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The Motivational Implications of Characteristics of Exercise Bouts

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Abstract
The purpose of this research was to examine the psychological adaptations to two different exercise prescriptions. The dependent variables were three types of self-efficacy: task (for elemental aspects of the behavior); coping (for exercising under challenging circumstances); and scheduling (for arranging one's time commitments to exercise regularly). Participants were randomly assigned to one of two 12-week exercise prescriptions: a higher-intensity, shorter-duration condition (about 70 percent VO2max, n = 21) and a lower-intensity, longer-duration condition (about 50 percent VO2max, n = 23). The two conditions were equated for total work output (by manipulation of duration) in megajoules. The two exercise conditions produced similar aerobic fitness gains. Thus, the results regarding self-efficacy are not confounded by differential physical effects of the exercise prescriptions. Both groups were found to increase in task self-efficacy. The higher-intensity, shorter-duration group, however, showed an overall advantage in terms of coping (F[1,41] = 10.48, p < .002), and a group by time interaction was found for scheduling self-efficacy (F[2,39] = 3.81, p < .03) in favor of the higher-intensity, shorter-duration group. The motivational implications of the exercise prescriptions are discussed in terms of self-efficacy theory. It is concluded that it is important to consider not only the physical fitness implications of exercise prescription, but also the motivational implications. It is suggested that characteristics of the exercise bouts may influence motivation for subsequent physical activity involvement.

Keywords
exercise adherence, motivation, self-efficacy

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SEDENTARY lifestyle has been associated with all-cause morbidity and mortality (Blair & Morrow, 1998; Bouchard & Depres, 1995; Lee, 1995). King et al. (2000) have indicated that sedentary behavior is one of the most prevalent chronic risk factors in industrialized countries. Population estimates in both Canada (CFLRI, 1998) and the US (US Department of Health and Human Services, 1996) indicate that 60 percent of people are insufficiently active and that 25 percent are not active at all. Furthermore, the dropout rates stay high with about half of exercise initiates dropping out within the first six months of their exercise programs, many long before that (Dishman, 1982, 1988, 1994; Duncan & McAuley, 1993). There is a strong need to examine factors contributing to this early program dropout. The present research addresses the possibility that early exercise experiences may negatively influence individuals’ confidence in their ability to adhere to exercise programs.

**Self-efficacy**

Self-efficacy (e.g. Bandura, 1997) is known to be an important determinant of physical activity adherence. Self-efficacy is one’s ratings of confidence for performing particular behaviors required to produce desired outcomes. Several recent investigations have shown that higher self-efficacy is associated with higher levels of physical activity (Bandura, 1995, 1997; Desharnais, Bouillon, & Godin, 1986; Duncan & M Auley, 1993; M addux, 1995; M Auley, 1992, 1993; Rodgers & G auvin, 1998; Rodgers & Sullivan, 2001). M Auley (1992) and his colleagues have also demonstrated that increasing self-efficacy improves exercise adherence (M Auley, Courneya, R udolph, & L ox, 1994).

Although much research in this area has focused on the effects of self-efficacy on exercise behavior, there are indications that exercise may also influence self-efficacy. For example, M Auley, Bane, and Mihalco (1995) demonstrated that participation in regular physical activity improved ratings of self-efficacy. Specifically, individuals exposed to a 20-week exercise program showed increased self-efficacy both for the specific exercise behaviors as well as for a more general indicator of ‘physical self-efficacy’. These findings are consistent with Bandura’s (1997) views that the relationship between self-efficacy and behavior is bidirectional. In other words, self-efficacy can be expected to influence behavioral choice and persistence and also be influenced by relevant overt behavioral experience. The influence of experience can be expected to relate to a person’s total familiarity and expertise in a domain.

In domains where individuals have considerable experience, self-efficacy appears to be robust to change. Losing one tennis game is not likely to impact significantly on a competitive athlete’s confidence that she will succeed in future games. However, in domains where individuals have little or no experience, single events or outcomes can have significant impact on self-efficacy. For an individual embarking on an exercise program, characterization of the exercise experience may influence levels of self-efficacy. Consistent with the theory, self-efficacy may in turn influence the probability of continued adherence to an exercise program.

Self-efficacy has seldom been examined as an outcome variable (M Auley et al., 1995). It is an important outcome variable to consider because it has been so robustly related to functional behavior patterns and associated outcomes (cf. Bandura, 1997; M addux, 1995; M Auley et al., 1995). There is little information available concerning the influence of specific exercise characteristics on self-efficacy. If it can be demonstrated that characteristics of exercise programs differentially influence self-efficacy, it will be possible to develop programs that address psychological as well as physiological outcomes. Optimally, one would like to prescribe exercise programs that are most likely to positively influence the probability that initiates will continue exercising.

**Characteristics of exercise bouts**

Two basic and essential characteristics of exercise are intensity and duration, with intensity being the workload or energy required to complete an exercise and duration being the total length of the session. Intensity and duration of exercise are interrelated (Pollock et al., 1998). Every exercise bout comprises a particular mode of exercise (e.g. walking or cycling) performed at a particular intensity for a particular duration.
Currently, it is the norm to have initiates begin exercise programs at low to moderate intensities for longer durations and steadily progress to higher intensities (Pollock et al., 1998). This is done with the intention of reducing injury due to overstraining untrained systems and tissues, or to obtain maximum benefit with minimum physical risk (Pollock et al., 1998). Although this approach almost certainly does reduce injury incidence, its psychological effects remain unknown.

It is known that initiation of exercise is the time of highest risk for dropout (Dishman, 1982, 1988, 1994). It is possible that one of the factors influencing continuation of exercise is the intensity and duration characteristics of the exercise bouts. Few studies have considered the psychological implications of exercise bouts. Dishman, Farquhar, and Cureton (1994) examined exercise intensity and found that preferred intensity of exercise was related to perceived exertion during the exercise bout regardless of fitness level, although the absolute intensities differed between high and low fit young men. These results suggest that intensities that are too high or low might result in too high or low perceptions of exertion. The motivational implications of such perceptions are unknown. From the perspective of self-efficacy, however, it is appealing to consider that lower intensities might produce higher self-efficacy because the probability of mastery is quite high: more people will be able to complete lower-intensity exercise, and are therefore likely to feel efficacious. The strongest source of self-efficacy is said to be overt mastery experience (Bandura, 1986, 1997). However, Bandura (1986) has pointed out that self-efficacy estimates are not always reflective of past performance attainments, because performance attainments are subjective to personal cognitive appraisal. For high-intensity exercise, the physical challenge might be too high and lower perceptions of efficacy might ensue due to extreme difficulty or failure to complete the exercise. However, eventual mastery of a considerable challenge (high intensity) might produce the highest self-efficacy in the long run. This would be due to personal attributions of persistence as well as mastery, and a positive self-appraisal for succeeding. It is therefore necessary to look not only at the short-term effects, but also the longer-term effects of exercise bout characteristics on perceptions of self-efficacy for exercise.

Types of self-efficacy
It has been suggested that there might be different types of self-efficacy (Maddux, 1995), and that these types might differentially influence behavior. Maddux (1995) proposed two types: task self-efficacy and coping self-efficacy. Task self-efficacy is for performing elemental aspects of a behavior and coping self-efficacy is for performing the behavior under challenging circumstances. Recently, Rodgers and Sullivan (2001) demonstrated that self-efficacy for exercise could be distinguished as ‘task’, ‘coping’, and ‘scheduling’ dimensions. The scheduling dimension was discussed as a type of coping, pertaining to exercising regularly as opposed to under challenging circumstances in general. Furthermore, they found that ‘coping’ and ‘scheduling’ efficacy accounted for three times more variance (21 percent) in self-reported exercise behavior than task self-efficacy (7 percent). This suggests that coping and scheduling efficacy are more important predictors of regular exercise behavior than task efficacy. It is possible that the characteristics of the exercise bouts might impact differentially on these types of self-efficacy.

The purpose of the present study was to examine the pattern of psychological adaptations to exercise bouts differing in their frequency and intensity characteristics. We examined the development of task, scheduling and coping self-efficacy over the course of a 12-week (36-session) prescribed and supervised exercise program in a community-based sample of previously sedentary adults. Participants were randomly assigned to one of two programs, which varied in terms of intensity and duration but were equated for total work output. These prescriptions, therefore, were expected to result in similar fitness gains by the participants (cf. Pollock et al., 1998). All exercise intensities were calculated in terms of the participant’s own fitness levels, and were therefore individually relevant as recommended by Dishman et al. (1994). All surveys were completed prior to the first fitness test, and prior to the provision of the exercise prescription. Participants were aware that they would exercise for three one-hour sessions for the duration of the study.
Participants

Fifty-six individuals (13 men, 43 women) began the study. Their mean age was 41.43 years (SD = 10.88). The final sample included 44 participants who completed the study. There were 21 in the lower-intensity, longer-duration group (group 1: 6 men, 17 women) and 23 in the higher-intensity, shorter-duration group (group 2: 3 men, 18 women). There were no observed differences between adherers and dropouts on age or gender. At the beginning of the study, participants reported a mean seven-day energy expenditure of 20.26 (SD = 20.73) METS on the Godin Leisure Time Questionnaire (Godin & Shephard, 1985; Pereira et al., 1997), indicating relatively little physical activity, particularly vigorous physical activity. The participants’ average BMI was 27.6 kg/m² (SD = 5.41) which is slightly outside the upper boundary (25) associated with good health.

Procedure

Initial assessments

Participants were recruited to the study by newspaper announcements. They were randomly assigned to one of two exercise conditions designed to increase aerobic fitness. Prior to beginning the exercise program, the study was explained, informed consent and physician permission to participate were obtained and each person was scheduled for the initial assessment which included the fitness test and the questionnaires assessing the psychological variables. Participants completed the questionnaires, and height, weight and girths were assessed prior to completion of the fitness test (these were necessary for calibration of the metabolic carts).

Physical fitness assessment

All participants were required to complete a maximal exercise test on a Monark cycle ergometer (Model 818E). The test was begun at a pedal rate of 60 rpm and at a resistance of 0.5 kp (kiloponds, which is the resistance in kilograms applied to the bike wheel) for females and 1.0 kp for males. The resistance increased by 0.5 kp every 2 minutes for both men and women until the decrement in the ratio of ventilation (V̇E) to the volume of carbon dioxide produced (V̇CO₂) reached a minimum and began to systematically increase. After this, the resistance was increased 0.25 kp or 0.5 kp every minute until volitional exhaustion (when the participant indicated he or she could not continue due to physical fatigue). The highest volume of oxygen consumed (V̇O₂) achieved during the test was considered as the peak V̇O₂. All metabolic measurements were made with a MedGraphics CPXD system (Minneapolis, MN) that was calibrated for volume and gas concentrations before and after every test. The metabolic data were averaged every 15 seconds. Heart rate was measured and recorded during each test using a Polar Favor heart rate monitor (Polar Canada, QC).

The ventilatory thresholds (VT) were also determined during the maximal exercise test. The first ventilatory threshold (VT1) was determined as the lowest point in the ratio of V̇E:V̇O₂ and the second ventilatory threshold (VT2) was determined as the lowest point in the ratio of V̇E:V̇CO₂ prior to a systematic increase (Bhambhani & Singh, 1985). Both thresholds were visually determined from a graphic display of the data by two different investigators and expressed in l·min⁻¹.

Training phase

Participants were randomly assigned to two different training groups based on intensity of exercise. Group 1 trained at a resistance setting (kp) equivalent to the resistance that elicited VT1 which corresponded to a mean intensity of 49.8 percent of peak V̇O₂. Group 2 trained at a resistance setting equivalent to VT2 which corresponded to a mean intensity of 70.3 percent of peak V̇O₂. Both groups trained at a pedal revolution of 60 rpm for 12 weeks. Work (W) was calculated for the Monark cycle ergometer using the following formula: Work = Force (resistance in kp • 9.81 N) • (pedal revolutions • 6 m) • time (s). In order to equate the total amount of work done by each group during training, the duration of each training session was altered. The training protocols were increased every 13th exercise bout to ensure a consistent fitness challenge. The training schedule for both groups is presented in Table 1.

Participants signed up for three one-hour sessions on a weekly basis according to a schedule provided by the experimenters. Participants were free to choose when they would exercise,
but scheduled their sessions on a weekly basis to ensure that they would be met by a researcher. The majority of exercise sessions were performed before work (07:00–09:00), at lunchtime (11:30–13:30) and after work (16:00–17:00). If participants missed sessions due to personal circumstances they rescheduled these sessions to ensure that they exercised a total of 36 times.

**Midpoint assessments**

The questionnaire assessment of self-efficacy was repeated in the sixth week of training (the 18th exercise session).

**Final assessments**

All participants were reassessed for fitness (VO2max) at the end of the study. Upon arriving at the testing laboratory, they repeated the final questionnaire assessment, and they then completed the fitness test. Their individual fitness results were communicated to them at the completion of the exercise test. General findings from the physiological aspects of the study were communicated to all participants approximately six weeks following completion of the program. No additional assessments of any kind were taken at that time.

**Measures**

**Adherence**

Adherence was strictly monitored. The investigators checked attendance and ensured that each participant completed each exercise bout at the individually prescribed intensity and duration.

**Self-efficacy**

Self-efficacy was assessed using 10 items, each rated on 10-point Likert-type scales anchored with 1 = ‘not at all confident’ and 10 = ‘completely confident’. These were subgrouped to represent task self-efficacy, scheduling self-efficacy and coping self-efficacy (Rogers & Sullivan, 2001). For task efficacy the items were stemmed with ‘How confident are you that you can’ (1) pace yourself to avoid overexertion, (2) perform all the required movements, (3) follow directions from an instructor, and (4) check how hard your activity is making you work? For coping, the items were stemmed with ‘how confident are you that you can’ exercise when you are (1) tired, (2) in a bad mood, and (3) feel you don’t have time? The scheduling items were stemmed with ‘how confident are you that you could’ (1) overcome obstacles that prevent you from participating regularly, (2) make up times you missed, and (3) exercise regularly no matter what? The means of the items comprising each subscale were taken as the indicator for that subscale. In order to reassess the underlying factor structure for these items, a principle components analysis with varimax rotation was undertaken. Two conventional stopping rules (Cattell’s Scree Plot, and Kaiser-Guttman Eigenvalue > 1) (Gorsuch, 1982) in conjunction with the proposed theory suggested a three-factor solution. The three factors emerged consistent with previous research (Rogers & Sullivan, 2001), accounting for 74.6 percent of the variance. The internal consistency (Cronbach’s alpha) for task, coping, and scheduling at time 1 were .77, .83 and .89, and for time 2, .77, .89 and .90, respectively. The self-efficacy constructs, as measured here, can therefore be considered valid and reliable.
Results

Preliminary analyses

No between-group differences were found at the study outset on aerobic fitness or any of the self-efficacy variables. A difference was perfect for those participants who completed the study. There were, however, 12 study dropouts (21 percent). The primary reason for dropout was illness or injury not associated with the exercise program per se, affecting seven individuals. Three individuals performed the first set of tests and never returned. Two individuals dropped out for unknown reasons. The 12 dropouts did not differ from the 44 adherers at study outset on aerobic fitness or self-efficacy.

Fitness

A 2 (exercise condition) × 2 (pre- and post-program) ANOVA with repeated measures on the second factor, using the aerobic fitness indicator (VO2max, ml/min/kg) revealed a main effect of time (\(F[1,42] = 109.46, \ p < .0001, \ Eta^2 = .723\)). There was no effect of condition and no condition × time interaction. These results indicate that both exercise prescriptions resulted in similar physical fitness adaptations, thus the psychological adaptations to the exercise conditions can be assumed to be uncompromised (unconfounded) with changes in physical fitness. The data are presented in Table 2.

Self-efficacy

Task, coping, and scheduling self-efficacy were examined with a 2 (exercise condition) × 3 (time: beginning, middle, end) mixed model MANOVA with repeated measures on the second factor. The means and standard deviations for task and coping and scheduling self-efficacy by group and time are reported in Table 3. The multivariate analysis revealed a significant main effect for time (\(F[6,35] = 6.12, \ p < .0001, \ Eta^2 = .51\)) and a main effect for group (\(F[3,38] = 3.78, \ p < .01, \ Eta^2 = .23\)). The time × group interaction did not achieve significance (\(F[6,35] = 1.81, \ p = .13\)). Repeated measures ANOVAs were undertaken for each of the types of self-efficacy to isolate the univariate effects comprising the multivariate main effects. For coping self-efficacy, a main effect of time (\(F[2,40] = 8.54, \ p < .001, \ Eta^2 = .30\)), and a main effect of group (\(F[1,41] = 10.48, \ p < .002, \ Eta^2 = .20\)) were found. For task efficacy, a main effect of time was observed,

<table>
<thead>
<tr>
<th>Time</th>
<th>Group 1 (VT1, n = 21)</th>
<th>Group 2 (VT2, n = 22)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>Scheduling 1</td>
<td>78.08 (17.88)</td>
<td>73.56 (17.62)</td>
</tr>
<tr>
<td>2</td>
<td>67.18 (14.01)</td>
<td>72.04 (23.42)</td>
</tr>
<tr>
<td>3</td>
<td>66.33 (17.48)</td>
<td>77.35 (16.93)</td>
</tr>
<tr>
<td>Task      1</td>
<td>82.24 (10.59)</td>
<td>79.54 (15.73)</td>
</tr>
<tr>
<td>2</td>
<td>79.94 (12.19)</td>
<td>82.44 (15.11)</td>
</tr>
<tr>
<td>3</td>
<td>83.99 (12.80)</td>
<td>85.79 (12.05)</td>
</tr>
<tr>
<td>Coping    1</td>
<td>47.78 (21.45)</td>
<td>59.80 (18.16)</td>
</tr>
<tr>
<td>2</td>
<td>54.13 (19.41)</td>
<td>71.08 (17.05)</td>
</tr>
<tr>
<td>3</td>
<td>58.25 (22.38)</td>
<td>75.46 (15.33)</td>
</tr>
</tbody>
</table>

Table 2. Means and standard deviations for VO2max (ml/min/kg) for condition by time

Table 3. Means and standard deviations for task, scheduling and coping self-efficacy by group and time

*p < .0001
(F[2,40] = 3.31, p < .05, Eta² = .14). For scheduling efficacy, a time × group interaction was found, (F[2,39] = 3.81, p < .03, Eta² = .16). These results are presented in Figures 1–3.

**Discussion**

Self-efficacy has been demonstrated to be an important determinant of exercise behavior (Bandura, 1986, 1995, 1997; Maddux, 1995; McAuley, 1992, 1993; McAuley et al., 1994, 1995). Most of the research in this area has examined the effects of self-efficacy on exercise behavior. Little is known about how exercise experience impacts on self-efficacy. Self-efficacy has seldom been studied as an outcome of exercise participation except by McAuley and his colleagues who have demonstrated that exercise experiences do influence subsequent self-efficacy cognitions (McAuley et al., 1995). The purpose of the present study was to examine the influence of characteristics of the exercise prescription (i.e. duration and intensity) on three types of self-efficacy over the course of a 12-week program. The intensity and duration of exercise bouts were manipulated to produce a lower-intensity, longer-duration prescription (50 percent VO2max) and a higher intensity, shorter duration prescription (70 percent VO2max), which were equated for total work output (in megajoules). This was to standardize the expected fitness gains so that changes in self-efficacy would not be confounded by changes in fitness. Both exercise groups, in fact, achieved similar increases in aerobic fitness. The results showed that task and coping efficacy significantly increased over time in both groups, but that the higher-intensity, shorter-duration group seemed to show an advantage in terms of coping and scheduling self-efficacy. There was a main effect for time for task self-efficacy, indicating similar changes for both groups. There was a main effect for time and group for coping self-efficacy, indicating similar changes for both groups. There was a main effect for time and group for coping self-efficacy, in spite of the fact that there was not a
Figure 2. Task self-efficacy

Figure 3. Scheduling efficacy
significant difference between groups at the study outset \(F[1,42] = 2.06, p = .16\). The higher-intensity, shorter-duration group, however, exhibited a sustained higher level of coping self-efficacy. However, both groups showed a similar change in coping self-efficacy over the course of the program, suggesting that the exercise had a similar effect on this variable. Future research examining this variable is needed to elucidate its role in exercise adherence. The group by time interaction observed for scheduling self-efficacy, however, suggests a differential influence of the exercise characteristics on this variable. Further research may separately address the differential reports of self-efficacy.

In general, these results support a distinction between different types of self-efficacy. The three types assessed here were task (elemental aspects of the behavior), coping (exercising under adverse circumstances), and scheduling (carrying out regular physical activity) as proposed by Rodgers and Sullivan (2001). The principle components analysis supported three factors. Furthermore, these three types showed different patterns of development in the two exercise conditions supporting a practical distinction as well as a conceptual and psychometric distinction.

Because of some of the study characteristics, it is possible to offer specific interpretations of the data. First, the equating of the total workloads in the two exercise groups produced similar fitness results, thus restricting the confounding influence of physical adaptations, which could, reasonably, influence exercise self-efficacy. If one group had greater fitness gains it would be impossible to determine if they felt more efficacious simply because they were more efficacious. Also, because of the supervised exercise program, all participants in the final sample did complete 36 exercise bouts at their prescribed intensity and duration. We can therefore be quite confident in saying that they can exercise regularly, because they did exercise regularly. The steady and consistent increase in task self-efficacy reflects this, and is consistent with the theoretical propositions of Bandura (1986) that overt performance is likely to be a strong source of task self-efficacy.

Only task self-efficacy was uniformly influenced by the exercise conditions. The exercise conditions appeared to have different effects on scheduling and coping self-efficacy. This lack of consistent influence of the exercise conditions on the types of self-efficacy must be considered in terms of the similar fitness results, and the behavioral data. That is, all participants performed the same amount of exercise over the same number of exercise sessions. Therefore, it seems plausible that the scheduling and coping efficacy may reflect a ‘willingness’ to continue exercising as has been suggested by Kirsch (e.g. 1995).

Kirsch has argued that when incentives result in differential reports of self-efficacy, that a ‘willingness’ or a ‘won’t’ versus ‘can’t’ estimation of behavior is influencing reports. In the present data, because both groups reported similar levels of task efficacy and both groups were 100 percent compliant with their exercise prescriptions, it is apparent that both groups can perform the requisite behaviors and schedule their exercise effectively. Such interpretations of coping efficacy would be speculative because we are not specifically aware of any adverse circumstances that had to be ‘coped’ with over the course of the study. Therefore, because we know both groups can perform regular exercise and did so for 36 sessions over three months, we can question their subsequent ratings of scheduling self-efficacy as reflecting ‘can’t’ continue versus ‘won’t’ continue with the exercise behavior. Kirsch argues that in some contexts, self-efficacy ratings may reflect expected positive or negative consequences, and so be more of an indication of ‘willingness’. From this perspective, the incentive value of the shorter-duration, higher-intensity exercise must be greater than the incentive value of the longer-duration, lower-intensity exercise. Given equal task efficacy, it is likely that this incentive value might be implicit to the exercise itself.

It is not clear what aspects of the longer-duration, lower-intensity exercise negatively influenced ‘willingness’ to continue. Some possibilities are a lack of challenge (produced by the intensity) that would have been associated with the shorter-duration, higher-intensity exercise that might have reduced opportunities to develop coping self-efficacy. A another possibility is that the duration alone might have negatively influenced scheduling self-efficacy. Future research may separately address the differential influence of exercise intensity and duration on exercise motivation and behavior. Nonetheless, according to Bandura (1986), individuals lower
in perceived efficacy for a particular behavior are at greater risk of lapsing in their persistence with that behavior. The fact that lower self-efficacy corresponded to a particular exercise prescription suggests that the lower-intensity, longer-duration prescription is less conducive to self-efficacy development than the higher-intensity, shorter-duration prescription. Furthermore, these results reinforce Bandura’s (1986) idea that ‘self-percepts of efficacy are not simply reflections of past coping experiences’ (p. 436). Future research is needed to examine the self-appraisal processes that influence self-efficacy as they relate to characteristics of the exercise prescription.

The present study is limited in some important ways that influence interpretation of the data. The central limitation is that due to the supervised exercise, the results might not be generalizable to more usual exercise environments where participants must monitor their own duration and intensity. Future research may address this issue by examining the effects of the exercise characteristics under more naturalistic conditions. Also, the task self-efficacy items may be limiting in that the required movement was cycling, which most people feel capable of. Specific items may need to be developed pertaining to exercise intensity and duration, for example. Finally, the phrasing of the self-efficacy questions may need further examination to ensure similar response frames for each type of self-efficacy assessed.

The present study showed that individuals in a lower-intensity, longer-duration exercise condition perceived themselves less confident in their abilities to carry out regular physical activity (self-efficacy) in future than their counterparts in a higher-intensity, shorter-duration activity condition. This is in spite of the behavioral and physiological indicators that they did carry out the same amount of activity, the same number of sessions and accrued the same fitness benefits as well as high ratings of their confidence to perform the elemental aspects of the exercise. These results suggest that characteristics of the exercise, and participant beliefs about those characteristics, are influencing exercise motivation. The results also have implications for the future exercise behavior of these participants. In a cross-sectional survey, Rodgers and Sullivan (2001) found that those individuals reporting more frequent physical activity had significantly higher coping and scheduling self-efficacy than those reporting less activity, but that task-self-efficacy did not distinguish as well between groups. There is reason to believe, therefore, that the efficacy cognitions developed though the exercise experiences will influence future exercise behavior.

From a practical standpoint, these findings have important implications. It is the norm to prescribe lower-intensity exercise to initiates. It is also the norm for people to drop out of exercise programs early. It is possible that these early exercise experiences, although possibly reducing the potential for injury, are producing inadvertent negative results in terms of the cognitive mindset necessary for exercise adherence. Ideally, one would like to have initiates start with the kind of exercise experience that will most positively influence their likelihood to continue exercise, making motivational implications of exercise as important as physical implications in the early stages. The present results suggest that lower-intensity, longer-duration exercise might not be producing favorable motivational outcomes.

References


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