive parents.
    c. identical twins usually have very different body weights.
    d. the body weights of identical twin women are more similar than those of identical twin men.
16. Which of the following was not mentioned in the text as a potential health benefit of exercise?
   a. Exercise can increase ability to cope with stress.
   b. Exercise can lower blood pressure.
   c. Exercise can reduce stress, depression, and anxiety.
   d. Exercise improves functioning of the immune system.

17. Research studies demonstrate that after a catastrophe rates of ______ often increase.
   a. depression
   b. anxiety
   c. sleeplessness
   d. all of the above

18. In one study, laboratory rats drank sweetened water with a drug that causes immune suppression. After repeated pairings of the taste with the drug:
   a. the animals developed tolerance for the drug and immune responses returned to normal.
   b. sweet water alone triggered immune suppression.
   c. dependency on the drug developed and withdrawal symptoms appeared when the drug was withheld.
   d. many of the animals died.

19. Social support ______ our ability to cope with stressful events.
   a. has no effect on
   b. usually increases
   c. usually decreases
   d. has an unpredictable effect on

20. The AIDS virus is transmitted primarily by:
   a. airborne transmission of HIV.
   b. physical touching.
   c. an exchange of blood or semen.
   d. insect bites.

21. Research has demonstrated that as a predictor of health and longevity, religious involvement:
   a. has a small, insignificant effect.
   b. is more accurate for women than men.
   c. is more accurate for men than women.
   d. rivals nonsmoking and exercise.

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**PROGRESS TEST 2**

Progress Test 2 should be completed during a final chapter review. Answer the following questions after you thoroughly understand the correct answers for the section reviews and Progress Test 1.

**Multiple-Choice Questions**

1. The field of health psychology is concerned with:
   a. the prevention of illness.
   b. the promotion of health.
   c. the treatment of illness.
   d. all of the above.

2. In order, the sequence of stages in the general adaptation syndrome is:
   a. alarm reaction, stage of resistance, stage of exhaustion.
   b. stage of resistance, alarm reaction, stage of exhaustion.
   c. stage of exhaustion, stage of resistance, alarm reaction.
   d. alarm reaction, stage of exhaustion, stage of resistance.

3. AIDS is a disorder that causes a breakdown in the body's:
   a. endocrine system.
   b. circulatory system.
   c. immune system.
   d. respiratory system.

4. "Tend and befriend" refers to:
   a. the final stage of the general adaptation syndrome.
   b. the health-promoting impact of having a strong system of social support.
   c. an alternative to the "fight-or-flight" response that may be more common in women.
   d. the fact that spiritual people typically are not socially isolated.

5. Which of the following statements concerning Type A and B persons is true?
   a. Even when relaxed, Type A persons have higher blood pressure than Type B persons.
   b. When stressed, Type A persons show greater output of stress hormones than Type B persons.
   c. Type B persons tend to suppress anger more than Type A persons.
   d. Type A persons tend to be more outgoing than Type B persons.
6. According to the text, one-half of all deaths from the 10 leading causes of death in the United States can be attributed to:
   a. stress.       c. nutrition.
   b. obesity.      d. behavior.

7. The disease- and infection-fighting cells of the immune system are:
   a. B lymphocytes.  c. both a. and b.
   b. T lymphocytes.  d. antigens.

8. One effect of stress on the body is to:
   a. suppress the immune system.
   b. facilitate the immune system response.
   c. increase disease resistance.
   d. increase the growth of B and T lymphocytes.

9. Compared to men, women:
   a. have stronger immune systems.
   b. are less susceptible to infections.
   c. are more susceptible to self-attacking diseases such as multiple sclerosis.
   d. have all the above characteristics.

10. In response to uncontrollable shock, levels of stress hormones ______ and immune responses are ______.
    a. decrease; suppressed  c. decrease; increased
    b. increase; suppressed  d. increase; increased

11. Allergic reactions and arthritis are caused by:
    a. an overreactive immune system.
    b. an underreactive immune system.
    c. the presence of B lymphocytes.
    d. the presence of T lymphocytes.

12. Research on cancer patients reveals that:
    a. stress affects the growth of cancer cells by weakening the body’s natural resources.
    b. patients’ attitudes can influence their rate of recovery.
    c. cancer occurs slightly more often than usual among those widowed, divorced, or separated.
    d. all of the above are true.

13. The component of Type A behavior that is the most predictive of coronary disease is:
    a. time urgency.       c. high motivation.
    b. competitiveness.   d. anger.

14. Which of the following is true concerning smoking treatment programs?
    a. Most are effective in the long run.
    b. Hypnosis is more effective than behavior modification.
    c. Treatment programs are more effective with women than with men.
    d. Most participants eventually resume smoking.

15. During biofeedback training:
    a. a person is given sensory feedback for a subtle body response.
    b. biological functions controlled by the autonomic nervous system may come under conscious control.
    c. the accompanying relaxation is much the same as that produced by other, simpler methods of relaxation.
    d. all of the above occur.

16. Research on obesity indicates that:
    a. pound for pound, fat tissue requires more calories to maintain than lean tissue.
    b. once fat cells are acquired they are never lost, no matter how rigorously one diets.
    c. one pound of weight is lost for every 3500-calorie reduction in diet.
    d. when weight drops below the set point, hunger and metabolism also decrease.

17. The number of fat cells a person has is influenced by:
    a. genetic predisposition.
    b. childhood eating patterns.
    c. adulthood eating patterns.
    d. all of the above.

18. Which of the following was offered in the text as a reason people continue to smoke?
    a. Social pressure from peers is strong.
    b. Cigarettes serve as powerful reinforcers.
    c. Regular use of nicotine impairs the brain’s ability to produce neurotransmitters such as serotonin.
    d. Most adults who smoke don’t really want to quit.
19. The tendency to overeat when food is plentiful:
   a. is a recent phenomenon that is associated with the luxury of having ample food.
   b. emerged in our prehistoric ancestors as an adaptive response to alternating periods of feast and famine.
   c. is greater in developed, than in developing, societies.
   d. is stronger in women than in men.

20. Which of the following was not suggested as a possible explanation of the “faith factor” in health?
   a. Having a coherent worldview is a buffer against stress.
   b. Religious people tend to have healthier lifestyles.
   c. Those who are religious have stronger networks of social support.
   d. Because they are more affluent, religiously active people receive better health care.

21. (Thinking Critically) Acupuncture, aromatherapy, and homeopathy are forms of:
   a. psychophysiological medicine.
   b. complementary and alternative medicine.
   c. therapy.
   d. psychosomatic medicine.

True-False Items

Indicate whether each statement is true or false by placing T or F in the blank next to the item.

1. Most obese people who lose weight eventually gain it back.  
2. Stressors tend to increase activity in the immune system and in this way make people more vulnerable to illness.
3. Events are most stressful when perceived as both negative and controllable.
4. Worldwide, per-person cigarette consumption is at an all-time low.
5. The single most important factor in causing obesity is heredity.
6. Obesity is often a sign of social status and affluence in developing countries.
7. Optimists cope more successfully with stressful events than do pessimists.
8. Type A persons are more physiologically reactive to stress than are Type B persons.
9. Chronic stress can lead to headaches and hypertension.
10. People with few social and community ties are more likely to die prematurely than are those who have many social ties.
11. The immune system can be classically conditioned.

PSYCHOLOGY APPLIED

Answer these questions the day before an exam as a final check on your understanding of the chapter’s terms and concepts.

Multiple-Choice Questions

1. Which of the following is not necessarily a reason that obese people have trouble losing weight?
   a. Fat tissue has a lower metabolic rate than lean tissue.
   b. Once a person has lost weight, it takes fewer calories to maintain his or her current weight.
   c. The tendency toward obesity may be genetically based.
   d. Obese people tend to lack willpower.

2. After an initial rapid weight loss, a person on a diet loses weight much more slowly. This slowdown occurs because:
   a. most of the initial weight loss is simply water.
   b. when a person diets, metabolism decreases.
   c. people begin to “cheat” on their diets.
   d. insulin levels tend to increase with reduced food intake.

3. Concluding her presentation on spirituality and health, Maja notes that:
   a. historically, religion and medicine joined hands in caring for the sick.
   b. most Americans believe that spirituality and religion are related to health.
   c. people who attend religious services weekly have healthier lifestyles.
   d. all of the above are true.
4. Malcolm’s report on the effects of nicotine mentions each of the following except:
   a. increased heart rate.
   b. appetite suppression.
   c. increased circulation to extremities.
   d. release of endorphins triggered by nicotine.

5. Ricardo has been unable to resolve a stressful relationship with a family member. To cope, he turns to a close friend for social support. Ricardo’s coping strategy is an example of:
   a. problem-focused coping.
   b. emotion-focused coping.
   c. managing rather than coping.
   d. hypochondriasis.

6. (Close-Up) Which of the following would be the worst piece of advice to offer to someone trying to lose weight?
   a. “In order to treat yourself to one ‘normal’ meal each day, eat very little until the evening meal.”
   b. “Reduce your consumption of saturated fats.”
   c. “Boost your metabolism by exercising regularly.”
   d. “Without increasing total caloric intake, increase the relative proportion of carbohydrates in your diet.”

7. Each semester, Bob does not start studying until just before midterms. Then he is forced to work around the clock until after final exams, which makes him sick, probably because he is in the ______ phase of the _______.
   a. alarm; post-traumatic stress syndrome
   b. resistance; general adaptation syndrome
   c. exhaustion; general adaptation syndrome
   d. depletion; post-traumatic stress syndrome

8. Connie complains to the campus psychologist that she has too much stress in her life. The psychologist tells her that the level of stress people experience depends primarily on:
   a. how many activities they are trying to do at the same time.
   b. how they appraise the events of life.
   c. their physical hardiness.
   d. how predictable stressful events are.

9. To help him deal with a stressful schedule of classes, work, and studying Randy turns to a regular program of exercise and relaxation training. Randy’s strategy is an example of:
   a. problem-focused coping.
   b. emotion-focused coping.
   c. managing rather than coping.
   d. hypochondriasis.

10. Karen and Kyumi are taking the same course with different instructors. Karen’s instructor schedules quizzes every Friday, while Kyumi’s instructor gives the same number of quizzes on an unpredictable schedule. Assuming that their instructors are equally difficult, and that the two students tend to perceive exam stress in the same way, which student is probably under more stress?
    a. Karen
    b. Kyumi
    c. There should be no difference in their levels of stress.
    d. It is impossible to predict stress levels in this situation.

11. Jill is an easygoing, noncompetitive person who is happy in her job and enjoys her leisure time. She would probably be classified as:
    a. Type A.
    b. Type B.
    c. Type C.
    d. There is too little information to tell.

12. A white blood cell that is formed in the thymus and that attacks cancer cells is:
    a. a macrophage.
    b. a T lymphocyte.
    c. a B lymphocyte.
    d. any of the above.

13. When would you expect that your immune responses would be weakest?
    a. during summer vacation
    b. during exam weeks
    c. just after receiving good news
    d. Immune activity would probably remain constant during these times.
14. Which of the following would be the best piece of advice to offer a person who is trying to minimize the adverse effects of stress on his or her health?
   a. “Avoid challenging situations that may prove stressful.”
   b. “Learn to play as hard as you work.”
   c. “Maintain a sense of control and a positive approach to life.”
   d. “Keep your emotional responses in check by keeping your feelings to yourself.”

15. I am a widely abused drug that has a calming effect by stimulating the release of dopamine in the central nervous system. What am I?
   a. caffeine
   b. alcohol
   c. nicotine
   d. cocaine

16. Kenny and his brother have nearly identical eating and exercise habits, yet Kenny is obese and his brother is very thin. The most likely explanation for the difference in their body weights is that they differ in:
   a. their set points.
   b. their metabolic rates.
   c. both a. and b.
   d. none of the above.

17. Dr. Williams, who conducts smoking cessation clinics, explains to his clients that smoking is best understood as an interaction of psychological, biological, and social influences. Dr. Williams is working within the _______ perspective.
   a. behavioral medicine
   b. behavioral
   c. general adaptation syndrome
   d. psychophysiological

18. Philip’s physician prescribes a stress management program to help Philip control his headaches. The physician has apparently diagnosed Philip’s condition as a _______ illness.
   a. psychogenic
   b. hypochondriac
   c. psychophysiological
   d. biofeedback

19. Camelia is worried that her 12-year-old son might begin smoking because many of his classmates do. According to the text, Camelia can most effectively help her son not begin smoking by:
   a. telling him about the dangers of smoking.
   b. telling him that if he begins smoking she will withhold his allowance.
   c. using role-playing to teach him refusal techniques to counteract peer pressure to smoke.
   d. insisting that he not associate with anyone who smokes.

20. You have just transferred to a new campus and find yourself in a potentially stressful environment. According to the text, which of the following would help you cope with the stress?
   a. believing that you have some control over your environment
   b. being able to predict when stressful events will occur
   c. feeling optimistic that you will eventually adjust to your new surroundings
   d. All of the above would help.

21. (Thinking Critically) Andrew, who is convinced that an expensive herbal remedy “cured” his arthritis, has decided to turn to homeopathy and herbal medicine for all of his health care. You caution him by pointing out that:
   a. arthritis is a cyclical disease that often improves on its own.
   b. botanical herbs have never been proven effective in controlled experiments.
   c. alternative medicine is a recent fad in this country that has few proponents in other parts of the world.
   d. all of the above are true.

Essay Question
Discuss several factors that enhance a person’s ability to cope with stress. (Use the space below to list the points you want to make, and organize them. Then write the essay on a separate sheet of paper.)
**KEY TERMS**

**Writing Definitions**

Using your own words, on a separate piece of paper write a brief definition or explanation of each of the following terms.

1. behavioral medicine
2. health psychology
3. stress
4. general adaptation syndrome (GAS)
5. coronary heart disease

**Cross-Check**

As you learned in the Prologue, reviewing and overlearning of material are important to the learning process. After you have written the definitions of the key terms in this chapter, you should complete the crossword puzzle to ensure that you can reverse the process—recognize the term, given the definition.

**ACROSS**

2. “Hardening” of the arteries that leads to heart disease.
7. Fat-detecting hormone.
13. The three-stage bodily reaction to stress.
15. Type of exercise that may help alleviate anxiety.
17. During the ______ stage of the stress reaction, the body’s sympathetic nervous system is suddenly activated.
18. Psychologist who first described the general adaptation syndrome.
19. During the ______ stage of the stress reaction, the body’s reserves are depleted.
20. The “big eater” of the immune system.

**DOWN**

1. Friedman and Rosenman’s term for easygoing, relaxed people.
3. Subfield of psychology that contributes to behavioral medicine.
4. The body’s weight thermostat.
6. Type A
7. Type B
8. psychophysiological illness
9. lymphocytes
10. coping
11. problem-focused coping
12. emotion-focused coping
13. aerobic exercise
14. biofeedback
15. complementary and alternative medicine
8. Our reaction to a potential stressor is determined in part by whether we feel we have _______ _______ over an event.
9. Interdisciplinary health field that treats disease and promotes health.
10. Another name for the stress hormone adrenaline.
11. When our body weight drops below its set point, _______ decreases.
14. White blood cells that form in the bone marrow and release antibodies that fight bacterial infections.

ANSWERS

Chapter Review

Introducing Stress and Health

1. heart disease; cancer; stroke; chronic lung disease
2. behavior
3. cigarette smoking, alcohol abuse, unprotected sex, ignoring doctors' orders, insufficient exercise, use of illicit drugs, poor nutrition
4. behavioral medicine
5. health

Stress and Illness

1. 4
2. stimulus; response; process
3. both positive and negative
4. Cannon; epinephrine (adrenaline); norepinephrine (noradrenaline); sympathetic; fight or flight
5. hypothalamus; pituitary; adrenal glands; glucocorticoid; cortisol
6. tend and befriend; seek and give support
7. adrenal; thymus; ulcers; general adaptation syndrome
8. alarm; sympathetic
9. resistance
10. exhaustion; more
11. telomeres; DNA; chromosomes; divide; hippocampus
12. depression and other psychological disorders
13. more
14. daily hassles; racism; hypertension
15. coronary heart disease; smoking, obesity, high-fat diet, physical inactivity, elevated cholesterol level
16. cholesterol; clotting; stress
Type A people were competitive, hard-driving, supermotivated, impatient, time-conscious, verbally aggressive, and easily angered. Type B people were more relaxed and easygoing. Heart attack victims over the course of the study came overwhelmingly from the Type A group.
17. do not differ
18. greater than; plaque; atherosclerosis
19. Type A; cholesterol
20. negative emotions; the anger associated with an aggressively reactive temperament
21. pessimism; pessimists; optimists
22. increases
23. psychophysiological; hypochondriasis
24. hypertension; headaches; stress
25. psychosomatic; unreal
26. immune; lymphocytes; B lymphocytes; T lymphocytes; thymus; macrophage
27. arthritis; allergic; underreact; cancer
28. Women; infections; self-attacking; lupus; multiple sclerosis
29. decrease; immune system; brain; muscles
30. AIDS; human immunodeficiency virus (HIV); blood; semen
31. have
32. have
33. negative; have
34. tumor; carcinogens; uncontrollable
35. does not
36. can
37. drug; immune suppression
38. negligible (small)
39. physiological; physiological

Promoting Health

1. cope; emotional; cognitive; behavioral
2. problem-focused
3. emotion-focused
4. problem-focused; control; emotion-focused; change
5. uncontrollable; death
6. mortality; birth weight; violence
7. increase; stress hormones
People with strong social ties may be healthier because they eat better, exercise more, smoke and drink less, and are helped to receive medical treatment quicker. Close relationships also provide the opportunity to bolster self-esteem and to confide painful feelings, which may mitigate physical reactions to stressful events. Environments that foster our need to belong also foster stronger immune functioning.

Religiously active people have healthier life-styles. They also tend to have stronger networks of social support and are more likely to be married.

Smoking is associated with lung cancer, respiratory ailments, and heart disease.

Obesity increases one's risk of diabetes, high blood pressure and heart disease, gallstones, arthritis, and certain types of cancer.

Religiously active people have healthier life-styles. They also tend to have stronger networks of social support and are more likely to be married.

Smoking is associated with lung cancer, respiratory ailments, and heart disease.

Obesity increases one's risk of diabetes, high blood pressure and heart disease, gallstones, arthritis, and certain types of cancer.
2. c. is the answer. (p. 551)
   a., b., & d. The pituitary does not produce stress hormones nor is the parasympathetic division involved in arousal.

3. c. is the answer. (p. 553)
   a. & b. During these stages the body's defensive mechanisms are at peak function.
   d. This is not a stage of the GAS.

4. c. is the answer. Coronary heart disease is followed by cancer, stroke, and chronic lung disease. AIDS has not yet become one of the four leading causes of death in North America among the general population. (p. 555)

5. c. is the answer. (p. 555)
   a. & b. Researchers have not identified such personality types.
   d. Individuals who are more easygoing are labeled Type B.

6. b. is the answer. Stress hormones accelerate the buildup of plaques, or masses formed by cholesterol deposits, on the artery walls. This likely occurs because during arousal, blood is diverted from internal organs such as the liver, which removes cholesterol from the blood, to the muscles of the body. These hormones are released in response to stress; they do not reduce stress. (pp. 555–556)

7. a. is the answer. (p. 556)
   b. Hypochondriacs think something is wrong with them, but nothing physical can be detected.
   c. Psychogenic means "originating in the mind." One's reaction to stress is partially psychological, but this term is not used to refer to stress-related illness.
   d. There is no such term in psychology.

8. d. is the answer. Because stress depresses the immune system, stressed individuals are prone to all of these conditions. (p. 557)

9. c. is the answer. (p. 550)
   a., b., & d. Whether an event is stressful or not depends on how it is appraised.

10. d. is the answer. (p. 562–563)

11. a. is the answer. (p. 584)

12. a. is the answer. (p. 562)
   b. In emotion-focused coping, we attempt to alleviate stress by avoiding or ignoring it.
   c. This is an example of coping rather than managing stress because it involves an attempt to actually alleviate a stressor.
   d. Hypochondriasis involves misinterpreting normal physical sensations as symptoms of a disease.

13. c. is the answer. The finding that talking about grief leads to better health makes a lot of sense in light of this physiological finding. (p. 566)
   a., b., & d. The study by Pennebaker did not find these to be true.

14. b. is the answer. People generally start smoking in adolescence in order to gain peer acceptance; they continue smoking primarily because they have become addicted to nicotine. Thus, the factors that motivate people to start smoking are best described as social, whereas the factors that explain continued smoking are mainly biological. (pp. 577–578)

15. a. is the answer. (p. 585)

16. d. is the answer. Regular aerobic exercise has been shown to increase ability to cope with stress, lower blood pressure, and reduce depression and anxiety. The text does not cite evidence that exercise enhances immune function. (pp. 567–569)

17. d. is the answer. (p. 553)

18. b. is the answer. (pp. 559–560)

19. b. is the answer. (p. 565)

20. c. is the answer. (p. 558)

21. d. is the answer. (p. 573)
   b. & c. The text does not indicate that a gender difference exists in the "faith factor" in health.

**Progress Test 2**

**Multiple-Choice Questions**

1. d. is the answer. This chapter deals with the topics of health psychology, namely, preventing illness, by developing better ways to cope with stress; treating illness, by improving the ways in which people notice and explain symptoms; and promoting health, for example, through nutrition and weight control. (p. 549)

2. a. is the answer. (p. 552)

3. c. is the answer. (p. 558)

4. c. is the answer. (p. 551)
   a. The final stage of the general adaptation syndrome is exhaustion.
   b. & d. Although both of these are true, neither has anything to do with "tend and befriend."

5. b. is the answer. The greater reactivity of Type A people includes much higher levels of stress hormones in stressful situations. (p. 556)
   a. Under relaxed situations, there is no difference in blood pressure.
c. Anger, both expressed and suppressed, is more characteristic of Type A people.
d. The text doesn’t indicate that Type A persons are more outgoing than Type B persons.
6. d. is the answer. Behaviors that contribute to the leading causes of mortality include smoking, excessive alcohol consumption, maladaptive responses to stress, insufficient exercise, use of illicit drugs, and poor nutrition. (p. 549)
7. c. is the answer. B lymphocytes fight bacterial infections; T lymphocytes attack cancer cells, viruses, and foreign substances. (p. 557)
d. Antigens cause the production of antibodies when they are introduced into the body.
8. a. is the answer. A variety of studies have shown that stress depresses the immune system, increasing the risk and potential severity of many diseases. (p. 557)
9. d. is the answer. (p. 557)
10. b. is the answer. Both human and animal studies indicate that uncontrollable negative events trigger an outpouring of stress hormones and a drop in immune responses. (pp. 562–563)
11. a. is the answer. (p. 557)
b. An underactive immune system would make an individual more susceptible to infectious diseases or the proliferation of cancer cells.
c. & d. Lymphocytes are disease- and infection-fighting white blood cells in the immune system.
12. d. is the answer. (p. 559)
13. d. is the answer. The crucial characteristic of Type A behavior seems to be a tendency to react with negative emotions, especially anger; other aspects of Type A behavior appear not to predict heart disease, and some appear to be helpful to the individual. (p. 556)
14. d. is the answer. No particular treatment seemed to stand out in terms of effectiveness. All but one-fifth of the people who quit smoking in such programs eventually return to the habit. (p. 579)
15. d. is the answer. In biofeedback training, people are given sensory feedback about autonomic responses. Although biofeedback may promote relaxation, its benefits may be no greater than those produced by simpler, and less expensive, methods. (p. 569)
16. b. is the answer. Fat cells may change in size as a person gains or loses weight, but their number never decreases. (p. 584)
a. In fact, because of its lower metabolic rate, fat tissue can be maintained on fewer calories.
c. Because metabolism slows as food intake is restricted, a 3500-calorie reduction may not reduce weight by one pound.
d. In fact, just the opposite is true.
17. d. is the answer. (p. 584)
18. b. is the answer. By alleviating the aversive physiological state of nicotine withdrawal, cigarettes act as negative reinforcers. (p. 578)
a. This is one explanation of why adolescents start smoking.
c. There is no evidence that this occurs.
d. Most smokers would like to quit smoking.
19. b. is the answer. (p. 581)
c. If anything, just the opposite is true.
d. Men and women do not differ in the tendency to overeat.
20. d. is the answer. As a group, religiously active people are no more affluent than other people. (pp. 573–574)
21. b. is the answer. (p. 570)
a. There is no such subfield of medicine.
c. Chi is an alleged form of energy, imbalances of which Chinese herbal therapies and acupuncture are intended to treat.
d. The term psychosomatic was once used to describe psychologically caused symptoms. Many forms of alternative medicine, including acupuncture, are intended to treat a full range of symptoms and diseases.

True–False Items
2. F (p. 557) 7. T (p. 563)
3. F (p. 563) 8. T (p. 555)
5. F (p. 585) 10. T (p. 566)

Psychology Applied

Multiple-Choice Questions
1. d. is the answer. Most researchers today discount the idea that people are obese because they lack willpower. (pp. 584–586)
2. b. is the answer. Following the initial weight loss, metabolism drops as the body attempts to defend its set-point weight. This drop in metabolism means that eating an amount that once produced a loss in weight may now actually result in weight gain. (p. 584)
3. d. is the answer. (pp. 573–574)
4. c. is the answer. Nicotine reduces circulation to the extremities of the body. (p. 578)
5. b. is the answer. Ricardo is attempting to address his emotional needs, since he has been unable to alleviate stress directly. (p. 562)

6. a. is the answer. Dieting, including fasting, lowers the body’s metabolic rate and reduces the amount of food energy needed to maintain body weight. (p. 589)

b. c. & d. Each of these strategies would be a good piece of advice to a dieter.

7. c. is the answer. According to Selye’s general adaptation syndrome, diseases are most likely to occur in this final stage. (p. 553)

a. & b. Resistance to disease is greater during the alarm and resistance phases because the body’s mobilized resources are not yet depleted.

d. There is no such thing as the "depletion phase." Moreover, the post-traumatic stress syndrome refers to the haunting nightmares and anxiety of those who have suffered extreme stress, such as that associated with combat.

8. b. is the answer. (p. 550)

a., c., & d. Each of these is a factor in coping with stress, but it is how an event is perceived that determines whether it is stressful or not.

9. c. is the answer. (p. 567)

10. b. is the answer. Unpredictable events are more stressful than predictable events. (p. 553)

11. b. is the answer. (p. 555)

a. Type A persons are hard-driving and competitive.

c. There is no such thing as a “Type C” person.

12. c. is the answer. (p. 557)

a. Macrophages are immune agents that search for and ingest harmful invaders.

b. B lymphocytes form in the bone marrow and release antibodies that fight bacterial infections.

13. b. is the answer. Stressful situations, such as exam weeks, decrease immune responses. (p. 552)

14. c. is the answer. (pp. 562–564)

a. This is not realistic.

b. & d. These might actually increase the health consequences of potential stressors.

15. c. is the answer. (p. 578)

a. Caffeine has a stimulating rather than a calming effect.

b. Alcohol depresses activity in the central nervous system.

d. Cocaine increases dopamine by blocking its reuptake from synapses.

16. c. is the answer. Individual differences in metabolism and set point explain why it is possible for two people to have very different weights despite similar patterns of eating and exercise. (pp. 584–585)

17. a. is the answer. (p. 549)

b. The behavioral perspective would emphasize only learned factors in smoking.

c. The general adaptation syndrome is a sequence of bodily responses to stress.

d. Psychophysiological illnesses are illnesses not caused by any known physical disorder.

18. c. is the answer. (p. 556)

a. The text does not discuss any such thing as a “psychogenic” illness.

b. Hypochondriasis is the misinterpreting of normal physical sensations as symptoms of a disease.

d. Biofeedback is a system for recording information regarding a subtle physiological state, such as blood pressure.

19. c. is the answer. (p. 581)

20. d. is the answer. (pp. 562–564)

21. a. is the answer. (p. 570)

b. In fact, botanical herbs have given us many widely used drugs, including morphine and penicillin, each of which was proven to be useful in controlled research studies.

c. Herbal remedies and acupuncture—to name two forms of complementary and alternative medicine—have a long tradition in other parts of the world, and remain enormously popular today.

Essay Question

When potentially stressful events occur, a person’s appraisal is a major determinant of their impact. Catastrophes, significant life events, and daily hassles are especially stressful when appraised as negative, unpredictable, and uncontrollable, and when the person has a pessimistic outlook on life. Under these circumstances, stressful events may suppress immune responses and make the person more vulnerable to disease. If stressors cannot be eliminated, aerobic exercise, biofeedback, relaxation, and social support can help the person cope. Aerobic exercise can reduce stress, depression, and anxiety, perhaps by increasing production of mood-boosting neurotransmitters. During biofeedback training, people enjoy a calm, relaxing experience that can be helpful in reducing stress. Research demonstrates that people who regularly practice relaxation techniques enjoy a greater sense of tranquility and have lower blood pressure and stronger immune responses. People with strong social ties eat better, exercise more, and smoke and drink less. Social support may also help people evaluate and overcome stressful events. In addition, confiding
painful feelings to others has been demonstrated to reduce the physiological responses linked to stress.

**Key Terms**

1. **Behavioral medicine** is the interdisciplinary field that applies behavioral and medical knowledge to the treatment of disease and the promotion of health. (p. 549)

2. **Health psychology** is a subfield of psychology that studies how health and illness are influenced by emotions, stress, personality, life-style, and other psychological factors. (p. 549)

3. **Stress** refers to the process by which people perceive and react to stressors, or to events they perceive as threatening or challenging. (p. 550)

4. The **general adaptation syndrome (GAS)** is the three-stage sequence of bodily reaction to stress outlined by Hans Selye. (p. 552)

5. The leading cause of death in North America today, **coronary heart disease** results from the clogging of the vessels that nourish the heart muscle. (p. 555)

6. **Type A** personality is Friedman and Rosenman's term for the coronary-prone behavior pattern of competitive, hard-driving, impatient, verbally aggressive, and anger-prone people. (p. 555)

7. **Type B** personality is Friedman and Rosenman's term for the coronary-resistant behavior pattern of easygoing, relaxed people. (p. 555)

8. **A psychophysiological illness** is any genuine illness such as hypertension and some headaches that is apparently linked to stress rather than caused by a physical disorder. (p. 556)

   *Memory aid: Psycho- refers to mind; physio- refers to body; a psychophysiological illness is a mind-body disorder.*

9. **Lymphocytes** are the two types of white blood cells of the immune system that fight bacterial infections (B lymphocytes) and viruses, cancer cells, and foreign substances in the body (T lymphocytes). (p. 557)

10. **Coping** refers to any effort to alleviate stress using emotional, cognitive, or behavioral methods. (p. 560)

11. **Problem-focused coping** involves reducing stress by directly changing a stressor or how we interact with it. (p. 562)

12. **Emotion-focused coping** involves reducing stress by avoiding or ignoring a stressor and attending to the emotional reactions it triggers. (p. 562)

13. **Aerobic exercise** is any sustained activity such as running, swimming, or cycling that promotes heart and lung fitness and may help alleviate depression and anxiety. (p. 567)

14. **Biofeedback** refers to a system for electronically recording, amplifying, and feeding back information regarding a subtle physiological state. (p. 569)

   *Memory aid: A biofeedback device, such as a brain-wave trainer, provides auditory or visual feedback about biological responses.*

15. **Complementary and alternative medicine** is a collection of health care remedies and treatments that have not been accepted by medical science or verified by controlled research trials. (p. 570)

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**Cross-Check**

**ACROSS**

2. atherosclerosis  
7. leptin  
12. Type A  
13. GAS  
15. aerobic  
17. alarm  
18. Selye  
19. exhaustion  
20. macrophage

1. Type B  
3. health psychology  
4. set point  
5. stress  
6. fight or flight  
8. perceived control  
9. behavioral medicine  
10. epinephrine  
11. metabolism  
14. B lymphocytes  
16. heart disease
FOCUS ON VOCABULARY AND LANGUAGE

Stress and Illness

Page 550: Afterward, she notices her tense muscles, clenched teeth, and churning stomach. Our response to stress can be beneficial (e.g., Karl’s escape from the snake) or destructive (e.g., Karen’s reaction to relatively minor routine problems or daily hassles). Following a number of stressful events (missing her train, rush-hour pedestrian traffic, late for an appointment, etc.), she becomes aware of her physiological reaction. Her muscles feel strained and tight (tense), her jaws are clamped shut (clenched teeth), and her stomach feels upset (churning stomach).

Page 550: Stress is a slippery concept. The term stress is often used to describe a stimulus (a threatening or challenging event) or a response (fear or anxiety). Most psychologists refer to the former as a stressor, the latter as a stress reaction, and use the word stress to refer to the entire process of evaluating and dealing with threatening events. Thus, stress is not a simple or easily grasped (understood) construct (it is a slippery concept).

Page 552: Your heart rate zooms. According to Selye’s general adaptation syndrome (GAS), there are three phases in our response to stress: alarm reaction, resistance, and exhaustion. During the first phase, the sympathetic nervous system responds rapidly; your heart rate quickly increases (zooms), blood is directed to the muscles, and you experience the weakness associated with being startled. You are now ready to fight or cope with the stressor (resistance phase); if the situation is not resolved soon, you will experience exhaustion (the third phase).

Page 553: . . . uprooting . . . Refugees and others who are forcibly made to leave their homes (they are uprooted) have increased rates of depression, anxiety, psychological disorders, and other stress symptoms. In most instances, the health impairments come from long-term exposure to stress.

Page 554: Experiencing a cluster of crises puts one even more at risk. Important and significant changes in our lives are other types of life-event stressors that increase the probability of health problems. If a number of these events occur close together (a cluster of crises), people become more vulnerable to disease.

Page 554: Daily Hassles Small, routine, annoying events and the little things that go wrong day by day (daily hassles) can have an accumulative effect on health and well-being. Some people can handle these daily hassles (they shrug them off) while others are severely distressed ("driven up the wall") by these inconveniences. Continual work-related hassles can lead to mental, physical, and emotional exhaustion.

Page 555: Moreover, not one of the “pure” Type Bs — the most mellow and laid-back of their group—had suffered a heart attack. Researchers have identified two personality types: Type As are reactive (easily angered), competitive, verbally aggressive, highly motivated, always rushed, and lacking in patience; Type Bs are less easily angered (mellow), are easy-going (laid-back), patient, understanding, and non-competitive. The most prototypical ("pure") Type Bs were the least likely to be afflicted by coronary heart disease (heart attacks).

Page 555: But after the honeymoon period, in which the finding seemed definitive and revolutionary, other researchers began asking, Is the finding reliable? The discovery of the relationship between personality type (A or B) and health and well-being aroused much interest. However, once the initial excitement abated (after the honeymoon period), other investigators started more detailed research and asked questions about the specific mechanisms involved in personality type and risk of disease.

Page 556: These findings suggest that reactive Type A individuals are more often “combat ready.” Research has shown that Type As are physiologically more reactive and ready to fight (combat ready) than Type Bs. When stressed, their sympathetic nervous systems operate to increase the levels of cholesterol and fat in the blood; in addition, their negative (toxic) emotions, especially anger and depression, make them more coronary-prone.

Page 557: Your immune system is not a headless horseman. The immune system does not operate as an autonomous system independent of other systems (a headless horseman). Instead, it works in close harmony with various brain systems and with the endocrine system, which secretes hormones. All these interact and affect each other in a very complex way.

Page 559: One danger in hypering reports on attitudes and cancer is that some patients may be led to blame themselves for their illness. One problem with overstating (hypering) the relationship between attitudes and cancer is that some cancer victims may feel that they have somehow caused their sickness. The biological factors involved in the disease cannot easily be mitigated (derailed) by believing good health is due to a healthy character (the wellness macho). Nor is it appropriate to blame (lay a guilt trip on) those who develop the illness. As Myers notes, we should
be aware of the fine distinction (thin line) that separates science from desperately hopeful beliefs (wishful thinking).

Promoting Health

Page 564: . . . laughter is the best medicine. This old saying proposes that mirthful humor may be good for our health. Some research has shown the beneficial effects of laughter, which appears to act as a block or buffer against stress-induced problems. Those who have a good sense of humor and can find something funny in stressful life events tend to be healthier and may live longer (those who laugh, last). (This final phrase is a twist on the saying "Those who laugh last, laugh longest" or "Getting the last laugh.")

Page 565: . . . heartaches . . . Heartaches is a term that refers to persistent mental anguish or suffering, usually resulting from the loss of a loved one or from disappointment in love. Myers points out that while close relationships and family tend to contribute to our well-being and contentment, they also can be the cause of much misery, strain, and strife (heartaches).

Page 566: The cold fact is that the effect of social ties is nothing to sneeze at. Myers is being humorous here. The expression "that is nothing to sneeze at" indicates that something (the object, event, accomplishment, etc.) is not minor or insignificant, and, of course, people with colds tend to sneeze a lot. In research on resistance to cold viruses, the finding that healthy volunteers who had the most social ties were less likely to catch a cold and produced less mucus (the cold fact) is not an insignificant result (nothing to sneeze at). In addition, research shows that social support calms the cardiovascular system, lowering blood pressure and stress hormones.

Page 566: Talking about our troubles can be "open heart therapy." Research has shown that those with close, supportive friends and family tend to have fewer health problems and live longer. One reason for this may be that trusting relationships provide the opportunity to talk about our problems and feelings and, just as "open-heart surgery" can save lives, having someone to talk to can be a form of "open-heart therapy."

Page 568: Many of them had, quite literally, run away from their troubles. Many research studies have shown the beneficial effect of aerobic exercise on depression and anxiety. In one study, women who took up jogging (running) showed a substantial reduction in depression. As Myers humorously puts it, they had, in reality, run away from their problems.

Page 568 (caption): The mood boost. Regular exercise increases longevity and cardiovascular fitness, reduces anxiety and depression, and enhances positive emotional states (boosts our moods). So the popular trend toward being more physically active has many benefits.

Page 569: After a decade of study, however, researchers decided the initial claims for biofeedback were overblown and oversold (Miller, 1983). Biofeedback became very popular in the 1970s, and the reports of its effectiveness for all kinds of problems led to much excitement. By the mid-1980s, however, when researchers took the time to evaluate the research findings objectively, it became clear that these assertions were exaggerated (overblown) and falsely promoted (oversold). Simple relaxation without the use of costly equipment is just as beneficial.

Page 573: Is there fire underneath all this smoke? The expression "there's no smoke without fire" indicates that there is usually a cause for an event, that there is something hidden that accounts for the phenomenon. Recently, there have been many claims for a positive correlation between spiritual or religious belief and health and healing. Myers questions whether in fact there is any real evidence (the fire) for the reported correlations (the smoke) and notes that correlations cannot be used to imply causation. He points to three possible intervening variables: (1) Religiously active people tend to have healthy lifestyles. (2) Faith communities offer social support and encourage marriage. (3) Religious attendance may enhance positive emotions and decrease stress and anxiety.

Page 577: . . . cool models . . . People usually begin to smoke during early adolescence; those who don't start during the teen years are much less likely to become habitual smokers as adults. Smoking starts much like many other behaviors, through imitating others (through modeling); teenage smokers are often viewed by their peers as self-possessed, mature, strong, outgoing, and friendly (cool models).

Page 579: . . . slow-motion suicide. Smoking is continued because, among other reasons, it offers a pleasant feeling (pleasurable lift) and it escapes or avoids the unpleasant persistent desire (craving) of deprivation or withdrawal. The negative aspect of smoking, however, is the increased health risk which over time may result in the death of the smoker (slow-motion suicide).

Page 579: It's among college students and graduates that smoking has become gauche rather than cool. High school dropouts and those of lower socioeco-
Economic status are more likely to smoke than college or university students and graduates. For this population, smoking is seen as undesirable, unpopular, and socially unacceptable (gauche) instead of being fashionably trendy (cool).

Page 581: And why do so few overweight people win the battle of the bulge? Most overweight people who diet do not manage to permanently lose the many pounds of fat they want to (they do not win the battle of the bulge). Myers discusses a number of factors: (a) the number of fat cells in the body does not decrease when you diet; (b) the tissue in fat is easier to maintain and uses less energy than other tissue; and (c) when body weight drops below the set point, your overall metabolic rate slows down. For those wanting to diet, Myers lists some useful tips.

Page 582: The risks are greater for apple-shaped people who carry their weight in pot bellies than for pear-shaped people with ample hips and thighs. Significant obesity increases the risk of many diseases and thus shortens life expectancy. People who have a more regularly proportioned physical build (apple-shaped) but whose excess weight tends to accumulate and protrude around the abdomen (they carry their weight in pot bellies) are more at risk than those people with a body shape that has proportionally more mass in the thighs and hips and less in the upper body (they are pear-shaped).

Page 583: Being overweight is therefore not simply a matter of scarfing too many hot fudge sundaes. And losing weight is not simply a matter of mind over platter. Research has shown that being obese (overweight) is not a function of hungrily devouring (scarfing) an excessive number of desserts made from ice cream covered with chocolate sauce, fruit, whipped cream, etc. (hot fudge sundaes), nor is it a matter of willpower (mind over matter) or the ability to be able to resist the food on your plate (mind over platter).

Page 585: So, the specifics of our genes predispose the size of our jeans. Myers is using a play on words here, suggesting that the complex interaction involved in our genetic make-up (the specifics of our genes) may influence the amount of excess weight we gain and correspondingly the size of the denim pants we wear (the size of our jeans).

Page 587: But for most people, the only long-term result of this losing battle is a thinner wallet. Most commercial weight-loss programs cost a great deal of money but, at best, only help people lose weight temporarily. For those who lose and then regain weight over and over again (yo-yo dieting), the end result is usually a greater weight gain each time and ultimately having less money (thinner wallets).

Page 589 (Close-Up): Couch potatoes beware . . . Myers admonishes those of us who sit around, watch TV, and eat junk food (couch potatoes) to get active.