CHAPTER 12

Emotions, Stress, and Health

CHAPTER OVERVIEW

Emotions are responses of the whole individual, involving physiological arousal, expressive behaviors, and conscious experience. Chapter 12 first discusses several theoretical controversies concerning the relationship and sequence of the components of emotion, primarily regarding whether the body’s response to a stimulus causes the emotion that is felt and whether thinking is necessary to and must precede the experience of emotion. After describing the physiology of emotion and emotional expressiveness, it examines the components of emotion in detail, particularly as they relate to the emotions of fear, anger, and happiness.

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 12 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.

NOTE: Answer guidelines for all Chapter 12 questions begin on page 300.

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 300. 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.

Theories of Emotion (pp. 498–499)

Objective 1: Identify the three components of emotion, and contrast the James-Lange, Cannon-Bard, and two-factor theories of emotion.

1. Emotions have three components: ___________ / ___________ / ___________.

2. According to the James-Lange theory, emotional states ___________ (precede/follow) physiological responses.

Describe two problems that Walter Cannon identified with the James-Lange theory.
3. Cannon proposed that emotional stimuli in the environment are routed simultaneously to the ____________, which results in awareness of the emotion, and to the __________ nervous system, which causes the body’s reaction. Because another scientist concurrently proposed similar ideas, this theory has come to be known as the __________ theory.

4. The two-factor theory of emotion proposes that emotion has two components: __________ arousal and a __________ label. This theory was proposed by __________ and __________.

Embodied Emotion (pp. 500–507)

Objective 2: Describe the physiological changes that occur during emotional arousal, and discuss the relationship between arousal and performance.

1. Describe the major physiological changes that each of the following undergoes during emotional arousal
   a. heart: __________
   b. muscles __________
   c. liver: __________
   d. breathing __________
   e. digestion __________
   f. pupils: __________
   g. blood: __________
   h. skin: __________

2. The responses of arousal are activated by the __________ nervous system. In response to its signal, the __________ glands release the stress hormones __________ and __________, which increase heart rate, respiration, blood pressure, and blood sugar.

3. When the need for arousal has passed, the body is calmed through activation of the __________ nervous system.

Objective 3: Describe the relationship between physiological states and specific emotions, and discuss the effectiveness of the polygraph in detecting lies.

4. The various emotions are associated with __________ (similar/different) forms of physiological arousal. In particular, the emotions of __________, __________, and __________ are difficult to distinguish physiologically.

5. The emotions __________ and __________ are sometimes accompanied by differing __________ temperatures and __________ secretions.

6. The emotions __________ and __________ stimulate different facial muscles.

7. The brain circuits underlying different emotions __________ (are/are not) different. For example, seeing a fearful face elicits greater activity in the __________ than seeing a(n) __________ face. People who have generally negative personalities, and those who are prone to __________, show more __________ lobe activity.

8. When people experience positive moods, brain scans reveal more activity in the __________.

9. Individuals with more active __________ (right/left) __________ lobes tend to be more cheerful than those in whom this pattern of brain activity is reversed. A cluster of neurons called the __________ becomes activated when people experience natural or drug-induced pleasure.

10. (Thinking Critically) The technical name for the “lie detector” is the __________.

(Thinking Critically) Explain how lie detectors supposedly indicate whether a person is lying.
11. (Thinking Critically) How well the lie detector works depends on whether a person exhibits ______________ while lying.

12. (Thinking Critically) Those who criticize lie detectors feel that the tests are particularly likely to err in the case of the ______________ (innocent/guilty), because different ______________ all register as ______________.

13. (Thinking Critically) By and large, experts ______________ (agree/do not agree) that lie detector tests are highly accurate.

14. (Thinking Critically) A test that assesses a suspect’s knowledge of details of a crime that only the guilty person should know is the ______________ ______________ ______________.

**Objective 4:** Explain the role of cognition in emotion, and discuss how neurological processes may enable us to experience some emotions prior to conscious thought.

15. The spillover effect refers to occasions when our ______________ response to one event carries over into our response to another event.

16. Schachter and Singer found that physically aroused college men told that an injection would cause arousal ______________ (did/did not) become emotional in response to an accomplice’s aroused behavior. Physically aroused volunteers not expecting arousal ______________ (did/did not) become emotional in response to an accomplice’s behavior.

17. Arousal ______________ emotion; cognition ______________ emotion.

18. Robert Zajonc believes that the feeling of emotion ______________ (can/cannot) precede our cognitive labeling of that emotion.

Cite two pieces of evidence that support Zajonc’s position.

19. A pathway from the ______________ via the ______________ to the ______________ enables us to experience emotion before ______________. For more complex emotions, sensory input is routed through the ______________ for interpretation.

20. The researcher who disagrees with Zajonc and argues that most emotions require cognitive processing is ______________. According to this view, emotions arise when we ______________ an event as beneficial or harmful to our well-being.

21. Complex emotions are affected by our ______________, ______________, and ______________.

Express some general conclusions that can be drawn about cognition and emotion.

**Expressed Emotion (pp. 507–514)**

**Objective 5:** Describe our ability to perceive and communicate emotions nonverbally, and discuss gender differences in this capacity.

1. Most people are especially good at interpreting nonverbal ______________. We read fear and ______________ mostly from the ______________, and happiness from the ______________. Although we are good at detecting emotions, we find it difficult to detect ______________ expressions.

2. Introverts are ______________ (better/worse) at reading others’ emotions, whereas extraverts are themselves ______________ (easier/harder) to read.

3. The absence of nonverbal cues to emotion is one reason that communications sent as ______________ are easy to misread.
4. Women are generally ____________
   (better/worse) than men at detecting nonverbal
   signs of emotion and in spotting
   _________________. Women possess greater
   emotional ________________ than men, as
   revealed by the tendency of men to describe their
   emotions in ________________ terms. This
   gender difference may contribute to women’s
   greater emotional ________________.

5. Although women are ________________
   (more/less) likely than men to describe them-
   selves as empathic, physiological measures reveal
   a much ________________ (smaller/larger)
   gender difference. Women are ________________
   (more/less) likely than men to express empathy.

Objective 6: Discuss the culture-specific and culturally
universal aspects of emotional expression, and
describe the effects of facial expressions on emotional
experience.

6. Gestures have ________________ (the
   same/different) meanings in different cultures.

7. Studies of adults indicate that in different cul-
   tures facial expressions have ________________
   (the same/different) meanings. Even our emo-
   tional ________________ cross world cultures. Studies of children indicate
   that the meaning of their facial expressions
   ________________ (varies/does not vary)
   across cultures. The emotional facial expressions
   of blind children ________________
   (are/are not) the same as those of sighted
   children.

8. According to ________________, human
   emotional expressions evolved because they
   helped our ancestors communicate before lan-
   guage developed. It has also been adaptive for us
   to ________________ faces in particular
   ________________.

9. In cultures that encourage ________________,
   emotional expressions are often intense and pro-
   longed. Cultures such as that of Japan
   ________________ (also show intense emo-
   tion/hide their emotions). This points to the
   importance of realizing that emotions are not
   only biological and psychological but also

10. Darwin believed that when an emotion is accom-
    panied by an outward facial expression, the emo-
    tion is ________________ (intensiﬁed/
    diminished).

11. In one study, students who were induced to smile
    ________________ (found/did not find) cartoons more amusing.

12. The ________________ effect occurs when expressions amplify our emo-
    tions by activating muscles associated with speci-
   ﬁc states.

13. Studies have found that imitating another person’s facial expressions
    ________________ (leads/does not lead) to greater empathy with
    that person’s feelings.

14. Similarly, moving our body as we would when
    experiencing a particular emotion causes us to
    feel that emotion. This is the ________________
    ________________ effect.

Experienced Emotion (pp. 514–527)

Objective 7: Name several basic emotions, and
develop two dimensions psychologists use to differ-
entiate emotions.

1. Izard believes that there are ________________
   basic emotions, most of which ________________
   (are/are not) present in infancy. Although others
   claim that emotions such as pride and love
   should be added to the list, Izard contends that
   they are ________________ of the basic
   emotions.

2. Throughout the world, people place emotions
   along two dimensions: ________________,
   which refers to whether a feeling is
   ________________ or ________________,
   and high versus low ________________.

Objective 8: State two ways we learn our fears, and
discuss some of the biological components of fear.

3. Fear can by and large be seen as a(n)
   ________________ (adaptive/maladaptive)
   response.

4. Most human fears are acquired through
   ________________.
5. In addition, some fears are acquired by ___________________ parents and friends. Explain why researchers think that some fears are biologically predisposed.

6. A key to fear learning lies in the ___________________, a neural center in the __________________ system. Following damage to this area, humans who have been conditioned to fear a loud noise will ___________________ the conditioning but show no ___________________ effect of it.

7. People who have suffered damage to the __________________ will show the ____________________ but ____________________ (will/will not) be able to remember why.

8. Patients who have lost use of the ____________________ are unusually trusting of scary-looking people.

9. Fears that fall outside the average range are called ____________________. Fearfulness is shaped by both our ____________________ and our ____________________.

Objective 9: Identify some common causes and consequences of anger, and assess the catharsis hypothesis.

10. Most people become angry when another person’s act seems ___________________, ____________________, and ____________________.

11. The belief that expressing pent-up emotion is adaptive is most commonly found in cultures that emphasize ___________________. This is the ____________________ hypothesis. In cultures that emphasize ________________, such as those of ____________________, or ________________, expressions of anger are less common.

12. Psychologists have found that when anger has been provoked, retaliation may have a calming effect under certain circumstances. List the circumstances.
   a. ________________________________
   b. ________________________________
   c. ________________________________

Identify some potential problems with expressing anger.

13. List two suggestions offered by experts for handling anger.
   a. ________________________________
   b. ________________________________

14. Researchers have found that students who mentally rehearsed the times they __________________ someone who had hurt them had lower bodily arousal than when they thought of times when they did not.

Objective 10: Identify some potential causes and consequences of happiness, and describe two psychological phenomena that help explain the relatively short duration of emotions.

15. Happy people tend to perceive the world as ___________________ and live ___________________ and more energized and satisfied lives.

16. Happy people are also ___________________ (more/less) willing to help others. This is called the ____________________ phenomenon.

17. An individual’s self-perceived happiness or satisfaction with life is called his or her ____________________.

18. Positive emotions ___________________ (rise/fall) in the early to middle part of most days. The gloom of stressful events usually (is gone by/continues into) the next day.
19. After experiencing tragedy or dramatically positive events, people generally ___________________________ (regain/do not regain) their previous degree of happiness.

20. Most people tend to ___________________________ (underestimate/overestimate) the duration of emotions and ___________________________ (underestimate/overestimate) their capacity to adapt.

21. Researchers have found that levels of happiness ___________________________ (do/do not) mirror differences in standards of living.

22. During the last four decades, buying power in the United States has almost tripled; personal happiness has ___________________________ (increased/decreased/remained almost unchanged).

23. Research has demonstrated that people generally experience a higher quality of life and greater well-being when they strive for ___________________________ than when they strive for ___________________________.

24. The idea that happiness is relative to one's recent experience is stated by the ___________________________—_________________________ phenomenon.

Explain how this principle accounts for the fact that, for some people, material desires can never be satisfied.

25. The principle that one feels worse off than others is known as ___________________________. This helps to explain why the middle- and upper-income people who compare themselves with the relatively poor are ___________________________ (slightly more/slightly less/equally) satisfied with life.

26. List six factors that have been shown to be positively correlated with feelings of happiness.

______________

______________

______________

______________

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27. List five factors that are evidently unrelated to happiness.

______________

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______________

______________

28. Research studies of identical and fraternal twins have led to the estimate that ___________________________ percent of the variation in people's happiness ratings is heritable.

**Stress and Health** (pp. 396-405)

**Objective 11:** Describe the pervasiveness of stress in daily life, and identify health psychology's contribution to behavioral medicine.

1. The field that integrates behavioral and medical knowledge relevant to health and disease is ___________________________. The subfield of psychology that contributes to behavioral medicine is called ___________________________ psychology.

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 stress arises less from the events than from how we
them and that stressors can have (only negative/both positive and negative) effects, depending on how they are perceived.

Objective 12: Discuss the role of appraisal in the way we respond to stressful events, and describe the biology of the “fight-or-flight” response as well as the physical characteristics and 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, Hans Selye referred to the bodily response to stress as the ______________ ______________. During this phase of stress, the ______________ reaction—the person is in a state of shock due to the sudden arousal of the ______________ nervous system.

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

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

11. One study found that women who suffered enduring caregiver stress had especially short ______________, which are pieces of ______________ at the ends of ______________ that are important in allowing cells to ______________.

Objective 13: Discuss the health consequences of catastrophic, 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 rates 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 impoverished areas.

Objective 14: 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 ______________.
Friedman and Rosenman, in a subsequent study, grouped people into Type A and Type B personalities. Characterize these types, and indicate the difference that emerged between them over the course of this nine-year study.

17. The Type A characteristic that is most strongly linked with coronary heart disease is ________________, especially _________________.

18. When a ________________ (Type A/Type B) person is angered, bloodflow 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.

19. Another toxic emotion is ________________, researchers have found that ________________ are more than twice as likely to develop heart disease as _________________.

20. Depression ________________ (increases/has no effect on) one’s risk of having a heart attack or developing other heart problems.

Objective 15: Define psychophysiological illness, and describe the effect of stress on immune system functioning, including its role in the progression of AIDS and cancer.

21. In ________________ illnesses, physical symptoms are produced by psychological causes.

22. Examples of such illnesses are certain types of ________________ and some ________________. Such illnesses appear to be linked to _________________.

23. The term ________________ was once used to describe such illness. However, this term implied that symptoms were _________________.

24. The new field of ________________ investigates how psychological, neural, and endocrine systems together affect the immune system and health.

25. The body’s system of fighting disease is the ________________ system. This system includes two types of white blood cells, called ________________: the ________________, which fight bacterial infections, and the ________________, which form in the ________________ and attack viruses, cancer cells, and foreign substances.

26. Two other immune agents are the ________________, which pursues and ingests foreign substances, and ________________ cells, which pursue diseased cells.

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 and making us more vulnerable to disease.

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 (have/have not) been shown to have positive consequences on HIV-positive individuals.

33. Stress and ____________ emotions (have/have not) been linked to cancer’s rate of progression.

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.

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, an (increase/decrease) in blood pressure, and a rise in the levels of ____________.

Objective 17: Discuss the links among basic outlook on life, social support, stress, and health.

8. People who have an ____________ outlook on life 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 ____________.

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 some possible reasons for the link between health and social support.

13. James Pennebaker has found that emotional ____________ can adversely affect our physical health.
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 18: 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 predicts better ____________ functioning and reduced risk of ____________ and Alzheimer’s disease.

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

Objective 19: 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 monitoring physiological responses.

21. Simple relaxation procedures have been shown to help alleviate ____________, ____________, ____________, and ____________. Lowered blood pressure, heart rate, and oxygen consumption have been found to be characteristic of people who regularly practice ____________.

The ____________ response is a state of calm resulting from 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.

Objective 20: Discuss the controversy over complementary and alternative medicine, and explain how it is best resolved through scientific research.

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 21: 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. 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.

**PROGRESS TEST 1**

**Multiple-Choice Questions**

Circle your answers to the following questions and check them with the answers beginning on page 302. 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. Researchers Friedman and Rosenman refer to individuals who are very time-conscious, super-motivated, verbally aggressive, and easily angered as
   a. ulcer-prone personalities.
   b. cancer-prone personalities.
   c. Type A.
   d. Type B.

2. Which division of the nervous system is especially involved in bringing about emotional arousal?
   a. somatic nervous system
   b. peripheral nervous system
   c. sympathetic nervous system
   d. parasympathetic nervous system

3. Concerning emotions and their accompanying body responses, which of the following appears to be true?
   a. Each emotion has its own body response and underlying brain circuit.
   b. All emotions involve the same body response as a result of the same underlying brain circuit.
   c. Many emotions involve similar body responses but have different underlying brain circuits.
   d. All emotions have the same underlying brain circuits but different body responses.

4. The Cannon-Bard theory of emotion states that
   a. emotions have two ingredients: physical arousal and a cognitive label.
   b. the conscious experience of an emotion occurs at the same time as the body's physical reaction.
   c. emotional experiences are based on an awareness of the body's responses to an emotion-arousing stimulus.
   d. emotional ups and downs tend to balance in the long run.

5. 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

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

7. Which of the following was NOT raised as a criticism of the James-Lange theory of emotion?
   a. The body's responses are too similar to trigger the various emotions.
   b. Emotional reactions occur before the body's responses can take place.
   c. The cognitive activity of the cortex plays a role in the emotions we experience.
   d. People with spinal cord injuries at the neck typically experience less emotion.

8. (Thinking Critically) Current estimates are that the polygraph is inaccurate approximately _______ of the time.
   a. three-fourths
   b. one-half
   c. one-third
   d. one-fourth

9. In the Schachter-Singer experiment, which college men reported feeling an emotional change in the presence of the experimenter's highly emotional confederate?
   a. those receiving epinephrine and expecting to feel physical arousal
   b. those receiving a placebo and expecting to feel physical arousal
   c. those receiving epinephrine but not expecting to feel physical arousal
   d. those receiving a placebo and not expecting to feel physical arousal
10. Which of the following is true regarding happiness?
   a. People with more education tend to be happier.
   b. Beautiful people tend to be happier than plain people.
   c. Women tend to be happier than men.
   d. People who are socially outgoing or who exercise regularly tend to be happier.

11. Catharsis will be most effective in reducing anger toward another person if
   a. you wait until you are no longer angry before confronting the person.
   b. the target of your anger is someone you feel has power over you.
   c. your anger is directed specifically toward the person who angered you.
   d. the other person is able to retaliate by also expressing anger.

12. Emotions consist of which of the following components?
   a. physiological reactions
   b. behavioral expressions
   c. conscious feelings
   d. all of these components

13. Law enforcement officials sometimes use a lie detector to assess a suspect’s responses to details of the crime believed to be known only to the perpetrator. This is known as the
   a. inductive approach.
   b. deductive approach.
   c. guilty knowledge test.
   d. screening examination.

14. Research on nonverbal communication has revealed that
   a. it is easy to hide your emotions by controlling your facial expressions.
   b. facial expressions tend to be the same the world over, while gestures vary from culture to culture.
   c. most authentic expressions last between 7 and 10 seconds.
   d. most gestures have universal meanings; facial expressions vary from culture to culture.

15. In laboratory experiments, fear and joy
   a. result in an increase in heart rate.
   b. stimulate different facial muscles.
   c. increase heart rate and stimulate different facial muscles.
   d. result in a decrease in heart rate.

16. Research suggests that people generally experience the greatest well-being when they strive for
   a. wealth.
   b. modest income increases from year to year.
   c. slightly higher status than their friends, neighbors, and co-workers.
   d. intimacy and personal growth.

17. Research indicates that a person is most likely to be helpful to others if he or she
   a. is feeling guilty about something.
   b. is happy.
   c. recently received help from another person.
   d. recently offered help to another person.

18. With regard to emotions, Darwin believed that
   a. the expression of emotions helped our ancestors to survive.
   b. all humans express basic emotions using similar facial expressions.
   c. human facial expressions of emotion retain elements of animals’ emotional displays.
   d. all of these statements are true.

19. A graph depicting the course of positive emotions over the hours of the day since waking would
   a. start low and rise steadily until bedtime.
   b. start high and decrease steadily until bedtime.
   c. remain at a stable, moderate level throughout the day.
   d. rise over the early hours and fall during the day’s last several hours.

20. Research with subliminally flashed stimuli supports Robert Zajonc’s view that
   a. the heart is always subject to the mind.
   b. emotional reactions involve deliberate rational thinking.
   c. cognition is not necessary for emotion.
   d. responding to a subliminal stimulus is a learned skill.

21. Genuine illnesses that are caused by stress are called _____ illnesses.
   a. psychophysiological
   b. cathartic
   c. psychogenic
   d. psychotropic

22. 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 these conditions.
23. 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.

24. 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. catharsis.

25. 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.

26. 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.

27. Research studies demonstrate that after a catastrophe rates of _______ often increase.
   a. depression
   b. anxiety
   c. sleeplessness
   d. all of these problems

28. 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

29. 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.

30. 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.

31. The stress hormones epinephrine and norepinephrine are released by the _______ gland(s) in response to stimulation by the _______ branch of the nervous system.
    a. pituitary; sympathetic
    b. pituitary; parasympathetic
    c. adrenal; sympathetic
    d. adrenal; parasympathetic
Matching Items

Match each definition or description with the appropriate term.

Definitions or Descriptions

1. the tendency to react to changes on the basis of recent experience
2. an individual's self-perceived happiness
3. emotional release
4. the tendency to evaluate our situation negatively against that of other people
5. emotions consist of physical arousal and a cognitive label
6. an emotion-arousing stimulus triggers cognitive and body responses simultaneously
7. the division of the nervous system that calms the body following arousal
8. the division of the nervous system that activates arousal
9. a device that measures the physiological correlates of emotion
10. the tendency of people to be helpful when they are in a good mood
11. we are sad because we cry

Terms

a. adaptation-level phenomenon
b. two-factor theory
c. catharsis
d. sympathetic nervous system
e. James-Lange theory
f. polygraph
g. Cannon-Bard theory
h. parasympathetic nervous system
i. relative deprivation principle
j. feel-good, do-good phenomenon
k. subjective well-being

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. Which of the following most accurately describes emotional arousal?
   a. Emotions prepare the body to fight or flee.
   b. Emotions are voluntary reactions to emotion-arousing stimuli.
   c. Because all emotions have the same physiological basis, emotions are primarily psychological events.
   d. Emotional arousal is always accompanied by cognition.

2. Schachter's and Singer's two-factor theory emphasizes that emotion involves both
   a. the sympathetic and parasympathetic divisions of the nervous system.
   b. verbal and nonverbal expression.
   c. physical arousal and a cognitive label.
   d. universal and culture-specific aspects.

3. When students studied others who were worse off than themselves, they felt greater satisfaction with their own lives. This is an example of the principle of
   a. relative deprivation.
   b. adaptation level.
   c. behavioral contrast.
   d. opponent processes.

4. Which theory of emotion emphasizes the simultaneous experience of the body's response and emotional feeling?
   a. James-Lange theory
   b. Cannon-Bard theory
   c. two-factor theory
   d. catharsis theory

5. Izard believes that there are ________ basic emotions.
   a. 3
   b. 5
   c. 7
   d. 10
6. (Thinking Critically) The polygraph measures
   a. lying.
   b. brain rhythms.
   c. chemical changes in the body.
   d. physiological indexes of arousal.

7. People who are exuberant and persistently cheerful show increased activity in the brain’s
   ________, which is rich in receptors for the neurotransmitter ________.
   a. right frontal lobe; dopamine
   b. left frontal lobe; dopamine
   c. amygdala; serotonin
   d. thalamus; serotonin

8. Which of the following is true regarding gestures and facial expressions?
   a. Gestures are universal; facial expressions, culture-specific.
   b. Facial expressions are universal; gestures, culture-specific.
   c. Both gestures and facial expressions are universal.
   d. Both gestures and facial expressions are culture-specific.

9. Which theory of emotion implies that every emotion is associated with a unique physiological reaction?
   a. James-Lange theory
   b. Cannon-Bard theory
   c. two-factor theory
   d. catharsis theory

10. 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.

11. Which of the following was NOT presented in the text as evidence that some emotional reactions involve no deliberate, rational thinking?
    a. Some of the neural pathways involved in emotion are separate from those involved in thinking and memory.
    b. Emotional reactions are sometimes quicker than our interpretations of a situation.
    c. People can develop an emotional preference for visual stimuli to which they have been unknowingly exposed.
    d. Arousal of the sympathetic nervous system will trigger an emotional reaction even when artificially induced by an injection of epinephrine.

12. Concerning the catharsis hypothesis, which of the following is true?
    a. Expressing anger can be temporarily calming if it does not leave one feeling guilty or anxious.
    b. The arousal that accompanies unexpressed anger never dissipates.
    c. Expressing one’s anger always calms one down.
    d. Psychologists agree that under no circumstances is catharsis beneficial.

13. In an emergency situation, emotional arousal will result in
    a. increased rate of respiration.
    b. increased blood sugar.
    c. a slowing of digestion.
    d. all of these events.

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

15. Several studies have shown that physical arousal can intensify just about any emotion. For example, when people who have been physically aroused by exercise are insulted, they often misattribute their arousal to the insult. This finding illustrates the importance of
    a. cognitive labels of arousal in the conscious experience of emotions.
    b. a minimum level of arousal in triggering emotional experiences.
    c. the simultaneous occurrence of physical arousal and cognitive labeling in emotional experience.
    d. all of these things.
16. (Thinking Critically) Many psychologists are opposed to the use of lie detectors because
a. they represent an invasion of a person’s privacy and could easily be used for unethical purposes.
b. there are often serious discrepancies among the various indicators such as perspiration and heart rate.
c. polygraphs cannot distinguish the various possible causes of arousal.
d. they are accurate only about 50 percent of the time.

17. “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.

18. When he asked people how they handled anger, James Averill found that they often recalled
a. reacting hurtfully.
b. walking away from the situation.
c. reacting assertively.
d. internalizing the anger.

19. Which of these factors have researchers not found to correlate with happiness?
a. a satisfying marriage or close friendship
b. high self-esteem
c. religious faith
d. education

20. In cultures that emphasize social interdependence
a. emotional displays are typically intense.
b. emotional displays are typically prolonged.
c. personal emotions are displayed less visibly.
d. all of these behaviors occur.

21. 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 redistribute blood flow to the muscles and away from internal organs.
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.

22. The disease- and infection-fighting cells of the immune system are
a. B lymphocytes.
b. T lymphocytes.
c. macrophages.
d. all of these types of cells.

23. 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.

24. Compared with 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 these characteristics.

25. 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.

26. 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 these statements are true.

27. 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.

28. Which of the following is true of 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 these statements are true.
29. 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.

30. (Thinking Critically) Acupuncture, aromatherapy, and homeopathy are forms of
   a. psychophysiologic medicine.
   b. complementary and alternative medicine.
   c. Chi therapy.
   d. psychosomatic medicine.

31. 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 these things.

True-False Items

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

1. Stressors tend to increase activity in the immune system and in this way make people more vulnerable to illness.
   - T

2. Men are generally better than women at detecting nonverbal emotional expression.
   - T

3. The sympathetic nervous system triggers physiological arousal during an emotion.
   - T

4. Events are most stressful when perceived as both negative and controllable.
   - T

5. When one imitates an emotional facial expression, the body may experience physiological changes characteristic of that emotion.
   - T

6. Optimists cope more successfully with stressful events than do pessimists.
   - T

7. Wealthy people tend to be much happier than middle-income people.
   - T

8. Physical arousal can intensify emotion.
   - T

9. All emotions involve conscious thought.
   - T

10. The two-factor theory states that emotions are given a cognitive label before physical arousal occurs.
    - T

11. Type A persons are more physiologically reactive to stress than are Type B persons.
    - T

12. People with few social and community ties are more likely to die prematurely than are those who have many social ties.
    - T

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. You are on your way to school to take a big exam. Suddenly, on noticing that your pulse is racing and that you are sweating, you feel nervous. With which theory of emotion is this experience most consistent?
   a. Cannon-Bard theory
   b. James-Lange theory
   c. relative deprivation theory
   d. adaptation-level theory

2. When Professor Simon acquired a spacious new office, he was overjoyed. Six months later, however, he was taking the office for granted. His behavior illustrates the
   a. relative deprivation principle.
   b. adaptation-level phenomenon.
   c. two-factor theory.
   d. optimum arousal principle.

3. After Brenda scolded her brother for forgetting to pick her up from school, the physical arousal that had accompanied her anger diminished. Which division of her nervous system mediated her physical relaxation?
   a. sympathetic division
   b. parasympathetic division
   c. somatic division
   d. peripheral nervous system

4. Two years ago Maria was in an automobile accident in which her spinal cord was severed, leaving her paralyzed from her neck down. Today, Maria finds that she experiences emotions less intensely than she did before her accident. This tends to support which theory of emotion?
   a. James-Lange theory
   b. Cannon-Bard theory
   c. adaptation-level theory
   d. relative deprivation theory
5. The candidate stepped before the hostile audience, panic written all over his face. It is likely that the candidate’s facial expression caused him to experience
   a. a lessening of his fear.
   b. an intensification of his fear.
   c. a surge of digestive enzymes in his body.
   d. increased body temperature.

6. Jane was so mad at her brother that she exploded at him when he entered her room. That she felt less angry afterward is best explained by the principle of
   a. adaptation level.
   b. physiological arousal.
   c. relative deprivation.
   d. catharsis.

7. After hitting a grand-slam home run, Mike noticed that his heart was pounding. Later that evening, after nearly having a collision while driving on the freeway, Mike again noticed that his heart was pounding. That he interpreted this reaction as fear, rather than as ecstasy, can best be explained by the
   a. James-Lange theory.
   b. Cannon-Bard theory.
   c. two-factor theory.
   d. adaptation-level theory.

8. As part of her job interview, Jan is asked to take a lie-detector test. Jan politely refuses and points out that
   a. a guilty person can be found innocent by the polygraph.
   b. an innocent person can be found guilty.
   c. these tests err one-third of the time.
   d. all of these statements are true.

9. A student participating in an experiment concerned with physical responses that accompany emotions reports that her mouth is dry, her heart is racing, and she feels flushed. Can the emotion she is experiencing be determined?
   a. Yes, it is anger.
   b. Yes, it is fear.
   c. Yes, it is ecstasy.
   d. No, it cannot be determined from the information given.

10. Who will probably be angrier after getting a parking ticket?
    a. Bob, who has just awakened from a nap
    b. Veronica, who has just finished eating a big lunch
    c. Dan, who has just completed a tennis match
    d. Alicia, who has been reading a romantic novel

11. Children in New York, Nigeria, and New Zealand smile when they are happy and frown when they are sad. This suggests that
    a. the Cannon-Bard theory is correct.
    b. some emotional expressions are learned at a very early age.
    c. the two-factor theory is correct.
    d. facial expressions of emotion are universal and biologically determined.

12. Who is the LEAST likely to display personal emotions openly?
    a. Paul, a game warden in Australia
    b. Niles, a stockbroker in Belgium
    c. Deborah, a physicist in Toronto
    d. Yoko, a dentist in Japan

13. Nine-month-old Nicole’s left frontal lobe is more active than her right frontal lobe. We can expect that, all other things being equal, Nicole
    a. may suffer from mild depression for most of her life.
    b. may have trouble “turning off” upsetting feelings later in her life.
    c. may be more cheerful than those with more active right frontal lobes.
    d. may have trouble expressing feelings later in her life.

14. Julio was extremely angry when he came in for a routine EEG of his brain activity. When he later told this to the doctor, she was no longer concerned about the
    a. increased electrical activity in Julio’s right hemisphere.
    b. increased electrical activity in Julio’s left hemisphere.
    c. decreased electrical activity in Julio’s amygdala.
    d. increased electrical activity in Julio’s amygdala.

15. Concluding her presentation on spirituality and health, Maja notes that
    a. historically, religion and medicine joined hands in caring for the sick.
    b. religious involvement predicts health and longevity.
    c. people who attend religious services weekly have healthier life-styles.
    d. all of these statements are true.
16. As elderly Mr. Hooper crosses the busy intersection, he stumbles and drops the packages he is carrying. Which passerby is most likely to help Mr. Hooper?
   a. Drew, who has been laid off from work for three months
   b. Leon, who is on his way to work
   c. Bonnie, who earned her doctoral degree the day before
   d. Nancy, whose father recently passed away

17. Expressing anger can be adaptive when you
   a. retaliate immediately.
   b. have mentally rehearsed all the reasons for your anger.
   c. count to 10, then blow off steam.
   d. first wait until the anger subsides, then deal with the situation in a civil manner.

18. Cindy was happy with her promotion until she found out that Janice, who has the same amount of experience, receives a higher salary. Cindy’s feelings are best explained according to the
   a. adaptation-level phenomenon.
   b. two-factor theory.
   c. catharsis hypothesis.
   d. principle of relative deprivation.

19. I am an emotionally literate person who is very accurate at reading others’ nonverbal behavior, detecting lies, and describing my feelings. Who am I?
   a. an introvert
   b. an extravert
   c. a woman
   d. a man

20. 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. general adaptation.

21. 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

22. 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 hardness.
   d. how predictable stressful events are.

23. 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. general adaptation.

24. Karen and Kyumi attend different universities, but both have rooms in on-campus dorms. Karen’s dorm is large, roomy, with only two students to a suite. Kyumi attends a city school, where the dorms are small, overcrowded, and noisy, with five students to a room, which makes study very difficult. 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.

25. 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.

26. 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 these cells.

27. 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.
28. 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."

29. 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. biopsychosocial
   c. psychophysiological
   d. biofeedback

30. 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. having a friend to confide in
   c. feeling optimistic that you will eventually adjust to your new surroundings
   d. All of these things would help.

31. (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 these statements are true.

**Essay Questions**

1. Discuss biological and cultural influences on emotions. (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.)

2. 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. emotion
2. James-Lange theory
3. Cannon-Bard theory
4. two-factor theory
5. polygraph
6. catharsis
7. feel-good, do-good phenomenon
8. subjective well-being
9. adaptation-level phenomenon
10. relative deprivation
11. behavioral medicine
12. health psychology
13. stress
14. general adaptation syndrome (GAS)
15. coronary heart disease
16. Type A
17. Type B
18. psychophysiological illness
19. psychoneuroimmunology
20. lymphocytes
21. coping
22. problem-focused coping
23. emotion-focused coping
24. aerobic exercise
25. biofeedback
26. complementary and alternative medicine (CAM)

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
1. Coronary-prone behavior pattern.
2. Device that measures several of the physiological responses accompanying emotion.
7. Phenomenon in which people tend to be helpful when they are in a good mood.
9. Type of exercise that may help alleviate anxiety.
10. The process by which people appraise and react to events they perceive as threatening.
12. Theory that the subjective experience of an emotion occurs at the same time as the body's physical reaction.

13. During the ______ stage of the stress reaction, the body’s sympathetic nervous system is suddenly activated.
14. White blood cells of the immune system that fight bacterial infections and viruses, cancer cells, and foreign substances in the body.
15. Psychologist who first described the general adaptation syndrome.