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Addictive and Unhealthy Behaviors

After reading this chapter, you should be able to

1. define and discuss the prevalence of eating disorders and disordered eating in sport,
2. identify predisposing factors for developing eating disorders,
3. describe how to recognize disordered eating,
4. define and discuss the prevalence of substance abuse in sport,
5. explain why some athletes and exercisers take drugs,
6. discuss how to detect and prevent substance abuse,
7. discuss the concepts of positive and negative addiction to exercise, and
8. discuss the problem of compulsive sports gambling.

In 2004, the Bay Area Laboratory Co-Operative scandal hit front-page news, implicating a number of high-visibility athletes such as Olympic champion Marion Jones but especially baseball players such as Barry Bonds, Roger Clemens, Mark McGwire, Rafael Palmeiro, Sammy Sosa, Alex Rodriguez, and Jason Giambi. Many of these baseball players were also named in the famous Mitchell Report, former senator George Mitchell's in-depth report of steroid use in baseball, which identified many players—including some bigger names such as Roger Clemens, Barry Bonds, Ken Caminiti, Miguel Tejada, Andy Pettitte, Gary Sheffield, Jose Canseco, Kevin Brown, and Jason Giambi—who had allegedly taken steroids to enhance performance.

Questions continued to arise about steroids in baseball. Despite juries finding some athletes not guilty (i.e., Roger Clemens) or guilty only on one count of obstruction of justice (i.e., Barry Bonds), general public opinion is that these athletes took steroids to enhance performance. No team picked Barry Bonds up for the 2008 season despite his availability, presumably because of the cloud of steroid use revolving around him. When several of these players were eligible for the Hall of Fame in 2013, none of them received close to the 75% of the votes needed to be inducted despite having the statistics that would normally get a player voted into Cooperstown. More recently, Alex Rodriguez again was implicated in taking steroids after he said he stopped taking them in 2002. Only time will tell if any of these players will make it into the Hall of Fame, although if they do it will probably be a number of years before they get voted in.

Melky Cabrera and Bartolo Colon were both suspended for 50 games in 2012 due to failing a drug test. In 2013, Ryan Braun, National League MVP, was suspended for 65 games because of his association with a Biogenesis clinic in Miami, Florida. Alex Rodriquez, who was linked with this same clinic, received a 211-game suspension that lasted until the end of 2014. About a dozen other players were also associated with the Biogenesis clinic, and all agreed to take the 50-game suspensions they were given.

In 2006, Tour de France winner Floyd Landis and 100-meter Olympic gold medalist Justin Gatlin both tested positive for steroids. They both denied knowingly taking steroids as they appealed their respective cases, which they eventually lost. In 2013, sprinter Tyson Gay, triple gold medalist at the world championships and silver Olympic medalist, tested positive for steroids, as did Asafa Powell, former record holder in the 100-meter dash.

The athlete with the highest visibility who vehemently denied taking performance-enhancing drugs is Lance Armstrong, seven-time winner of the Tour de France. Not only did Armstrong deny using drugs, he sued and attacked people and organizations who went after him and threatened riders who might testify against him. Finally, after years of denials and overwhelming evidence from other riders who testified against him, he admitted to using drugs and was stripped of all seven of his titles. He was banished from taking part in any organized competition pending a complete admission of his drug-taking activities.

University of Maryland basketball star Len Bias did not use steroids. He tried cocaine only once—and died of cocaine-induced heart failure just before he was to have embarked on his National Basketball Association (NBA) career. He died not because he was a drug addict but because he decided to celebrate his success with a recreational drug.

Many athletes have had alcohol problems. For example, Mickey Mantle, the legendary center fielder for the New York Yankees, suffered from alcoholism over much of his career and eventually died of liver problems resulting from this abuse. Pitcher Steve Howe of the Los Angeles Dodgers was in and out of rehabilitation for alcohol numerous times during his professional career.

Elite gymnast Christy Henrich not only suffered from anorexia, she died from it. The mortality rate associated with anorexia nervosa is 5%, the highest mortality rate of any psychiatric condition. In addition, the suicide risk among people with this disorder is 50% higher than that of the general population. Even with such troubling outcomes the research in this area has been relatively sparse, resulting in a special issue of *The American Psychologist* dedicated to better understanding, predicting, and treating eating disorders (Park, 2007).

Art Schlichter, former professional football quarterback who was touted while an all-American at Ohio State, progressed from being an occasional visitor at the racetrack to betting with a bookie on pro sports and later to being a full-fledged gambler. His addiction to gambling and the actions he took to secure the money to pay his losses landed him in prison. In 2007, NBA referee Tim Donaghy admitted to betting on games, some of which he officiated, creating a crisis in confidence. Even hockey great Wayne Gretzky was associated with a gambling ring. Two Italian professional tennis players were also suspended for making bets on tennis matches involving other players.

Addictive and unhealthy behaviors certainly are not limited to elite athletes. Even high school and youth sport participants abuse drugs, steroids, alcohol, and smokeless tobacco; people also are known to start gambling at a young age. In addition, cheerleaders are typically seen as supporting other athletes. However, anecdotal reports have revealed that cheerleaders feel the pressure to look good, perform, and recover from injury, leading to the use of steroids. Physical education, sport, and exercise professionals must be prepared to deal with these issues.

Substance abuse, eating disorders, and compulsive gambling are clinical problems that require treatment by specialists. Still, nonspecialists must learn to detect signs of these conditions and refer affected students, exercisers, and athletes to specialists for the treatment they need. Let's begin with a discussion of eating disorders.

Eating Disorders

Anorexia nervosa and bulimia are the two most common eating disorders. Before we discuss the prevalence and potential treatment of these conditions, here are some relevant definitions. According to *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2013) **anorexia nervosa** includes the following characteristics:

- Refusal to maintain a minimal body weight normal for a particular age and height (this is typically defined as weight 15% below average)
- Intense fear of gaining weight or becoming fat despite being underweight
- Disturbance in how one experiences one's body weight, size, or shape (e.g., feeling fat even when one is clearly underweight)
- In females, the absence of at least three consecutive menstrual cycles otherwise expected to occur (i.e., primary or secondary amenorrhea)

Anorexia is potentially fatal: It can lead to starvation and other medical complications, such as heart disease. In addition, this severe condition is made worse because affected individuals often don't see themselves as abnormal. Finally, anorexia is a multidimensional disorder in which psychological, cognitive,

Physical and Psychological–Behavioral Signs of Eating Disorders

Physical Signs

- Weight too low
- Considerable weight loss
- Extreme weight fluctuations
- Bloating
- Swollen salivary glands
- Amenorrhea
- Carotenemia (yellowish palms or soles of feet)
- Sores or calluses on knuckles or back of hand from self-inducing vomiting
- Hypoglycemia (low blood sugar)
- Muscle cramps
- Stomach complaints
- Headaches, dizziness, or weakness from electrolyte disturbances
- Numbness and tingling in limbs attributable to electrolyte disturbances
- Stress fractures

Psychological–Behavioral Signs

- Excessive dieting
- Excessive eating without weight gain
- Excessive exercise that is not part of normal training program
- Guilt about eating
- Claims of feeling fat at normal weight despite reassurance from others
- Preoccupation with food
- Avoidance of eating in public and denial of hunger
- Hoarding food
- Disappearing after meals
- Frequent weighing
- Binge eating
- Evidence of self-induced vomiting
- Use of drugs such as diet pills, laxatives, or diuretics to control weight

Adapted, by permission, from D. Garner and L. Rosen, 1991, "Eating disorders among athletes: Research and recommendations," *Journal of Applied Sport Science Research* 5(2): 100-107.

perceptual, and biological factors interact in varying combinations to produce slightly different types of disorders (Bordo, 1993).

The diagnostic criteria for **bulimia** include the following (American Psychiatric Association, 2013):

- Recurrent episodes of binge eating (rapid consumption of large quantities of food in a discrete period of time)
- A feeling of lacking control over eating behavior during the eating binges
- Engaging in regular, self-induced vomiting, use of laxatives or diuretics, strict dieting or fasting, or vigorous exercise to prevent weight gain
- An average minimum of two binge-eating episodes a week for at least 3 months
- Persistent overconcern with body shape and weight

KEY POINT Anorexia nervosa is a psychological disease characterized by an intense fear of becoming obese, a disturbed body image, significant weight loss, the refusal to maintain normal body weight, and amenorrhea.

A person with bulimia often becomes depressed because of low self-esteem, eats excessively in an effort to feel better (bingeing), feels guilty about eating, and then induces vomiting or takes laxatives to purge the food. Although it is a severe problem, bulimia is usually less severe than anorexia. People with bulimia are aware that they have a problem, whereas people with anorexia are not. Bulimia can lead to anorexia, and some individuals are characterized as bulimarexic (see "Physical and Psychological–Behavioral Signs of Eating Disorders").

KEY POINT Bulimia is an episodic eating pattern of uncontrollable food bingeing followed by purging. It is characterized by an awareness that the pattern is abnormal, fear of being unable to voluntarily stop eating, depressed mood, and self-deprecation.

Disordered Eating

Although anorexia and bulimia most certainly occur in sport, the notion of disordered eating, referring to an entire spectrum of exaggerated eating patterns involving increased health risks, has recently gained favor. At the extremes of disordered eating are anorexia and bulimia. However, a great deal of middle ground (in fact, this might be the largest category of eating disorders) is occupied by eating problems that are not quite severe enough to meet the criteria of *Diagnostic and Statistical Manual of Mental Disorders* for either anorexia or bulimia. Therefore, we must understand the variety of disordered eating patterns that might fit along this continuum. Research has revealed that it is often difficult to distinguish athletes with an eating disorder from those that have many of the psychological symptoms of an eating disorder but no official diagnosis of an eating disorder (Petrie, Greenleaf, Reel, & Carter, 2009). It should be noted that this discussion of eating disorders and disordered eating takes an objectivist perspective, which is grounded in the prevailing literature. However, for readers who are interested in an alternative view to the relationship between eating, exercise, and the body, Busanich and McGannon (2010) discuss eating disorders from a feminist perspective.

Hudson, Hiripi, Pope, and Kessler (2007) surveyed more than 9,000 adults. Their findings are as follows:

- Lifetime prevalence of bulimia nervosa is 1.5% in women and 0.5% in men.
- Lifetime prevalence of binge-eating disorder is 3.5% in women and 2% in men.
- Binge eating is more common than anorexia or bulimia and is commonly associated with severe obesity.
- Eating disorders display substantial comorbidity with other mental health disorders.
- Eating disorders have more than doubled since the 1960s.
- Forty to sixty percent of high school girls diet.
- Thirteen percent of high school girls purge.
- Thirty to forty percent of junior high school girls worry about weight.
- Forty percent of 9-year-old girls have dieted.
- Five-year-old girls are concerned about diet.

Prevalence of Eating Disorders and Disordered Eating in Sport

For a variety of reasons, it has traditionally been difficult to accurately assess eating disorders in any population. For example, in the competitive sport environment, an athlete risks being dropped from a program or team if his eating problem is discovered. Therefore, athletes with these types of disorders are often very secretive and are not willing to share information

until the problem becomes almost catastrophic and professional help is necessary. The underreporting of eating disorders and disordered eating was highlighted in a study by Kerr, Berman, and De Souza (2006), who found that gymnasts still active in their careers reported having far fewer eating disorders (3%) and less disordered eating (18%) than retired gymnasts (20% and 73%, respectively). The accuracy of studies assessing eating disorders in sport is also questionable because there are doubts about the validity of many of the questionnaires used to measure eating problems (O'Connor, Lewis, & Kirchner, 1995). Because of these assessment problems, you should view even the data we present here with caution.

Various researchers (e.g., Arthur-Cameselle & Quatromoni, 2010; Byrne & McClean, 2001; Goss, Cooper, Croxon, & Dryden, 2005; Krentz & Warschburger, 2011; Sanford-Martens et al., 2005; Petrie & Greenleaf, 2012) have summarized the prevalence of eating disorders in sport. Although there is some inconsistency in the findings, some of their general conclusions include the following:

- Frequency rates of eating disorders in athletic populations ranged from as low as 1% to as high as 62% across a variety of sports.
- Female athletes, in general, reported higher frequencies of eating disorders than male athletes, which is similar to the general population. Male athletes with eating disorders are less prevalent and thus have not been studied as extensively as female athletes.
- Although some studies have revealed that athletes appear to have a greater occurrence of eating-related problems than does the general population, prevalence rates tend to approximate those found in the general population. However, athletes (compared with nonathletes) may have higher frequencies of disordered eating patterns rather than eating disorders per se.
- Athletes and nonathletes have similar psychopathologies and eating-related symptoms. In essence, if an athlete develops an eating disorder, her psychological profile is probably no different from that of nonathletes with the same disorder.
- A significant percentage of athletes engage in disordered eating or weight loss behaviors (e.g., binge eating, rigorous dieting, fasting, vomiting, use of diuretics), and these behaviors are important to examine even though they are subclinical in intensity.
- Eating disorders and the use of pathogenic weight loss techniques among athletes tend to have a sport-specific prevalence (e.g., they occur more among gymnasts and wrestlers than among archers or basketball players).
- Up to 66% of female athletes may be amenorrheic compared with approximately 2% to 5% of nonathletes. These data (along with higher levels of disordered eating by female athletes) suggest that female athletes may eventually develop osteoporosis, which can result in increased bone fractures, increased skeletal fragility, and permanent bone loss.
- Compared with nonathletes, athletes in sports that emphasize leanness (e.g., gymnastics, diving) are at greater risk of developing eating disorders.

KEY POINT Approximately 63% of all female athletes develop symptoms of an eating disorder between the 9th and 12th grades.

Although anorexia and bulimia are of special concern in sports emphasizing form (e.g., gymnastics, diving, figure skating) or weight (e.g., wrestling), athletes with eating disorders have been found in a wide array of sports.

Predisposing Factors

Practitioners need to understand the factors that might predispose an athlete to develop an eating disorder or disordered eating. Knowing these factors might help you prevent or reduce the probability that an eating disorder (or disordered eating) will occur in someone—or yourself. Swoap and Murphy (1995), Thompson and Sherman (1999), Petrie and Greenleaf (2012), and Anderson, Petrie, and Neumann (2011) outlined the factors we now describe.

Weight Restrictions and Standards

Sports such as weightlifting, wrestling, and boxing commonly use weight classifications to subdivide competitor groups. Often athletes try to "make weight" so they can compete at a lower weight classification, which presumably would give them an advantage against a lighter opponent. This can result in an athlete trying to drop 10 or even 15 pounds immediately

before weigh-ins, usually resulting primarily in rapid dehydration. Techniques for achieving this rapid weight loss include fasting, fluid restriction, the use of diuretics or laxatives, and purging. But weight loss and dieting are not limited to athletes; these behaviors are a common problem among young people. Researchers (Hudson, Hiripi, Pope, & Kessler, 2007; Sedula, Collins, & Williamson, 1993) who investigated more than 11,000 high school students found that between 40% and 60% of the females were attempting to lose weight through some type of diet. Coaches, trainers, and parents should discourage these weight loss methods, even those that are embedded in the sport culture.

Coach and Peer Pressure

Coaches and peers can play an important role in shaping the attitude and behaviors of athletes. Unfortunately, coaches sometimes knowingly or unknowingly exert pressure on athletes to lose weight, even when they have information about safe and effective weight management procedures. In one study, retired gymnasts who received disparaging comments from coaches about their bodies or instructions to lose weight had significantly more disordered eating patterns than did those who did not receive such comments (Kerr, Berman, & De Souza, 2006). Some coaches tend to decide about the need for weight control based on appearance rather than objective indicators (e.g., body fat assessments). The following account from the newspaper *Austin American Statesman* describes a coach who promoted unhealthy attitudes toward weight and weight reduction:

> "The coach emphasized weight in training and competition and insisted that his swimmers remain under maximum weight limits. According to current and former swimmers, the pressure to meet those guidelines was so intense that many routinely fasted, induced vomiting, used laxatives and diuretics, or exercised in addition to workouts. They did not want to be relegated to the group they called 'The Fat Club.' Primarily, the pressure came from the coach, until you started to internalize it. Then it became self-inflicted torture, almost to where some people would weigh themselves three or four times a day." (Halliburton & Sanford, 1989, pp. D1, D7)

Evidence of eating disorders among male athletes has been found in recent years, especially in sports that require weight classifications for athletes.

In a study of more than 400 athletes, Shanmugam, Jowett, and Meyer (2012) investigated the relationships between athletes and their coaches, parents, and closest teammate. Results revealed that parental and coach–athlete relationships characterized by increased conflict and decreased support were related to lower levels of self-esteem and increased self-critical perfectionism and depression, which in turn was related to increased eating psychopathology. Teammate relationships were not predictive of disordered eating.

Sociocultural Factors

Although genetics can certainly influence disordered eating, the current thinking is that the condition has more to do with the cultural emphasis on thinness, which can lead to widespread body dissatisfaction (especially in women). For example, the American Society for Aesthetic Plastic Surgery reported that more than 200,000 cosmetic surgeries were done on children under 18 years of age in 2007 (Marcus,

2009). Research reveals that eating disorders are on the rise, especially in sports in which leanness confers a competitive advantage such as swimming and long-distance running (Glazer, 2008). American culture values thinness. According to some figures, up to 95% of women estimate their body size as 25% larger on average than it actually is. The media constantly tell us that we should look thin and beautiful like the models we see on billboards and television. McGannon and Busanich (2010) offered women some suggestions for combating the societal pressures to conform to the idealized body type. These suggestions included pushing their bodies to the limits in the weight room, taking pride in a muscular or larger physique, and participating in more aggressive sports that challenge femininity.

Although men report less body image disturbance than women do, most studies report that about 50% of men desire to change their physique (Cohane & Pope, 2001). Interestingly, boys obsess over unattainable bodies, just like girls have long been known to do. Researchers argue that boys who are too eager to bulk up are prone to risky behaviors such as illegal steroid use. It is recommended that boys emphasize moderation in behaviors and focus on skill development, fitness, and general health rather than development of a muscular appearance. However, some well-developed males never think they are big enough. When they look in the mirror, they see a skinny person—a phenomenon often called bigorexia.

Petrie and Greenleaf (2007) proposed a model that identified a number of psychosocial variables that were hypothesized to increase female athletes' risk of developing an eating disorder. A central factor in body dissatisfaction was the internalization of societal body and appearance ideals (i.e., thin, attractive). In testing the model with bulimic athletes, it was found that body dissatisfaction, feelings of guilt, and a focus on dietary restraint were related to bulimic symptomatology (Greenleaf, Petrie, Reel, & Carter, 2010). This focus on body image, especially for women, is particularly important in predicting disordered eating when the dissatisfaction with their body image is related to their specific sport, more than just a general dissatisfaction with body image (Francisco, Narciso, & Alarcao, 2012).

Performance Demands

The past 25 years have seen an increased focus on the relationship between body weight or body fat and performance. Research has indicated that a correlation exists between a low percentage of body fat and high levels of performance in a number of sports (Wilmore, 1992). This has led many coaches and athletes to focus on weight control for the purpose of reaching optimal weight. However, lower body fat does not always mean better performance. Individual differences are critical here, and strict weight standards are therefore inappropriate. As Petrie and Greenleaf (2012) have suggested, there is typically a range of values for body fat related to optimal performance, and ideal levels vary between males and females.

Judging Criteria

In sports in which physical attractiveness, especially for females, is considered important to success (gymnastics, figure skating, diving), coaches and athletes may perceive that judges tend to be biased toward certain body types. When athletes do not conform to these images, they may stand out among their teammates and feel incredible pressure to achieve unrealistic and unhealthy body weights and shapes. For example, very slender body builds are often seen as desirable, and this is typically communicated to the athletes in informal ways. The following quote by a national champion figure skater suggests how appearances are perceived to be tied to judging criteria:

> "Skating is such an appearance sport. You have to go up there with barely anything on . . . . I'm definitely aware of [my weight]. I mean I have dreams about it sometimes. So it's hard having people look at my thigh and saying 'Oops, she's an eighth of an inch bigger' or something. It's hard . . . . Weight is continually on my mind. I am never, never allowed to be on vacation." (Gould, Jackson, & Finch, 1993, p. 364)

KEY POINT Fitness professionals must be able to recognize the physical and psychological signs of eating disorders.

Critical Comments About Body Shape and Weight

Although there has long been anecdotal evidence that critical comments about body shape and weight (e.g., "fat cow," "Pillsbury dough boy," "tubby") particularly negatively affect female athletes, little empirical research was conducted until the first decade of the 20th century. In 2008, Muscat and Long found that athletes who recalled more critical comments and more

Factors Contributing to the Onset of Eating Disorder Symptoms

Arthur-Cameselle and Quatromoni (2010) conducted an interview study of athletes and listed the following factors, both internal and external, that precipitated the onset of eating disorder symptoms. Accompanying quotes highlight these factors.

Internal Factors

- *Negative mood.* "My grandfather died . . . I think I started to get depressed."
- *Low self-esteem.* "I definitely would look in the mirror and be like, 'That's ugly.' I would always be scrutinizing myself . . . . I hated myself."
- *Perfectionism and achievement.* "I was obsessed with how I looked and perfection. I won't stop short of supermodel looks even though that's completely unreasonable."
- *Desire for control.* "It was absolutely just a way to have control over something because I didn't have control over my own emotions."

External Factors

- *Negative influences on self-esteem.* "My mom was like, 'Oh, you are getting kind of chunky.' My dad would make comments when I was in bathing suits."
- *Hurtful relationships.* "I wasn't really getting along with some people on my floor anymore. I liked this guy on my floor and so I think that had an issue with it because he liked this other girl."
- *Hurtful role models.* "I was noticing another tennis player's eating patterns and she clearly had a problem, but I didn't realize it at the time . . . . I started doing what she was doing and working out excessively."
- *Sport performance.* "I had started running more intensely, was following the media knowledge about fat-free foods and what was healthy . . . . I just wanted to be a good runner."

severely critical comments than others reported greater disordered eating as well as more intense negative emotions (e.g., shame, anxiety). In addition, females at the highest level of competition (i.e., international) were more likely to remember critical comments than athletes performing at lower competitive levels. Furthermore, these critical comments (coming mostly from family members) were very prevalent, cited by approximately 45% of the athletes.

Genetic and Biological Factors

All of the predisposing factors already noted regarding the development of an eating disorder relate in some manner to the environment. However, with the pervasiveness of these environmental factors, a persistent question might be, "Why do only a small fraction of individuals (mostly females) go on to develop an eating disorder?" In an excellent review article, Striegel-Moore and Bulik (2007) discuss a number of studies investigating biological as well as sociocultural predictors of eating disorders. There seems to be ample evidence from the findings of twin studies and molecular-genetic studies that biology plays a role in the development of eating disorders. However, Streigel-Moore and Bulik note that, to date, studies of biological (genetic and early developmental trauma) and cultural factors have progressed largely along parallel tracks. Therefore, the authors argue that researchers should investigate the interaction of biological and sociocultural factors in the prediction of eating disorders because this would provide a fuller understanding of their development. So, although the environmental and sociocultural factors already discussed are important, it may be that certain genetic factors interact with the environment to increase the probability of an eating disorder developing. Coaches, parents, and significant others should be very cognizant of this potential interaction.

Mediating Factors

Although several factors (noted previously) are directly related to the development of eating disorders in sport, this relationship is mediated by several factors. For example, the personality factors of asceticism, submissiveness, and conformity were all related to eating pathology among athletes. Thus, if

a coach has an athlete with any of these personality factors, extra attention should be given to the possible development of an eating disorder. In addition, higher levels of exercise were associated with higher levels of eating pathology in nonathletes but not in varsity or casual athletes (i.e., those who practice but do not compete in sport). Thus, exercise appears to carry a different meaning for athletes and nonathletes in the eating disorder population (Sherman & Thompson, 2001).

Prevention of exercise is often considered a treatment for people with an eating disorder, but this should not be the case for athletes. Furthermore, Hulley, Currie, Njenga, and Hill (2007) found that nationality may be an important factor mediating the propensity to develop an eating disorder. Specifically, elite female distance runners from Kenya were less likely to have an eating disorder (8.2%) than runners from the United Kingdom (19.5%). Thus, culture and ethnicity should be considered when investigating the potential problems of long-distance running for females. Finally, researchers (de Bruin, Bakker, & Oudejans, 2009) have found that athletes who are ego-oriented tend to display more disordered eating. Thus, they recommend that coaches emphasize a mastery-oriented climate focusing on improvement.

Recognition and Referral of an Eating Problem

Practitioners are in an excellent position to spot individuals with eating disorders (Thompson, 1987). Thus, they must be able to recognize the physical and psychological signs and symptoms of these conditions (see "Physical and Psychological–Behavioral Signs of Eating Disorders"). Often, unusual eating patterns are among the best indicators of problems. People with anorexia often pick at their food, push it around on their plate, lie about their eating, and frequently engage in compulsive or ritualistic eating patterns such as cutting food into tiny morsels or eating only a very limited number of bland, low-calorie foods. People with bulimia often hide food and disappear after eating (so they can purge the food just eaten) or simply eat alone. Whenever possible, fitness educators should observe the eating patterns of students and athletes, looking for abnormalities. In addition, it is commonly assumed that the frequency and duration of exercise are related to eating disorders. However, research (Lipsey, Barton, Hulley, & Hill, 2006) has shown that the presence of eating disorders cannot be inferred from exercise behavior alone. Rather, commitment to exercise as well as weight and mood regulation, not just exercise per se, predicted an eating

Are You a Dysfunctional Eater?

Answering yes to more than three of the following questions can indicate a pattern of dysfunctional eating (Berg, 2000):

1. Do you regularly restrict your food intake?
2. Do you skip meals regularly?
3. Do you often go on diets?
4. Do you count calories or fat grams or weigh or measure your food?
5. Are you afraid of certain foods?
6. Do you turn to food to reduce stress or anxiety?
7. Do you deny being hungry or claim to feel full after eating very little?
8. Do you avoid eating with others?
9. Do you feel worse (e.g., anxious, guilty) after eating?
10. Do you think about food, eating, and weight more than you'd like?

Dysfunctional eating typically comprises three general categories. *Chaotic eating* refers to irregular eating such as fasting, bingeing, and skipping meals. *Consistent undereating* usually means not paying attention to hunger signals and regularly eating less food than meets one's daily needs. *Consistent overeating* means that a person is overriding normal satiety signals and eating more on a daily basis than the body wants or needs.

disorder. Standardized self-report inventories can also be used to diagnose eating disorders, but these should be administered and interpreted only by trained professionals (e.g., a licensed psychologist). Finally, Selby and Reel (2011) offer a couple other signs to watch for, such as changes in mood and personality, atypical behaviors, a strong need for control, and an extreme emphasis on body image.

DISCOVER Activity 20.1 helps you further understand what to do when confronting an individual who may have an eating disorder.

As a practitioner, if you identify someone who demonstrates symptoms, you'll need to solicit help from a specialist familiar with eating disorders. But this is a difficult judgment because some people exhibit some of these signs without having a disorder, whereas others do have a disorder and do need a referral. If you or a colleague suspects an eating disorder, the person who has the best rapport with the individual should schedule a private meeting to discuss his concerns (Petrie & Greenleaf, 2007). The emphasis here should be on feelings rather than on eating behaviors. Be supportive in such instances and keep all information confidential. Make a referral then to a specific clinic or person rather than giving a vague recommendation, such as "You should seek some help." If an athlete is still hesitant, suggest that he see the clinic or the individual professional simply for an assessment to determine whether a problem exists. Selby and Reel (2011) offer similar suggestions for referring an athlete believed to have an eating disorder, such as avoiding use of the term *eating disorder*, consistently showing concern for the athlete as a person, having a list of potential referrals ready, and supporting the treatment recommendations

Preventing Eating Disorders in Athletes and Exercisers

Although professionals must be able to recognize and effectively deal with eating disorders among participants in sport and exercise settings, an even greater contribution would be to help prevent these disorders in the first place or at least reduce the probability that they will occur. Petrie and Greenleaf (2012) offer some excellent suggestions and interventions for preventing eating disorders. Coaches, parents, teammates, and significant others can use the following suggestions to be proactive in reducing eating disorders in athletes and exercisers.

- *Promote proper nutritional practices.* Research indicates that many sport participants have limited information or have incorrect views about proper sport nutrition. Because many individuals turn to coaches, trainers, and peers for nutritional advice, these exercisers and athletic personnel should become educated about good nutrition and methods of weight control. *Coaches' Guide to Nutrition and Weight Control* (Eisenman, Johnson, & Benson, 1990) is one good source of information about nutrition.
- *Focus on fitness, not body weight.* We must move away from obsessing about weight to focusing on health and fitness itself. There is no ideal body composition or weight for an athlete or exerciser because weight and body composition fluctuate greatly depending on the type of sport, body build, and metabolic rate. Rather, an ideal *range* might better be targeted, with input from professionals such as nutritionists and exercise physiologists.
- *Be sensitive to weight issues.* Athletic personnel should be made aware of the issues athletes contend with regarding weight control and diet, and they should act with sensitivity in these areas. Coaches and fitness leaders often exert powerful influence on individuals, and they should exercise care when making remarks about weight control. Practices such as repeating weigh-ins, associating weight loss with enhanced performance, setting arbitrary weight goals, and making unfeeling remarks must be avoided at all costs.
- *Promote healthy management of weight.* As the incidence of and focus on disordered eating practices in sport and exercise have increased, so too has the availability of educational material. For example, the National Collegiate Athletic Association (NCAA; 1989) produced a set of three informative videos along with supportive educational material on eating disorders in sport. Sport

from the trained mental health professional. "Dealing With Eating Disorders" presents several suggestions regarding eating disorders. (For comprehensive discussion of the many issues and variables in this complex subject, see Thompson & Sherman, 1993.)

Substance Abuse

It is no secret that performance-enhancing drugs have been used by world-class athletes and Olympians for decades or that some athletes will do almost anything to gain a competitive advantage. The disqualification of athletes for using performance-enhancing drugs in recent Olympics and Tour de France competitions bears witness to the potential negative sport-related consequences of substance abuse. What is especially surprising is that despite dire warnings about the negative psychological and physiological effects of steroids and other performance-enhancing drugs, their use appears to be on the upswing. Even the threat of death is evidently not a deterrent as long as victory is guaranteed. Consider the results from a 1995 poll of 195 sprinters, swimmers, powerlifters, and other athletes, most of them U.S. Olympians or aspiring Olympians, who were given the following scenarios:

- You are offered a banned performance-enhancing substance with two guarantees: (a) You will not be caught and (b) you will win. Would you take the substance?
- You are offered a banned performance-enhancing substance that comes with two guarantees: (a) You will not be caught and (b) you will win every competition you enter for the next 5 years and then die from the side effects of the substance. Would you take the substance?

In answering the first question, 192 athletes—a stunning 98%—said yes; 3 said no. Even more shocking,

and exercise science professionals need to keep up with the latest information regarding weight loss and eating disorders.

- *Teach mental skills*. A study by Estanol, Shepperd, and MacDonald (2013) found that the development of mental skills can help mediate the relationship between negative affect and the risk of eating disorders. Dancers who coped better with adversity, exhibited freedom from worry, and had high levels of confidence and achievement motivation had lower levels of eating disorders. In essence, teaching athletes mental skills appears to help them deal more positively with the negative affect that typically precedes the onset of an eating disorder.

Most recommendations for dealing with athletes with eating disorders are directed at coaches. Arthur-Cameselle and Baltzell (2012) asked athletes who had recovered from eating disorders for recommendations for athletes who currently have an eating disorder and their parents. Recommendations for parents and athletes are as follows:

Parents of Athletes With Eating Disorders

- Provide emotional support.
- Encourage use of professional treatment.
- Become educated about eating.

Athletes With Eating Disorders

- Keep hope that recovery is possible.
- Determine the underlying cause and triggers for the disorder.
- Seek professional treatment.
- Reach out to important others in your life for emotional support.
- Focus on the benefits of recovery.
- Put your life and eating disorder behaviors into perspective.

Dealing With Eating Disorders

Do

- Get help and advice from a specialist.
- Be supportive and empathetic.
- Express concern about general feelings, not specifically about weight.
- Make referrals to a specific person and, when possible, make appointments for the individual.
- Emphasize the importance of long-term good nutrition.
- Provide information about eating disorders.

Don't

- Do not ask the athlete to leave the team or curtail participation, unless so instructed by a specialist.
- Do not recommend weight loss or gain.
- Do not hold team weigh-ins.
- Do not single out or treat the individual unlike other participants.
- Do not talk about the problem with nonprofessionals who are not directly involved.
- Do not demand that the problem be stopped immediately.
- Do not make insensitive remarks or tease individuals regarding their weight.

Adapted, by permission, from D. Garner and L. Rosen, 1991, "Eating disorders among athletes: Research and recommendations," *Journal of Applied Sport Science Research* 5(2): 100-107.

in answering the second question, 120 athletes—approximately 60%—said yes; 75 said no. A study by Connor and Mazanov (2009) asking the same question to nonathletes found that only 2 in 250 would take the drug. Thus, athletes appear to prioritize performance outcomes over health concerns; they would exchange longevity for Olympic success. This says a lot about the psyche of elite athletes and the importance of sport and winning in their lives.

Fortunately, not all drugs are bad or even out of place in sport or physical activity settings. Imagine undergoing surgery without painkilling drugs or treating a serious infection without antibiotics. Drugs per se are not the problem as long as the drugs that are being used are legal, are prescribed by appropriate medical personnel, and are not among the substances banned in the world of competitive sport. But this latter issue can get confusing because some drugs are seen as legal in some sports (e.g., Mark McGwire's use of androstenedione was not considered illegal in baseball even though research has shown that androstenedione increased testosterone concentrations by more than 300% in males and 600% in females and maintained elevated testosterones levels for about a week) but illegal in other sports or sporting bodies such as the NCAA, National Football League, and International Olympic Committee (IOC). The misuse of drugs (whether performance enhancing or recreational) and the use of illegal and harmful drugs are the real problems in sport and exercise.

People abuse drugs for different reasons but with the same negative consequences. Substance abuse can lead to long-term—sometimes fatal—health and psychological problems, including addiction. *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2013) lists the following criteria as indicating psychoactive **substance abuse**:

a. A maladaptive pattern of psychoactive substance use, indicated by at least one of the following:
   1. Continued use despite knowledge of having a persistent or recurring social, occupational, psychological, or physical problem that is caused or exacerbated by use of the psychoactive substance
   2. Recurrent use in situations in which the use is physically hazardous (e.g., driving while intoxicated)

b. Persistence of some symptoms of the disturbance for at least 1 month, or repeated occurrence over a longer period of time

These diagnostic criteria apply to people using any psychoactive substance, including alcohol, marijuana, cocaine, amphetamines, and hallucinogens. Later in the chapter we discuss the identification of signs and symptoms of substance use and abuse.

KEY POINT Drug addiction is a state in which either discontinuing or continuing the use of a drug creates an overwhelming desire, need, and craving for more of the substance.

An in-depth examination of how substance abuse affects athletes is beyond our scope here. For more detailed information, we recommend several excellent books or chapters on the subject (Anshel, 2010; Bacon, Lerner, Trembley, & Seestedt, 2005; Hildebrandt, Varangis, & Lai, 2012; Mazanov, 2013, Swoap & Murphy, 1995). Here we concentrate on four issues: prevalence of substance abuse, the reasons athletes and exercises take and abuse drugs, major drug categories and their effects, and the fitness or sport professional's role in detecting and preventing substance abuse.

Prevalence of Substance Abuse in Sport

Similar to the situation with eating disorders, it is inherently difficult to get an accurate picture of **substance use** and abuse because of the sensitive and

Drug Testing in Different Sports: Different Approaches

Different sport organizations have enacted different drug-testing programs. Here are a few:

- *Major League Baseball*—Players submit to at least one random test during the season, and they might be tested off-season (usually only 3%–6% of drug tests are administered off-season). In 2005 a new agreement was passed, according to which players are suspended for 50 games for a first positive drug or steroid test, for 100 games for a second positive test, and permanently for a third positive test. In addition, they are tested for amphetamines, and a first positive test leads to mandatory additional testing. A second offense draws a 25-game suspension, and a third offense an 80-game suspension. As a side note, J.C. Romero, relief pitcher for the 2008 World Champion Philadelphia Phillies, tested positive for steroids in September, but because players can appeal findings he was allowed to pitch in the play-offs and World Series. He won two games in the World Series and in the play-offs had a 0.00 earned run average. His appeal was eventually denied, and he served a 50-game suspension at the start of the 2009 season. Is it fair that he was able to pitch very successfully in the play-offs and World Series even though he had a positive drug test? In 2012, MVP Ryan Braun of the Milwaukee Brewers tested positive for steroids but got off on a technicality. (However, he later received a 65-game suspension for his association with the Biogenesis clinic noted earlier.)
- *National Basketball Association*—Rookies are tested up to four times a season, and veterans and rookies are subject to random tests during training camp. Penalties range from 5- to 25-game suspensions (along with counseling or attending the league's antidoping program) for the first three offenses and a 2-year ban for a fourth offense. Athletes are not tested in the off-season.
- *National Football League*—All players are tested at least once every season. Players also are randomly tested throughout the year. The first positive test results in a 4-game suspension without pay, a second positive test results in an 8-game suspension without pay, and a third positive test results in a 1-year suspension.
- *National Hockey League.* Players are subject to up to two random tests every year; at least one such test is conducted on a team-wide basis. Athletes are not tested in the off-season. The first offense results in a 20-game suspension without pay (along with referral to the league's substance abuse and behavioral program for evaluation, education, and possible treatment), the second offense results in a 60-game suspension without pay, and the third offense results in a lifetime ban (although players can apply for reinstatement after 2 years).
- *Olympics.* Elite Olympic athletes must essentially let drug-testing officials know their whereabouts from 6 a.m. to 11 p.m. 365 days a year. Testers can knock on doors or appear at training sites without notice and demand a urine sample. The United States Anti-Doping Agency administers 65% of its tests out of competition. The first positive test results in a 2-year ban, and a second positive test results in a lifetime ban.

personal nature of the issue. Data are usually based on self-reports, which may help explain why usage estimates vary from 10% to 90% (National Center on Addiction and Substance Abuse, 2000). Thus, you should view the data with caution. There is much anecdotal evidence going back to the third century BC in Greece (Chappel, 1987; Hildebrandt, Varangis, & Lai, 2012) regarding substance use and abuse. However, it wasn't until the 20th century that substances such as amphetamines, stimulants, and testosterone extract reached the athletic world and became a significant impediment to fair competition.

Tommy Chaikin, football player for the University of South Carolina, provided a poignant report on drug use in *Sports Illustrated* (Chaikin & Tealander, 1988). Chaikin's report offers significant insight into the numerous social and psychological pressures that foster drug use (in this case anabolic steroids) in sport, including the encouragement of coaches and the pressures to succeed. Consistent with research, from his abuse of steroids Chaikin developed chronic aggression, depression, testicular shrinkage, hair loss, insomnia, poor vision, chronic anxiety, hypertension, a heart murmur, and benign tumors—and almost died. A variety of athletes taking high doses of steroids have since made similar reports. Finally, using a needle to inject drugs (especially anabolic steroids) may increase the probability of one getting infected with human immunodeficiency virus (HIV) or hepatitis C.

Kanayama, Brower, Wood, Hudson, and Pope (2010) documented the many potential side effects of steroid use (noted anecdotally by Tommy Chaikin and others), such as acne, testicular shrinkage, loss or increase of libido, water retention, impaired liver function, hypertension, clotting abnormalities, and increased aggression as well as a deepening voice, clitoral enlargement, and hair growth in females. Furthermore, another study indicated that individuals who take drugs for performance enhancement or physical appearance are most at risk (of developing a pathology or from a health perspective) if they take several distinct substances, have rigid practices and preoccupation with diet and exercise, and have significant body image disturbance (Hildebrandt et al., 2011).

As alluded to by Chaikin, coaches often are knowingly involved—implicitly or explicitly—in their athletes' use of drugs (Swift, 1999). For example, after having his gold medal taken away, sprinter Ben Johnson asserted that his coach knowingly gave him a banned substance. "Charlie Francis was my coach . . . . If Charlie gave me something to take, I took it" (*Time,* June 26, 1989, p. 57). Barry Bonds said that he used a clear substance and a cream given to him by his trainer, Greg Anderson, but that he didn't know they were steroids. Then there is a list of high-profile professional athletes who have admitted (sometimes after denying it for a long time) to or been caught using illegal drugs or have abused alcohol, such as John Daly, Darryl Strawberry, Lance Armstrong, Josh Hamilton, and Lawrence Taylor. In some cases, their careers have been terminated and they have served prison sentences for repeated drug use and violations of league policy. Unfortunately, athletes have also died from drug use and abuse in sport, as in the case of consistent steroid use by football player Lyle Alzado and one-time cocaine use by Len Bias, mentioned earlier.

As for the scientific evidence, most studies have focused on alcohol and steroid use, sometimes showing a good deal of variability. One study indicated that 55% of high school athletes reported using alcohol in the previous year (Green, Burke, Nix, Lambrecht, & Mason, 1996), whereas in another study the figure was 92% (Carr, Kennedy, & Dimick, 1990). In college samples, alcohol intake was consistent across studies, with reported uses of 88% (College of Human Medicine, 1985), 87% (Evans, Weinberg, & Jackson, 1992), and 85% (Nelson & Wechsler, 2001). These numbers are similar to those of nonathletes; however, college athletes appear to engage in significantly heavier episodic drinking than do nonathletes.

Most studies show the use of alcohol by male athletes to be higher than that by nonathletes but no significant differences between the use of alcohol by female athletes and nonathletes. Relative to the general college population, student-athletes have been identified as a high-risk group for heavy drinking. Furthermore, Martens, Dams-O'Connor, and Duffy-Paiement (2006) found that alcohol use and negative alcohol-related consequences decreased during the competitive season. Although this may outwardly seem like a positive finding, increased drinking in the off-season could cause other academic, social, or health-related problems and possibly affect off-season training and performance. Individuals who work with athletes should recognize this problem and help educate athletes about the many potential drawbacks of this pattern of behavior.

A study by Grossbard, Hummer, Labrie, Pederson, and Neighbors (2009) revealed that attraction to the team was a good predictor of substance use. Specif-

ically, alcohol use was higher but marijuana use was lower as attraction to the team increased; this was especially the case in males. Another study linked the increased use of sport (energy) drinks to alcohol use (Woolsey, Waigandt, & Beck, 2010). Specifically, it found that athletes who use energy drinks are more likely to drink more alcohol as well as engage in risky alcohol behavior such as binge drinking. Because most energy drinks are stimulants, the combination with increased alcohol use can have serious health implications and should be monitored closely by athletes, coaches, and parents.

Regarding the use of performance-enhancing drugs, especially anabolic steroids, several large-scale studies conducted in the United States, Canada, Australia, and Europe showed in general that only a small percentage (usually less than 5%) of athletes and high school or college students reported using performance-enhancing drugs (see Anshel, 2010). However, a survey by the Centers for Disease Control and Prevention (2010) found that steroid use was up from 1 in 27 high school students in 1999 to 1 in 16 students in 2003. In a 2003 anonymous survey of high school baseball players, 5% to 10% admitted using performance-enhancing drugs. During U.S. Congressional hearings in 2005 regarding steroid use among baseball players, a topic of discussion was the effect that drug use by well-known players has on youths, who might be tempted to take steroids to either enhance athletic performance or simply look better to the opposite sex. The possible use of steroids, a topic usually avoided, was brought into the spotlight in the tell-all book by former baseball player Jose Canseco, who admitted taking steroids and openly accused others of taking them.

With respect to sex differences, males appear to use anabolic steroids three to five times more frequently than females (Gaa, Griffith, Cahill, & Tuttle, 1994). Interestingly, many of the nonathletes in that study (mostly males again) took steroids to improve physical appearance and self-esteem and to increase peer approval. A study by Miller, Barner, Sabo, Melnick, and Farrell (2002) focusing on adolescent athletes and steroid use revealed that 71% of steroid users were male and 29% were female. Rates of steroid use in elite Olympic-level athletes have sometimes been estimated to approach 50% for both males and females. When athletes are asked about their teammates' use of performance-enhancing drugs, estimates again rise to between 40% and 60%. This is clearly an area in which usage estimates must be viewed with extreme caution. Finally, regarding recreational drug use by college athletes, approximately 25% to 33% use marijuana and less than 10% use any other kind of recreational drug (e.g., cocaine, psychedelics; NCAA, 2001).

From a spectator point of view, the use of performance-enhancing drugs has certainly called into question whether it is the natural ability and training of a player or the addition of drugs that has led to outstanding performance. For example, Mark McGwire hit 70 home runs and had a career total of more than 580 home runs, which ordinarily would automatically get him into the Hall of Fame. However, the baseball

Girls and Steroid Use

Traditionally, the use of performance-enhancing drugs such as steroids has been seen as predominantly a male domain. However, research has revealed that young girls (some as young as 9 years old) are using bodybuilding steroids—not necessarily to get an edge on the playing field but to get the toned, sculptured look of models and movie stars.

Girls are getting their hands on the same dangerous testosterone pills, shots, and creams that created a scandal in Major League Baseball and other sports. Often these are the same girls who have eating disorders. Overall, up to about 5% of high school girls and 7% of middle school girls admit trying anabolic steroids at least once. The use of the drug has risen steadily since 1991.

Researchers say most girls are using steroids to get bigger and stronger on the playing field, and they attribute some of the increase in steroid use to girls' increasing participation in sport. But plenty of other girls are using steroids to give themselves a slightly muscular look. With young women, steroid use is typically tied to weight control and body fat reduction.

In teenage girls, the side effects from taking male sex hormones can include severe acne, smaller breasts, deeper voice, excess facial and body hair, irregular periods, depression, paranoia, and fits of anger dubbed "roid rage." Steroids also carry higher risks of heart attack, stroke, and some forms of cancer.

writers' association that votes on the Hall of Fame gave him only 27% of the vote on the first ballot (in 2014 he received only 11% of the vote), whereas a 75% vote is needed to get into the Hall of Fame (Verducci, 2006). As one sports editor wrote regarding voting for McGwire, "He is a no. I will not vote for him ever. I think he was artificially pumped up. He was not a Hall of Famer until he hit the juice" (Strupp, 2006, p. 46).

Still, the use of illegal drugs is minimal compared with the widespread use of legal drugs, such as alcohol and tobacco, the two most abused drugs in America. Sustained use of these substances has been linked to a host of negative health effects (figure 20.1).

Why Athletes and Exercisers Take Drugs

Athletes and exercisers do not start out abusing drugs. Rather, they take drugs for what they perceive to be good reasons. Although the reasons for using performance-enhancing drugs might differ from those for taking recreational substances, we group the reasons together into three general categories: physical, psychological, and social (see Anshel, 2010, for an extensive review of the causes of drug use).

Physical Reasons

The most common physical reasons for taking drugs are to enhance performance, to look more attractive to others, to cope with pain and injury rehabilitation, and to control weight. Although all these reasons are valid, athletes take drugs primarily to improve performance with the expectation that they might increase their strength, endurance, alertness, and aggression or decrease their fatigue, reaction time, and anxiety. Winning is paramount, and doing anything to improve performance is critical. However, performance-enhancing drugs have clearly documented health risks. In addition, taking drugs to enhance performance is clearly cheating. If caught, athletes will be subjected to considerable public scorn. Even if they are not caught, they'll always know the victory was not their own.

Rehabilitation from injury is another physical reason athletes take drugs. They sometimes take drugs without a prescription from a doctor in an attempt to attenuate pain or cope psychologically with the physical discomfort of the injury. Fear of losing a starting position is a reason athletes often give: They want to rush back from an injury and sometimes think drugs can speed that recovery process. This was the reason that star pitcher Andy Pettitte gave for using steroids; he just wanted to heal quicker so he could get back on the mound.

Many exercisers take drugs (especially steroids) simply to look better and be more attractive to others. These individuals are not necessarily interested in performing better; rather, they are concerned with simply having their bodies look good, strong, and firm. In one study of almost 4,000 male high school students (Whitehead, Chilla, & Elliott, 1992), the most common

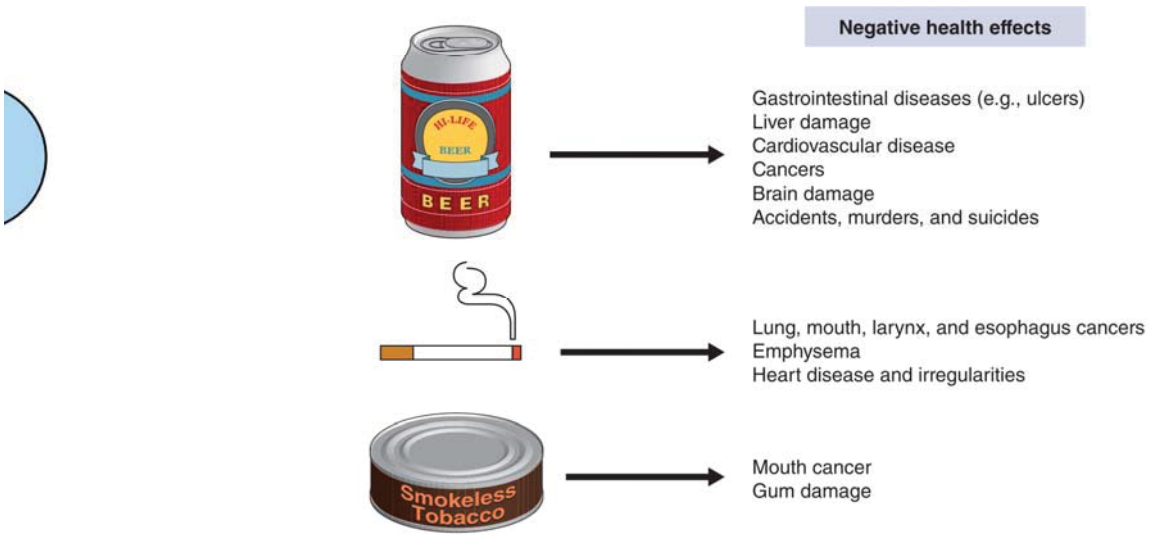

FIGURE 20.1 Negative health effects associated with prolonged use of alcohol and tobacco.

Adapted from L. Bump, 1988, Drugs and sport performance. In *Successful coaching*, edited by R. Martens (Champaign, IL: Human Kinetics), 135-147.

reason for using steroids was to improve physical appearance (48%). Subsequent research (Martens, Dams-O'Connor, & Kilmer, 2007) has supported the finding that improving physical appearance is the reason adolescents most often give for taking steroids.

Finally, athletes take drugs, especially amphetamines and diuretics, to control appetite and reduce fluid weight as well as boost energy for workouts. Large-scale studies indicate that up to 80% of drug users (across ages) use some form of these drugs (Hildebrandt, Langenbucher, Carr, & Sanjuan, 2007). These drugs can reduce weight quickly, allowing athletes to compete in a lower weight classification, as noted earlier. Some exercisers also consider taking diuretics to keep slim and trim. One such diet-controlling drug known as ephedra has received attention because of the unfortunate deaths of Minnesota Vikings football player Korey Stringer and Baltimore Orioles pitcher Steve Belcher. Belcher took ephedra to control weight and died of heatstroke during spring training, whereas Stringer took ephedra and died during team workouts. Although no research proves that ephedra can keep weight off or enhance athletic performance, this has not stopped athletes from taking it to control weight in an effort to increase performance.

Psychological Reasons

By far the most common rationale for using recreational drugs among athletes is psychological or emotional. These drugs seem to offer a convenient escape from unpleasant emotions in the course of dealing with competitive experiences. In addition, some individuals take drugs to offset the stress caused by trying to balance academic pursuits, training schedules, and personal relationships. Michael Phelps, 18-time Olympic gold medalist, was caught smoking marijuana at a party. Although this did not occur right before a major competition, it did create a furor because it is illegal and because of the effect it might have on aspiring athletes. The incident underscores some of the potential negative side effects of recreational drug use above and beyond any performance effects.

Still other athletes and exercisers use drugs to build self-confidence. Doubts about their ability often haunt participants, and certain drugs can help make them feel better about their abilities and feel more competitive. Friends, parents, and coaches often set expectations of success that are too high, and in this case athletes may view drugs as a resource for combating this source of stress and protecting their self-esteem.

Finally, a study by Donahue and colleagues (2006) investigated a motivational model of performance-enhancing substance use in elite athletes. Approximately 1,300 national-level athletes in Canada were tested regarding the relationships between intrinsic and extrinsic motivation, sportspersonship, and use of performance-enhancing drugs. Results revealed that athletes who were predominantly intrinsically motivated were more likely to endorse sportspersonship orientations and consequently less likely to

Viagra: Performance Enhancement From the Bedroom to the Ball Field

Viagra was originally devised to treat pulmonary hypertension or high blood pressure in arteries or the lungs. The drug works by suppressing an enzyme that controls blood flow, allowing the vessels to relax and widen. The mechanism also facilitates blood flow into the penis of impotent men. Additionally, this same mechanism can increase cardiac output and more efficient transport of oxygenated fuel to the muscles and thus can enhance endurance. One study has shown that Viagra improved performance of some participants by nearly 40% in a 10-kilometer cycling time trial conducted at a simulated altitude of 12,700 feet—a height far above general elite athlete competition. Viagra did not increase performance at sea level where blood vessels are fully dilated in healthy athletes (Hsu et al., 2006).

Currently, little evidence shows that use of Viagra is widespread in elite athletes. However, because the drug is not prohibited and thus not screened, there is no way to know precisely how popular it is. Even if Viagra increases stamina by a small amount, it could have a significant effect on results in sports such as distance running, cycling, and Nordic skiing, where events can be held at altitudes of 6,000 feet or above. For example, the difference between first and fourth place in the 15-kilometer cross-country ski race at the 2006 Olympics was less than 1%. Researchers suspect that Viagra will be put on the banned substance list in the future because it is easily detected and appears to provide an unfair advantage, at least at altitude.

use performance-enhancing substances. Conversely, extrinsically motivated athletes were more likely to use performance-enhancing substances in sport, in part because of the unsportspersonship orientations they hold. Thus, it appears that *why* one plays the game (i.e., motivation) predicts *how* one plays the game (i.e., sportspersonship orientations), which then predicts the use (or not) of performance-enhancing substances.

Finally, research by Hodge, Hargreaves, Gerrard, and Lonsdale (2013) found that moral disengagement was a strong predictor of positive attitudes toward the use of performance-enhancing drugs. The researchers used Bandura's (2005) social cognitive theory of moral thought and action to explain why moral disengagement can lead to positive attitudes toward (and possibly actual use of) performance-enhancing drugs. This theory argues that moral disengagement allows individuals to transgress moral standards without feeling negative affect or guilt, thereby decreasing constraint on future immoral behavior. For example, immoral behavior such as using performance-enhancing drugs could be justified as a way of maintaining a team's winning legacy and rationalized as just another way to maximize one's potential. In addition, athletes may invoke their opponent's use of performance-enhancing drugs (i.e., "Everyone else is doing it") or displace responsibility to an authority figure such as the coach. In essence, there are many ways that athletes can justify using performance-enhancing drugs without feeling guilt or negative affect.

Social Reasons

Social pressures are also important causes of drug use. Pressure from peers and the need to gain group acceptance are especially apparent among adolescents who want to fit in. They may drink, smoke, or take performance-enhancing drugs not so much because they want to but rather to be accepted by their peers. Studies of adolescents (Hildebrandt et al., 2012; Newman & Newman, 1991) found that the lure of steroids is often too strong for many adolescents to resist because of the extreme demands regarding conformity in this age group. This is especially problematic for males, who seem to be more prone to "macho behavior" in the desire to fit in with the group. Thus, practitioners must repeatedly communicate the importance of being one's self and not giving in to pressure from so-called friends.

Athletes have become highly visible on television and through other media, and for many youngsters these professional, Olympic, and college athletes are role models. For some youngsters, making enormous amounts of money and becoming a national celebrity have become part of the culture to which they aspire. This combination seemingly provides easy access to drugs. Unfortunately, perceptions that these highly skilled athletes ingest drugs and the mind-set that "it doesn't hurt them so much so it won't hurt me" provide an attractive rationale for aspiring young athletes to take drugs (Anshel, 2010; Martens, Dams-O'Connor, & Kilmer, 2007). In fact, several sports writers have argued that the biggest danger with someone as famous as Barry Bonds taking steroids is that many young athletes might get the idea that you have to take drugs to be really successful in sport. Despite his negative publicity, lots of kids still want to be like Barry Bonds (in terms of home runs). Drugs can be obtained in various ways, including online, at gymnasiums, and through muscle magazines. Oftentimes, it is teenagers who seek out these drugs, and their bodies and minds are not even fully developed yet. These drugs often cause damage that is not seen until years later. However, many times the allure of stardom and heightened success is just too appealing to pass up.

Drug use seems implicitly sanctioned to young athletes for whom professionals are role models. This modeling effect is particularly influential during adolescence, when many youngsters are exploring their identities and often experimenting with drugs. In addition, the notion of using drugs for fun and experimentation promotes the idea that drugs (especially alcohol) are not really harmful and helps contribute to an individual's comfort level with the behavior. To counter all this, practitioners should provide alternative models for youngsters that focus on personal responsibility.

Finally, in one of the few studies using a theoretical approach to study drug use in athletes, Lazarus, Barkoukis, Rodafinos, and Tzorbatzoudis (2010) investigated predictors of drug use using the theory of planned behavior (see chapter 18). Results from this study of more than 1,100 athletes revealed that situational temptation (i.e., how tempted you would be to use performance-enhancing drugs if your coach suggests you do so, if you believe most of your competitors are using prohibited substances, or when you prepare for an important competition) and attitudes toward drug use were the strongest predictors of past and current drug use. Changing favorable attitudes toward doping into unfavorable ones and teaching athletes how to resist pressure to engage in doping

Common Recreational Drugs and Their Side Effects

Alcohol

- Mood swings
- Euphoria
- False confidence
- Slowed reaction time
- Distorted depth perception
- Difficulty staying alert
- Reduced strength
- Reduced speed
- Emotional outbursts
- Lost inhibitions
- Muscular weakness
- Dizziness
- Liver damage
- Reduced power
- Reduced endurance

Marijuana

- Drowsiness
- Decreased hand–eye coordination
- Increased blood pressure
- Distorted vision
- Decreased physical performance
- Decreased alertness
- Increased heart rate
- Memory loss
- Slowed reaction time
- Decreased mental performance

Cocaine

- Physical and psychological addiction
- Increased strength
- Dizziness
- Rapid blood pressure fluctuations
- Anxiety
- Death from circulatory problems
- Violent mood swings
- Decreased reaction time
- Vomiting
- Distorted depth perception
- Hallucination

Adapted from L. Bump, 1988, Drugs and sport performance. In *Successful coaching,* edited by R. Martens (Champaign, IL: Human Kinetics), 135-147.

under risk-conducive circumstances may lead to weaker intentions to engage in doping, even among athletes with a history of drug use.

KEY POINT Reasons athletes and exercisers take drugs include peer pressure, thrill seeking and curiosity, the need to achieve success, and the desire to increase self-esteem.

Major Drug Categories and Their Effects

In the sport and exercise realm, drugs are classified by their purpose: (a) performance-enhancing drugs and (b) recreational, social, or street drugs. **Performance-enhancing drugs** include anabolic steroids, beta-blockers, and stimulants used by athletes or exercisers to increase strength, calm nerves, or block pain. Table 20.1 lists six general categories of performance-enhancing drugs, their potential performance-enhancing effects, and psychological and medical side effects associated with their use.

Recreational drugs (also known as street drugs) are substances that people seek out and use for personal pleasure. They may be trying to escape pressures, fit in with friends who use drugs, or find thrills and excitement that seem to escape them in everyday life. "Common Recreational Drugs and Their Side Effects" lists the side effects of alcohol, marijuana, and cocaine. Tobacco is another widely used recreational drug associated with negative health effects. Most people know the negative effects of cigarettes and cigars, but smokeless tobacco is significant as well because its use has recently increased in teenage athletic populations. Snuff and chewing tobacco are associated with lip, gum, and other oral cancers.

KEY POINT Snuff and chewing tobacco are associated with lip, gum, and other oral cancers; nevertheless, the use of smokeless tobacco is on the rise in some populations.

TABLE 20.1 Major Categories of Performance-Enhancing Drugs in Sport

Drug category	Definition and use	Performance-enhancing effect	Side effects
Stimulants	Various types of drugs that increase alertness, reduce fatigue, and may increase competitiveness and hostility	Reduced fatigue; increased alertness, endurance, and aggression	Anxiety, insomnia, increased heart rate and blood pressure, dehydration, stroke, heart irregularities, psychological problems, death
Narcotic analgesics	Various types of drugs that kill pain through psychological stimulation	Reduced pain	Constricted pupil size, dry mouth, heaviness of limbs, skin itchiness, suppression of hunger, constipation, inability to concentrate, drowsiness, fear and anxiety, physical and psychological dependence
Anabolic steroids	Derivatives of the male hormone testosterone	Increased strength and endurance, improved mental attitude, increased training and recovery rates	Increased risk of liver disease and premature heart disease, increased aggression, loss of coordination, a variety of sex-related effects (e.g., infertility in males, development of male sex characteristics in females)
Beta-blockers	Drugs used to lower blood pressure, decrease heart rate, and block stimulatory responses	Steadied nerves in sports such as shooting	Excessively slowed heart rate, heart failure, low blood pressure, light-headedness, depression, insomnia, weakness, nausea, vomiting, cramps, diarrhea, bronchial spasm, tingling, numbness
Diuretics	Drugs used to help eliminate fluids from the tissues (increase secretion of urine)	Temporary weight loss	Increased cholesterol levels, stomach distress, dizziness, blood disorders, muscle spasms, weakness, impaired cardiovascular functioning, decreased aerobic endurance
Peptide hormones and analogs (e.g., human growth hormone)	Chemically produced drugs that are chemically similar to or have effects similar to those of already-existing drugs	Increased strength and endurance, muscle growth	Increased growth of organs, heart disease, thyroid disease, menstrual disorders, decreased sexual drive, shortened life span

Adapted from L. Bump, 1988, Drugs and sport performance. In *Successful coaching*, edited by R. Martens (Champaign, IL: Human Kinetics), 135-147.

Detection of Substance Abuse

Substance use and abuse are detected by formal procedures (e.g., drug testing) and informal procedures (e.g., observation and listening). Unfortunately, properly conducted drug testing is very expensive.

KEY POINT Only specifically trained professionals work in drug treatment programs. However, sport and fitness personnel play a major role in drug prevention and detection.

Several signs and symptoms characterize people who are substance abusers:

- Changes in behavior (e.g., lack of motivation, tardiness, absenteeism)
- Changes in peer group
- Major changes in personality
- Major changes in athletic or academic performance
- Apathetic or listless behaviors

- Impaired judgment
- Poor coordination
- Poor hygiene and grooming
- Profuse sweating
- Muscular twitches or tremors

If you observe these symptoms in athletes and exercisers, it is not necessarily the case that they are substance users or abusers; these symptoms can also reflect other emotional problems. Thus, a fitness professional who observes particular symptoms should first talk to the person involved to validate her suspicions. Hard-core substance abusers are notorious for lying and denying the problem, however. Hildebrandt and colleagues (2012) discuss how athletes may increase and taper the use of steroids (a practice known as pyramiding) or cycle their drug use to evade scheduled drug tests (e.g., in-season vs. off-season). So, if doubts remain after the initial talk with the individual, you should solicit confidential advice from a substance abuse specialist. When you deal with an individual who has substance abuse problems, follow a referral process similar to the one described earlier for eating disorders.

Sport Deterrence Model of Drug Abuse

One recent model put forth to help detect substance abuse (and eventually deter drug use) uses **deterrence** theory to help understand the process individuals go through when deciding whether to use drugs (Strelan & Boeckmann, 2003). The drugs in sport decision model (DSDM) consists of three major components: the costs of a decision to use, the benefits associated with using, and specific situational factors that may in some way affect the cost–benefit analysis of using. The DSDM is therefore consistent with the rational choice perspective, which states that individuals conduct a cost–benefit analysis of the consequences of lawbreaking behavior before deciding to break a law.

Costs

- Legal sanctions (fines, suspensions, jail time)
- Social sanctions (disapproval, criticism by important others, material loss)
- Self-imposed sanctions (guilt, reduced self-esteem)
- Health concerns (negative side effects)

The most consistent deterrent reported in the literature is self-imposed sanctions, especially when the action of taking drugs goes against one's moral values. In contrast, the least effective deterrent is legal sanctions. This was found in 25 studies between 1969 and 1986 (Paternoster, 1987) and another 24 studies from 1987 to 2002 (Strelan & Boeckmann, 2003). However, this result is most likely because the majority of behaviors studied are misdemeanors, and individuals have therefore tended to perceive the likelihood of arrest and punishment to be low.

The use of drug testing as a deterrent at the high school level was investigated in a study based on questionnaires given to student-athletes at 11 high schools in Oregon (Goldberg & Elliot, 2005). Results did not reveal any evidence that drug testing was a deterrent to further drug use. Similarly, the SATURN (Student Athlete Testing Using Random Notification) study used six high schools with no drug testing and five with random drug and alcohol testing. Results found that the presence of a drug-testing program was a minimal deterrent to drug use. Researchers from both studies found that although drug testing often produced few (if any) positive results, the questionnaires revealed widespread drug use among high school athletes. So administrators are happy they have a testing program, but in reality they are probably not catching or deterring many athletes from using drugs. The researchers call for more education and doing a better job of actually detecting drug use. Some perceived benefits of drug use, as well as situational variables affecting the decision to use or not use drugs, are presented below.

Benefits

- Material (prize money, sponsorship, endorsements, contracts)
- Social (prestige, glory, acknowledgment by important others)
- Internalized (satisfaction of high achievement)

Depending on the athlete's orientation, any one of the three benefits might be perceived as most important and motivating. Thus coaches must know their athletes to better understand the lure of drugs to different athletes.

Situational Variables

- Prevalence perceptions (how frequently others use this drug)

- Experience with punishment and punishment avoidance
- Professional status (how much money and status might be lost)
- Perception of authority legitimacy (the ability of the agency to enforce the law)
- Type of drug (its effects and side effects)

This is not meant to be an exhaustive list of potential mediating situational variables but instead includes some of the most common variables affecting the perceived cost and benefit analysis of drug use. Thus, once again, an interactional model should be used, suggesting that an individual's perceived cost–benefit analysis is affected by several situational factors to produce a decision to use or not use drugs.

The DSDM is predicated on the assumption that drug-free sport is desirable, as is specifying the factors that may affect drug-use decisions. The literature suggests that an individual's sense of morality is a powerful deterrent. Morality research further suggests that the more ingrained a particular belief, and the earlier in life it is ingrained, the more likely an individual will adhere to that belief. This implies that efforts to convince promising young athletes that performance-enhancing drug use is unfair are likely to have a greater effect than is investing more in legal deterrence.

KEY POINT Hard-core substance abusers are notorious for lying and denying their substance abuse.

Setting up policies and procedures for detecting substance use and abuse under the umbrella of a formal drug education program has also proved to be effective. For example, the NCAA Drug Education Committee originally developed a set of minimum guidelines for policy consideration by its member institutions (Carr & Murphy, 1995); these might be successful for athletes at other levels as well. This model provides drug education for athletes and athletic officials; treatment support; and training sessions for coaches, athletic trainers, and team physicians to help detect and handle drug- and alcohol-related problems. These educational and drug testing guidelines are updated regularly and can be found at www.NCAA.org/drugtesting.

Prevention and Control of Substance Abuse

Because substance abuse is a clinical matter, sport and fitness personnel are unlikely to be involved in drug treatment programs. We can play major roles in drug prevention by providing resources to our athletes, but keep in mind that education, although important, has typically deterred only 5% of sport or exercise participants from experimenting with drugs (Tricker, Cook, & McGuire, 1989). As stated by Nicholson (1989) in a thorough review of the literature, "While distribution of information plays an important consciousness-raising function, it should not be considered a critical strategy to reduce the drug use of athletes and exercisers" (pp. 50–51). Conversely, an NCAA survey of athletes conducted from 2010 to 2011 found that more

Coaches and Substance Abuse

With so much news coverage of athletes and substance abuse, we sometimes forget that some coaches also have alcohol problems. For example, police made public the drunken rampage that Gary Moeller, ex-Michigan football coach, embarked on inside and outside of a restaurant. The accounts depicted a 54-year-old man out of control, smashing drink glasses on his table, singing loudly, and attempting to dance with other women after his wife left the restaurant. He sustained alcohol poisoning and was incoherent, abusive, and relentlessly vulgar. When police arrived, Moeller punched an officer before being arrested and charged with disorderly conduct and assault and battery. These actions forced him to resign the next day.

Dennis Erickson, ex-coach of the Seattle Seahawks, was ordered to enter an alcohol rehabilitation program after being arrested for driving while intoxicated and having an alcohol-induced car accident. Erickson's drinking problems had surfaced earlier and were known from his coaching at the University of Miami. Unfortunately, problems among coaches demonstrating a lack of self-control, such as excessive drinking and even spousal abuse, have been reported with alarming frequency in recent years. Perhaps the high stress associated with coaching is contributing to these out-of-control episodes (see chapter 21). Coaches, like their players, aren't icons but only imperfect humans.

than 50% of athletes believed that mandatory drug testing has reduced NCAA athletes' use of drugs. The following are some suggestions for helping prevent or at least reduce the probability of drug use:

1. Provide a supportive environment that addresses the reasons individuals take drugs. Empower participants through increased self-esteem and self-confidence, because people who feel good about themselves are less likely to take drugs. Keep winning in perspective and reduce the pressure to win at all costs. Be attuned to the symptoms of substance abuse.

2. Educate participants about the effects of drug use. The key here is to be informative and accurate regarding both the negative and positive (performance-enhancing) effects of various drugs. Using examples of well-known athletes (or actually bringing in high-visibility athletes) can be effective. You could cite the example of Green Bay quarterback Brett Favre: Addicted to painkilling drugs, Favre had to undergo therapy at a treatment center to deal with the problem. There is also the uplifting story of tennis champion Jennifer Capriati's return to the tour from a bout with drugs and working her way back to winning Grand Slam tournaments. You might also convey information through peer athlete leaders and use role playing and group-facilitation techniques.

3. Early on, expose athletes to the notion that using performance-enhancing drugs amounts to cheating and unfair competition. As noted earlier, enhancing athletes' morality appears to have the largest effect on inhibiting drug use. Start programs early and continue to expose young athletes to the notion that it is unfair and simply wrong to win via drugs.

4. Set a good example. Actions speak louder than words, so coaches and exercise leaders should monitor their own actions and not smoke, chew tobacco, or drink excessively. This in itself sends a powerful message against the use of drugs. Professionals are not immune to drug abuse. Coaches who have personal concerns should themselves get help. An excellent example of this type of effort is the United States Anti-Doping Agency's True Sport program, a community outreach and education program for parents, coaches, and athletes, that seeks to ensure a positive youth sport experience by emphasizing "clean" competition, sportsmanship, and drug-free strategies to achieve peak performance (visit www.truesport.org).

5. Teach coping skills. As noted earlier, increased anxiety and stress along with decreased levels of self-confidence can contribute to drug use. Therefore, coping strategies such as changing negative to positive self-talk, managing stress, reframing, and thought

ATLAS and ATHENA: Drug Prevention for High School Athletes

ATLAS (Athletes Training and Learning to Avoid Steroids) for boys and **ATHENA** (Athletes Targeting Healthy Exercise and Nutrition Alternatives) for girls are two sex-specific, evidence-based drug prevention and health promotion programs for high school sport teams. The program, developed by Goldberg and Elliot (2005), consists of a network of high schools across the country where coaches, athletic directors, and student-athlete leaders are trained to teach such things as eating better before and after workouts and how to get stronger with various strength training techniques. Rather than stressing the long-term effects of anabolic steroids, diet pills, marijuana, and alcohol, the program focuses on the immediate effects on athletic potential—informing students, for example, that alcohol is a muscle toxin; that marijuana can reduce muscle coordination; and that anabolic steroids can cause acne, shrink testicles (males), and cause facial hair (females). Participants also learn to be cautious with supplements because of the lack of government oversight in ensuring product purity and safety.

As noted earlier, drug testing does not seem to be especially effective as a deterrent, and thus the program takes a more educationally based approach. Although still in the early stages, some research and anecdotal reports suggest that the program is effective. In a summary of the findings to date, Hildebrandt and colleagues (2011) argue that the ATLAS and ATHENA programs have been shown to be effective for reducing intentions to engage in unhealthy body shaping behaviors, although their effect on reducing actual behaviors has not yet been empirically supported. Members of these programs also reported not intending to partake in unhealthy weight loss practices and being more aware of the negative consequences of using drugs. Although further controlled studies are needed, the ATLAS and ATHENA programs are off to a good start.

stopping can be used to cope with stress and enhance self-confidence.

6. A web-based personalized feedback program (Martens, Dams-O'Connor, & Beck, 2006) was shown to significantly reduce drinking in high-risk drinking athletes. Athletes received personalized feedback (e.g., comparing their own drinking with national peer norms); a summary of their drinking frequency over the past year; and information on the financial cost of drinking, calories associated with drinking, and their risk status for negative consequences associated with drinking. Thus, the Internet appears to be a way to deliver a personalized program for reducing drinking to large numbers of student-athletes.

Addiction to Exercise

Another type of addiction (although not everyone sees it as an addiction) is addiction to exercise. For example, some people develop exceptionally strong feelings about their exercise, as you can sense in the following quote by Waldemar Cierpinski, the two-time gold medalist from East Germany:

> "I have run since infancy . . . . It's the passion of my life. Running as long as possible—I've made that into a sport. I have no other secrets. Without running I wouldn't be able to live. (Cierpinski, 1980, p. 27)"

The intense involvement with exercise, particularly running, has been described in such terms as *compulsion* (Abell, 1975), *dependence* (Sachs & Pargman, 1984), *obsession* (Waters, 1981), *exercise fix* (Benyo, 1990), and *addiction* (Glasser, 1976). In the exercise psychology literature, most writers use the term *addiction* to refer to an intense involvement in exercise.

What Is Exercise Addiction?

Exercise addiction is a psychological or physiological (or psychological *and* physiological) dependence on a regular regimen of exercise that is characterized by withdrawal symptoms after 24 to 36 hours without exercise (Sachs, 1981). Note, in addition, that exercise addiction typically incorporates both psychological and physiological factors. Some withdrawal symptoms commonly associated with the cessation of exercising include anxiety, irritability, guilt, muscle twitching, a bloated feeling, and nervousness. But these occur only if an individual is prevented from exercising for some reason (e.g., injury, work, or family commitments), as opposed to purposefully taking a day or two off.

Positive Addiction to Exercise

The concept of beneficial addiction to exercise, running in particular, was popularized by William Glasser in his book *Positive Addiction* (1976). Glasser argued that positive addictions such as running and meditation promote psychological strength and increase life satisfaction. This is in sharp contrast to negative addictions, such as addiction to heroin or cocaine (noted earlier), that inevitably undermine psychological and physiological functioning. Glasser saw exercise as a compulsion (rather than an addiction) that increases an individual's psychological and physical strength, thereby enhancing the person's state of well-being and functioning. Rather than using standard quantitative assessments and analyses, Glasser included qualitative data from clinical and psychiatric assessments.

In **positive addiction to exercise**, the variety of psychological and physiological benefits just referred to typically occur as a person continues to participate in regular physical activity. With a positive addiction to exercise, exercisers view their involvement in regular physical activity as important to their lives, and they can successfully integrate this activity with other aspects of their lives, including work, family, and friends. Exercise becomes a habit of daily activity, and this level of involvement represents a "healthy habit."

Negative Addiction to Exercise

Although many exercisers develop a positive addiction to their exercise, for a small percentage of people, exercise can control their lives (Benyo, 1990; Berger & Tobar, 2011; Morgan, 1979a). When this occurs, the person has a **negative addiction to exercise** that eliminates other choices in life. Lives become structured around exercise to such an extent that home and work responsibilities suffer and relationships take a backseat. This condition apparently reflects personal or social maladjustment and parallels other addictive processes characterized by increasing dose dependence and withdrawal symptoms under deprivation. Chan (1986) described how people typically become addicted to exercise:

> "The typical addict is . . . female or male, and began exercising in adulthood as a way to lose weight and become more physically fit. As these individuals improve their heart rate,

Some addictions can be positive. When someone successfully integrates a balanced exercise routine into his or her daily lifestyle, a positive addiction to exercise can occur.

> lose weight, and feel better physically, they also begin to feel better about themselves. They develop a sense of control over their bodies—something they had been unable to do through dieting—and this feeling of control generalizes to a sense of control over their lives. In other words, they feel more powerful and more self-confident. (p. 430)"

Many addicted exercisers recognize their own symptoms of negative addiction. However, they often feel that although exercise may control their lives, it enhances their existence. Runner and physician George Sheehan (1979) demonstrated this perspective when he wrote:

> "The world will wait. Job, family, friends will wait; in fact, they must wait on the outcome . . . . Can anything have a higher priority than running? It defines me, adds to me, and makes me whole. I have a job and family and friends that can attest to that. (p. 49)"

Along these lines, it is instructive to differentiate between primary and secondary exercise dependence (Kerr, Linder, & Blaydon, 2007). In primary exercise dependence, exercise is an end in itself, although it may include altering eating behaviors for the purpose of enhancing performance. In secondary exercise dependence, the exercise is a symptom of another primary pathological condition, such as an eating disorder. Kerr and colleagues (2007) recommend that the criteria for diagnosing those who are hooked on exercise include three or more symptoms in a 12-month period. Symptoms include the following:

- Tolerance or need for increased amounts of exercise
- Withdrawal symptoms (e.g., anxiety, fatigue)
- Loss of control
- Conflict as exercise takes precedence over other activities
- Devoting more and more time to exercise

- Exercising in larger amounts than was intended
- Continuing to exercise despite knowledge of problems

McNamara and McCabe (2012) attempted to develop a biopsychosocial model to help explain the development and maintenance of exercise dependence among elite athletes. Results revealed that athletes classified as exercise dependent had a higher body mass index, had more extreme and maladaptive exercise dependence, and reported higher pressure from coaches and teammates and lower social support compared with athletes who were not exercise dependent. This initial study supports the utility of using a biopsychosocial model of exercise dependence to understand the etiology of exercise dependence among elite athletes.

Addiction to Exercise and Self-Esteem

A study by Martin, Martens, Serrao, and Rocha (2008) revealed that a person can become exercise dependent when they attempt to use exercise as a means to enhance self-esteem. In addition, exercise dependence was found to be related to alcohol-related problems in college students (Hall, Hill, Appelton, & Kozub, 2009). It appears that exercise dependence can be related to (although not causative of) inappropriate behaviors. Finally, a review of the literature indicates that athletes and exercisers who were addicted to their sport or exercise tend to have higher levels of alcoholism and other chemical addictions later in life (Krivoschekov & Lushnikov, 2011). Therefore, these people need to be extremely careful that a sport or exercise addiction does not turn into a chemical addiction later in life.

When an Addicted Exerciser Can't Exercise

What happens when an addicted exerciser is injured and cannot exercise? The exerciser will probably

Sexual Harassment and Abuse in Sport

Unfortunately, mirroring society, documented **sexual harassment and abuse** in sport have increased. This is highlighted in a special issue of *International Journal of Sport and Exercise Psychology* (Leahy, 2008). The severity of the problem has prompted the International Olympic Committee (2008) to issue a consensus statement regarding sexual harassment and abuse in sport. The IOC has stated that its aim is to improve the health and protection of all athletes through the promotion of effective preventive policy and to increase awareness of these problems among the athlete's entourage.

Sexual harassment refers to behavior toward an individual that involves sexualized verbal, nonverbal, or physical behavior, whether intended or unintended, that is based on an abuse of power and trust and is considered by the victim to be unwanted or coerced. Data collected over a 16-year period showed that the commonalities of intimacy, opportunity, and coercion or power most frequently characterized sexual abuse of athletes by coaches (or other authority figures). Specifically, building trust and friendship, developing isolation and control, building loyalty, securing secrecy, and targeting a potential victim were aspects of what has been termed the grooming process leading to sexual abuse. Specific situational risk factors included going to the coach's house, getting massages from the coach, and being driven home by the coach. In addition, athletes' low self-esteem, distant parent–athlete relationships, and devotion to the coach were personal risk factors.

The IOC recommends that all sport organizations develop specific policies for the prevention of sexual harassment and abuse, monitor the implementation of these policies and procedures, foster strong partnerships with parents and caregivers, and develop an education and training program on sexual harassment and abuse in their sport.

National League Cy Young award winner R.A. Dickey and Olympic judo gold medalist Kayla Harrison were two of the first world-class athletes to tell their stories about years of sexual abuse at the hands of a coach and a babysitter. The years were filled with shame, guilt, fear, suicidal thoughts, and gut-wrenching depression. The stories of how these courageous athletes have achieved greatness while fighting demons should give hope to others and help them break away or recover from any sexual abuse they have experienced. For a full account of these athletes' stories, see Smith (2012).

The most visible sexual abuse case in sport is likely the child sex abuse scandal that broke in 2011 at Pennsylvania State University, involving longtime football coach Jerry Sandusky's sexual

suffer withdrawal symptoms including tension, restlessness, irritability, depression, interpersonal problems, and feelings of guilt. In one study (Chan & Grossman, 1988), injured runners who were prevented from running suffered greater overall tension, anxiety, depression, confusion, anger, and hostility—along with lower self-esteem and vigor—than their still-running counterparts. The authors concluded that these withdrawal symptoms were similar to those commonly noted in withdrawal from other addictions. One way to cope with an injury is to try other activities. A runner who injures her lower leg might still swim and possibly ride a bicycle. However, the substitution will likely not satisfy the true addict.

An exerciser can do a number of things to help guard against falling into the trap of negative addiction, including the following:

- Schedule rest days or take them when necessary.
- Work out regularly with a slower partner.
- If you're injured, stop exercising until you are rehabilitated and healed.
- Train hard–easy: Mix in low intensity and less distance with days of harder training.
- If you're interested in health benefits, exercise three or four times a week for 30 minutes.
- Set realistic short- and long-term goals.

Compulsive Gambling: An Odds-On Favorite for Trouble

The focus of this chapter has thus far been on three problems prevalent in today's sport and exercise environments. We turn now to a problem that, despite its long history in competitive sport, is only now getting the attention of the media and the public: compulsive gambling. Bookies have been taking and placing bets (legally and illegally) for a long time in and on sports.

assault of at least nine underage boys on or near university property and the alleged actions by some university officials to cover up the incidents. Based on an extensive grand jury investigation, Sandusky was indicted and found guilty on 45 counts of sexual abuse, resulting in a minimum of 30 years in prison. In addition, based on findings of the grand jury and an independent investigation commissioned by the Penn State board and conducted by former FBI director Louis Freeh, several high-level school officials were charged with perjury, suspended, or dismissed for covering up the incidents or failing to notify authorities. Most notably, school president Graham Spanier was forced to resign, and head football coach Joe Paterno (who reportedly did tell his boss about the abuse but did nothing further when his boss did not report the abuse to the proper authorities) and athletic director Tim Curley were fired. In his report, Freeh stated that the most senior leaders at Penn State showed "a total disregard for the safety and welfare of Sandusky's child victims for 14 years and empowered Jerry Sandusky to continue his abuse." This incident was particularly troubling because Penn State had a reputation for running a clean program in which athletes' academic and personal growth was paramount. Steps are being taken around the country to protect young boys and girls from being the target of sexual abuse by coaches or other adults in positions of power.

Although sexual harassment and abuse are totally unacceptable in and out of sport, an interesting study by Kerr and Stirling (2013) noted that completely eliminating any touching between coach and athlete via "no touch" policies could be overreacting. Results of the study, in which both young athletes and coaches were interviewed, revealed that both athletes and coaches felt that touch was important for teaching and learning purposes, praise and recognition, consolation, and ensuring athlete welfare. However, the acceptability of touch was affected by such factors as the interpersonal qualities of the coach and athlete, the nature of the interpersonal relationship between the coach and athlete, and the context in which the touch occurs. The findings suggest that rather than supporting a "no touch" culture, safe and healthy ways for negotiating the use of touch should be understood and promoted. A diving coach, for example, made it a practice to always ask his female divers for permission to touch them when he needed to physically spot their dives.

The Black Sox baseball scandal in the 1920s was one of the first large-scale documented scandals in which players were betting on their own games and sometimes performing poorly to ensure that the proper bets were covered. Basketball scandals received publicity in the 1950s and early 1960s when 37 basketball players from 22 schools were documented to have participated in point shaving and illegal betting. The point shaving done by collegiate basketball players from the City University of New York especially shook the sporting world. Back then, the players didn't see anything wrong with winning by 6 points instead of 12. They weren't being asked to lose the game but to control the point spread.

You might wonder why these athletes and others after them got involved with gamblers and started shaving points. Interviews with gamblers (oftentimes mobsters turned straight) note that they try one of three things. First, gamblers might help an athlete run up a gambling tab he can't pay. That leaves the athlete with a choice: Cough up the cash or "provide a service" (usually shaving points). Second, gamblers seduce athletes with fancy dinners, booze, and drugs and set up opportunities for sex. Third, a bribe of a certain amount of money (usually $10,000) will often persuade a reluctant athlete to cross over to the dark side.

Gambling in and on sports has become increasingly visible in high-profile cases involving, for example, quarterback Art Schlichter; Pete Rose (banned from the Hall of Fame in 2004 for betting on baseball, he admitted to betting on baseball after 13 years of denying it); and Boston College, Northwestern, and Tulane University basketball and football players betting on their games. Even Michael Jordan has been known to wager large amounts of money (usually on his golf game—not on basketball). But the high-profile cases are evidently only the tip of the iceberg, and gambling on sporting events is evidently widespread. Furthermore, the seriousness of betting on sport is underscored by the number of cases of athletes and college students who have committed suicide due to escalating gambling debts.

Prevalence of Sports Gambling

Betting on sports is almost a national pastime, as an ESPN survey found that about 118 million Americans gambled on sports in some manner in 2008. Sports betting, illegal in almost all locales, is clearly thriving across the country. For example, the vast majority (72%) of athletes in Division I NCAA football and basketball programs engage in some form of gambling (e.g., betting on sports, playing slot machines, casino gambling, playing cards for money) while in college (Cross & Vollano, 1999). In addition, it has been estimated that gambling has reached problematic or pathological levels for 12% of males and 3% of females participating in intercollegiate athletics (Weinstock, Whelan, & Meyers, 2000). This illegal gambling is often fostered by the publication of betting odds and lines for upcoming events in daily newspapers. People interested in gambling can simply choose from a growing number of websites. With this easy access to gambling, experts on compulsive gambling agree that college students are especially vulnerable. According to national statistics, about 1.5% of the population are compulsive gamblers and another 4% are problem gamblers (i.e., not addicted to but overindulging in gambling). It is estimated that 6% to 8% of college students are compulsive gamblers—those believed to be so addicted that they are out of control. This is more than in any other demographic group.

The fact that these gambling figures are estimated to be significantly higher for college students than for others in the populace is one reason *Sports Illustrated* in 1995 ran a three-part series detailing the vast gambling activity on campuses throughout the country (Layden, 1995). Extensive student bookmaking operations were documented, and the report revealed how easy it is for students to bet with a bookie, who is usually a fellow college student consumed with wagering and in over his head. For example, a student from the University of Nevada at Las Vegas stole a total of $89,000 from eight Las Vegas banks, and a University of Texas student stole more than $12,000 from a bank, both of them trying to pay off gambling debts. The students received prison sentences of about 10 years.

An NCAA (2004) study of 21,000 athletes focused on gambling by college students on college sports. Results revealed that 35% of male athletes and 10% of female athletes bet on college sports in the past year and that Division III athletes were most likely to gamble. The study also revealed that 2.3% of football players were asked to influence the outcome of games because of gambling debts, and 1.4% admitted to actually altering their performance to change the outcome. Interestingly enough, approximately 60% of Division

I athletes and 40% of Division III athletes said they did not know the NCAA rules about sports gambling, which call for penalties that could include a loss of scholarship. Due to the high numbers of athletes participating in gambling activities, the NCAA initiated several educational programs. Thus, the NCAA (2009) conducted a follow-up study to test the effectiveness of these programs. Results, in general, revealed some decrease in gambling activity (partly because athletes were more familiar with the rules regarding gambling behavior), although it was still a problem. For example, 30% of male athletes still gambled, compared with 35% in 2004. Efforts to reduce gambling behavior in NCAA athletes remain ongoing.

Ellenbogen, Jacobs, Derevensky, Gupta, and Paskus (2008) surveyed more than 20,000 NCAA student-athletes regarding their gambling behaviors. Results revealed that 62% and 43% of male and female college athletes, respectively, reported gambling, although only 4% and 0.4% of male and female athletes, respectively, reported having a gambling problem; these percentages are similar to those for nonathlete college students. However, 13% of male athletes and 3% of female athletes reported gambling weekly; these percentages are three times greater than those for nonathlete college students. In addition, male athletes in high-profile sports (e.g., baseball, football) were more likely to report a gambling problem than those in other sports (e.g., track and field, volleyball). Interestingly, almost half of the athletes in the sample were either unsure or unaware of the NCAA rules concerning college gambling. As a result of these problems and confusion, the NCAA has appointed a task force to make recommendations regarding gambling among college athletes.

Gambling doesn't start in college. Experts agree that gambling by high school students is "incredibly extensive." In surveys conducted in 2007 by *USA Today* and 2009 by ESPN, 26% of male athletes reported that they started gambling before high school and 66% reported starting in high school. Police arrested four men in New Jersey for running a sports betting and loan sharking operation that had at least 50 high school students as clients. The problem in investigating these types of cases is that parents tend to have one of three reactions: They are afraid to say anything because they think organized crime is involved; they think they can handle the issue themselves at home; or—most commonly—they say, "Thank God it's not drugs." In essence, parents often don't think of teenage gambling as a serious problem, and they are often wrong in this assessment (Layden, 1995).

Gambling and Officiating: A Threat to the Integrity of the Game

In 2007 NBA official Tim Donaghy, a 13-year veteran referee, admitted to gambling on NBA games (some of which he officiated) as well as alerting gamblers to such things as the health status of players, relationships among players, and which referees were working specific games—information that is not supposed to be public until shortly before tip-off. He also picked games based on the referee crews working the games and got paid for every pick that was correct. He was sentenced to 15 months in jail, although the bigger problem is his betrayal of the confidence the public and players have in the integrity of the officials.

Although Donaghy probably did not help determine the outcome of games, he most assuredly behaved in a way that could alter the final score and thus influence the many people betting on the game (based on the "line," which determines the number of points by which a team is favored or seen as underdog). A basketball referee can influence the point spread in several ways, including the following:

- Take a key player out of the game with early foul trouble (as one scout said, "If a referee puts a big man in foul trouble early we are in BIG trouble")
- Blow the whistle on a "ticky tack" foul (referees have plenty of leeway in determining what fouls to call)
- Enforce minor infractions (palming the ball, offensive 3 seconds, illegal defenses, and lane violations on free throws are often committed but rarely called)
- Create a free-throw discrepancy (calling fouls predominantly on one team can easily lead to changes in strategy and final score)

Signs of Compulsive Gambling

Compulsive gamblers exhibit certain characteristics such as boastfulness, arrogance, unbounded optimism, and extreme competitiveness and are often quite intelligent. But picking a compulsive gambler out of a crowd, experts say, is next to impossible because they are experts at denial. Because gambling is something lots of people do, it falls into the same realm as alcohol consumption—it's not noticed until there are negative consequences, as in the case of Art Schlichter. One expert noted, "Sports gambling on campus is a dirty little secret of college life in America, and it's rampant and thriving" (Layden, 1995). Therefore, as professionals, we must be cognizant of this problem and not put our collective heads in the sand. Referrals to such programs as Gamblers Anonymous or the National Council on Problem Gambling are appropriate if you identify a compulsive gambling problem.

In a series on college gambling, *USA Today* (2007) offered a number of signs of a gambling problem to college students and their parents:

College Students

- Missing classes because of gambling
- Having trouble focusing in class because they are thinking about gambling
- Buying a book or otherwise educating themselves on becoming a more skillful bettor
- Facing more financial debts than they can handle

Parents

- An unexplained need for money
- A sudden increase in credit card debt
- Displays of unexplained wealth
- Money and valuables missing from home
- Sudden dip in grades

Gamblers Anonymous 20 Questions

Gamblers Anonymous has 20 questions that it asks new members. Compulsive gamblers usually answer yes to at least 7 of the 20 questions.

1. Did you ever lose time from work or school because of gambling?
2. Has gambling ever made your home life unhappy?
3. Did gambling affect your reputation?
4. Have you ever felt remorse after gambling?
5. Did you ever gamble to get money with which to pay debts or otherwise solve financial difficulties?
6. Did gambling cause a decrease in your ambition or efficiency?
7. After losing did you feel you must return as soon as possible and win back your losses?
8. After a win did you have a strong urge to return and win more?
9. Did you often gamble until your last dollar was gone?
10. Did you ever borrow to finance your gambling?
11. Have you ever sold anything to finance gambling?
12. Were you reluctant to use "gambling money" for normal expenditures?
13. Did gambling make you careless of the welfare of yourself or your family?
14. Did you ever gamble longer than you had planned?
15. Have you ever gambled to escape worry or trouble?
16. Have you ever committed, or considered committing, an illegal act to finance gambling?
17. Did gambling cause you to have difficulty in sleeping?
18. Do arguments, disappointments, or frustrations create within you an urge to gamble?
19. Did you ever have an urge to celebrate any good fortune by a few hours of gambling?
20. Have you ever considered self-destruction or suicide as a result of your gambling?

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- Poor attendance in class
- Depression and anxiety
- Withdrawal from family, friends, and outside interests
- Watching more televised sports
- Calls to betting lines and 900 numbers for sports results
- Getting excessively emotional over sporting events

DISCOVER Activity 20.2 helps you better grasp the extent of gambling on college campuses.

LEARNING AIDS

SUMMARY

1. **Define and discuss the prevalence of eating disorders and disordered eating in sport.**
Anorexia nervosa and bulimia are the two most common eating disorders. Both of these eating disorders are defined in *Diagnostic and Statistical Manual of Mental Disorders.* Although a variety of symptoms are associated with each of these disorders, anorexia nervosa is characterized by an intense fear of gaining weight and a distorted body image, whereas bulimia is characterized by recurrent episodes of binge eating and regular, self-induced vomiting. Athletes (particularly in sports in which weight is a concern, such as wrestling, gymnastics, and track) appear to have higher rates of eating-related problems than does the general population. But disordered eating does not necessarily mean an eating disorder.
2. **Identify predisposing factors for developing eating disorders.**
Many factors predispose individuals to developing an eating disorder. Some are more biological and genetic and others are more environmental (e.g., weight restrictions and standards) or sociological (coach and peer pressure).
3. **Describe how to recognize disordered eating.**
The signs and symptoms of bulimia and anorexia nervosa are both physical (e.g., weight too low, bloating, swollen salivary glands) and psychological or behavioral (e.g., excessive dieting, binge eating, preoccupation with food). We must help individuals get appropriate specialized assistance. A referral system should be set up confidentially and professionally to help individuals deal with eating-related problems.
4. **Define and discuss the prevalence of substance abuse in sport.**
Substance abuse is one of the most severe problems facing many societies. It is typically related to the continued and recurrent use of psychoactive substances in situations that are physically hazardous or in which one's personal or professional life suffers. Although it is difficult to get exact figures regarding the use of certain drugs, we do know that many athletes and exercisers take both performance-enhancing drugs and recreational drugs; both types of drugs have dangerous side effects. Evidence from baseball and other professional sports underscores that use of performance-enhancing drugs is widespread.
5. **Explain why some athletes and exercisers take drugs.**
Athletes and exercisers usually take drugs for physical (e.g., to enhance performance), psychological (e.g., to relieve stress), or social (e.g., to satisfy peer pressure) reasons.
6. **Discuss how to detect and prevent substance abuse.**
Substance use and abuse are detected by both formal procedures (e.g., drug testing) and informal procedures (e.g., observation and listening). Because drug testing is expensive and often difficult to implement, we must be able to recognize the signs and symptoms of substance use and abuse. Sport and exercise professionals can help prevent substance abuse by setting a good example; educating participants about the effects of substance use and abuse; and, most important, providing a supportive environment that addresses the reasons individuals take drugs. Programs such as ATLAS and ATHENA have demonstrated some preliminary positive results in combating drug use in high school athletes.
7. **Discuss the concepts of positive and negative addiction to exercise.**
The term *positive addiction to exercise* was popularized because running and other forms of exercise have been shown to be associated with positive psychological outcomes and increases in life satisfaction. However, for a small percentage of people, this "healthy" habit of exercise can turn into a negative

addiction in which the exercise starts to control their lives. This is typically associated with negative outcomes at home and at work.

8. **Discuss the problem of compulsive sports gambling.**
Gambling in and on sports has a long history, although it appears to have increased in recent years. Estimates in national statistics suggest that 6% to 8% of college students are compulsive gamblers, and extensive bookmaking can be found on many college campuses. Gambling is often not thought of as a serious problem, but, like drugs and alcohol, it can be an addiction. Usually compulsive gamblers are boastful and arrogant, have unbounded optimism, and are extremely competitive.

KEY TERMS

anorexia nervosa
bulimia
substance abuse
substance use
Viagra
performance-enhancing drugs
recreational drugs
deterrence
ATLAS
ATHENA
exercise addiction
positive addiction to exercise
negative addiction to exercise
sexual harassment and abuse

REVIEW QUESTIONS

1. Define, compare, and contrast anorexia nervosa, bulimia, and disordered eating.
2. Discuss three predisposing factors that might increase the likelihood that an eating disorder could occur.
3. Identify the major categories of performance-enhancing and recreational drugs and their reported side effects.
4. Compare and contrast the characteristics of positive and negative addictions. What are some steps for avoiding a negative addiction to exercise?
5. Discuss the deterrence model of drug use, including its three major components (along with specific examples of these components).
6. Discuss the ATLAS and ATHENA programs in terms of prevention of drug use and other high-risk behaviors.
7. Discuss the reasons behind sexual harassment and abuse of athletes by coaches. Include the International Olympic Committee's recommendations for dealing with this problem.
8. Discuss why Viagra has been mentioned as a possible performance-enhancing drug in athletics.
9. Briefly describe the anecdotal and empirical reports on the negative side effects of steroids.
10. What is your conclusion about the anecdotal evidence (and some empirical findings) regarding why athletes use performance-enhancing drugs?

CRITICAL THINKING QUESTIONS

1. You are hired as a consultant for a collegiate athletic department. Your main job is to devise a program that will reduce drug and alcohol use by athletes on the campus. Discuss in detail what type of program you would implement, showing how it relates to the reasons for substance use.
2. You are coaching a women's gymnastics team at the high school level. You know that eating disorders tend to be high with this population. How would you structure your practices and competitions to minimize the possibility of eating disorders occurring in your athletes? What would you do if you found out that one of your athletes had an eating disorder?

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Burnout and Overtraining

After reading this chapter, you should be able to

1. define overtraining, staleness, and burnout;
2. discuss different models of burnout;
3. describe the causes of overtraining and burnout;
4. identify the symptoms of overtraining and burnout;
5. explain the research evidence of burnout in sport; and
6. describe the treatment and prevention of burnout.

The pressure to win and train year-round with vigor and intensity has increased dramatically in recent years, in large part because of the tremendous financial rewards, publicity, and status achieved by successful coaches and athletes. There used to be separate seasons and off-seasons for various sports, whereas now one season tends to run into the next, leaving little time for an extended rest. Even in the off-season, athletes lift weights and do other physical fitness activities to keep in shape and get bigger and stronger for the upcoming season. In addition, many sports now have specialized training camps or academies where youngsters attend school and train (usually away from parents) with the hope of later obtaining a college scholarship, professional career, or Olympic medal. The theory is that more training is better, you have to start training early, and you must train year-round if you are to compete at a high level.

But the price of this unrelenting focus on training and winning can be overtraining and subsequent burnout. And it is not only competitive athletes and coaches who overdo it and burn out. Exercisers, in their quest to feel and look better, sometimes go too far, overtrain, and burn out. Support personnel, too, such as officials and certified athletic trainers, get caught up in the pressures to win, which can lead to increased stress and potential burnout. And with budget problems plaguing many schools, physical educators are asked to do more with less and to work longer hours, which makes them susceptible to burnout. Several quotes describe overtraining and the pressures that can lead to burnout:

> "It's a long, long grind. It's either preseason practice, the season itself, postseason weight training, or recruiting. The demands to win can also be very stressful. When we were successful, there was pressure and high expectations to stay successful. When we were losing, there was pressure to start winning real soon. This schedule and pressure