Motivational Considerations in Physical Activity Involvement
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Motivational Considerations in Physical Activity Involvement

The purpose of this article is to examine movement science research on personal and social-environmental motivational influences in physical activity contexts. Motivation is defined as a process in which internal and external factors direct and energize thoughts, feelings, and actions. Motivation is described as a consequence of meaning, which is derived from a combination of personal and social factors, including personal goals or incentives, expectations of personal efficacy, movement-related perceptual and affective experiences, and social and physical features of the environment. Recent literature from sport and exercise psychology is presented on these variables, their determinants, and their consequences for choice, effort, persistence, and performance behavior in exercise and sport contexts. [Lewthwaite R. Motivational considerations in physical activity involvement. Phys Ther. 1990;70:808–819.]

**Key Words:** Exercise, general; Motivation; Movement; Psychology; Sports medicine.

To say that motivation plays a critical role in physical performance or therapeutic outcome is to state the obvious. Variations in rehabilitative effort, exercise persistence, and athletic performance stem, in part, from individual differences and situational motivational factors. In sport and exercise psychology, motivational themes are prominent in research on determinants of optimal athletic performance, adherence to or involvement in preventive and rehabilitative exercise, and choices to be physically active. This article reviews recent literature on several personal aspects of motivation in physical activity contexts. More limited attention is also given to social-environmental variables that influence these personal factors or that affect an individual’s motivation in other ways.

**Motivational Perspectives**

In lay discussion, the term “motivation” is often used to describe some critical “force” or energy that leads to task engagement or sustained involvement. For example, one may speak of someone as “having motivation” or “being motivated” to perform some activity. We may believe that people who exert little effort are “unmotivated.” Recent approaches to the study of motivation, however, suggest that it may be more helpful to recognize that, in a waking state at least, individuals are always motivated to some degree and with respect to some objective(s). However, an observer may not share or be aware of an individual’s motivational objectives and thus may not recognize motivation in that individual’s actions.

Internal motivational processes (thoughts and feelings) activate, intensify, or energize observable behavior. These motivational processes also direct behavior toward certain targets or away from other experiences. As outside observers, we see the effects of the energizing and directing process as variations in an individual’s behavior. Behavioral variations can involve activity choice (including approach and avoidance of physical activity), effort or intensity, persistence (continued involvement over time), and performance.

Recently, motivational theorists have argued that the meaning an individual attaches to a situation determines that individual’s choices, effort, and persistence with respect to that situation. That is, a person will act in certain ways because of the meaning a given situation holds for him or her. Meaning refers to the sense that is made or the personal implications that are drawn, it can exist at multiple levels, from the immediate and super-

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Meaning is dynamic and can change from moment to moment within an encounter and over time, shifting from initial involvement through continued participation. Thus, for many individuals, early visits to a therapist, particularly in hospital settings, may evoke meanings related to health, dysfunction, dependence, and previous interactions in the medical or health care environment. As treatment proceeds, however, and progress does or does not occur, meanings may emanate from physical and social aspects of past and present physical activity and from the medical associations originally salient. In contrast, therapeutic exercise in free-standing sports medicine clinics may not initially imply medical care for some individuals, who may, instead, be intent on demonstrating physical or athletic prowess in early visits, until their progress stalls and more basic health and functional concerns become salient.

Figure 1 presents a conceptual model that organizes the motivational variables discussed in this article. On the left side of the model, three personal factors are listed; goal orientations, self-perceptions of capabilities, and perceptual-affective experiences will be subsequently defined and described as individual differences that affect the meaning attached to involvement in physical activity. On the right side of the model, a number of social variables that directly or indirectly affect meaning are noted. Space limitations prevent full development of the influences of these social factors that operate within the physical activity environment as well as in the larger social context. These social fac-
A number of personal motivational factors are listed to recognize the impact of others, individually and collectively, on meaning. Finally, as illustrated at the bottom of the figure, the concept of meaning is suggested as the immediate precursor to behavior. As represented in the model, personal and social variables converge and interact to determine what sense or meaning is made of a given situation. It is the meaning, in turn, that energizes and directs behavior in the forms of choice, effort, persistence, and performance.

**Personal Motivational Factors**

A number of personal motivational factors relevant to activity choice, effort, persistence, and athletic or exercise performance have been examined. These personal factors include cognitive and affective variables such as sport or exercise attitudes, goal orientations and exercise incentives, perceived competence or self-efficacy, self-motivation, perceptual-affective responses to physical exertion, and competitive and social physique anxiety. A complete review of each of these psychological variables and their roles in sport and exercise behavior is not possible within the context of this article. However, three categories of these variables were selected for review, at least in part, because of the importance of their effects in physical activity environments and their amenity to exercise-context influence. Key personal factors reviewed with respect to their motivational significance are goal orientations, self-perceptions of one's capabilities, and perceptual-affective experiences in physical activity.

**Goal Orientations**

Choices to become and remain involved in physical activity are guided, in part, by individuals' goals and perceptions that goals can be or have been satisfied in this context. Goal orientations are context-specific concerns or aims of personal involvement that, in part, create the framework or meaning through which people act and react to events in their environment. Two issues with respect to goals may be of particular significance to therapists and others operating in the context of physical activity. These involve (1) common goals and their associated consequences and (2) factors that influence individuals' goal orientations.

**Common goals and their consequences.** Recent motivational research, including that conducted in contexts of physical activity, has shown that individual differences in goal orientations are related to differences in cognitive, affective, and overt behaviors in children and adults. A number of similar goal orientations have been proposed that center around distinctions between self-referenced achievement (variably referred to as development, learning, mastery, or task-involved goals) and social comparison-based achievement (variably termed judgment, competitive achievement, outcome, or ego-involved goals). For example, Dweck and colleagues have described the effects of development and judgment goal orientations in children engaged in academic and social tasks. Development goals involve concerns for personal skill improvement or extensions of task mastery (ie, the emphasis is on improving), whereas judgment goals involve desires to be judged competent or to avoid being judged incompetent (ie, the emphasis is on proving).

Dweck and associates have shown that children who hold development goals in academic tasks, whether they believe they currently possess high or low competence at the task, respond in a manner. That is, they use self-monitoring and self-instruction to enhance performance, display positive affect and interest in the task, opt for challenging tasks that will provide opportunities for skill acquisition, increase their effort and persistence in the face of difficulty, and maintain or increase the sophistication of their problem-solving strategies and thus their performance following failure. In contrast, children who hold judgment goals in conjunction with perceptions that their present ability is low, respond with what is termed a learned-helpless pattern. That is, these children opt for either easy tasks (which will neither reveal their inadequacy nor enhance their skill) or very difficult tasks (on which failure would be expected for most people and thus not be indicative of low ability). Learned-helpless individuals use less effective strategies after failure than they have previously demonstrated under success; withdraw effort and decrease persistence; express anxiety, frustration, or task avoidance; and verbalize attributions for failure to uncontrollable factors such as personal inadequacy. When children hold judgment goals in combination with perceptions of high ability, they display most of the cognitions, affective responses, and behaviors characteristic of mastery-oriented individuals, except that they are less likely to choose challenging tasks that may entail making public errors. These adaptive (mastery-oriented) and maladaptive (learned-helpless) patterns are not associated with differences in intellectual ability. These patterns are, however, linked to development and judgment goal orientations, respectively. Not surprisingly, these goals have been related to persistent differences in learning and performance.

Recent sport and exercise research has supported the significance of the development or mastery goal orientation. Consistent with findings in other domains of human activity, research has shown that development or mastery goal orientations are related to the levels of sport, exercise, and physically active play reported by elementary school-aged children, adolescents, and adults, as well as to sport performance and preventive and rehabilitative exercise adherence. For example, Berg examined physical and social development and judgment goals for sixth-grade girls' and boys' physical activity participation. Physical development goals reflected desires for the learning and improvement of physical skills, whereas physi-
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Influences on goals and incentives. Differences in the rated importance of various goals in sport and exercise have been related to gender, age, cultural background, and personal socialization experiences with parents, peers, and teachers/coaches, suggesting, as noted in Figure 1, that social influences contribute to individuals' goal orientations. Age differences in goal orientations from childhood to early adolescence have been attributed to cognitive development or maturity, because young children cannot process all information necessary to hold a goal orientation that depends on comparison of their own performance with that of others (ie, young children cannot hold a judgment or outcome goal in the same sense that adults can). Younger children tend to hold development or mastery goals until approximately 11 years of age, when they become cognitively capable of adopting either development or judgment goals. Age-related differences have also been found between older adults and adolescents in the rated importance of health and fitness benefits (older people) and physical appearance concerns (adolescents) as reasons for exercise, perhaps because of differing life tasks and health circumstances.

In addition to the social and developmental factors discussed previously, situational variables can affect the goal orientations adopted in a given setting. For example, a competitively structured task or the degree of performance evaluation evident in a particular context can influence individuals to see the situation as one in which goals related to judgment of one's competencies are relevant. Importantly, communications and task instructions relayed by individuals within the immediate environment can provoke or evoke particular goal orientations adopted in a given set-

Desires for sensory or achievement, recognition or respect, are important reasons for their initial or continued participation or enjoyment in these contexts. Other motives for sport and physical participation include desires for exercise and mental health benefits such as weight control, improved appearance, enhanced fitness or working capacity, psychological well-being, feelings of mastery and self-worth, and stress or tension reduction. Desires for sensory or emotional experiences such as those associated with movement, competition, enjoyment, novelty, or relief from boredom have also been expressed by sport participants particularly.
orientations.35 Indeed, research that established the relationship of development and judgment goal orientations to differential behavioral consequences relied on the experimental manipulation of goal orientations achieved through information and task instructions. For example, Elliott and Dweck described two experimental tasks to fifth-grade children. One (judgment) task was described as one in which some academic-type problems would be hard and others easier, if children chose this version of the task, “although you won’t learn new things, it will really show me what kids can do.” The other (development) task was described as one in which “you’ll probably learn a lot of new things. But you’ll probably make a bunch of mistakes, get a little confused, maybe feel a little dumb at times—but eventually you’ll learn some useful things.” Following discussion of the two types of tasks, subjects assigned to the judgment-goal group were told that their performance was being filmed and would be evaluated normatively (ie, compared with other children’s performances) by experts. The filming instructions were assumed to make the value of displaying competence (ie, a judgment orientation) high. No mention of filming was made to the children in the development-goal group, who were told instead that the development task “might be a big help in school because it ‘sharpens the mind’ and learning to do it well could help your studies.” Manipulation checks established that these different conditions did indeed induce children to value displaying competence to experts (judgment-goal group) or the learning of new skills (development-goal group).

This example illustrates how relatively simple instructions can effectively orient individuals with presumably varied incoming goal predispositions toward common interpretations of the task in a given situation. Thus, features of the immediate social environment can override some preexisting goal orientation differences attributable to sociocultural or personal socialization experiences. Although more research on this topic is clearly needed, the ability of situational factors to displace longstanding orientations in establishing individuals’ goals in a particular context may well be an important feature that therapists and others can use to promote beneficial exercise behaviors. Because of the ability of goal orientation constructs to organize and explain a number of important cognitive, affective, and behavioral effects continued research is needed on goals and their consequences in various physical activity contexts. This work must begin to examine the presumably subtle but cumulative influences of goals on feedback or information processing, effort expenditure, and self-regulatory processes in the acquisition and performance of motor skills. Furthermore, because of the demonstrated role of social and situational factors in the type of goals salient in given contexts, research must be directed at the specific communications and actions of health care practitioners and other individuals who influence patients’ goals.

Self-Perceptions of Capabilities

A belief in one’s personal capabilities to perform or cope in a given situation is a key cognitive variable affecting willingness to invest effort and persistence in that context. This situation-specific self-confidence or belief in oneself was termed “self-efficacy” by psychologist Albert Bandura and used as the central construct in Self-Efficacy Theory. Bandura described two forms of expectations: self-efficacy or efficacy expectations (one’s belief in personal capabilities to perform the specific actions that will lead to outcomes) and outcome expectations (one’s belief in the outcomes that can be produced when people act in certain ways). For example, in the context of weight management, efficacy expectations might involve an individual’s belief that he or she has the ability to successfully modify his or her eating and exercise habits, whereas corresponding outcome expectations would relate to beliefs that changing eating and exercise habits results in (the outcome of) weight loss. In Self-Efficacy Theory, efficacy expectations are posed as the most critical of the two expectations in mediating behavior change, assuming necessary skills and incentives are present. Bandura suggests that many behavioral change programs, in effect, focus intervention and education efforts largely on outcome expectation influence (eg, by attempting to convince clients that the treatment will promote better physical or mental health). While establishing trust in the effectiveness of treatment can be critical, attention must also be directed to the critical beliefs in personal capacities to adopt and maintain desired actions. Thus, it is not enough to believe, for example, that a given set of exercises will increase range of motion (an outcome expectation). The client must believe that he or she has the capacity to withstand pain, to move the injured limb as prescribed, and to find the willpower to practice the exercises at home (efficacy expectations). Without belief in these personal physical and psychological capacities, effort will be withdrawn and recovery less likely.

Efficacy expectations are seen as highly specific and dynamic self-perceptions that affect specific and congruent behaviors: thus, belief in one’s running ability would be expected to affect running performance, but would probably not influence weight-lifting or throwing performance. According to the theory, there are four primary sources of efficacy expectations: (1) past performance accomplishments in identical or similar situations, (2) vicarious experience (eg, in which similar others enact the relevant behaviors), (3) verbal persuasion (in which experts or others attempt to convince the individual that he or she can be successful), and (4) one’s physiological or arousal states. Of these influences, one’s own actual performance history is considered the most powerful. Thus, therapeutic programs that build on a base of successively more difficult performance accomplishments, and that promote a
sense of personal responsibility for these accomplishments, should be most successful in producing desired behaviors. Figure 2 illustrates the theoretical relationships of sources of self-efficacy, efficacy and outcome expectations, and behavior developed by Bandura.

Ewart and colleagues examined the extent to which self-efficacy perceptions could be said to mediate or produce gains in physical strength. To analyze the mediation effects of self-efficacy on subsequent strength gains, changes in self-efficacy from immediately following pretraining strength assessment to postraining assessment were calculated, as were pretraining to postraining changes in actual strength. Self-efficacy at the beginning of the study was also examined and related to end-of-study gains in strength and endurance. Changes in lifting and climbing self-efficacy were positively correlated with gains in arm strength (Pearson r = .41 and .34, respectively). Likewise, changes in self-efficacy for walking were positively correlated (Pearson r = .54) with increases in treadmill exercise duration. Importantly, when initial arm strength was controlled for in a stepwise multiple-regression analysis, initial lifting self-efficacy predicted postraining arm strength. That is, the perceptions of lifting ability with which patients entered the program predicted how much they would eventually be able to lift, even after taking into account their actual starting arm strength. Thus, the belief in personal capability, and not just actual capability, was influential in later performance.

![Figure 2. Self-Efficacy Theory relationships: Therapeutic programs, sources of self-efficacy, expectations, and behavioral consequences.](attachment:figure2.png)
Similar evidence of the mediational role of efficacy expectations was obtained by Holroyd and associates, who showed that self-efficacy for electromyographic (EMG) biofeedback control in patients with tension headaches predicted who would improve, regardless of their true degree of control over EMG signals. Furthermore, changes in self-efficacy predicted changes in clinical outcomes for these patients.

Because of the very specific nature of efficacy expectations, and because of the identified sources of self-efficacy (Fig. 2), therapists and other health care providers can play a critical role in patients' self-efficacy levels. These individuals manage the immediate social environment and design interventions that implicitly or explicitly operate as sources of efficacy information. Well-managed programs from a self-efficacy perspective might influence self-efficacy by creating a series of performance accomplishments, using vicarious experience when appropriate (eg, having patients demonstrate exercises to other patients), utilizing credible verbal persuasion (eg, "I've seen patients with similar problems come through this program very successfully.").

Routine inclusion of pretreatment and posttreatment self-efficacy assessments by clinicians and clinical researchers should help establish which patients most need self-efficacy enhancement to ensure optimal recovery and which therapeutic procedures are most effective in facilitating patients' self-efficacy.

**Perceptual-Affective Experiences in Physical Activity**

As discussed previously, sensory and emotional experiences can constitute goal attainments or means to goal attainment in physical activity. Thus, perceptions and affective responses inherent to the context of physical activity can act as potent motivational factors in exercise adherence and involvement and athletic participation. Perceptual and affective variables that may motivate physical activity avoidance or involvement include perceived exertion and the extent to which physical activity is associated with negative affect, such as feelings of aversion or anxiety, and with positive affect, such as feelings of enjoyment, exhilaration, or satisfaction and mastery.

**Perceived exertion.** Perceived exertion refers to the subjective perception of rating of effort or physical strain during physical work. Ratings of perceived exertion (RPEs) have been used in a variety of research, clinical, and occupational contexts as an adjunct to objective indicators of physical exertion such as heart rate, oxygen consumption, and blood and muscle lactate accumulations. Several versions of perceived exertion scales have been developed for different forms of physical work and associated physiological variables. Ratings of perceived exertion, however, are most typically obtained during exercise or physical work by use of the 15-point Borg RPE scale, which ranges from 6 to 20 with verbal labels attached to every odd number (eg, 7=very, very light, 19=very, very hard). The 6-to-20 numbering format was developed to provide a rough linear equivalence to heart rate when a constant of 100 is added to the selected scale value. For example, a rating of 17 (very hard) corresponds to a heart rate of 170 beats per minute. To obtain RPEs during exercise, subjects or patients are asked to indicate orally or by physically pointing to the selected number on a large cardboard scale their perception of how much exertion they are currently experiencing. Because of high correlations between heart rates and RPEs (Pearson r=.80–90%), RPEs are often used clinically during graded exercise tests to monitor patient progress or to regulate the intensity of prescribed exercise.

The great majority of research on perceived exertion has been performed by exercise physiologists and psychologists interested in identifying central (eg, heart rate, ventilation, respiratory, oxygen uptake) or peripheral (eg, blood and muscle lactate levels) physiological cues that contribute to effort sense. However, a number of sport and exercise psychologists have begun to consider the roles of psychological and social-psychological factors in individuals' reports of physical exertion.

For example, Hardy et al investigated the influence of a fellow exerciser on male college students' RPEs during bicycle ergometer rides. In the first of two studies, ergometer work loads were calculated for each subject that represented 25% (light intensity), 50% (moderate intensity), and 75% (heavy intensity) of his maximum oxygen uptake ($V_{O_2 \max}$). Next, in two randomly ordered sessions, each subject rode alone and with a fellow exerciser for three 15-minute trials at light, moderate, and heavy work loads. The fellow exerciser rode simultaneously with the subject, but his exercise responses were shielded from the subject's view. Subjects' RPEs, but not physiological indicators of physical work, were lower in the fellow-exerciser condition than in the alone condition at low- and moderate-intensity work loads, providing evidence that subjects may underreport RPEs when others are present. In a second experiment, male subjects worked at 50% of their maximal capacity in the alone and fellow-exerciser conditions. In these conditions, the fellow exerciser performed face-to-face with the subject so that the subject would be able to note the natural effort cues associated with exercise at either 25% or 75% of the fellow exerciser's actual $V_{O_2 \max}$. Relative to the alone condition, subjects' RPEs were significantly lower when they performed with another exerciser who exhibited low-intensity cues, but no different when that individual's nonverbal cues indicated high-intensity exercise. Thus, exercise in the presence of another exerciser working at a lower work load caused the subject to lower his reported RPE. However, when the other exerciser actually worked harder than the subject, the subject's RPEs did not differ.
between alone and fellow-exerciser conditions. The results of Hardy et al.'s experiments are consistent with the notion that subjects were not merely influenced in the direction of another exerciser's cues, but were concerned about impression management and motivated to present themselves in a favorable light to the investigators.

A recent study by Boutcher and colleagues yields further evidence of the role of self-presentational motives in reports of exertion. In this study, untrained male and female undergraduate students performed on a bicycle ergometer in the presence of male and female experimenters. Subjects performed at 60% (light), 75% (moderate), and 85% (heavy) of their predicted maximal heart rate in two exercise sessions, one with a female experimenter present and the other with a male experimenter present. At the high-intensity work load, but not at the light- or the moderate-intensity work load, male subjects reported lower RPEs in the female-experimenter condition than they did with the male experimenter, suggesting that the male subjects may have been concerned about appearing fit or physically capable to the female experimenters. Female subjects' responses did not differ between male- and female-experimenter conditions at any work load.

The studies by Boutcher et al. and Hardy et al. illustrate the influence of social aspects of the exercise environment on individuals' exertion perceptions and demonstrate that motivational factors can alter often strong relations between physiological and subjective indicators of physical work. These findings and others that tie psychological variables to perceived exertion should provide cause for caution for clinicians and researchers who customarily use RPEs to regulate individuals' exertion levels, especially for patients or subjects who may be inclined to underreport their efforts to appear more physically capable or to overreport their exertion to stop exercising sooner and reduce eventual fatigue or discomfort (and, unfortunately, therapeutic progress). It should be noted that most of the evidence suggesting this caution has been obtained with healthy college-aged students or athletes. Potentially important clinical information could be gained through research that directly examines the combinations of patient characteristics and therapeutic conditions most associated with distortions in reports of exertion or other related physical sensations, such as discomfort and pain.

Regardless of the combination of social, psychological, and physiological cues that may influence RPEs, it is important to note that these perceptions have been related clinically, as well as by limited theoretical and empirical research, to levels of exercise persistence and involvement. For example, although physiological monitoring is used in exercise stress tests, it is most often the exerciser's report of fatigue or discomfort, rather than direct physiological indicators, that halts the test. Fox and Dirkin found that perceptions of the exertion associated with physical activities such as brisk walking, jogging, aerobic dance, and biking were related to obese subjects' self-reported levels of exercise (Pearson r = .25-.57 for various exertion perceptions and exercise). Obese men and women who reported that various activities would be easier for them, rather than harder, reported more frequent exercise.

Negative and positive affect. Although perceptions of exertion have been associated with exercise effort and persistence, recent theory and evidence suggest that it may be the affective schema or emotional label attached to the level of perceived exertion that, in part, mediates its behavioral effects. Indeed, although two individuals might perceive an identical level of exertion (eg, 17, or very hard, on the Borg scale), they may experience different emotional responses to this exertion. One of them may not have performed very hard physical work since childhood (if ever), may worry about his or her capacity to undergo this stress, and may therefore experience this level of exertion as aversive or frightening. Another individual, however, may believe that this level of exertion represents therapeutic progress or positive information about his or her physical fitness, athletic mastery, or personal character, and thus may experience pleasure at sensing this degree of effort. Hardy and Rejeski examined the relationships among exercise intensity (at 30%, 60%, and 90% of VO2max), RPEs, and in-task exercise affect in undergraduate students. Exercise affect was assessed with the 11-point Feeling Scale. This bipolar scale was designed to measure the degree to which an individual feels good or bad during exercise. Respondents are instructed to choose a number between +5 and −5 that indicates how good or bad they feel at the moment (+5 = very good, +3 = good, +1 = fairly good, 0 = neutral, −1 = fairly bad, −3 = bad, −5 = very bad). In one experiment, male and female subjects, who were enrolled in college health and fitness classes and who had consequently exercised at least once a week for the 3 weeks preceding the study, completed a questionnaire that assessed (1) the degree to which physical activity was an important part of their life style; (2) the current frequency and past extent of their exercise or sport involvement; and (3) their general feeling (using the Feeling Scale) when running or jogging at RPEs of 19 (very, very hard), 15 (hard), and of 11 (light). As a group, the male subjects had more involvement in physical activity and experienced more positive affect at each RPE than did the female subjects. Correlational analyses suggested a role for exercise experience in affective responses in that affective ratings were directly related to past and present level of activity and to the belief that exercise is an important component in one's life style. Furthermore, in general, negative affect increased as the work became harder; however, there was considerable variability across subjects in terms of the affective tone attached to each work load.
Lewthwaite and Hasbrook investigated positive and negative affective predictors of obese and normal-weight children's attraction to and self-reported involvement in sport, informal active play, and exercise. The extent to which obese and normal-weight children felt that hard physical exertion was aversive was negatively correlated with their attraction to and involvement in sport, play, and exercise (the latter for normal-weight children only). For obese children, the degree of anxiety experienced in physical activity also was correlated negatively with attraction to an active play. Furthermore, the fun or positive affect obese children reported having while active correlated significantly with their attraction to physical activity (Pearson $r = -0.45$) and with their involvement in active play (Pearson $r = -0.35$).

These studies illustrate the motivational significance of perceptual and affective responses to physical activity levels. These empirical findings demonstrate the long-held hedonic principle of motivation, which asserts that people are attracted to activities that bring them pleasure and avoid those activities that are associated with displeasure or pain. This principle appears to be particularly influential when the activity is seen as voluntary rather than mandatory. No studies have examined whether most people consider prescribed exercise mandatory or voluntary, but less-than-desirable exercise adherence rates, even in rehabilitative programs, suggest that patients do not long feel compelled to attend.

Positive and negative affective experiences can be viewed as physical activity goals in their own right, as discussed previously. Affective responses, such as enjoyment and anxiety, can also be reactions to the attainment and endangerment, respectively, of other important goals. That is, one can experience feelings of enjoyment and satisfaction if one perceives that one has mastered a physical skill, developed a good social relationship, achieved others' respect, or succeeded in reaching a level of competence greater than that most others have accomplished. Thus, one route to positive affective experience is to ensure the satisfaction of other important goals. Therefore, providing opportunities for skill development, facilitating positive social relationships among fellow participants or patients, and expressing respect are likely to produce positive affective reactions. Conversely, constructing an activity in such a way as to thwart or jeopardize those common and basic concerns is likely to produce negative affective reactions such as anxiety, disappointment, or task aversion.

Because personnel in the physical environment have some influence over the goall-related opportunities available and over the emotional climate of the settings they supervise, they can, to some extent, influence affective experience for those they supervise. In a more direct fashion, therapists can often design exercise protocols that keep exercise sensations such as exertion intensity, discomfort, and pain within tolerable limits, so that patients will choose to return to make further progress. In the many situations in which unpleasant sensations cannot be managed by avoiding the activities that produce them, techniques may be used to alter associations between exertion perceptions and negative affect. These psychologically based interventions range from specialized procedures in exercise distress management, relaxation training, positive or calming imagery, dissociation or distraction strategies, and other psychological skills or procedures used to reduce arousal or enhance physical performance. Recent applications of psychological skills training with elite-level athletes have demonstrated that mental and motor aspects of physical performance can be effectively integrated.

**Social-Environmental Influences on Motivation**

In the preceding discussion of personal motivational variables, a number of social-environmental motivational factors were mentioned. These factors include those sociocultural, socialization, and social-situational variables that influence participants' goal orientations, efficacy expectations, and perceptual-affective experiences in physical activity. Thus, to a great extent, social factors affect individuals' motivation by influencing the key personal psychological variables more proximal to motivational states. Certainly, however, social-environmental variables exist that exert their influence through pathways other than the psychological constructs that have been the main focus of this article. For example, others may directly reinforce or model coping and health behaviors. Families and friends, for instance, can create or remove barriers to the adoption of physically active life styles.

Whatever their mechanisms of influence, social-environmental variables can be characterized in terms of their origins inside or outside the immediate physical activity setting (Fig. 1). Social factors relevant within the setting include the leader's, staff's, or therapist's behavior toward or interactions with the patient, the program structure, the reinforcements and support of fellow exercisers or patients, and the cohesiveness of the exercise or physical activity group. Out-of-program social motivational influences can involve the supportive or undermining actions and beliefs of the family and friends of the patient; employer or supervisor support and accommodation for therapy appointments or regular physical activity; the extent of isolation or integration within community social networks; sociocultural norms or values for exercise, health, and illness behavior; and socioeconomic influences related to opportunities for exercise education, facilities, equipment, leisure time, and physically active occupational pursuits.

**Summary and Conclusions**

This article was intended to introduce the physical therapist to various aspects of motivation in contexts of physical activity. Although it is recognized that a number of other specific...
psychological factors have been found to influence sport and exercise behaviors, three categories of personal variables were chosen for review. The influence of social factors operating inside and outside the context of physical activity on each of the personal psychological factors was briefly addressed. The psychological variables selected—goal orientations, self-efficacy, and perceptual-affective responses in physical activity—are representative of contemporary sport and exercise psychological research in several key ways. Collectively, research conducted within these areas has used a variety of research methods—from experimental manipulation of motivational variables, to field observation in natural settings, to in-depth qualitative data collection.

Goal orientation and self-efficacy research, in particular, reflect the prominence of social-cognitive perspectives in motivational research in sport and exercise as well as in other domains of human functioning (eg, academic-occupational achievement and social relationships). Social-cognitive approaches typically rely on dynamic, situation-specific, and cognitive forms of psychological variables (context-specific goals and efficacy expectations), rather than global, trait-like, personality factors (eg, trait anxiety, neuroticism, and general locus of control) or strict situational forms of control (eg, behavior modification), to explain motivated behavior. Dynamic, situation-specific, and cognitive variables reflect the interaction of enduring individual differences and social and physical aspects of current situations. One implication of these perspectives for physical therapy practitioners is that social and physical features of the sport and exercise context can be arranged to influence patient motivation, but variations in enduring psychological characteristics may cause different people to respond to a common environment in different ways. Through clinical experience and research, effective motivational features and strategies can be developed to benefit performance and progress for individuals with varied psychological profiles.

Perceptual-affective research was included to highlight a key characteristic of sport and exercise psychology—its recognition of the unique experiential features of physical activity. That is, properties of physical exertion and movement create sensory and emotional inputs to the motivational equation, as does the inherent social nature of most physical activity. This social nature is created by the fact that sport and exercise are often performed with others and by the fact that both the process and product of movement are available for potential public evaluation. The impact of these experiential inputs may not be fully recognized if the context of physical activity is seen as just another health, medical, or achievement environment.

As psychological movement scientists, health psychologists, and behavioral medicine specialists continue to develop and integrate their knowledge bases, it is expected that physical therapy will both benefit from and contribute to the understanding of human behavior in physical activity. Benefits to physical therapy can come in the form of theoretical and applied research that identifies key motivational aspects of physical and therapeutic environments, including the interactions of therapists and patients most related to successful rehabilitation. Furthermore, techniques and strategies for integrating psychological skills training with physical performance are being developed and refined with respect to sport and exercise; these approaches would appear useful for physical therapy as well. Contributions from physical therapy may include clinical research and experiential knowledge related to the interface of physical and medical/therapeutic activities.

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