Affective Responses to Acute Resistance Exercise Performed at Self-Selected and Imposed Loads in Trained Women

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Abstract

Focht, BC, Garver, MJ, Cotter, JA, Devor, ST, Lucas, AR, and Fairman, CM. Affective responses to acute resistance exercise performed at self-selected and imposed loads in trained women. *J Strength Cond Res* 29(11): 3067–3074, 2015– The purpose of this study was to examine the affective responses to acute resistance exercise (RE) performed at self-selected (SS) and imposed loads in recreationally trained women. Secondary purposes were to (a) examine differences in correlates of motivation for future participation in RE and (b) determine whether affective responses to RE were related to these select motivational correlates of RE participation. Twenty recreationally trained young women (mean age = 23 years) completed 3 RE sessions involving 3 sets of 10 repetitions using loads of 40% of 1 repetition maximum (1RM), 70% 1RM, and an SS load. Affective responses were assessed before, during, and after each RE session using the Feeling Scale. Self-efficacy and intention for using the imposed and SS loads for their regular RE participation during the next month were also assessed postexercise. Results revealed that although the SS and imposed load RE sessions yielded different trajectories of change in affect during exercise ($p < 0.01$), comparable improvements in affect emerged after RE. Additionally, the SS condition was associated with the highest ratings of self-efficacy and intention for future RE participation ($p < 0.01$), but affective responses to acute RE were unrelated to self-efficacy or intention. It is concluded that acute bouts of SS and imposed load RE resulted in comparable improvements in affect; recreationally trained women reported the highest self-efficacy and intention to use the load chosen in SS condition in their own resistance training; and affective responses were unrelated to motivational correlates of resistance training.

Key Words acute exercise, pleasure, strength training, training load

Introduction

There is mounting empirical evidence demonstrating that acute resistance exercise (RE) consistently results in significant improvements in a variety of psychological outcomes ranging from affective responses (i.e., ratings of basic pleasure-displeasure) to stress-related emotions such as state anxiety (8,13,18). Findings from multiple studies of the RE-affect relationship suggest that affective responses to acute RE are systematically influenced by the training load lifted during RE with the majority of findings suggesting that moderate loads yield the most favorable improvements in psychological responses (2,4,15,22).

Recent findings suggest that affective responses to acute aerobic exercise performed at a self-selected (SS) intensity are more favorable than those observed with prescribed intensity exercise (26). Although emerging evidence provides support for the affective benefits accompanying acute RE, the load imposed on participants in traditional RE prescriptions designed to enhance muscular strength and hypertrophy may not be a representative of the load or effort level that one would self-select during habitual exercise participation (9). This may be particularly relevant to women who may be hesitant to select heavier training loads due to misconceptions such as increased risk of injury or potentially concern of developing undesirable levels of muscular hypertrophy. For example, Focht (9) demonstrated that untrained women chose to exercise using loads and ratings of perceived exertion that were significantly lower than that typically imposed in traditional RE prescriptions. From a social cognitive theory perspective (3), exercise-related self-efficacy beliefs have been linked with affective responses to acute exercise (13). Specifically, the link between affect and

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29(11)/3067–3074

Journal of Strength and Conditioning Research

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self-efficacy varies as a function of the challenge accompanying exposure to the exercise stimulus with the strongest relationship emerging during exercise that is perceived to provide an optimal level of exertion and challenge (11,13). Thus, the affective responses to acute RE may differ as function of the training load used, particularly if load is perceived as being either lighter or heavier than one's desired and/or optimal level of effort. However, the extent to which a potential discrepancy between SS and imposed loads may influence the affective responses to acute RE in women with resistance training experience presently remains unclear.

Given that training load influences the affective responses to acute RE, imposing loads that differ markedly from the load individuals selected during their own exercise behavior could also impact the motivation to participate in regular RE. Hedonic theories of motivation propose that affective responses play an integral role in behavioral decision making (7,20,25). Consequently, the pleasure or displeasure one experiences when engaging in acute RE may influence the motivation to adopt or maintain regular resistance training (12,26). Emerging evidence reveals that affective responses to acute aerobic exercise are linked with the primary motivational constructs in social cognitive theories of health behavior (10,11,13,16,24). Specifically, results from these studies demonstrate that affective responses to acute aerobic exercise significantly correlated with self-efficacy, the primary motivational constructs in social cognitive theory (3), and intention, the proximal motivational determinant of exercise in the theory of planned behavior (1). Nonetheless, the relationship between affective responses to acute RE and established, theory-based motivational correlates of subsequent resistance training participation has yet to be determined.

In summary, extant evidence suggests women may choose loads that differ from those frequently imposed in traditional RE prescriptions. However, the extent to which differences between SS and imposed loads may influence affective responses to acute RE has yet to be adequately delineated. Furthermore, the relationship between affective responses to acute RE and theory-based correlates of motivation to engage in regular resistance training has not been systematically investigated. Thus, examining the affective responses to SS and imposed load bouts of RE and exploring whether these responses were related to established correlates of exercise training may inform efforts to promote regular resistance training among women. From a practical perspective, determining the affective and motivational influence of varying RE loads could help fitness professionals/strength coaches in developing programming approaches that enhance adherence and training motivation.

The primary purpose of this investigation was to examine the affective responses to imposed (40 and 70% of 1 repetition maximum [1RM]) and SS load bouts of RE in recreationally trained women. Secondary purposes of the study were to (a) investigate whether there were differences in women's intention and self-efficacy to participate in regular resistance training at each of the imposed and SS loads and (b) explore whether affective responses to acute RE are related to intention or self-efficacy for resistance training. It was hypothesized that divergent patterns of affective response would emerge as a function of the load lifted with the most favorable affective responses observed during and after acute RE performed at the SS load and less favorable affective responses accompanying the 40 and 70% 1RM sessions. It was also hypothesized that (a) women would report the highest intention and self-efficacy for performing resistance training at the SS load and (b) higher ratings of pleasure (i.e., higher levels of affect) during and after acute RE would be positively correlated with greater intention and self-efficacy for future resistance training participation.

Methods

Experimental Approach to the Problem

The 20 recreationally trained women who volunteered for the study were requested to complete a 1RM testing session and 3 subsequent acute bouts of RE using either imposed or SS loads. The 3 acute RE sessions consisted of completing 3 sets of 10 repetitions for 4 different exercises at (a) 40% 1RM; (b) 70% 1RM; or (c) SS load. Affect was assessed before, during (after completion of the third set of each exercise), and after (immediately and 15-minute postexercise) each RE session. Measures of intention and self-efficacy for using each of the imposed and SS loads in their regular resistance training during the next month were also obtained at the 15-minute postexercise assessment.

Subjects

Twenty recreationally trained women (mean age = 23.15 years; $SD = 2.92$; range, 18–29 years; 90% Caucasian) volunteered to participate in this study. Each participant was physically active and reported regular resistance training participation of at least 3 sessions per week over the past year. The sample size provided an a priori statistical power of 0.80 to detect the main effects and interactions of interest (23) based on an alpha value of 0.05, a high correlation among the repeated measurements ($r = 0.80$), and the expectation of a medium effect size (Cohen's $d = 0.50$) accompanying the change in affective responses with acute RE (2,9,13–15). Before participation in the study, each volunteer read and signed an informed consent document that had been previously approved by the University's Human Subjects Institutional Review Board.

Procedures

During the initial testing session, each participant completed a 1RM test for the seated chest press, leg extension, lat pull-down, and leg curl exercises. All exercises were performed using Cybex resistance training machines (Medway, MA, USA). The maximum tests were conducted using previously validated procedures (8,9) and were used to establish the 40 and 70% 1RM loads used

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during the imposed RE sessions and calculate the %1RM load used in the SS RE session.

After the 1RM testing session, participants completed 3 acute RE sessions: a 40% 1RM session; a 70% 1RM session; and a session where participants chose the load (SS session). The order in which the 3 RE sessions were completed was randomly assigned and presented in a counterbalanced fashion. In an attempt to minimize the potential influence of expectancy effects on the affective responses to RE, participants were informed that they could receive any combination of the 3 imposed and/or SS load RE sessions. Additionally, participants were not informed what RE session they would be completing until after the completion of the baseline assessments. The 3 RE sessions were completed on separate days at least 72 hours apart to allow for adequate recovery. The time of day the RE sessions were performed was standardized within, but not between, participants. Each RE session lasted approximately 45 minutes in duration and was comprised 4 exercises that were completed for 3 sets of 10 repetitions at the respective imposed (40 or 70% 1RM sessions) or chosen (SS session) load. Exercises were performed in the following order: leg extension, chest press, leg curl, and lat pull-down. Repetitions were completed using deliberate controlled motion of the load. To ensure appropriate form on each repetition, exercise technique was monitored by a trained investigator. A 2-minute recovery interval was maintained between each set throughout the RE sessions. The imposed RE sessions exercise characteristics were specifically designed to be consistent with established contemporary resistance training guidelines with 1 session using a load typically recommended for enhancing muscular strength and hypertrophy (70% 1RM) and 1 session using a load below traditional recommendations (40% 1RM) for improving these muscular fitness outcomes. Consistent with procedures used in previous RE studies incorporating SS loads (8,9), participants were instructed to select a load that would be comfortable, yet still provide a good challenging workout. Participants were allowed to choose the load lifted and to adjust that load at any time during the SS session. Affective responses were assessed before, during (after the third set of each exercise), and after (immediately and 15-minute postexercise) each RE session. Intention and self-efficacy to participate in regular resistance training using the load completed during the session in the next month was also assessed at the 15-minute postexercise assessment.

Measures

Affect. Affective responses to RE were assessed using the Feeling Scale (FS) (17), a single-item measure tapping participants' immediate ratings of pleasure-displeasure on a scale ranging from −5 (very bad) to +5 (very good). The FS has been shown to be a valid and reliable measurement of affect in recent studies of the exercise-affect relationship (6,11,18,27).

Intention. Intention to participate in future resistance training using each of the different imposed or SS loads was assessed using established procedures (5,10,11). After each RE session, participants were instructed to rate their intention to participate in resistance training using the load just completed during the next month on a single-item scale that ranged from 0 to 100% with the following verbal anchors: 0% (no intention at all), 50% (moderate intention), and 100% (strong intention).

Self-Efficacy. Self-efficacy to participate in resistance training using the different imposed or SS loads completed in this study for the next month was assessed with a 12-item questionnaire. Participants were asked to report their efficacy to complete an incrementally increasing number of RE sessions (1–3 sessions) per week using the load they just completed during their typical resistance training for the next month. Participants responded to each item on a 100-point percentage scale with 10 percent increments that ranged from 0% (not at all confident) to 100% (completely confident). This questionnaire is consistent with Bandura's (3) recommended measurement approach and has been shown to be a valid and reliable measurement technique in previous exercise research (11,21). The internal consistency of the self-efficacy scale was 0.97 for the 40% 1RM, 0.98 for the 70% 1RM, and 0.96 for the SS load sessions (11).

Statistical Analyses

Affective responses were analyzed by a 3 (RE condition: 40% 1RM; 70% 1RM; SS) × 7 (Time: pre; after the third set of each exercise during RE; immediately after; and 15 minutes after RE) repeated-measures analyses of variance (ANOVA). If the assumptions of sphericity were violated ($\varepsilon < 0.75$), the Huynh and Feldt (19) adjusted statistic was used to test significance. The least significant difference (LSD) procedure was conducted as post hoc analysis to determine the presence of significant mean differences. Effect sizes (Cohen's *d*) were also calculated by taking the mean difference and dividing by the pooled *SD*. Differences in intention and self-efficacy for future resistance training participation in the 40% 1RM, 70% 1RM, and SS loads were examined with a univariate ANOVA. Finally, bivariate correlation analyses were conducted to examine relationships between the affective responses to RE and intention and self-efficacy for resistance training participation using each of the different loads imposed or SS in the study during the next month.

Results

The present sample was comprised young Caucasian women (90% of the sample) who were physically active, of normal age-related body mass index, and engaged in regular moderate to strenuous resistance training participation. Women in the study selected loads that corresponded to an average of approximately 57% 1RM (*SD* = 7.62) during the SS condition. The average ratings of perceived exertion during the conditions were as follows: 40% 1RM = 11.26 (*SD* = 1.95), 70% 1RM = 15.52 (*SD* = 2.05), and SS = 13.94

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Table 1. Descriptive statistics of the affective responses to the imposed and self-selected load resistance exercise sessions.*

	70% 1RM		40% 1RM		Self-selected	
Outcome	Mean	*SD*	Mean	*SD*	Mean	*SD*
Feeling scale						
Pre	2.15	1.56	2.55	1.43	2.40	1.43
Third set	1.45	2.48†	2.90	1.59	2.80	1.20
Sixth set	2.20	2.40	3.40	1.47†	3.10	1.21†
Ninth set	0.85	2.64†	2.90	1.17	2.35	1.79
12th set	2.05	2.14	3.65	0.81†	2.90	1.59†
Post	2.65	2.00	3.55	1.05†	3.65	0.99†
Post-15	3.20	1.47†	3.60	1.04†	3.60	0.88†

*RM = repetition maximum.
†Significantly different from baseline value.

($SD = 1.58$) suggesting the conditions elicited different overall perceptions of effort. Descriptive statistics for the affective responses are presented in Table 1 as mean ± *SD* and in the Figure 1 as mean ± *SE*. Additionally, descriptive statistics for intention and self-efficacy for future resistance training are presented in Table 2 as mean ± *SD*.

Affective Responses

Analysis of the FS yielded significant main effects for condition ($F_{(2,38)} = 6.36$, $p < 0.01$), time ($F_{(6,114)} = 9.61$, $p < 0.01$), and a significant condition × time interaction ($F_{(12,228)} = 2.08$, $p \leq 0.05$). The LSD post hoc analysis of affective responses to the 40% 1RM session revealed significant increases in the FS from baseline during RE at completion of the sixth ($d = 0.59$) and 12th sets ($d = 0.95$) as well as immediately ($d = 0.80$) and 15 minutes ($d = 0.84$) after the 40% 1RM condition. Conversely, post hoc analyses of affective responses to the 70% 1RM session revealed significant reductions in the FS from baseline during RE at completion of the third ($d = -0.34$) and ninth sets ($d = -0.60$) followed by subsequent increase in the FS from baseline observed at 15 minutes ($d = 0.69$) after the 70% 1RM condition. Finally, post hoc analysis of affective responses to the SS load condition revealed significant increases in the FS from baseline during RE at completion of the sixth ($d = 0.53$) and 12th sets ($d = 0.33$) as well as immediately ($d = 1.02$) and 15 minutes ($d = 1.01$) after the SS Condition. In summary, ratings of pleasure increased from baseline during and after both the 40% 1RM and SS conditions. In contrast, ratings of pleasure decreased from baseline during the 70% 1RM condition followed by significant increases after the 70% 1RM condition (Figure 1). The descriptive statistics for the affective responses to the imposed and SS load RE sessions are summarized in Table 1.

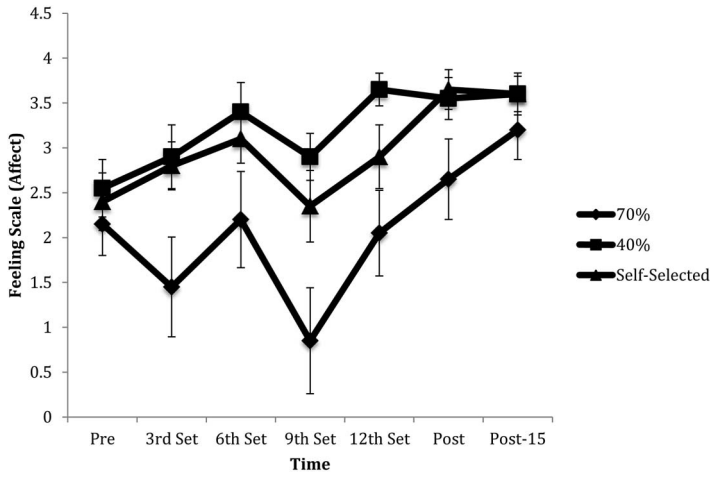

Figure 1. Affective responses to the imposed and self-selected load resistance exercise sessions.

Self-Efficacy for Resistance Training in the Next Month

Univariate ANOVA analyses revealed that participants reported significantly higher self-efficacy ($F_{(2,59)} = 4.29$, $p < 0.01$) to participate in resistance training during the next month using the SS load when compared with the 70% 1RM condition ($d = 0.84$). Participants also reported higher self-efficacy to participate in the SS condition when compared with the 40% 1RM condition ($d = 0.25$), but this difference did not reach statistical significance ($p > 0.05$). Additionally, participants reported higher self-efficacy to participate in the 40% 1RM condition relative to the 70% 1RM session ($d = 0.62$). In summary, participants reported the highest self-efficacy for regular resistance training in the next month using the SS

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Table 2. Descriptive statistics of motivational correlates for using the imposed and self-selected training loads for regular resistance training during the next month.*

	70% 1RM		40% 1RM		Self-selected	
Outcome	Mean	*SD*	Mean	*SD*	Mean	*SD*
Intention	71.50	28.89	57.50	32.59	90.50	16.38
Self-efficacy	58.55	35.47	77.50	24.51	83.30	22.01

*RM = repetition maximum.

condition and the lowest self-efficacy for regular resistance training in the next month using the load in the 70% 1RM condition. The descriptive statistics for self-efficacy are summarized in Table 2.

Intention for Resistance Training in the Next Month

Univariate ANOVA analyses revealed that participants reported significantly higher intention ($F_{(2,59)} = 7.61$, $p < 0.01$) to participate in resistance training during the next month using the SS load when compared with both the 70% 1RM session ($d = 0.81$) and 40% 1RM session ($d = 1.28$). Participants also reported greater intention to participate in the 70% 1RM load when compared with the 40% 1RM load ($d = 0.45$). Thus, participants reported the highest intention for regular resistance training in the next month using the load in the SS condition relative to either of the loads used in the 40 or 70% 1RM conditions. Additionally, participants reported greater intention to use the load in 70% 1RM condition relative to the 40% 1RM condition. The descriptive statistics for intention are summarized in Table 2.

Relationships Between Affective Responses to Resistance Exercise and Correlates of Resistance Exercise for Exercise in the Future

Bivariate correlation analyses were conducted within each RE condition to examine the relationships between affective responses and motivational correlates (i.e., self-efficacy and intention) for resistance training participation during the next month. No significant correlations were observed between affective responses and self-efficacy in the 40% 1RM ($r = 0.15$ to -0.39; all $p > 0.05$), the 70% 1RM ($r = 0.01$ to 0.29; all $p > 0.05$), or the SS load conditions ($r = 0.09$ to 0.39; all $p > 0.05$). Similarly, no significant correlations emerged between affective responses and intention in the 40% 1RM ($r = -0.06$ to 0.36; all $p > 0.05$), the 70% 1RM ($r = 0.01$ to 0.40; all $p > 0.05$), or the SS conditions ($r = -0.01$ to 0.18; all $p > 0.05$). Thus, affective responses during and after acute RE completed in the imposed or SS conditions were unrelated to established theory-based motivational correlates of exercise participation.

Discussion

The primary purpose of this study was to investigate the affective responses to imposed (40 and 70% of 1RM) and SS (57% of 1RM) RE conditions in recreationally trained women. Secondary purposes of the study were to (a) examine differences in correlates of exercise motivation (intention and self-efficacy) to participate in regular resistance training during the next month using each of the imposed and SS loads and (b) explore whether the affective responses to acute RE are related to intention or self-efficacy for resistance training during the next month. Findings from this study provided only partial support for the hypotheses. Results revealed divergent patterns of change in affect during RE as a function of the load used but similar postexercise improvements in affect after each RE condition. Additionally, women reported the highest intention and self-efficacy for future resistance training participation using the load in the SS condition, and affective responses to acute RE were unrelated to intention or self-efficacy of future resistance training participation.

In contrast to the a priori hypothesis that the SS condition would yield the most favorable affective responses, results revealed that each of the 3 acute RE conditions resulted in comparable postexercise improvements in affective responses. Homogenous patterns of improvements in affect were observed after acute RE, whereas heterogeneous patterns of change in affective responses emerged during acute RE. These findings partially support the a priori hypotheses that changes in pleasure-displeasure would vary as a function of the load lifted during the RE conditions. Significant declines in ratings of pleasure were only observed during the 70% 1RM session, whereas increases in pleasure emerged during both the 40% 1RM and SS 1RM sessions. Although a decline in affect was observed during the 70% 1RM session, this shift toward displeasure was transient and subsequently followed by postexercise improvements in affect similar in magnitude to those observed after the 40% and SS (57%) 1RM bouts of RE. Taken collectively, the present findings suggest that recreationally trained women experienced significant improvements in affect after acute RE irrespective of whether the load lifted during the RE condition was imposed or SS. Furthermore, the improvements in affective responses also emerged irrespective of whether the load imposed was heavier or lighter than what they chose during the SS condition.

This investigation is one of the first studies to obtain multiple affective assessments during and after acute RE characterized by different training loads. The heterogeneous

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trajectories of change in affective responses observed during RE and homogenous improvements in affect demonstrated after RE are consistent with findings of studies examining affective responses to acute RE characterized by different training loads (2,4,8,14,15,18). These results are also consistent with contemporary research addressing the aerobic exercise intensity-affect relationship. For example, findings from a recent study examining the affective responses to acute aerobic exercise performed above, at, and below the ventilatory threshold revealed shifts toward displeasure during exercise performed above ventilatory threshold, whereas significant improvements in affect emerged postexercise irrespective of the exercise intensity (6). Thus, the decline in ratings of pleasure observed during only the most physically demanding 70% 1RM session and subsequent improvements in affect demonstrated after each RE session are consistent with findings documented previously in studies of acute aerobic exercise of different intensities and extend these results to acute bouts of RE. It is also interesting to note that the most unfavorable shifts in affect were observed after the completion of the leg extension and leg curl exercises in the 70% 1RM condition. Although it is unclear why this pattern of responses emerged, these findings suggest that future research examining whether women's affective responses to acute RE systematically differ as a function of performing upper vs. lower-body exercises.

Despite experiencing comparable improvements in affect after both the imposed and SS sessions, differences in the motivational correlates to train using the loads in 3 different conditions were observed. Notably, women reported the greatest intention and self-efficacy for future resistance training participation using the SS load that was approximately 57% of 1RM an RPE corresponding to a rating of "somewhat hard." As we noted in previous aerobic exercise-affect studies, this may have motivational implications for future exercise participation (10,11). Self-efficacy and intention are well-established as primary motivational correlates of exercise participation. From a conceptual perspective, it is reasonable to suggest that if trained women form stronger efficacy beliefs and intentions to engage in RE at loads consistent with that chosen during the SS session (i.e., 57% of 1RM), it is possible that they may be more willing to adopt and adhere to resistance training prescriptions integrating loads similar to what they select relative to programs imposing loads that are considerably more or less demanding than what they typically choose. However, additional research examining the links between affective responses, motivational correlates, and subsequent adherence to resistance training is needed to address the veracity of this position.

Although women reported the highest self-efficacy and intention to participate in future resistance training using the SS load, differences in the motivational correlates for future RE participation also emerged between the 70 and 40% 1RM imposed loads. Women cited higher self-efficacy to engage in resistance training during the next month using the 40% 1RM load relative to the 70% 1RM load. Conversely, women reported greater intention to use the 70% 1RM load during resistance training in the next month relative to the 40% 1RM load. Because the 40% 1RM load is clearly less demanding to successfully perform than the 70% 1RM load, it is not surprising that women were more efficacious in their ability to participate in future resistance training using the lighter of the 2 imposed loads. However, given the present sample was comprised recreationally trained women, it is plausible to suggest that higher intention to use 70% 1RM loads in future resistance training may partially reflect that women with previous resistance training experience are more amenable to lifting heavier, more challenging loads than lighter, less demanding loads relative to the resistance they select during their own typical resistance training sessions.

It is also important to recognize, however, that the SS load chosen in this study was only 57% of 1RM. Thus, consistent with our previous research with untrained women who selected loads of approximately 50% 1RM (9) when given the opportunity to choose the training load, trained women selected weights that are insufficient for optimizing improvements in muscular strength and hypertrophy. If women consistently select loads insufficient to produce training adaptations resulting in improvements in valued muscular fitness outcomes, it is possible that this could undermine motivation to participate in regular resistance training. These findings suggest that promoting appropriate load selection is an important consideration in resistance training prescription for recreationally trained women.

A secondary purpose of the study was to examine the relationship between the affective responses to acute RE and select motivational correlates of future resistance training participation. In contrast to previous findings addressing these relationships with acute aerobic exercise (10,11,16,27), affective responses to acute RE were unrelated to intention or self-efficacy for future resistance training participation in this investigation. It is unclear why the significant relationships between affective responses and motivational correlates demonstrated previously with acute aerobic exercise were not observed with acute RE. It is possible that affect-motivational correlate relationship may differ as a function of the mode of exercise. Thus, affective responses to acute RE may not as strongly linked to motivational correlates of resistance training as has been observed with aerobic training. The previous aerobic exercise studies addressing this relationship focused on inactive and/or untrained individuals, so it is also plausible to suggest that one's training status may contribute to the present findings in that affective responses may not be as strongly related to motivational correlates in trained women who are already engaging in regular resistance training. Nonetheless, this is one of the first studies to investigate whether affective responses to acute RE are linked with established correlates of regular resistance training participation. In light of the currently limited evidence

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addressing the dynamics of the acute RE-affect relationship, further research is necessary to delineate the extent to which affective responses to acute RE may be related to motivational correlates of resistance training participation.

Although the present findings contribute to the knowledge of the influence of acute RE on affective responses and their potential relationship with motivational correlates of resistance training in women, selected limitations of the study must also be acknowledged. For example, whereas the repetitions per set and total number of sets completed were equated across the imposed and SS load sessions, the RE sessions were also inherently characterized by different total training volume. At the present time, it is unclear whether total volume completed during an acute RE session systematically influences either the affective responses or one's motivation to lift similar loads during subsequent resistance training participation. Consequently, the extent to which total volume lifted during acute RE may influence these outcomes warrants further investigation. Arent et al. (2) demonstrated that how sets are performed can influence the psychological responses to acute RE. In this regard, the criteria for set termination, particularly if sets are completed to volitional fatigue or muscular failure, may influence the affective responses to RE. Although participants completed 10 repetitions on each set during the RE sessions, repetitions on all sets completed during the 40% 1RM and SS 1RM sessions were completed without reaching muscular failure. Conversely, selected sets in the 70% 1RM session were sufficiently demanding to evoke muscular failure. This difference in set termination criteria is an important, yet currently overlooked, aspect of resistance training prescription that may systematically influence the psychological responses to acute RE and should be evaluated in future inquiry.

In summary, the present findings revealed that although acute RE performed at imposed (70 and 40% 1RM) and self-selected (57% 1RM) loads yielded heterogeneous trajectories of change in affect during RE, they resulted in significant, comparable postexercise improvements in affect among recreationally trained women. Results also indicated that women reported the greatest intention and self-efficacy to engage in future resistance training participation using the SS load and affective responses during and after acute RE were unrelated to motivational correlates of resistance training participation.

Practical Applications

Given the dearth of research examining the affective responses to acute RE in women, the present findings may have several meaningful practical implications. First, if imposing loads heavier than what women typically select results in transient ratings of displeasure during RE that dissipate quickly and subsequently yield meaningful post-exercise affective benefits, it would be important for fitness professionals to help women prepare for and manage the potential discomfort that may accompany more intense RE sessions. Emphasizing the transient nature of the discomfort and the postexercise affective benefits could be helpful in encouraging women to select heavier training loads that may optimize improvements in desired fitness outcomes. Additionally, introducing cognitive (dissociation) and programmatic (tailored rest interval and set prescription) strategies designed to help manage any exertion-related displeasure accompanying heavier resistance training may also have particular utility.

When permitted to choose the load during the SS session, recreationally trained women in this study selected to use training loads that corresponded to 57% 1RM. If women consistently select training loads insufficient to stimulate improvements in valued muscular fitness outcomes, lack of progress could undermine motivation for regular resistance training. Therefore, it is important that fitness professionals encourage the selection of progressively heavier, more challenging loads that will stimulate desirable muscular adaptation while concomitantly assisting individuals to manage training-related and/or exertional displeasure. Given that comparable improvements in affective responses were observed after both the SS and 70% 1RM conditions, fitness professionals could capitalize on these improvements by using the affective benefits as a way to encourage women to select loads that stimulate meaningful improvements in muscular fitness.

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