

Motivation and Emotion



OVERVIEW

Enduring Issues in Motivation and Emotion

Perspectives on Motivation

- Instincts
- Drive-Reduction Theory
- Arousal Theory
- Intrinsic and Extrinsic Motivation
- A Hierarchy of Motives

Hunger and Thirst

- Biological and Emotional Factors
- Eating Disorders and Obesity

Sex

- Biological Factors
- Cultural and Environmental Factors
- Patterns of Sexual Behavior Among Americans
- Sexual Orientation

Other Important Motives

- Exploration and Curiosity
- Manipulation and Contact
- Aggression
- Achievement
- Affiliation

Emotions

- Basic Emotions
- Theories of Emotion

Communicating Emotion

- Voice Quality and Facial Expression
- How the Brain Reads the Face
- Body Language, Personal Space, and Gestures
- Gender and Emotion
- Culture and Emotion

Classic detective stories are usually studies of motivation and emotion. At the beginning, all we know is that a murder has been committed: After eating dinner with her family, sweet old Amanda Jones collapses and dies of strychnine poisoning. “Now, why would anyone do a thing like that?” everybody wonders. The police ask the same question, in different terms: “Who had a motive for killing Miss Jones?” In a good mystery, the answer is “Practically everybody.”

There is, for example, the younger sister—although she is 75 years old, she still bristles when she thinks of that tragic day 50 years ago when Amanda stole her sweetheart. And there is the next-door neighbor, who was heard saying that if Miss Jones’s poodle trampled his peonies one more time, there would be consequences. Then there is the spendthrift nephew who stands to inherit a fortune from the deceased. Finally, the parlor maid has a guilty secret that Miss Jones knew and had threatened to reveal. All four suspects were in the house on the night of the murder, had access to the poison (which was used to kill rats in the basement), and had strong feelings about Amanda Jones. All of them had a motive for killing her.

In this story, motivation and emotion are so closely intertwined that drawing distinctions between them is difficult. However, psychologists do try to separate them. A **motive** is a specific need or desire that arouses the organism and directs its behavior toward a goal. All motives are triggered by some kind of stimulus: a bodily condition, a cue in the environment, or a feeling.

Emotion refers to the experience of feelings such as fear, joy, surprise, and anger. Like motives, emotions also activate and affect behavior, but it is more difficult to predict the kind of behavior that a particular emotion will prompt. If a man is hungry, we can be reasonably sure that he will seek food. If, however, this same man experiences a feeling of joy or surprise, we cannot know with certainty how he will act.

The important thing to remember about both motives and emotions is that they push us to take some kind of action whether or not we are aware of it. We do not need to think about feeling hungry to make a beeline for the refrigerator. Similarly, we do not have to realize that we are afraid before stepping back from a growling dog. Moreover, the same motivation or emotion may produce different behaviors in different people. Ambition might motivate one person to go to law school and another to join a crime ring. Feeling sad might lead one person to cry alone and another to seek out a friend. On the other hand, the same behavior might arise from different motives or emotions: You may go to a movie because you are happy, bored, or lonely. In short, the workings of motives and emotions are very complex.

In this chapter, we will first look at some specific motives that play important roles in human behavior. Then we will turn our attention to emotions and the various ways they are expressed. We begin our discussion of motivation with a few general concepts.

ENDURING ISSUES IN MOTIVATION AND EMOTION

The heart of this chapter concerns the ways in which motives and emotions affect behavior and are affected by the external environment (person–situation). While discussing those key issues, we will explore the question of whether motives and emotions are inborn or acquired (nature–nurture) and whether they change significantly over the life span (stability–change). We will also consider the extent to which individuals differ in their motives and emotions (diversity–universality) and the ways in which motives and emotions arise from and, in turn, affect biological processes (mind–body).

PERSPECTIVES ON MOTIVATION

How can you use intrinsic and extrinsic motivation to help you succeed in college?

Instincts

Early in the 20th century, psychologists often attributed behavior to **instincts**—specific, inborn behavior patterns characteristic of an entire species. In 1890, William James compiled a list of human instincts that included hunting, rivalry, fear, curiosity, shyness, love, shame, and resentment. But by the 1920s, instinct theory began to fall out of favor as an explanation of

LEARNING OBJECTIVE

- Compare and contrast instincts, drive-reduction theory, and arousal theory (including the Yerkes-Dodson law) as explanations of human behavior. Distinguish between primary and secondary drives, intrinsic and extrinsic motivation, and summarize Maslow’s hierarchy of motives.

motive Specific need or desire, such as hunger, thirst, or achievement, that prompts goal-directed behavior.

emotion Feeling, such as fear, joy, or surprise, that underlies behavior.

instincts Inborn, inflexible, goal-directed behaviors that are characteristic of an entire species.

THINKING CRITICALLY ABOUT . . .

Primary Drives

Primaries drives are, by definition, unlearned. But learning clearly affects how these drives are expressed: We learn how and what to eat and drink.

1. Given that information, how might you design a research study to determine what aspects of a given drive, say hunger, are learned and which are not?
2. What steps would you take to increase the likelihood that your results apply to people in general and not just to a small sample of people?
3. Would you have to rely on self-reports or could you directly observe behavior?

human behavior for three reasons: (1) Most important human behavior is learned; (2) human behavior is rarely rigid, inflexible, unchanging, and found throughout the species, as is the case with instincts; and (3) ascribing every conceivable human behavior to a corresponding instinct explains nothing (calling a person's propensity to be alone an "antisocial instinct," for example, merely names the behavior without pinpointing its origins).

Drive-Reduction Theory

An alternative view of motivation holds that bodily needs (such as the need for food or the need for water) create a state of tension or arousal called a **drive** (such as hunger or thirst). According to **drive-**

reduction theory, motivated behavior is an attempt to reduce this unpleasant state of tension in the body and to return the body to a state of **homeostasis**, or balance (S. Cooper, 2008). When we are hungry, we look for food to reduce the hunger drive. When we are tired, we find a place to rest.

According to drive-reduction theory, drives can generally be divided into two categories. **Primary drives** are unlearned, are found in all animals (including humans), and motivate behavior that is vital to the survival of the individual or species. Primary drives include hunger, thirst, and sex. **Secondary drives** are acquired through learning. For instance, no one is born with a drive to acquire great wealth, yet many people are motivated by money.

Arousal Theory

Drive-reduction theory is appealing, but it cannot explain all kinds of behavior. It implies, for example, that once drives are reduced, people will do little. They would literally have no motivation. Yet this is obviously not the case. People work, play, do Sudoku puzzles, and do many other things for which there is no known drive that needs to be reduced.

Arousal theory suggests that each of us has an optimum level of arousal that varies over the course of the day and from one situation to another. According to this view, behavior is motivated by the desire to maintain the optimum level of arousal for a given moment. Sometimes, as envisioned in drive-reduction theory, that may call for reducing the level of arousal. But other times, behavior appears to be motivated by a desire to increase the state of arousal. For example, when you are bored, you may turn on the television, take a walk, or check for text messages.

Interestingly, overall level of arousal affects performance in different situations but psychologists agree that there is no "best" level of arousal necessary to perform all tasks (Gray, Braver, & Raichle, 2002). Rather, it is largely a question of degree. The **Yerkes–Dodson law** puts it this way: The more complex the task, the lower the level of arousal that can be tolerated without interfering with performance (Yerkes & Dodson, 1908/2007). Thus, to perform optimally on a simple task, you may need to increase your level of arousal. Conversely, you may need to reduce your level of arousal to perform well on a complex task. (See **Figure 8–1**.)

Arousal theory has some advantages over drive-reduction theory, but neither one can readily account for some kinds of behavior. For example, many people today participate in activities that are stimulating in the extreme: rock climbing, skydiving, bungee jumping, and hang gliding. Such thrill-seeking activities do not seem to be drive-reducing and do not seem to be done in pursuit of an optimal level of arousal. Zuckerman (1979, 2007a) accounts for such activities by suggesting that *sensation seeking* is itself a basic motivation, at least some aspects of which are inherited and neurologically based (Arnaut, 2006;

drive State of tension or arousal that motivates behavior.

drive-reduction theory States that motivated behavior is aimed at reducing a state of bodily tension or arousal and returning the organism to homeostasis.

homeostasis State of balance and stability in which the organism functions effectively.

primary drives Unlearned drive, such as hunger, that are based on a physiological state.

secondary drives Learned drives, such as ambition, that are not based on a physiological state.

arousal theory Theory of motivation that proposes that organisms seek an optimal level of arousal.

Yerkes–Dodson law States that there is an optimal level of arousal for the best performance of any task; the more complex the task, the lower the level of arousal that can be tolerated before performance deteriorates.

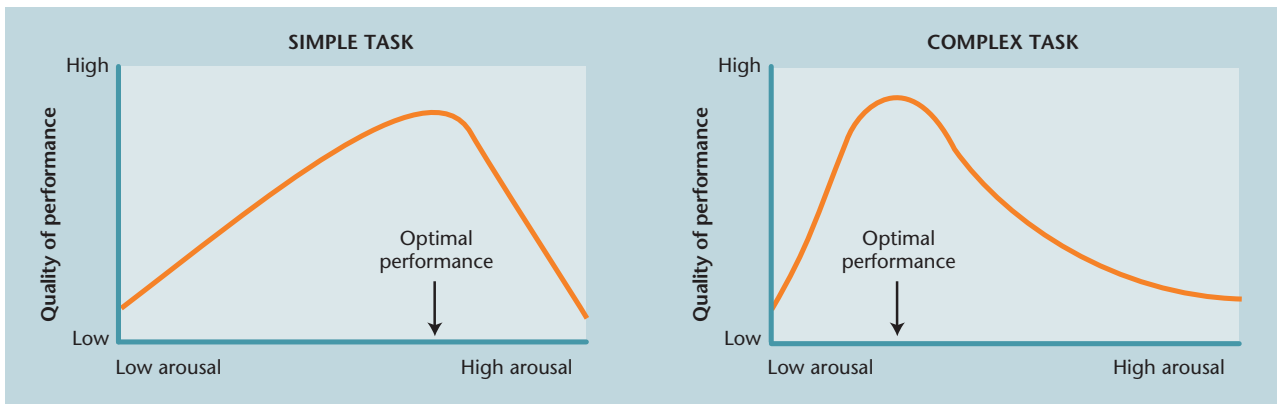


Figure 8-1
The Yerkes–Dodson law.

A certain amount of arousal is needed to perform most tasks, but a very high level of arousal interferes with the performance of complicated activities. That is, the level of arousal that can be tolerated is higher for a simple task than for a complex one.

Source: After Hebb, 1955.

Zuckerman, 2005). In general, high sensation seekers, compared to low sensation seekers, are more likely to

- prefer dangerous sports (Diehm & Armatas, 2004; Eachus, 2004; Zuckerman, 2007b);
- choose vocations that involve an element of risk and excitement (Zuckerman, 2006);
- smoke, drink heavily, gamble, and use illicit drugs (D’Silva, Grant-Harrington, Palmgreen, Donohew, & Puzles-Lorch, 2001; Gurpegui et al., 2007; Nower, Derevensky, & Gupta, 2004);
- engage in unsafe driving (S. L. Pedersen & McCarthy, 2008; Thiffault & Bergeron, 2003);
- have more sexual partners and engage in more varied and dangerous sexual activities (Berg, 2008; Cohen, 2008); and
- be classified in school as delinquent or hyperactive (though not more aggressive) (Ang & Woo, 2003; Modecki, 2008).

ENDURING ISSUES

Nature–Nurture The Evolutionary Basis of Arousal Seeking

Some evolutionary theorists argue that sensation seeking may have an evolutionary basis. For example, Cosmides and Tooby (2000) propose that risk-taking behavior may have played an important adaptive role for our ancestors by providing them with opportunities to develop successful strategies to deal with potentially dangerous situations. Those who took risks, and who were thereby better equipped to cope with danger and turmoil in their environment, improved their social status and sexual competitiveness more than those who did not (Ermer, Cosmides & Tooby, 2008). ■

Intrinsic and Extrinsic Motivation

Some psychologists further distinguish between intrinsic and extrinsic motivation. **Intrinsic motivation** refers to motivation provided by an activity itself. Children climb trees, finger paint, and play games for no other reason than the fun they get from the activity itself. In the same way, adults may solve crossword puzzles, play a musical instrument, or tinker in a workshop largely for the enjoyment they get from the activity. **Extrinsic motivation** refers to motivation that derives from the consequences of an activity. For example, a child may do chores not because he enjoys them but because doing so earns an allowance, and an adult who plays a musical instrument may do so to earn some extra money.

Whether behavior is intrinsically or extrinsically motivated can have important consequences (Deci & Ryan, 2008). For example, if parents offer a reward to their young daughter for writing to her grandparents, the likelihood of her writing to them when rewards are no

intrinsic motivation A desire to perform a behavior that stems from the enjoyment derived from the behavior itself.

extrinsic motivation A desire to perform a behavior to obtain an external reward or avoid punishment.



The same activity might be motivated intrinsically, just for the pleasure of doing it, or extrinsically, by rewards unrelated to the activity itself.

✿ **Explore** Maslow's Hierarchy of Needs at www.mypsychlab.com

hierarchy of needs A theory of motivation advanced by Maslow holding that higher order motives involving social and personal growth only emerge after lower level motives related to survival have been satisfied.

longer available may actually decrease. One analysis of some 128 studies that examined the effect of extrinsic rewards on the behavior of children, adolescents, and adults found that when extrinsic rewards are offered for a behavior, intrinsic motivation and sense of personal responsibility for that behavior are likely to decrease, at least for a short time (Deci, Koestner, & Ryan, 1999, 2001). However, unexpected (as opposed to contractual) rewards do not necessarily reduce intrinsic motivation, and positive feedback (including praise) may actually increase intrinsic motivation (Chance, 1992; Deci et al., 1999; Reiss, 2005).

A Hierarchy of Motives

Humanistic psychologist Abraham Maslow (1954) arranged motives in a hierarchy, from lower to higher. The lower motives spring from physiological needs

that must be satisfied. As we move higher in Maslow's **hierarchy of needs**, the motives have more subtle origins: the desire to live as safely as possible, to connect meaningfully with other human beings, and to make the best possible impression on others. Maslow believed that the highest motive in the hierarchy is self-actualization—the drive to realize one's full potential. Maslow's hierarchy of motives is illustrated in **Figure 8–2**.

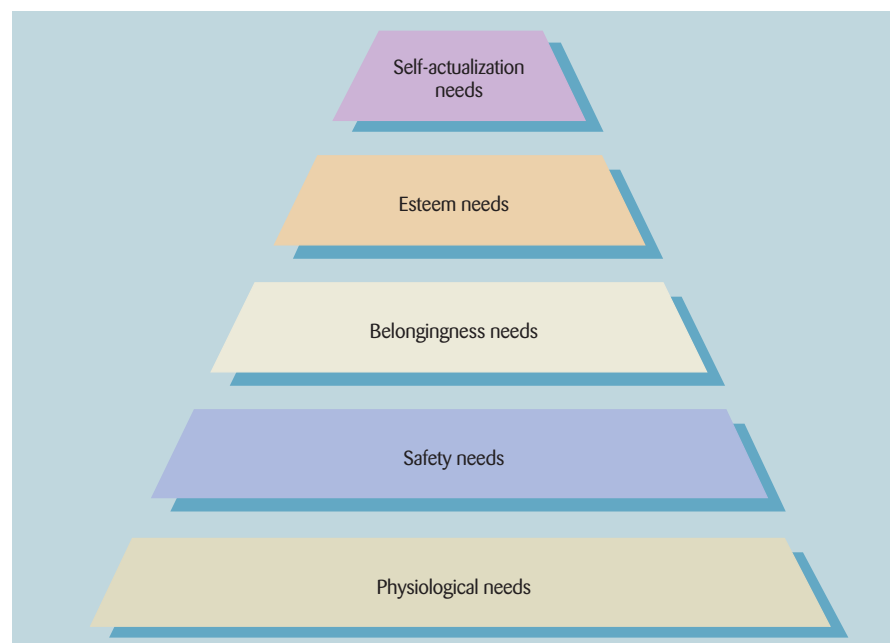
According to Maslow's theory, higher motives emerge only after the more basic ones have been largely satisfied: A person who is starving doesn't care what people think of her table manners. ✿ **Explore** on **MyPsychLab**

Maslow's model offers an appealing way to organize a wide range of motives into a coherent structure. But recent research challenges the universality of his views. In many societies, people live on the very edge of survival, yet they form strong and meaningful social ties and possess a firm sense of self-esteem (E. Hoffman, 2008; Wubbolding, 2005). As a result of such research findings, many psychologists now view Maslow's model with a measure of skepticism although it continues to be a convenient way to think of the wide range of human motives.

Figure 8–2
A pyramid representing Maslow's hierarchy of needs.

From bottom to top, the stages correspond to how fundamental the motive is for survival and how early it appears in both the evolution of the species and the development of the individual. According to Maslow, the more basic needs must largely be satisfied before higher motives can emerge.

Source: From *Motivation and Personality* by Abraham H. Maslow. Copyright © 1970. Reprinted by permission of Pearson Education, Upper Saddle River, NJ.



We have reviewed some basic concepts about motivation. With these concepts in mind, we now turn our attention to specific motives.

CHECK YOUR UNDERSTANDING

Match the following terms with the appropriate definition.

- | | |
|-----------------------------|------------------------------------------------------------------------------------|
| 1. ___ drive | a. The drive to realize one's full potential |
| 2. ___ drive reduction | b. state of balance in which the organism functions effectively |
| 3. ___ homeostasis | c. theory that motivated behavior is focused on reducing bodily tension |
| 4. ___ self-actualization | d. tending to perform behavior to receive some external reward or avoid punishment |
| 5. ___ intrinsic motivation | e. state of tension brought on by biological needs |
| 6. ___ extrinsic motivation | f. motivation arising from behavior itself |

Answers: 1. e. 2. c. 3. b. 4. a. 5. f. 6. d.

APPLY YOUR UNDERSTANDING

- You are home alone and have nothing to do. You find yourself walking around. You look for something to read, but nothing seems quite right. Then you check to see if anything interesting is on TV, but again nothing seems worth watching. Finally, you decide to go jogging. This kind of motivated behavior that increases the state of arousal is a problem for
 - the instinct theory of motivation.
 - any theory of motivation.
 - the drive-reduction theory of motivation.
 - the Yerkes–Dodson law.
- While you are working on a complex task, your boss stops by your desk and says, “You’ve only got 10 more minutes to finish that up. It’s really important that it be done right. I know you can do it and I’m depending on you.” When you complain that he’s making you nervous and your performance will suffer, he replies, “I’m just trying to motivate you.” Which of the following does your boss apparently not understand?
 - drive-reduction theory
 - homeostasis
 - extrinsic motivation
 - the Yerkes–Dodson law

Answers: 1. c. 2. d.

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LEARNING OBJECTIVES

- Identify the areas of the brain that are involved in hunger and describe the role of glucose, leptin, and ghrelin in determining a biological need for food. Distinguish between the biological need for food and the experience of hunger (including the role of incentives).
- List the symptoms that are used to diagnose anorexia nervosa, bulimia nervosa, muscle dysmorphia, and obesity. Describe the people who are most likely to develop these disorders and the most likely causes of them.

HUNGER AND THIRST

Why do people usually get hungry at mealtime?

When you are hungry, you eat. If you don't eat, your need for food will increase but your hunger will come and go. Moreover, shortly after lunch when you have no need for further food, if you pass a bakery and smell the baked goods, you may crave a donut or a scone. In other words, the psychological state of hunger is not the same as the biological need for food, although that need often sets the psychological state in motion.

Thirst also is stimulated by both internal and external cues. Internally, thirst is controlled by two regulators that monitor the level of fluids inside and outside the cells. But we may also become thirsty just seeing a TV commercial featuring people savoring tall, cool drinks in a lush, tropical setting (W. G. Hall, Arnold, & Myers, 2000; Rowland, 2002).

Biological and Emotional Factors

How can external cues influence our desire to eat?

Early research identified two regions in the hypothalamus that served as a kind of “switch” that turned eating on or off. When one of these centers was stimulated, animals began to eat; and when it was destroyed the animals stopped eating to the point of starvation. When the second region was stimulated, animals stopped eating; when it was destroyed, animals ate to the point of extreme obesity. However, recent studies have challenged this simple “on–off” explanation for the control of eating by showing that a number of other areas of the brain are also involved (Olszewski, Cedernaes, Olsson, Levine, & Schiöth, 2008). For example, research has shown that regions of the cortex and spinal cord play an important role in regulating food intake. Moreover, the connections among brain centers that control hunger are now known to be considerably more complex than were once thought (Blundell & Halford, 1998; Brambilla, Monteleono, & Maj, 2007; Volkow et al., 2003; Woods, Seeley, Porte, & Schwartz, 1998).

How do these various areas of the brain know when to stimulate hunger? It turns out that the brain monitors the blood levels of **glucose** (a simple sugar used by the body for energy), fats, carbohydrates, and the hormone *insulin*. (See **Figure 8–3**.) Changes in the levels of these substances signal the need for food. In addition, fat cells within our body produce the hormone **leptin** which travels in the bloodstream and is sensed by the hypothalamus. High levels of leptin signal the brain to reduce appetite, or to increase the rate at which fat is burned.

The brain also monitors the amount of food that you have eaten. Specialized cells in the stomach and the upper part of the small intestine sense the volume of food in the digestive system. When only a small quantity of food is present, these cells release a hormone called **ghrelin** into the bloodstream. Ghrelin travels to the brain where it stimulates appetite and focuses our thoughts and imagination on food (Näslund & Hellström, 2007; Schmid et al., 2005).

glucose A simple sugar used by the body for energy.

leptin A hormone released by fat cells that reduces appetite.

ghrelin A hormone produced in the stomach and small intestines that increases appetite.

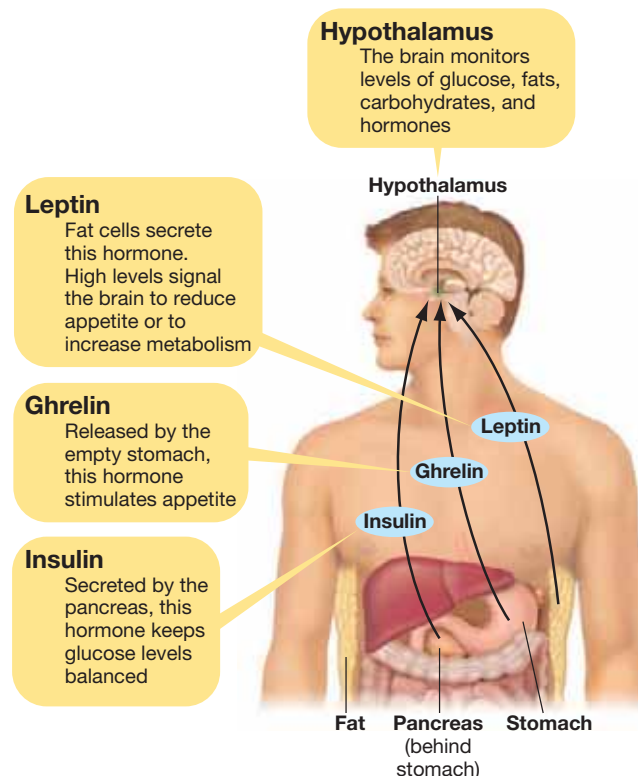


Figure 8–3
Physiological factors regulating appetite and body weight.

A variety of chemical messengers interact to stimulate and suppress appetite. Among these are insulin, leptin, and ghrelin.

But, as we noted earlier, the biological need for food is not the only thing that can trigger the experience of hunger. For example, a single night of sleep deprivation can leave one feeling hungry by increasing ghrelin levels and decreasing leptin levels (Schmid, Hallschmid, Jauch-Chara, Born, & Schultes, 2008). Moreover, the mere sight, smell, or thought of food causes an increase in insulin production, which, in turn, lowers glucose levels in the body's cells, mirroring the body's response to a physical need for food (Logue, 2000). Thus, the aroma from a nearby restaurant may serve as more than an **incentive** to eat; it may actually cause the body to react as though there is a real biological need for food. Most Americans eat three meals a day at fairly regular intervals. Numerous studies with both humans and animals have shown that regularly eating at particular times during the day leads to the release at those times of the hormones and neurotransmitters that cause hunger (Woods, Schwartz, Baskin, & Seeley, 2000). In other words, we get hungry around noon partly because the body "learns" that if it's noon, it's time to eat.



ENDURING ISSUES

Diversity–Universality Hunger and Eating

The hunger drive is tied to emotions in complex ways. Some people head for the refrigerator whenever they are depressed, bored, anxious, or angry. Others lose all interest in food at these times and complain that they are "too upset to eat." One student studying for an important exam spends as much time eating as reading; another student studying for the same exam lives on coffee until the exam is over. Under emotionally arousing conditions, what one person craves may turn another person's stomach.

What people eat when they are hungry also varies greatly as a result of learning and social conditioning. Although most Americans will not eat horsemeat, it is very popular in several European countries. Yet many Americans consume pork, which violates both Islamic and Jewish dietary laws. In some parts of South Asia, Africa, and China, people consider monkey brains a delicacy. And in Cambodia, fried tarantulas are popular and cheap! ■

Eating Disorders and Obesity

How can you tell if someone is suffering from anorexia nervosa or bulimia?

Anorexia Nervosa and Bulimia Nervosa "When people told me I looked like someone from Auschwitz [the Nazi concentration camp], I thought that was the highest compliment anyone could give me." This confession comes from a young woman who as a teenager suffered from a serious eating disorder known as **anorexia nervosa**. She was 18 years old, 5 feet 3 inches tall, and weighed 68 pounds. This young woman was lucky. She managed to overcome the disorder and has since maintained normal body weight. Many others are less fortunate. In fact, Canadian researchers found that over 10% of the young women with anorexia nervosa between 1981 and 2000 died as a result of the disorder, one of the highest fatality rates for psychiatric disorders affecting young females (Birmingham, Su, Hlynsky, Goldner, & Gao, 2005; Derman & Szabo, 2006; Park, 2007).

The following four symptoms are used in the diagnosis of anorexia nervosa (American Psychiatric Association, 2000; Bulik, Reba, Siega-Riz, & Reichborn-Kjennerud, 2005):

1. Intense fear of becoming obese, which does not diminish as weight loss progresses.
2. Disturbance of body image (for example, claiming to "feel fat" even when emaciated).



How and when you satisfy hunger and thirst depends on social, psychological, environmental, and cultural influences as well as on physiological needs. For example, the Japanese tea ceremony (*above*) is concerned more with restoring inner harmony than with satisfying thirst. Do you think the office worker (*below*) is drinking coffee because she is thirsty?

incentive External stimulus that prompts goal-directed behavior.

anorexia nervosa A serious eating disorder that is associated with an intense fear of weight gain and a distorted body image.



Does the American obsession with superslimness lead adolescents to become anorexic?

3. Refusal to maintain body weight at or above a minimal normal weight for age and height.
4. In females, the absence of at least three consecutive menstrual cycles.

Approximately 1% of all adolescents suffer from anorexia nervosa; about 90% of these are White upper- or middle-class females (Bulik et al., 2006).

Anorexia is frequently compounded by another eating disorder known as **bulimia nervosa** (Herpertz-Dahlmann, 2009). The following criteria are used for its diagnosis (American Psychiatric Association, 2000):

1. Recurrent episodes of binge eating (rapid consumption of a large amount of food, usually in less than 2 hours).
2. Recurrent inappropriate behaviors to try to prevent weight gain, such as self-induced vomiting.
3. Binge eating and compensatory behaviors occurring at least twice a week for three months.
4. Body shape and weight excessively influencing the person's self-image.
5. Occurrence of the just-mentioned behaviors at least sometimes in the absence of anorexia.

Approximately 1 to 2% of all adolescent females suffer from bulimia nervosa, though recent evidence suggests this number may be decreasing (Keel, Heatherton, Dorer, Joiner, & Zalta, 2006). Once again, the socioeconomic group at highest risk for bulimia is upper-middle- and upper-class women.

Although anorexia and bulimia are much more prevalent among females than males (Gleaves, Miller, Williams, & Summers, 2000; S. Turnbull, Ward, Treasure, Jick, & Derby, 1996), many more men are affected by these disorders than was once suspected (Gila, Castro, & Cesena, 2005). Both men and women with eating disorders are preoccupied with body image, but men are not necessarily obsessed with losing weight (Ousley, Cordero, & White, 2008). For example, a related phenomenon called **muscle dysmorphia** appears to be on the increase among young men (Olivardia, 2007). Muscle dysmorphia is an obsessive concern with one's muscle size. Men with muscle dysmorphia, many of whom are well muscled, are nonetheless distressed at their perceived puniness, and spend an inordinate amount of time fretting over their diet and exercising to increase their muscle mass (C. G. Pope, Pope, & Menard, 2005).

Little is known about the factors that contribute to eating disorders among men (Crosscope-Happel, 2005), though research has shown that muscle dysmorphia is associated with low self-esteem and having been bullied as a child (Wolke & Sapouna, 2008). We know considerably more about the factors that contribute to eating disorders in women (Favaro, Tenconi, & Santonastaso, 2006; Garner & Magana, 2006). On one hand, mass media promote the idea that a woman must be thin to be attractive. In addition, women with bulimia commonly have low self-esteem, are hypersensitive to social interactions, and are more likely to come from families where negative comments are often made about weight (Crowther, Kichler, Sherwood, & Kuhnert, 2002; Zonneville-Bender et al, 2004). Many also display clinical depression or obsessive-compulsive disorder (see Chapter 12, "Psychological Disorders") and have engaged in self-injurious behaviors such as cutting themselves (Herpertz-Dahlmann, 2009; Milos, Spindler, Ruggiero, Klaghofer, & Schnyder, 2002; Paul, Schroeter, Dahme, & Nutzinger, 2002). Finally, there is growing evidence that genetics plays a role in both anorexia nervosa and bulimia nervosa, although the two eating disorders may have a very different genetic basis (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004; Keel & Klump, 2003).

Anorexia and bulimia are notoriously hard to treat, and there is considerable disagreement on the most effective approach to therapy (G. T. Wilson, Grilo, & Vitousek, 2007; Yager, 2008). In fact, some psychologists doubt that we can ever eliminate eating disorders in a culture bombarded with the message that "thin is in" (Fairburn, Cooper, Shafran, & Wilson, 2008). Regrettably, in many developing countries such as Taiwan, Singapore, and China, where dieting is becoming a fad, eating disorders, once little known, are now becoming a serious problem (H. Chen & Jackson, 2008; Sing Lee, Chan, & Hsu, 2003).

bulimia nervosa An eating disorder characterized by binges of eating followed by self-induced vomiting.

muscle dysmorphia A disorder generally seen in young men involving an obsessive concern with muscle size.

Obesity and Weight Control According to the U.S. Surgeon General, obesity is the most pressing health problem in America (Chamberlin, 2008; P. J. Johnson, 2003; Office of the Surgeon General, 2007). *Obesity* refers to an excess of body fat in relation to lean body mass, while *overweight* refers to weighing more than a desirable standard, whether from high amounts of fat or being very muscular. Obesity has increased by more than 50% during the past decade, with more than two-thirds of Americans being either overweight or obese. In contrast to anorexia nervosa and bulimia nervosa, obesity is more prevalent among Black women than among White women (Y. C. Wang, Colditz, & Kuntz, 2007).

Even more disturbing, the rate of obesity among young people has more than tripled since 1980, with over 9 million overweight adolescents in America today. (See **Figure 8-4**). This problem is particularly serious since overweight children and adolescents are more likely to become overweight adults who are at an increased risk for serious diseases like hypertension, cardiovascular disease, diabetes, and sleep apnea (American Heart Association, 2009; Nishimura et al., 2003).

Many factors contribute to overeating and obesity (Hebebrand & Hinney, 2009). In some cases, people inherit a tendency to be overweight (Frayling et al., 2007; Ramadori et al., 2008). Neuroimaging studies suggest part of this problem may stem from an inherited tendency in some people to become addicted to compulsive eating (similar to the genetic predisposition toward drug and alcohol addiction). As a result of this predisposition, these individuals are more vulnerable to cravings triggered by food cues in their environment, and less responsive to their body's internal signaling of satiety (Leutwyler-Ozelli, 2007).

Eating habits established during childhood are also important because they determine the number of fat cells that develop in the body and that number remains fairly constant throughout life. Dieting during adulthood only decreases the amount of fat each cell stores; it doesn't reduce the total number of fat cells (Spalding et al., 2008).

A sedentary lifestyle also contributes to obesity. Children in the United States today are more likely to watch television and play video games than to play soccer or hockey; and many adults lack adequate physical activity, too. Abundant opportunities and encouragement to overeat in American culture also play a role. Several studies have shown that many obese people eat more than half their calories at night (Mieda, Williams, Richardson, Tanaka, & Yanagisawa, 2006). Portion size has also increased in recent years, as has the constant availability of food from vending machines and fast-food restaurants.

Adding to the medical difficulties accompanying obesity, overweight people often face ridicule and discrimination resulting in significant economic, social, and educational loss (D. Carr & Friedman, 2005; Maranto & Stenoien, 2000). For example, overweight women have reported lowered self-confidence owing to victimization in school and at work because of their weight (C. Johnson, 2002; Rothblum, Brand, Miller, & Oetjen, 1990). And obese male lawyers earn less than male lawyers of normal weight (Saporta & Halpern, 2002). Even children who are overweight display increased rates of behavior problems, including aggression, lack of discipline, immaturity, anxiety, low self-esteem, and depression when compared with their normal-weight peers (Ward-Begnoche et al., 2009; Q. Yang & Chen, 2001).

With all of the problems associated with being overweight, many people are constantly trying to lose weight. There are no quick fixes to weight loss, but the suggestions in "Applying Psychology: The Slow (but Lasting) Fix for Weight Gain" can help people lose weight and keep it off.

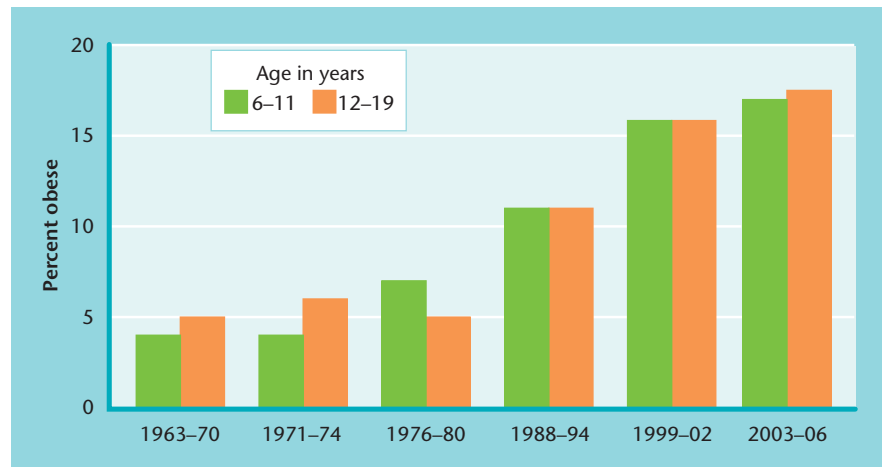


Figure 8-4
Rising obesity among American youth.

The number of overweight children and adolescents has increased sharply in recent years. From 1980 to 2002, the percentage of overweight adolescents tripled. This trend is particularly disturbing since overweight children and adolescents are likely to become overweight adults, placing them at increased risk for cardiovascular disease, hypertension, and diabetes.

Source: CDC/NCHS, NHES, and NHANES.

Notes: Excludes pregnant women starting with 1971-74. Pregnancy status not available for 1963-65 and 1966-70. Data for 1963-65 are for children 6-11 years of age; data for 1966-70 are for adolescents 12-17 years of age, not 12-19 years.

APPLYING PSYCHOLOGY

The Slow (but Lasting) Fix for Weight Gain

The study of hunger and eating has led to some compelling insights into the problem of weight control. It appears that our bodies are genetically “set” to maintain a certain weight (Hallschmid, Benedict, Born, Fehm, & Kern, 2004; G. N. Wade, 2004). According to this **set point theory**, if you consume more calories than you need for that weight, your metabolic rate will increase. As a result, you will feel an increase in energy that will prompt you to be more active, thereby burning more calories. If, however, you eat fewer calories than are needed to maintain your weight, your metabolic rate will decrease; you will feel tired and become less active, thereby burning fewer calories. This mechanism was no doubt helpful during the thousands of years that our species lived literally hand to mouth, but it is less helpful where food is abundant, as in modern industrialized nations.

An implication of our current understanding of hunger and weight regulation is that a successful weight-control program must be long term and must work with, rather than against, the body’s normal tendency to maintain weight. On the basis of studies of the hunger drive and the relationship between eating and body weight, here are our recommendations for weight control:

1. First, check with your doctor before you start. People want quick fixes, so they often go overboard on dieting or exercise, sometimes with disastrous consequences. Make sure your weight loss program will be safe.
2. Increase your body’s metabolism through regular exercise. The most effective metabolism booster is 20–30 minutes of moderate activity several times a week. Although only about 200–300 calories are burned off during each exercise session, the exercise increases the resting metabolic rate. This means that you burn more calories when not exercising. Thus, exercise is an important part of a weight reduction program (Sarwer, Allison, & Berkowitz, 2004; Wadden, Crerand, & Brock, 2005).
3. Modify your diet. A moderate reduction in calories is beneficial. Also, reduce your consumption of fats (particularly saturated fats) and sugars. Sugars trigger an increase in the body’s level of insulin; and high levels of fat and insulin in the blood stimulate hunger.
4. Reduce external cues that encourage you to eat undesirable foods. The mere sight or smell of food can increase the amount of insulin in the body, thus triggering hunger. Many people find that if they do their grocery shopping on a full stomach, it is easier to resist the temptation to buy junk foods.
5. Set realistic goals. Focus at least as much on preventing weight gain as on losing weight. If you must lose weight, try to shed just one pound a week for 2 or 3 months. After that, concentrate on maintaining that new, lower weight for several months before moving on to further weight loss.
6. Reward yourself—in ways unrelated to food—for small improvements. Use some of the behavior-modification techniques described in Chapter 5: Reward yourself not only for each pound of weight lost but also for each day or week that you maintain that weight loss. And remember, numerous studies have shown that losing weight is much easier than keeping weight off (T. Mann et al, 2007). The only way you can keep the weight off is by continuing to adhere to a reasonable diet and exercise plan (Adbel-Hamid, 2003; McGuire, Wing, Klem, Lang, & Hill, 1999).

To learn more about weight control, visit our Web site at www.prehall.com/morris.

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set point theory A theory that our bodies are genetically predisposed to maintaining a certain weight by changing our metabolic rate and activity level in response to caloric intake.

CHECK YOUR UNDERSTANDING

1. The level of _____ in the blood signals hunger.
2. Hunger can be stimulated by both _____ and _____ cues.

Match the following terms with the appropriate definition.

3. ___ hypothalamus
4. ___ anorexia nervosa
5. ___ bulimia nervosa
 - a. recurrent episodes of binge eating, followed by vomiting, taking laxatives, or excessively exercising
 - b. contains both a hunger center and a satiety center
 - c. intense fear of obesity, disturbance of body image, and very little intake of food, with resulting weight well below normal minimums

Answers: 1. glucose. 2. internal, external. 3. b. 4. c. 5. a.

APPLY YOUR UNDERSTANDING

1. You are on your way out to a play, and you notice that you are hungry. While you are watching the play, you no longer feel hungry. But when the play is over, you notice that you are hungry again. This demonstrates that
 - a. the biological need for food causes hunger.
 - b. if you are distracted, primary drives but not secondary drives will decrease.
 - c. hunger does not necessarily correspond to a biological need for food.
 - d. primary drives are unlearned and are essential to survival of the individual or species.
2. You've noticed that when you are hungry, eating a carrot doesn't satisfy you, but eating a chocolate bar does. This is probably because the chocolate bar, to a greater extent than the carrot:
 - a. increases the amount of glucose in your bloodstream, which in turn reduces hunger.
 - b. reduces your biological need for food.
 - c. is an extrinsic motivator.
 - d. serves as an incentive.

Answers: 1. c. 2. a.

LEARNING OBJECTIVES

- Describe how sexual motivation is both similar to and different from other primary drives. Identify the factors (biological and nonbiological) that affect sexual motivation.
- Describe the sexual response cycle and how it differs for men and women. Briefly explain what is meant by the statement that "research indicates that the sex lives of most Americans differ significantly from media portrayals."
- Summarize the research evidence for and against a biological basis for sexual orientation.

SEX

How is the sex drive different from other primary drives?

Sex is the primary drive that motivates reproductive behavior. Like the other primary drives, it can be turned on and off by biological conditions in the body as well as by environmental cues. The human sexual response is also affected by social experience, sexual experience, nutrition, emotions, and age. In fact, just thinking about, viewing, or having fantasies about sex can lead to sexual arousal in humans (Beauregard, Lévesque, & Bourgouin, 2001; Bogaert & Fawcett, 2006). Sex differs from other primary drives in one important way: Hunger and thirst are vital to the survival of the individual, but sex is vital only to the survival of the species.

THINKING CRITICALLY ABOUT...

The Sex Drive

The sex drive is said to have no survival value for the individual; its only value is the survival of the species. Suppose that humans were capable of reproducing, but no longer had a sex drive. How would life be different? In answering that question, would it help to collect data on people alive today who, for one reason or another, have lost their sex drive? Are there ways in which information from such people might not be useful to you?

Biological Factors

How well do we understand the biology of the sex drive?

Biology clearly plays a major role in sexual motivation. At one time, the level of hormones such as **testosterone**—the male sex hormone—was believed to *determine* the male sex drive. Today, scientists recognize that hormonal influences on human sexual arousal are considerably more complex (Gades et al., 2008). While moment-to-moment fluctuations in testosterone levels are not directly linked to sex drive, *baseline* levels of testosterone are associated with the frequency of sexual behavior and satisfaction (Persky, 1978). In addition, testosterone supplements have been shown to increase sex drive in women (Bolour & Braunstein, 2005). However, unlike lower animals, whose sexual activity is tied to the female's reproductive cycle, humans are capable of sexual arousal at any time.

Many animals secrete substances called *pheromones* that promote sexual readiness in potential partners (see Chapter 3, "Sensation and Perception"). Some evidence suggests that humans, too, secrete pheromones, in the sweat glands of the armpits and in the genitals, and that they may influence human sexual attraction (Boulkroune, Wang, March, Walker, & Jacob, 2007; Keverne, 2004; Lundström, Goncalves, Esteves, & Olsson, 2003). The

testosterone The primary male sex hormone.

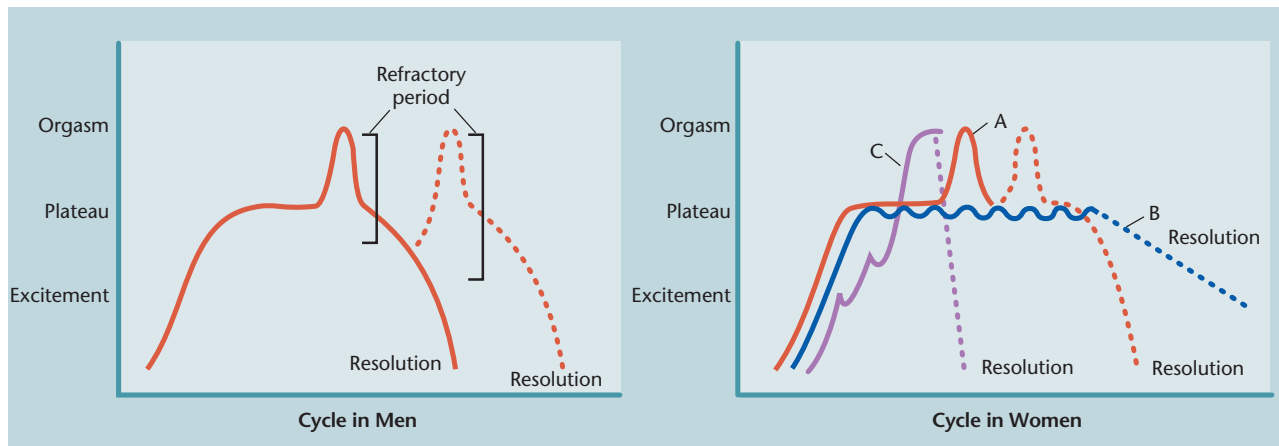


Figure 8–5
The sexual response cycle in males and females.

As the illustration shows, males typically go through one complete response cycle and are then capable of becoming excited again after a refractory period. Females have three characteristic patterns: one similar to the male cycle, with the added possibility of multiple orgasms (A); one that includes a lengthy plateau phase with no orgasm (B); and a rapid cycle including several increases and decreases of excitement before reaching orgasm (C).

Source: Adapted from Masters & Johnson, 1966. Reprinted by permission of The Masters and Johnson Institute.

✿ **Explore** the Sexual Response Cycle at www.mypsychlab.com

brain exerts a powerful influence on the sex drive, too. In particular, the limbic system and the insula, located deep within the brain, are involved in sexual excitement (Balfour, 2004; Bianchi-Demicheli & Ortigue, 2007) (see Chapter 2, “Biological Basis of Behavior”).

The biology of sexual behavior is better understood than that of the sex drive itself. Sex researchers William Masters and Virginia Johnson long ago identified a **sexual response cycle** that consists of four phases: *excitement*, *plateau*, *orgasm*, and *resolution* (W. H. Masters & Johnson, 1966). In the *excitement phase*, the genitals become engorged with blood. In the male, this causes erection of the penis; in the female, it causes erection of the clitoris and nipples. This engorgement of the sexual organs continues into the *plateau phase*, in which sexual tension levels off. During this phase, breathing becomes more rapid and genital secretions and muscle tension increase. During *orgasm*, the male ejaculates and the woman’s uterus contracts rhythmically; and both men and women experience some loss of muscle control. Following orgasm males experience a *refractory period*, which can last from a few minutes to several hours, during which time they cannot have another orgasm. Women do not have a refractory period, and may, if stimulation is reinitiated, experience another orgasm almost immediately. The *resolution phase* is one of relaxation in which muscle tension decreases and the engorged genitals return to normal. Heart rate, breathing, and blood pressure also return to normal. **Figure 8–5** displays the pattern of sexual responses for men and women. ✿ **Explore on MyPsychLab**

Cultural and Environmental Factors

How does culture influence sexual behavior?

Although hormones and the nervous system do figure in the sex drive, human sexual motivation, especially in the early stages of excitement and arousal, is much more dependent on experience and learning than on biology.

What kinds of stimuli activate the sex drive? It need not be anything as immediate as a sexual partner. The sight of one’s lover, as well as the smell of perfume or aftershave lotion, can stimulate sexual excitement. Soft lights and music often have an aphrodisiac effect. One person may be unmoved by an explicit pornographic movie but aroused by a romantic love story, whereas another may respond in just the opposite way. Ideas about what is moral, appropriate, and pleasurable also influence our sexual behavior. Finally, as shown in **Figure 8–6**, one global survey of reported sexual activity indicated the rate at which couples have sex varies dramatically around the world (Durex Global Sex Survey, 2005). This survey also revealed that the frequency of sexual activity varies by age, with 35- to 44-year-olds reporting to have sex an average of 112 times a year, 25- to 34-year-olds having sex an average of 108 times per year, and 16- to 20-year-olds having sex 90 times annually.

sexual response cycle The typical sequence of events, including excitement, plateau, orgasm, and resolution, characterizing sexual response in males and females.

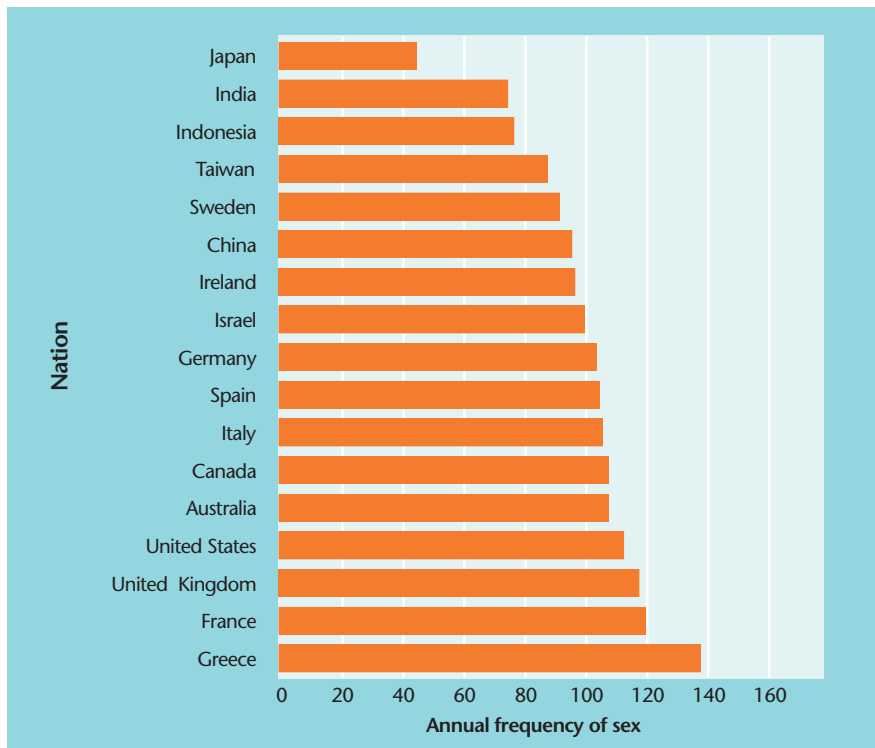


Figure 8–6
Frequency (annual) of sexual behavior around the world.

A global survey of reported sexual activity indicates the frequency that couples have sex varies dramatically by country.

Source: <http://www.durex.com/cm/gss2005result.pdf>. Used with permission of Durex.com.

Gender equality is also an important cultural factor in how much people report enjoying their sex lives. For example, heterosexual couples living in countries where women and men hold equal status are the most likely to report that their sex lives are emotionally and physically satisfying. Conversely, both men and women in countries where men traditionally are more dominant report the least satisfying sex lives (Harms, 2006).

Patterns of Sexual Behavior Among Americans

Contrary to media portrayals of sexual behavior in publications like *Playboy* or TV shows like *Sex in the City*, which depict Americans as oversexed and unwilling to commit to long-term relationships, research indicates that most people are far more conservative in their sex lives. One carefully designed study (Michael, Gagnon, Laumann, & Kolata, 1994) of 3,432 randomly selected people between the ages of 18 and 59 revealed the following patterns in the sexual activity of American men and women:

- About one-third of those sampled had sex twice a week or more, one-third a few times a month, and the remaining third a few times a year or not at all.
- The overwhelming majority of respondents did not engage in kinky sex. Instead, vaginal intercourse was the preferred form of sex for over 90% of those sampled. Watching their partner undress was ranked second, and oral sex, third.
- Married couples reported having sex more often—and being more satisfied with their sex lives—than did unmarried persons (see also Waite & Joyner, 2001).
- The average duration of sexual intercourse reported by most people was approximately 15 minutes.
- The median number of partners over the lifetime for males was 6 and for females 2 (17% of the men and 3% of the women reported having sex with over 20 partners).
- About 25% of the men and 15% of the women had committed adultery.

Extensive research has also documented at least four significant differences in sexuality between American men and women: Men are more interested in sex than are women;



Homosexual activity is common among animals. For example, male giraffes often engage in extreme necking, entwining, and rubbing, becoming sexually aroused as they do.

sexual orientation Refers to the direction of one's sexual interest toward members of the same sex, the other sex, or both sexes.

women are more likely than men to link sex to a close, committed relationship; aggression, power, dominance, and assertiveness are more closely linked to sex among men than among women; and women's sexuality is more open to change over time (Lykins, Meana, & Strauss, 2008; Peplau, 2003).

Sexual Orientation

What are the arguments for and against a biological explanation of homosexuality?

Sexual orientation refers to the direction of an individual's sexual interest. People with a *heterosexual orientation* are sexually attracted to members of the opposite sex; those with a *homosexual orientation* are sexually attracted to members of their own sex; and *bisexuals* are attracted to members of both sexes. Recent studies indicate that in the United States about 3% of young adult males and 4% of young adult females identify themselves as homosexual, though estimates vary considerably depending on the age of the respondents and how sexual orientation is defined. Sexual orientation also varies by culture. For example, about 21% of adolescent females in Norway report being attracted to members of their own sex, while less than 2% of Turkish females identify themselves as being homosexual (L. Ellis, Robb, & Burke, 2005; John Hughes, 2006; Savin-Williams, 2006).

What determines sexual orientation? This issue has been argued for decades in the form of the classic nature-versus-nurture debate. Those on the nature side hold that sexual orientation is rooted in biology and is primarily influenced by genetics. They point out that homosexual men and women generally know before puberty that they are "different" and often remain "in the closet" regarding their sexual orientation for fear of recrimination (Lippa, 2005). Evidence from family and twin studies shows a higher incidence of male homosexuality in families with other gay men (Camperio-Ciani, Corna, & Capiluppi, 2004), and a higher rate of homosexuality among men with a homosexual twin even when the twins were raised separately (LeVay & Hamer, 1994). Despite these results from family and twin studies suggesting there is a genetic basis to sexual orientation, researchers have yet to identify a specific gene that determines sexual orientation (Rahman & Wilson, 2003; Saravi, 2007). The nature position also derives support from studies revealing anatomical and physiological differences between the brains of homosexual and heterosexual men (Fitzgerald, 2008; M. Hines, 2004; Kinnunen, Moltz, Metz, & Cooper, 2004; LeVay, 1991; Swaab & Hoffman, 1995). Finally, if homosexuality is primarily the result of early learning and socialization, children raised by gay or lesbian parents should be more likely to become homosexual. Research, however, has clearly demonstrated that this is not the case (C. J. Patterson, 2000).

Among other animals, homosexual activity occurs with some degree of regularity. For instance, among pygmy chimpanzees, about 50% of all observed sexual activity is between members of the same sex. In zoos, sexual activity between members of the same sex has been observed in several species including penguins and koalas bears. Even male giraffes commonly entwine their necks until both become sexually stimulated. And among some birds, such as greylag geese, homosexual unions have been found to last up to 15 years (Bagemihl, 2000; Driscoll, 2008).

Those on the nurture side argue that sexual orientation is primarily a learned behavior, influenced by early experience and largely under voluntary control. They criticize research supporting the biological position as methodologically flawed—sometimes confusing what causes homosexuality with what results from homosexuality (Byne, 1994). They find support for their position from cross-cultural studies that show sexual orientations occurring at different frequencies in various cultures.

To date, neither the biological nor the socialization theory has provided a completely satisfactory explanation for the origin of sexual orientation. As with most complex behaviors, a more likely explanation probably involves a combination of these two positions (Garnets, 2002; Hammack, 2005).

CHECK YOUR UNDERSTANDING

1. The sex drive is necessary for the survival of the (individual/species) _____.
2. The four stages of the sexual response cycle are _____, _____, _____, and _____.

Match the following terms with the appropriate definitions.

3. ___ pheromones
 4. ___ testosterone
 5. ___ the limbic system
 - a. brain center involved in sexual excitement
 - b. hormone that influences some aspects of sexual development
 - c. scents that may cause sexual attraction
- Answers: 1. species. 2. excitement, plateau, orgasm, and resolution. 3. c. 4. b. 5. a.

APPLY YOUR UNDERSTANDING

1. Barbie has just “come out” to her friend Ken, telling him that she is a lesbian. She says she has known since she was a child that she was different from other girls because she was never attracted to boys, and she has concluded that this is just the way she is meant to be. Ken’s reaction, however, is negative. He suggests that Barbie just isn’t trying hard enough and that counseling could help her learn new patterns of attraction. Barbie is expressing the _____ view of homosexual orientation, while Ken’s response demonstrates the _____ view.
 - a. interventionist; interactionist
 - b. interactionist; interventionist
 - c. nurture; nature
 - d. nature; nurture
2. You are reading an article in the newspaper when you come across the following statement: “The extent to which a male is interested in sex is determined by the level of the hormone testosterone at that moment.” Which of the following would be an accurate response, based on what you have learned in this chapter?
 - a. “That would be true only for adolescent and young adult males, not older adults.”
 - b. “Actually there is very little relationship between moment-to-moment levels of testosterone and sex drive in males.”
 - c. “That’s true, but testosterone is a pheromone, not a hormone.”
 - d. “That’s true, but only during the excitement phase of the sexual response cycle.”

Answers: 1. d. 2. b.

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LEARNING OBJECTIVES

- Briefly describe the major stimulus motives: exploration, curiosity, manipulation, and contact.
- Describe the role of learning as a determinant of aggression including evidence for gender and cultural differences in aggressive behavior.
- Identify the components of achievement behavior and the characteristics of people who are high in achievement motivation. Explain the factors that affect the affiliation motive and the likelihood that a person will express their need for affiliation.

OTHER IMPORTANT MOTIVES

How are stimulus motives different from primary drives?

So far, we have moved from motives that depend on biological needs (hunger and thirst) to a motive that is far more sensitive to external cues—sex. Next, we consider motives that are even more responsive to environmental stimuli. These motives, called **stimulus motives**, include *exploration*, *curiosity*, *manipulation*, and *contact*. They push us to investigate and often to change our environment. Finally, we will turn our attention to the motives of *aggression*, *achievement*, and *affiliation*.

Exploration and Curiosity

What motives cause people to explore and change their environment?

Where does that road go? What is in that dark little shop? Answering these questions has no obvious benefit: You do not expect the road to take you anywhere you need to go or the

stimulus motives Unlearned motives, such as curiosity or contact, that prompts us to explore or change the world around us.



This toddler is exhibiting curiosity, a stimulus motive.



An infant monkey with Harlow's surrogate "mothers"—one made of bare wire, the other covered with soft terry cloth. The baby monkey clings to the terry-cloth mother, even though the wire mother is heated and dispenses food. Apparently, there is contact comfort in the cuddly terry cloth that the bare wire mother can't provide.

aggression Behavior aimed at doing harm to others; also, the motive to behave aggressively.

shop to contain anything you really want. You just want to know. Exploration and curiosity are motives sparked by the new and unknown and are directed toward no more specific goal other than "finding out." They are not unique to humans. The family dog will run around a new house, sniffing and checking things out, before it settles down to eat its dinner. Even rats, when given a choice, will opt to explore an unknown maze rather than run through a familiar one.

Psychologists disagree about the nature of curiosity, its causes, and even how to measure it (Litman, Collins, & Spielberger, 2005; Silvia, 2008). William James viewed it as an emotion; Freud considered it a socially acceptable expression of the sex drive. Others have seen it as a response to the unexpected and as evidence of a human need to find meaning in life. We might assume that curiosity is a key component of intelligence, but research has failed to confirm that hypothesis. Curiosity has been linked to creativity (Kashdan & Fincham, 2002). Interestingly, people who score high on novelty-seeking tests have a reduced number of dopamine receptors, suggesting curiosity and exploration may arise from a need for increased dopamine stimulation (Golimbet, Alfimova, Gritsenko, & Ebstein, 2007; Zald et al., 2008).

Manipulation and Contact

Is the human need for contact universal?

Why do museums have "Do Not Touch" signs everywhere? It is because the staff knows from experience that the urge to touch is almost irresistible. Unlike curiosity and exploration, manipulation focuses on a specific object that must be touched, handled, played with, and felt before we are satisfied. Manipulation is a motive limited to primates, who have agile fingers and toes. In contrast, the need for *contact* is more universal than the need for manipulation. Furthermore, it is not limited to touching with the fingers—it may involve the whole body. Manipulation is an active process, but contact may be passive.

In a classic series of experiments, Harry Harlow demonstrated the importance of the need for contact (Harlow, 1958; Harlow & Zimmerman, 1959). Newborn baby monkeys were separated from their mothers and given two "surrogate mothers." Both surrogate mothers were the same shape, but one was made of wire mesh and had no soft surfaces. The other was cuddly—layered with foam rubber and covered with terry cloth. Both surrogate mothers were warmed by means of an electric light placed inside them, but only the wire-mesh mother was equipped with a nursing bottle. Thus, the wire-mesh mother fulfilled two physiological needs for the infant monkeys: the need for food and the need for warmth. But baby monkeys most often gravitated to the terry-cloth mother, which did not provide food. When they were frightened, they would run and cling to it as they would to a real mother. Because both surrogate mothers were warm, the researchers concluded that the need for closeness goes deeper than a need for mere warmth. As described in Chapter 3, "Sensation and Perception," the importance of contact has also been demonstrated with premature infants. Low-birth-weight babies who are held and massaged gain weight faster, are calmer, and display more activity than those who are seldom touched (Hernandez-Reif, Diego, & Field, 2007; Weiss, Wilson, & Morrison, 2004).

Aggression

Is aggression a biological response or a learned one?

Human **aggression** encompasses all behavior that is intended to inflict physical or psychological harm on others. Intent is a key element of aggression. Accidentally hitting a pedestrian with your car is not an act of aggression—whereas deliberately running down a person would be.

Judging from the statistics (which often reflect underreporting of certain types of crimes), aggression is disturbingly common in this country. According to the *FBI's Uniform*

Crime Reports, nearly 1.4 million violent crimes were reported in the United States in 2007. These crimes included almost 17,000 murders, more than 90,000 forcible rapes, 445,000 robberies, and more than 855,000 aggravated assaults (Federal Bureau of Investigation, 2009). Family life also has a violent underside: One-quarter of families experience some form of violence. Some 3 to 4 million women are battered by their partners each year. In addition, more than 750,000 cases of child abuse were confirmed in 2004 (National Clearing House on Child Abuse and Neglect, 2006).

Why are people aggressive? Freud considered aggression an innate drive, similar to hunger and thirst, that builds up until it is released. In his view, one important function of society is to channel the aggressive drive into constructive and socially acceptable avenues, such as sports, debate, and other forms of competition. If Freud's analysis is correct, then expressing aggression should reduce the aggressive drive. Research shows, however, that under some circumstances, venting one's anger is more likely to increase than to reduce future aggression (Bushman, 2002; Bushman, Baumeister, & Stack, 1999).

According to another view, aggression is a vestige of our evolutionary past that is triggered by pain or frustration (Lorenz, 1968; G. S. McCall & Shields, 2008; Mohl, 2006). However, frustration does not always produce aggression. For example, if frustration doesn't generate anger, aggression is unlikely (Berkowitz & Harmon-Jones, 2004). Moreover, people react to frustration in different ways: some seek help and support, others withdraw from the source of frustration, some become aggressive, and some choose to escape into drugs or alcohol. Finally, there is some evidence that frustration is most likely to cause aggression in people who have learned to be aggressive as a means of coping with unpleasant situations (R. E. Tremblay, Hartup, & Archer, 2005).

One way we learn aggression is by observing aggressive models, especially those who get what they want (and avoid punishment) when they behave aggressively. For example, in contact sports, we often applaud acts of aggression (C. J. Rowe, 1998). In professional hockey, fistfights between players may elicit as much fan fervor as does goal scoring.

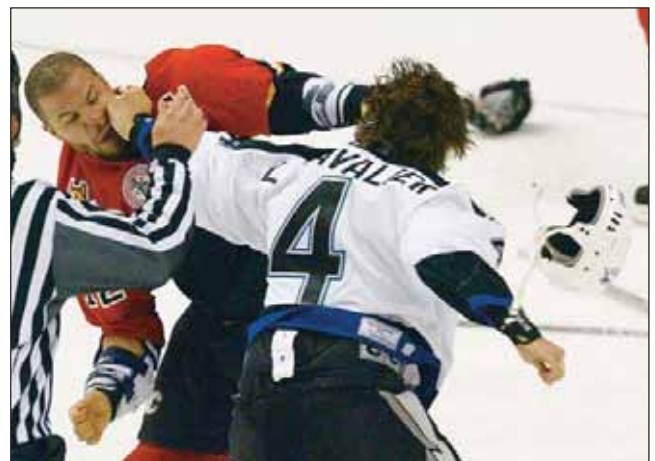
But what if the aggressive model does not come out ahead or is even punished for aggressive actions? Observers usually will avoid imitating a model's behavior if it has negative consequences. However, as we saw in Chapter 5, "Learning," children who viewed aggressive behavior learned aggressive behavior, regardless of whether the aggressive model was rewarded or punished. The same results were obtained in a study in which children were shown films of aggressive behavior. Children who saw the aggressive model being punished were less aggressive than those who saw the aggressive model rewarded, but both groups of children were more aggressive than those who saw no aggressive model at all. These data are consistent with research showing that exposure to cinematic violence of any sort causes a small to moderate increase in aggressive behavior among children and adolescents (J. P. Murray, 2008).

Aggression and Culture Further evidence that aggression is learned can be seen in the cultural variations that exist for handling of aggression (Lansford & Dodge, 2008; Triandis, 1994). For example, cultures as diverse as the Semai of the Malaysian rain forest, the Tahitian Islanders of the Pacific, the Zuni and Blackfoot nations in North America, the Pygmies of Africa, and the residents of Japan and the Scandinavian nations place a premium on resolving conflicts peacefully. Most of these are *collectivist* societies that emphasize the good of the group over the desires of the individual. Members of collectivist societies are more likely to seek compromise or to withdraw from a threatening interaction because of their concern for maintaining group harmony. In contrast, cultures such as the Yanomanö of South America, the Truk Islanders of Micronesia, and the Simbu of



The need for contact, closeness, and affection goes beyond simply the need to touch.

Some psychologists believe that aggression is largely a learned behavior. Professional athletes in contact sports often serve as models of aggressive behavior.



THINKING CRITICALLY ABOUT . . .

Culture and Aggression

The United States has one of the world's highest living standards and sends more young people to college than most other industrialized nations. Yet we have a very high incidence of violent crime.

1. Why do you think violence is so prevalent in U.S. culture? Can you design a research study to test your ideas?
2. How might the problem of widespread violence be reduced? What kind of evidence would be required to show that your ideas in fact work?
3. This critical-thinking exercise begins with several assertions about living standards, college attendance, and violent crime. However, no sources were cited to support those claims. Did you ask yourself whether there is any evidence to support them and, if so, whether the evidence is clear? What kinds of data would you want to see in order to determine if those assertions are correct?



Are males naturally more aggressive than females? Research suggests that both biology and culture encourage aggression in boys more than in girls. Adults often look the other way when two boys are fighting, sending the message that violence is an acceptable way to settle disputes.

achievement motive The need to excel, to overcome obstacles.

them for behaving aggressively; girls are more likely than boys to be taught to feel guilty for behaving aggressively or to expect parental disapproval for their aggressive behavior (D. G. Perry, Perry, & Weiss, 1989). The most accurate conclusion seems to be that, like most of the complex behaviors that we have reviewed, gender differences in aggression undoubtedly depend on the interaction of nature and nurture (Geen, 1998; Verona, Joiner, Johnson, & Bender, 2006).

Achievement

Is being highly competitive important to high achievement?

Climbing Mount Everest, sending rockets into space, making the dean's list, rising to the top of a giant corporation—all these actions may have mixed underlying motives. But in all of them there is a desire to excel. It is this desire for achievement for its own sake that leads psychologists to suggest that there is a separate **achievement motive**. Research indicates

New Guinea encourage aggressive behavior, particularly among males. Members of these *individualist* societies are more likely to follow the adage “Stand up for yourself.” Actually, we need not travel to exotic, faraway lands to find such diversity. Within the United States, such subcultures as Quakers, the Amish, the Mennonites, and the Hutterites have traditionally valued nonviolence and peaceful coexistence. This outlook contrasts markedly with individualist attitudes and practices in mainstream American culture.

Gender and Aggression Across cultures and at every age, males are more likely than females to behave aggressively. Three studies that reviewed more than 100 studies of aggression concluded that males are more aggressive than females both verbally (i.e., with taunts, insults, and threats) and, in particular, physically (i.e., with hitting, kicking, and fighting) (Bettencourt & Miller, 1996; Eagly & Steffen, 1986; Hyde, 1986). These gender differences tend to be greater in natural settings than in controlled laboratory settings (Hyde, 2005a) and appear to be remarkably stable (Arsenio, 2004; Knight, Fabes, & Higgins, 1996). Indeed, even historical data that go back to 16th-century Europe show that males committed more than three times as many violent crimes as females (L. Ellis & Coontz, 1990).

Is the origin of gender difference in aggression biological or social? The answer is not simple. On the one hand, certain biological factors appear to contribute to aggressive behavior. As we saw in Chapter 2, “The Biological Basis of Behavior,” high levels of testosterone are associated with aggressiveness. At the same time, our society clearly tolerates and even encourages greater aggressiveness in boys than in girls (Sommers-Flanagan, Sommers-Flanagan, & Davis, 1993). For example, we are more likely to give boys toy guns and to reward

that there are three separate but interrelated aspects of achievement-oriented behavior: *work orientation*, the desire to work hard and do a good job; *mastery*, the preference for difficult or challenging feats, with an emphasis on improving one's past performance; and *competitiveness*, the enjoyment of pitting one's skills against those of other people (Helmreich & Spence, 1978).

How do individual differences in the three aspects of achievement motivation relate to people's attainment of goals? It turns out that excessive competitiveness can actually interfere with achievement. In one study, students' grade-point averages (GPAs) were compared with their achievement motivation. As you might expect, students who scored low in work, mastery, and competitiveness had lower GPAs. But students who scored high in all three areas did not have the highest GPAs. It turned out that the students with the highest grades were those who had high work and mastery scores, but low competitiveness scores. The counterproductive effect of competitiveness has been demonstrated as well in businesspeople, elementary-school students, and scientists (Morrone & Pintrich, 2006). What accounts for this phenomenon? In part, highly competitive people alienate the very people who would otherwise help them achieve their goals; and preoccupation with winning can distract people from taking the actions necessary to attain their goals.

From psychological tests and personal histories, psychologists have developed a profile of people with high achievement motivation. These people are fast learners. They relish the opportunity to develop new strategies for unique and challenging tasks. Driven less by the desire for fame or fortune than by the need to live up to a high, self-imposed standard of performance (M. Carr, Borkowski, & Maxwell, 1991), they are self-confident, willingly take on responsibility, and do not readily bow to outside social pressures. They are energetic and allow few things to stand in the way of their goals.

Affiliation

How do psychologists explain the human need to be with other people?

Generally, people have a need for affiliation—to be with other people. The **affiliation motive** is likely to be especially strong when people feel threatened (Rofe, 1984). *Esprit de corps*—the feeling of being part of a sympathetic group—is critical among troops going into a battle, just as a football coach's pregame pep talk fuels team spirit. Both are designed to make people feel they are working for a common cause or against a common foe. Moreover, being in the presence of someone who is less threatened or fearful can reduce fear and anxiety. For example, patients with critical illnesses tend to prefer being with healthy people, rather than with other seriously ill patients or by themselves (Rofe, Hoffman, & Lewin, 1985). In the same way, if you are nervous on a plane during a bumpy flight, you may strike up a conversation with the calm-looking woman sitting next to you.

Some theorists have argued that our need for affiliation has an evolutionary basis (Ainsworth, 1989; R. F. Baumeister & Leary, 2000; Buss, 1990, 1991). In this view, forming and maintaining social bonds provided our ancestors with both survival and reproductive benefits. Social groups can share resources such as food and shelter, provide opportunities for reproduction, and assist in the care of offspring. Children who chose to stay with adults were probably more likely to survive (and ultimately reproduce) than those who wandered away from their groups. Thus, it is understandable that people in general tend to seek out other people.

Whether you express your need for affiliation in a particular situation depends on a number of factors. Whether you actually talk to the person sitting next to you on a flight depends in large part on how friendly you normally are (your normal need for affiliation), what is considered proper behavior in your culture, how friendly your neighbor appears to be, and how long the flight is likely to last. If the flight is turbulent, then additional factors enter into consideration such as how scared you feel at the moment, how calm your neighbor appears to be, and how turbulent the flight is.

affiliation motive The need to be with others.

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CHECK YOUR UNDERSTANDING

1. A high degree of _____ may interfere with achievement.
 2. A person who is willing to contend with the high risks of a career in sales is probably motivated by a high _____ motive.
 3. Indicate whether the following statements are true (T) or false (F).
 - a. ___ Curiosity has been linked to creativity.
 - b. ___ Research shows that low-birth-weight babies gain weight faster with frequent physical contact.
 - c. ___ Aggression may be a learned response to numerous stimuli.
- Answers: 1. competitiveness. 2. achievement. a. (T), b. (T), c. (T).

APPLY YOUR UNDERSTANDING

1. Susan scores high on tests of achievement motivation. Which of the following would you LEAST expect to be true of her?
 - a. She is a fast learner who willingly takes on responsibility.
 - b. She seldom deviates from methods that have worked for her in the past.
 - c. She has a strong desire to live up to high, self-imposed standards of excellence.
 - d. She is self-confident and resists outside social pressures.
 2. You are watching a children's TV show in which the "bad guys" eventually are punished for their aggressive behavior. Your friend says, "It's a good thing the bad guys always lose. Otherwise, kids would learn to be aggressive from watching TV shows like this." You think about that for a minute and then, on the basis of what you have learned in this chapter, you reply,
 - a. "Actually, seeing an aggressor punished for his or her actions leads to more aggression than seeing no aggression at all."
 - b. "You're right. Seeing aggressors punished for their actions is a good way to reduce the amount of aggressiveness in children."
 - c. "Aggression is an instinctual response to frustration, so it really doesn't matter what children see on TV. If they are frustrated, they will respond with aggression."
- Answers: 1. b. 2. a.

LEARNING OBJECTIVES

- Discuss the evidence for a set of basic emotions that are experienced by all humans.
- Compare and contrast the James-Lange theory, Cannon-Bard theory, and cognitive theories of emotion.

EMOTIONS

How many basic emotions are there?

Ancient Greek rationalists thought that emotions, if not held in check, would wreak havoc on higher mental abilities such as rational thought and decision making. In the past, psychologists, too, often viewed emotions as a "base instinct"—a vestige of our evolutionary heritage that needed to be repressed. Not surprisingly, emotions received very little attention from researchers (Mayne & Bonanno, 2001).

More recently, however, scientists have begun to see emotions in a more positive light. Today, they are considered essential to survival and a major source of personal enrichment and resilience (National Advisory Mental Health Council, 1995; Tugade & Fredrickson, 2004). Emotions are linked to variations in immune function and, thereby, to disease (see Chapter 11, "Stress and Health Psychology"). And as we saw in Chapter 7, "Cognition and Mental Abilities," emotions may also influence how successful we are (Goleman, 1997; Goleman, Boyatzis, & McKee, 2002). It is clear, then, that if we are going to understand human behavior, we must understand emotions. Unfortunately, that task is easier said than done. As you will soon see, even identifying how many emotions there are is difficult.

Basic Emotions

Are there basic emotions that all people experience regardless of their culture?

Many people have attempted to identify and describe the basic emotions experienced by humans (Cornelius, 1996; Schimmack & Crites, 2005). Some years ago, Robert Plutchik (1927–2006), for example, proposed that there are eight basic emotions: *fear, surprise, sadness, disgust, anger, anticipation, joy, and acceptance* (Plutchik, 1980). Each of these emotions helps us adjust to the demands of our environment, although in different ways. Fear, for example, underlies flight, which helps protect animals from their enemies; anger propels animals to attack or destroy.

Emotions adjacent to each other on Plutchik’s emotion “circle” (see Figure 8–7) are more alike than those situated farther away. Surprise is more closely related to fear than to anger; joy and acceptance are more similar to each other than either is to disgust. Moreover, according to Plutchik’s model, different emotions may combine to produce an even wider and richer spectrum of experience. Occurring together, anticipation and joy, for example, yield optimism; joy and acceptance fuse into love; and surprise and sadness make for disappointment. Within any of Plutchik’s eight categories, emotions also vary in intensity.

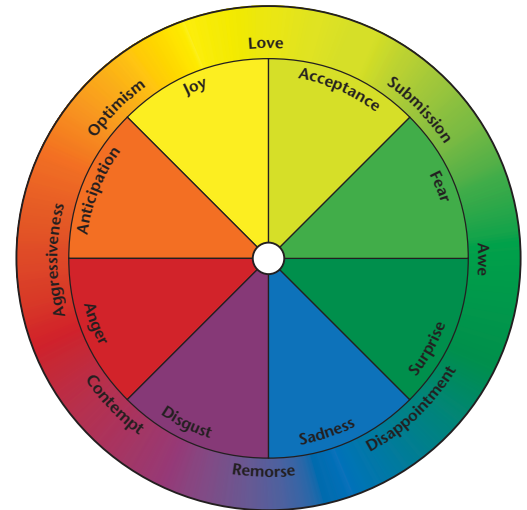


Figure 8–7
Plutchik’s eight basic categories of emotion.

Source: From Plutchik, 1980.

ENDURING ISSUES

Diversity–Universality Are Emotions Universal?

Some scientists challenge Plutchik’s model, noting that it may apply only to the emotional experience of English-speaking people. Anthropologists report enormous differences in the ways that other cultures view and categorize emotions. Some languages, in fact, do not even have a word for “emotion.” Languages also differ in the number of words that they have to name emotions. English includes over 2,000 words to describe emotional experiences, but Taiwanese Chinese has only 750 such descriptive words. One tribal language has only seven words that can be translated into categories of emotion. Some cultures lack words for “anxiety” or “depression” or “guilt.” Samoans have just one word encompassing love, sympathy, pity, and liking—all distinct emotions in our own culture (Frijda, Markam, & Sato, 1995; Russell, 1991). ■

Because of the differences in emotions from one culture to another, the tendency now is to distinguish between primary and secondary emotions. Primary emotions are those that are evident in all cultures, contribute to survival, associated with a distinct facial expression, and evident in nonhuman primates (Plutchik, 1994). Secondary emotions are those that are not found in all cultures. They may be thought of as subtle combinations of the primary emotions. (See Figure 8–8.)

Attempts to identify primary emotions have generally used cross-cultural studies (Ekman et al., 1987; C. E. Izard, 1994; Yrizarry, Matsumoto, Imai, Kookanm, & Takeuchi, 2001). For example, one group of researchers asked participants from 10 countries to interpret photographs depicting various facial expressions of emotions (Ekman et al., 1987). The percentage of participants from each country who correctly identified the emotions ranged from 60% to 98%. (See Figure 8–9.) The researchers used



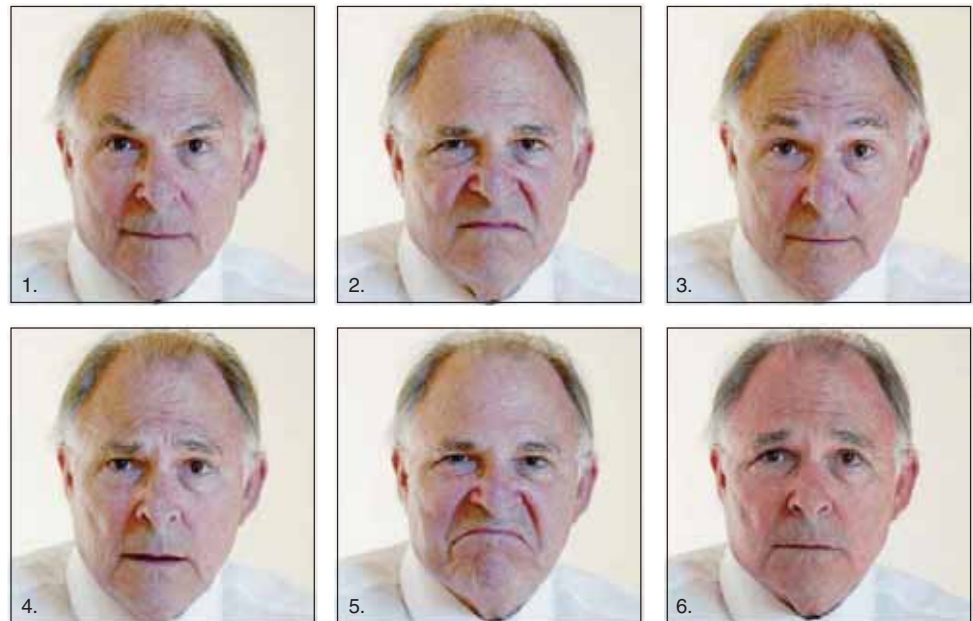
Figure 8–8
Display of anger in animal and human. Compare the facial expressions. The human face is that of a Kabuki player who is simulating anger. Note how the actor bares his teeth, copying the mandrill’s display of emotion.

Figure 8–9
Name That Face.

Dr. Paul Ekman believes that facial expressions are distinct, predictable, and easy to read for someone who has studied them. His research involved breaking the expressions down into their specific muscular components and developing programs to help train people to become more accurate observers of the feelings that flit briefly across others' faces. Here, he demonstrates six emotional states. How many of them can you match to the pictures? The answers are below.

- a. fear
- b. neutral (no emotion)
- c. sadness
- d. anger
- e. surprise
- f. disgust

Source: *New York Times*, 2003.



- Answers:
1. b (neutral)
 2. f (disgust)
 3. e (surprise)
 4. a (fear)
 5. d (anger)
 6. c (sadness)

this and other evidence to argue for the existence of six primary emotions—*happiness*, *surprise*, *sadness*, *fear*, *disgust*, and *anger*. Notice that love is not included in this list. Although Ekman did not find a universally recognized facial expression for love, many psychologists nevertheless hold that love is a primary emotion (Hendrick & Hendrick, 2003; Sabini & Silver, 2005). Its outward expression, however, may owe much to the stereotypes promoted by a culture's media (Fehr, 1994). In one study in which American college students were asked to display a facial expression for love, the participants mimicked the conventional “Hollywood” prototypes such as sighing deeply, gazing skyward, and holding their hand over their heart (Cornelius, 1996).

Theories of Emotion

What is the relationship among emotions, biological reactions, and thoughts?

In the 1880s, the American psychologist William James formulated the first modern theory of emotion. The Danish psychologist Carl Lange reached the same conclusions. According to the **James–Lange theory**, stimuli in the environment (say, seeing a large growling dog running toward us) cause physiological changes in our bodies (accelerated heart rate, enlarged pupils, deeper or shallower breathing, increased perspiration, and goose bumps), and emotions arise from those physiological changes. The emotion of *fear*, then, would simply be the almost instantaneous and automatic awareness of physiological changes.

There is some supporting evidence for this theory (R. J. Davidson, 1992; Levenson, 1992; McGeer & McGeer, 1980; Prinz, 2005), but if you think back to the biology of the nervous system (Chapter 2), you should be able to identify a major flaw in the James–Lange theory. Recall that sensory information about bodily changes flows to the brain through the spinal cord. If bodily changes are the source of emotions, then people with severe spinal cord injuries should experience fewer and less intense emotions, but this is not the case (Chwalisz, Diener, & Gallagher, 1988). Moreover, most

James–Lange theory States that stimuli cause physiological changes in our bodies, and emotions result from those physiological changes.

emotions are accompanied by very similar physiological changes. Bodily changes, then, do not cause specific emotions and may not even be necessary for emotional experience.

Recognizing these facts, the **Cannon–Bard theory** holds that we mentally process emotions and physically respond simultaneously, not one after another. When you see the dog, you feel afraid *and* your heart races at the same time.

Cognitive Theories of Emotion Cognitive psychologists have taken Cannon–Bard’s theory a step further. They argue that our emotional experience depends on our perception of a situation (Ellsworth, 2002; Lazarus, 1991a, 1991b, 1991c; C. Phelps, Bennett, & Brain, 2008; Scherer, Schorr, & Johnstone, 2001). According to the **cognitive theory** of emotion, the situation gives us clues as to how we should interpret our state of arousal. One of the first theories of emotion that took into account cognitive processes was advanced by Stanley Schachter and Jerome Singer (1962; 2001). According to Schachter and Singer’s *Two-Factor Theory of Emotion*, when we see a bear, there are indeed bodily changes; but we then use information about the situation to tell us how to respond to those changes. Only when we *cognitively* recognize that we are in danger do we experience those bodily changes as fear. (See **Figure 8–10** for a comparison of these three theories of emotion.)

Challenges to Cognitive Theory Although a cognitive theory of emotion makes a lot of sense, some critics reject the idea that feelings always stem from cognitions. Quoting the poet e. e. cummings, Robert Zajonc (1923–2008) argued that “feelings come first.” Human infants can imitate emotional expressions at 12 days of age, well before they acquire language. We have the ability to respond instantaneously to situations without taking time to interpret and evaluate them. But some emotional responses are not clear-cut. When we feel jittery, a cross between nervous and excited, we ask ourselves, “What’s going on?” Zajonc (1984) believed that we invent explanations to label feelings: In his view, cognition follows emotion.

Another direct challenge to the cognitive theory claims that emotions can be experienced without the intervention of cognition (C. E. Izard, 1971, 1994). According to this view, a situation such as separation or pain provokes a unique pattern of unlearned facial movements and body postures that may be completely independent of conscious thought. When information about our facial expressions and posture reaches the brain, we automatically experience the corresponding emotion. According to Carroll Izard, then, the James–Lange theory was essentially right in suggesting that emotional experience arises from bodily reactions. But Izard’s theory stresses facial expression and body posture as crucial to the experience of emotion, whereas the James–Lange theory emphasized muscles, skin, and internal organs.

Considerable evidence supports Izard’s view that facial expressions influence emotions (Ekman, 2003; Ekman & Davidson, 1993; Soussignan, 2002). It is possible that future research using neuroimaging techniques (Barrett, Mesquita, Ochsner, & Gross, 2007; Barrett & Wager, 2006) will show with more certainty that a key element in determining our emotional experience is our own expressive behavior, the topic we turn to now.

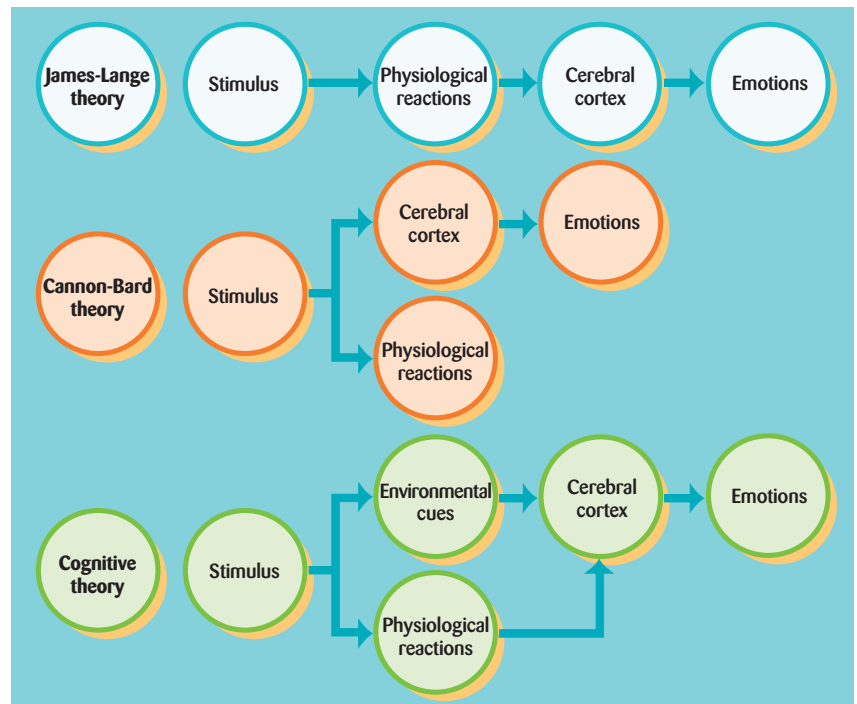


Figure 8–10
The three major theories of emotion.
According to the James–Lange theory, the body first responds physiologically to a stimulus, and then the cerebral cortex determines which emotion is being experienced. The Cannon–Bard theory holds that impulses are sent simultaneously to the cerebral cortex and the peripheral nervous system; thus, the response to the stimulus and the processing of the emotion are experienced at the same time, but independently. Cognitive theorists assert that the cerebral cortex interprets physiological changes in the light of information about the situation to determine which emotions we feel.

Cannon–Bard theory States that the experience of emotion occurs simultaneously with biological changes.

cognitive theory States that emotional experience depends on one’s perception or judgment of a situation.

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CHECK YOUR UNDERSTANDING

1. Robert Plutchik asserts that emotions vary in _____, a fact that accounts in part for the great range of emotions we experience.

Answer: 1. intensity

APPLY YOUR UNDERSTANDING

1. Ralph believes that if you're feeling depressed, you should smile a lot and your depression will fade away. His view is most consistent with
- Izard's theory.
 - the Schachter–Singer theory.
 - the James–Lange theory.
 - the Cannon–Bard theory.
2. You are on a camping trip when you encounter a bear. You get butterflies in your stomach, your heart starts racing, your mouth gets dry, and you start to perspire. A psychologist who takes the cognitive perspective on emotion would say,
- "Seeing the bear caused the physical changes, which in turn caused you to experience fear."
 - "Seeing the bear caused you to experience fear, which in turn caused all those physical changes."
 - "Seeing the bear caused the physical changes. When you realized they were caused by the bear, you experienced fear."
 - "Seeing the bear caused the physical changes and the emotion of fear at the same time."

Answers: 1. a. 2. c.

LEARNING OBJECTIVES

- Explain the importance of facial expressions in communicating emotion and identify the areas of the brain that are responsible for interpreting facial expressions. Describe the role of body language, gestures, and personal space in communicating emotions.
- Summarize the research evidence regarding gender and cultural differences in emotion, the role of "display rules," and whether it is advantageous to express anger as opposed to "holding it in."

COMMUNICATING EMOTION

What is the most obvious signal of emotion?

Sometimes you are vaguely aware that a person makes you feel uncomfortable. When pressed to be more precise, you might say, "You never know what she is thinking." But you do not mean that you never know her opinion of a film or what she thought about the last election. It would probably be more accurate to say that you do not know what she is feeling. Almost all of us conceal our emotions to some extent, but usually people can tell what we are feeling. Although emotions can often be expressed in words, much of the time we communicate our feelings nonverbally. We do so through, among other things, voice quality, facial expression, body language, personal space, and explicit acts.

Voice Quality and Facial Expression

What role can voice and facial expression play in expressing emotion?

If your roommate is washing the dishes and says acidly, "I *hope* you're enjoying your novel," the literal meaning of his words is quite clear, but you probably know very well that he is not expressing a concern about your reading pleasure. He is really saying, "I am annoyed that you are not helping to clean up." Similarly, if you receive a phone call from someone who has had very good or very bad news, you will probably know how she feels before she has told you what happened. In other words, much of the


THINKING CRITICALLY ABOUT...


Nonverbal Communication of Emotion

Some people are clearly better than others at reading and sending emotional messages. The question is, why? How might you determine:

1. if differences in these skills are learned or inherited?
2. the kinds of learning experiences that produce high skills?
3. whether it is possible to teach the skills?

emotional information we convey is not contained in the words we use, but in the way those words are expressed (Gobl & Chasaide, 2003).

Among nonverbal channels of communication, facial expressions seem to communicate the most specific information (Horstmann, 2003). Hand gestures or posture can communicate general emotional states (e.g., feeling bad), but the complexity of the muscles in the face allows facial expressions to communicate very specific feelings (e.g., feeling sad, angry, or fearful). Many facial expressions are innate, not learned (Ekman, 1994; H. H. Goldsmith, 2002). Individuals who are born blind use the same facial expressions of emotion as do sighted persons to express the same emotions (Matsumoto & Willingham, 2009). Moreover most animals share a common pattern of muscular facial movements. For example, dogs, tigers, and humans all bare their teeth in rage, and research has shown that the same pattern of facial muscles is used to display emotions among most primates, including monkeys, chimpanzees, and humans (Waller, Parr, Gothard, Burrows, & Fuglevand, 2008). Psychologists who take an evolutionary approach believe that facial expressions served an adaptive function, enabling our ancestors to compete successfully for status, to win mates, and to defend themselves (Plutchik, 2002; Tooby & Cosmides, 1990, 2005).  [Simulate on MyPsychLab](#)

 **Simulation** on Recognizing Facial Expressions of Emotions at www.mypsychlab.com

How the Brain Reads the Face

What parts of the brain are responsible for interpreting facial expressions?

Scientists have known for quite some time that activity in brain circuits centering on the amygdala (Figure 6–4) and insula are critical for the release of emotions (Schafe & LeDoux, 2002; Philip Shaw et al., 2005). The amygdala and insula also appear to play an important role in our ability to correctly interpret facial expressions (Adolphs, 2006, 2008). Interestingly some of the underlying brain processes that are used to interpret facial expression take place so quickly (less than 1/10 of a second), it is unlikely that they are consciously driven (Adolphs, 2006).

Adolphs and his colleagues (Adolphs, Tranel, Damasio, & Damasio, 1994) reported the remarkable case of a 30-year-old woman (S. M.) with a rare disease that caused nearly complete destruction of the amygdala. Although S. M. could correctly identify photographs of familiar faces with 100% accuracy, and easily learned to recognize new faces, she had great difficulty recognizing fear and discriminating between different emotions, such as happiness and surprise. More recent research has also shown that people with amygdala damage have trouble “reading faces” (Adolphs, Baron-Cohen, & Tranel, 2002; Adolphs & Tranel, 2003). For example, some patients with severe depressive disorder have an impaired ability to accurately judge another person’s facial expression of emotion, and this impairment contributes to their difficulty in interpersonal functioning (Surguladze et al., 2004). In addition, some researchers have suggested that abnormalities in the brain circuits associated with the amygdala can, in some cases, make it difficult for people to perceive threat accurately and that, in turn, can lead to unprovoked violence and aggression (R. J. Davidson, Putnam, & Larson, 2000; Soo Lee, Miller, & Moon, 2004; Marsh & Blair, 2008).

Body Language, Personal Space, and Gestures

How can posture and personal space communicate emotion?

Body language is another way that we communicate messages nonverbally. How we hold our back, for example, communicates a great deal. When we are relaxed, we tend to stretch back into a chair; when we are tense, we sit more stiffly with our feet together.

The distance we maintain between ourselves and others is called *personal space*. This distance varies depending on the nature of the activity and the emotions felt. If someone stands closer to you than is customary, that proximity may indicate either anger or affection; if farther away than usual, it may indicate fear or dislike. The normal conversing distance between people varies from culture to culture. Two Swedes conversing would ordinarily stand much farther apart than would two Arabs or Greeks.

Explicit acts, of course, can also serve as nonverbal clues to emotions. A slammed door may tell us that the person who just left the room is angry. If friends drop in for a visit and

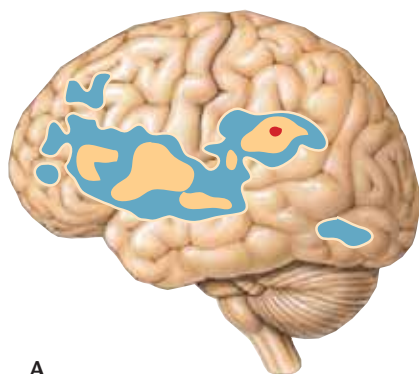


When having a conversation, most people of middle-Eastern descent stand closer to one another than most Americans do. In our society, two men would not usually stand as close together as these two Arabs unless they were very aggressively arguing with each other (a baseball player heatedly arguing with an umpire, for example).

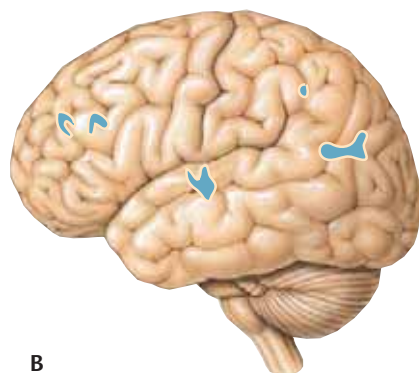
you invite them into your living room, that is a sign that you are probably less at ease with them than with friends whom you invite to sit down with you at the kitchen table. Gestures, such as a slap on the back, an embrace, whether people shake your hand briefly or for a long time, firmly or limply, also tell you something about how they feel about you.

You can see from this discussion that nonverbal communication of emotions is important. However, a word of caution is needed here. Although nonverbal behavior may offer a clue to a person's feelings, it is not an *infallible* clue. Laughing and crying can sound alike, yet crying may signal sorrow, joy, anger, or nostalgia—or that you are slicing an onion. Moreover, as with verbal reports, people sometimes “say” things nonverbally that they do not mean. We all have done things thoughtlessly—turned our backs, frowned when thinking about something else, or laughed at the wrong time—that have given offense because our actions were interpreted as an expression of an emotion that we were not, in fact, feeling.

Also, many of us overestimate our ability to interpret nonverbal cues. For example, in one study of several hundred “professional lie catchers,” including members of the Secret Service, government lie detector experts, judges, police officers, and psychiatrists, every group except for the psychiatrists rated themselves above average in their ability to tell whether another person was lying. Only the Secret Service agents managed to identify the liars at a better-than-chance rate (Ekman & O’Sullivan, 1991). Similar results have been obtained with other groups of people (Frank, 2006). In part, the reason seems to be that many behaviors that might seem to be associated with lying (such as avoiding eye contact, rapid blinking, or shrugs) are not in fact associated with lying; and other behaviors that are associated with lying (such as tenseness and fidgeting) also occur frequently when people are not lying (DePaulo et al., 2003). Thus, even the best nonverbal cues only indicate that a person *may* be lying. However, despite our apparent inability to accurately detect lies in other adults, research does show that adults are reasonably accurate at detecting when a *child* is lying (Edelstein, Luten, Ekman, & Goodman, 2006).



A



B

Figure 8–11
Emotion and brain activity in men and women.

When asked to think of something sad, women (A) generate more activity in their brains than men (B).

Source: From Carter, 1998, p. 100. Shading added.

Gender and Emotion

Are men less emotional than women?

Men are often said to be less emotional than women. But do men feel less emotion, or are they simply less likely to express the emotions they feel? And are there some emotions that men are more likely than women to express?

Research sheds some light on these issues. In one study, when men and women saw depictions of people in distress, the men showed little emotion, but the women expressed feelings of concern (Eisenberg & Lennon, 1983). However, physiological measures of emotional arousal (such as heart rate and blood pressure) showed that the men in the study were actually just as affected as the women were. The men simply inhibited the expression of their emotions, whereas the women were more open about their feelings. Emotions such as sympathy, sadness, empathy, and distress are often considered “unmanly,” and traditionally, in Western culture, boys are trained from an early age to suppress those emotions in public (L. Brody & Hall, 2000). The fact that men are less likely than women to seek help in dealing with emotional issues (Komiya, Good, & Sherrod, 2000) is probably a result of this early training. In addition, women tend to have stronger emotional reactions to self-generated thoughts and memories (R. Carter, 1998). (See **Figure 8–11**.)

Men and women are also likely to react with very different emotions to the same situation. For example, being betrayed or criticized by another person will elicit anger in males, whereas females are more likely to feel hurt, sad, or disappointed (L. Brody & Hall, 2000; Fischer, Rodriguez-Mosquera, van-Vianen, & Manstead, 2004). And, when men get angry, they generally turn their anger outward, against other people and against the situation in which they find themselves. Women are more likely to see themselves as the source of the problem and to turn their anger inward, against themselves. These gender-specific reactions are consistent with the fact that men are four times more likely than women to become violent in the face of life crises; women, by contrast, are much more likely to become depressed.

ENDURING ISSUES

Mind–Body Holding Anger In

People who frequently feel anger and hostility may be at a serious health risk if they don't allow themselves to express and learn to regulate their anger (Carrère, Mittmann, Woodin, Tabares, & Yoshimoto, 2005). In a study that tracked a group of women over 18 years, researchers found that those scoring high on hostility were three times more likely to die during the course of the study than those who scored low (Julius, Harburg, Cottingham, & Johnson, 1986). However, this higher level of risk applied only to participants who said they got angry in many situations but did not vent their anger. Other participants who reported frequent bouts of anger, which they expressed, were in the same low-risk group as those who said they rarely or never felt angry. ■

Men and women also differ in their ability to interpret nonverbal cues of emotion. For example, women and young girls are more skilled than men or young boys at decoding the facial expressions, body cues, and tones of voice of others (Bosacki & Moore, 2004; Grunwald et al., 1999). Perhaps not surprisingly, research has also shown that men are more likely than women to misperceive friendliness as sexual interest; they are also more likely to perceive sexual interest as friendliness (Farris, Treat, Vikden, & McFall, 2008).

How can we explain these gender differences? One possibility is that because women tend to be the primary caregivers for preverbal infants, they need to become more attuned than men to the subtleties of emotional expressions. Some psychologists have even suggested that this skill may be genetically programmed into females. Consistent with this evolutionary perspective, research has shown that male and female infants express and self-regulate emotions differently (McClure, 2000; Weinberg, Tronick, Cohn, & Olson, 1999).

Another explanation of gender differences in emotional sensitivity is based on the relative power of women and men. Because women historically have occupied less powerful positions, they may have felt the need to become acutely attuned to the emotional displays of others, particularly those in more powerful positions (namely, men). This idea is supported by evidence that, regardless of gender, followers are more sensitive to the emotions of leaders than vice versa (Aries, 2006; Judith Hall, Bernieri, & Carney, 2006).

Culture and Emotion

How can culture influence the way we express emotion?

Does where we live affect what we feel? And if so, why? For psychologists, the key issue is how cultures help shape emotional experiences.

Some researchers have argued that across cultures, peoples, and societies, the face looks the same whenever certain emotions are expressed; this phenomenon is known as the *universalist* position. In contrast, other researchers support the *culture-learning* position, which holds that members of a culture learn the appropriate facial expressions for emotions (Marsh, Efenbein, & Ambady, 2003). These expressions, then, can differ greatly from one culture to the next. Which view is more accurate?

As we saw earlier, Ekman and his colleagues have concluded from cross-cultural studies that at least six emotions are accompanied by universal facial expressions: happiness, sadness, anger, surprise, fear, and disgust. Carroll Izard (1980) conducted similar studies in England, Germany, Switzerland, France, Sweden, Greece, and Japan with similar results. These studies seem to support the universalist position: Regardless of culture, people tended to agree on which emotions others were expressing facially. However, this research does not completely rule out the culture-learning view. Because the participants were all members of developed countries that likely had been exposed to one another



Can you identify the emotions being expressed by this man from New Guinea? The finding that U.S. college students could recognize the emotional expressions of people who had been largely isolated from Western cultures—and vice versa—lent support to the *universalist* position of facial expression.

display rules Culture-specific rules that govern how, when, and why expressions of emotion are appropriate.

through movies, magazines, and tourism, they might simply have become familiar with the facial expressions seen in other cultures. A stronger test was needed that reduced or eliminated this possibility.

Such a test was made possible by the discovery of several contemporary cultures that had been totally isolated from Western culture for most of their existence. Members of the Fore and the Dani cultures of New Guinea, for example, had their first contact with anthropologists only a few years before Ekman's research took place. They provided a nearly perfect opportunity to test the universalist/culture-learning debate. If members of these cultures gave the same interpretation of facial expressions and produced the same expressions on their own faces as did people in Western cultures, there would be much stronger evidence for the universality of facial expressions of emotion. Ekman and his colleagues presented members of the Fore culture with three photographs of people from outside their culture and asked them to point to the picture that represented how they would feel in a certain situation. For example, if a participant was told "Your child has died, and you feel very sad," he or she would have the opportunity to choose which of the three pictures most closely corresponded to sadness. The results indicated very high rates of agreement on facial expressions of emotions (Ekman & Friesen, 1971; Ekman, Sorenson, & Friesen, 1969). Moreover,

when photographs of the Fore and Dani posing the primary emotions were shown to college students in the United States, the same high agreement was found (Ekman & Friesen, 1975). This finding suggests that at least some emotional expressions are inborn and universal.

If this is true, why are people so often confused about the emotions being expressed by people in other cultures? It turns out that the answer is not simple. Part of the explanation involves **display rules**. Display rules concern the circumstances under which it is appropriate for people to show emotion. Display rules differ substantially from culture to culture (Matsumoto & Kupperbusch, 2001; Safdar et al., 2009). In a study of Japanese and American college students, the participants watched graphic films of surgical procedures, either by themselves or in the presence of an experimenter. The students' facial expressions were secretly videotaped as they viewed the films. The results showed that when the students were by themselves, both the Japanese and the Americans showed facial expressions of disgust, as expected. But when the participants watched the films in the presence of an experimenter, the two groups displayed different responses. American students continued to show disgust on their faces, but the Japanese students showed facial expressions that were more neutral, even somewhat pleasant (Ekman, Friesen, & Ellsworth, 1972). Why the sudden switch? The answer in this case appears to lie in the different display rules of the two cultures. The Japanese norm says, "Don't display strong negative emotion in the presence of a respected elder" (in this case, the experimenter). Americans typically don't honor this display rule; hence, they expressed their true emotions whether they were alone or with someone else.

However, display rules don't tell the whole story. In a comprehensive review of the literature, Elfenbein and Ambady (2002, 2003) have demonstrated that differences in language, familiarity, majority or minority status within a culture, cultural learning, expressive style, and a number of other factors may also account for the fact that "we understand

emotions more accurately when they are expressed by members of our own cultural or subcultural group” (p. 228). Since research indicates that learning to correctly identify emotions of people from a different culture contributes to intercultural adjustment (Yoo, Matsumoto, & LeRoux, 2006), further research in this area is important as the nations of the world become increasingly multicultural.

CHECK YOUR UNDERSTANDING

1. Cultural differences, particularly _____, influence how we experience emotion.
2. Two important nonverbal cues to emotions are _____ and _____.
3. Men tend to interpret the source of their anger to be in their _____.
4. Research shows that some _____ are recognized universally.
5. _____ are the cultural circumstances under which it is appropriate to show emotions on the face.
6. _____ Overt behavior is an infallible clue to emotions. Is this statement true (T) or false (F)?

Answers: 1. language. 2. facial expression, body language. 3. environment. 4. facial expressions. 5. Display rules. 6. (F).

APPLY YOUR UNDERSTANDING

1. Which of the following would probably be best at “reading” nonverbal emotional cues?
 - a. a young man
 - b. an older woman
 - c. an older man
 - d. They would all be equally accurate since gender is not related to the ability to understand nonverbal cues to emotion.
2. You are studying gender differences in emotion. You show men and women various films of people in distress. On the basis of what you have read in this chapter, you would predict that the men will show _____ amount of physiological arousal, and _____ emotional expression as the women.
 - a. the same; the same
 - b. the same; less
 - c. a greater; less
 - d. a smaller; less

Answers: 1. b. 2. b.

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KEY TERMS

motive, p. 259
 emotion, p. 259

Perspectives on Motivation

instincts, p. 259
 drive, p. 260
 drive-reduction theory, p. 260
 homeostasis, p. 260
 primary drives, p. 260
 secondary drives, p. 260
 arousal theory, p. 260

Yerkes–Dodson law, p. 260
 intrinsic motivation, p. 261
 extrinsic motivation, p. 261
 hierarchy of needs, p. 262

Hunger and Thirst

glucose, p. 264
 leptin, p. 264
 ghrelin, p. 264
 incentive, p. 265
 anorexia nervosa, p. 265

bulimia nervosa, p. 266
 muscle dysmorphia, p. 266
 set point theory, p. 268

Sex

testosterone, p. 269
 sexual response cycle, p. 270
 sexual orientation, p. 272

Other Important Motives

stimulus motives, p. 273
 aggression, p. 274

achievement motive, p. 276
 affiliation motive, p. 277

Emotions

James–Lange theory, p. 280
 Cannon–Bard theory, p. 281
 cognitive theory, p. 281

Communicating Emotion

display rules, p. 286

CHAPTER REVIEW



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PERSPECTIVES ON MOTIVATION

How can you use intrinsic and extrinsic motivation to help you succeed in college? The idea that motivation is based on **instincts** was popular in the early 20th century but since has fallen out of favor. Human motivation has also been viewed as an effort toward **drive reduction** and **homeostasis**, or balance in the body. Another perspective, reflected in **arousal theory**, suggests behavior stems from a desire to maintain an optimum level of arousal. Motivational inducements or incentives can originate from within (**intrinsic motivation**) or from outside (**extrinsic motivation**) the person. The effects of intrinsic motivation are greater and longer-lasting.

Abraham Maslow suggested human motives can be arranged in a **hierarchy of needs**, with primitive ones based on physical needs positioned at the bottom and higher ones such as self-esteem positioned toward the top. Maslow believed that the higher motives don't emerge until the more basic ones have been met, but recent research challenges his view.

HUNGER AND THIRST

Why do people usually get hungry at mealtime? How can external cues influence our desire to eat? Hunger is regulated by several centers within the brain. These centers are stimulated by receptors that monitor blood levels of **glucose**, fats, and carbohydrates as well as the hormones **leptin** and **ghrelin**. Hunger is also stimulated by **incentives** such as cooking aromas and by emotional, cultural, and social factors.

How can you tell if someone is suffering from anorexia nervosa or bulimia? Eating disorders, particularly **anorexia nervosa** and **bulimia nervosa**, are more prevalent among females than among males. They are characterized by extreme preoccupation with body image and weight. **Muscle dysmorphia** is a disorder generally seen among young men involving an obsession with muscle size leading to inordinate worry about diet and exercise. Another food-related problem, obesity, affects millions of Americans. Obesity has complex causes and negative consequences particularly for obese children, who are likely to have health problems as adults.

SEX

How is the sex drive different from other primary drives? Sex is a primary drive that gives rise to reproductive behavior essential for the survival of the species.

How well do we understand the biology of the sex drive? Although hormones such as **testosterone** are involved in human sexual responses, they don't play as dominant a role as they do in some other species. In humans, the brain exerts a powerful influence on the sex drive as well. The human **sexual response cycle**, which differs somewhat for males and females, has four stages—excitement, plateau, orgasm, and resolution.

How does culture influence sexual behavior? Experience and learning affect preferences for sexually arousing stimuli. What is sexually attractive is also influenced by culture. Research suggests a more conservative pattern of sexual behavior in the United States than is portrayed in popular media.

What are the arguments for and against a biological explanation of homosexuality? People with a heterosexual orientation are sexually attracted to members of the opposite sex; those with a homosexual orientation are sexually attracted to members of their own sex. It is likely that both biological and environmental factors play a role in explaining homosexuality.

OTHER IMPORTANT MOTIVES

How are stimulus motives different from primary drives? Stimulus motives are less obviously associated with the survival of the organism or the species, although they often help humans adapt to their environments. **Stimulus motives**, such as the urge to explore and manipulate things, are associated with obtaining information about the world.

What motives cause people to explore and change their environment? A gap in understanding may stimulate curiosity, motivating us to explore and, often, to change our environment.

Is the human need for contact universal? Another important stimulus motive in humans and other primates is to seek various forms of tactile stimulation. The importance of contact has been demonstrated in nonhuman animal studies as well as in premature human infants.

Is aggression a biological response or a learned one? Any behavior intended to inflict physical or psychological harm on others is an act of **aggression**. Some psychologists see aggression as an innate drive in humans that must be channeled to constructive ends, but others see it more as a learned response that is greatly influenced by modeling, norms, and values. Aggression differs markedly across cultures, supporting the latter view. Males generally are more inclined than females to strike out at others and commit acts of violence. This gender difference probably stems from an interaction of nature and nurture.

Is being highly competitive important to high achievement? People who display a desire to excel, to overcome obstacles, and to accomplish difficult things well and quickly score high in **achievement motive**. Although hard work and a strong desire to master challenges both contribute to achievement, excessive competitiveness toward others can actually interfere with achievement.

How do psychologists explain the human need to be with other people? The **affiliation motive**, or need to be with other people, is especially pronounced when we feel threatened or anxious. Affiliation with others in this situation can counteract fear and bolster spirits.

EMOTIONS

How many basic emotions are there? Are there basic emotions that all people experience regardless of their culture?

Robert Plutchik's circular classification system for **emotions** encompasses eight basic emotions. But not all cultures categorize emotions this way. Some lack a word for emotion; others describe feelings as physical sensations. Cross-cultural research by Paul Ekman argues for the universality of at least six emotions—happiness, surprise, sadness, fear, disgust, and anger. Many psychologists add *love* to this list.

What is the relationship among emotions, biological reactions, and thoughts? According to the **James–Lange theory**, environmental stimuli can cause physiological changes; and emotions then arise from our awareness of those changes. In contrast, the **Cannon–Bard theory** holds that emotions and bodily responses occur simultaneously. A third perspective, the **cognitive theory** of emotion, contends that our perceptions and judgments of situations are essential to our emotional experiences. Without these cognitions we would have no idea how to label our feelings. Not everyone agrees with this view, however, because emotions sometimes seem to arise too quickly to depend on mental evaluations. Counter to the cognitive view, C. E. Izard argues that certain inborn facial expressions and body postures are automatically triggered in emotion-arousing situations and are then “read” by the brain as particular feelings.

COMMUNICATING EMOTION

What is the most obvious signal of emotion? What role can voice and facial expression play in expressing emotion?

People express emotions verbally through words, tone of voice, exclamations, and other sounds. Facial expressions are the most obvious nonverbal indicators of emotion.

What parts of the brain are responsible for interpreting facial expressions? The amygdala and insula play an important role in our ability to correctly interpret facial expressions. Abnormalities in these brain circuits may be a factor in depression and unprovoked aggression.

How can posture and personal space communicate emotion?

Other indicators involve body language—our posture, the way we move, our preferred personal distance from others when talking to them, our degree of eye contact. Explicit acts, such as slamming a door, express emotions, too. People vary in their skill at reading these nonverbal cues.

Are men less emotional than women? Research confirms some gender differences in expressing and perceiving emotions. For instance, when confronted with a person in distress, women are more likely than men to express emotion, even though the levels of physiological arousal are the same for the two sexes. Also, being betrayed or criticized elicits more anger in men, versus more disappointment and hurt in women. Women are generally better than men at reading other people's emotions: decoding facial expressions, body cues, and tones of voice. This skill may be sharpened by their role as caretakers of infants and their traditional subordinate status to men.

How can culture influence the way we express emotion? Regardless of a person's cultural background, the facial expressions associated with certain basic emotions appear to be universal. This finding contradicts the culture-learning view, which suggests facial expressions of emotion are learned within a particular culture. This is not to say that there are no cultural differences in emotional expression, however. Overlaying the universal expression of certain emotions are culturally varying **display rules** that govern when it is appropriate to show emotion—to whom, by whom, and under what circumstances. Other forms of nonverbal communication of emotion vary more from culture to culture than facial expressions do.