A/B Types and Psychophysiological Responses to Exercise Stress

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Ten Type A’s and 10 Type B’s, as measured by the student version of the JAS and the TASRI, exercised on a cycle ergometer for 20 minutes at light (40% VO₂max), moderate (60% VO₂max), and high (80% VO₂max) intensity exercise to determine A/B differences in psychophysiological responses. The norepinephrine and epinephrine responses of A/B types were similar at the light and moderate intensities. However, at the high intensity, norepinephrine response of Type A’s was significantly greater than that of Type B’s. Epinephrine responses (p = .11) evidenced the same, albeit nonsignificant, trend. Oxygen uptake and heart rate data indicated that this amine difference was not a function of differential workloads, suggesting that Type A’s had a greater psychophysiological reactivity to high intensity exercise than Type B’s. Ratings of perceived exertion were similar for Type A’s and B’s at all intensities. However, a significant interaction between behavioral pattern and intensity emerged for affect. Interpretation of this interaction indicated that Type A’s were more positive than B’s at light and moderate intensities, yet at the high intensity exercise A’s were more negative than B’s. The results of this study suggest that A and B types do differ in their psychophysiological responses during exercise, with A’s evidencing more positive affect during light and moderate intensities, yet more negative affect and greater neuroendocrine responses during high intensity exercise than B’s.

Friedman and Rosenman (1974) defined the Type A behavior pattern as “an action-emotion complex that can be observed in any person who is aggressively involved in a chronic, incessant struggle to achieve more in less time, and if required to do so, against the opposing efforts of other things or other persons” (p. 67). The major behavioral components of this struggle include extremes of aggressiveness and hostility, a sense of time urgency, and excessive achievement striving (Carver, Coleman, & Glass, 1976; Glass, 1977; Matthews, 1982; Rejeski, 1982; Rosenman, 1978; Strube & Werner, 1985). The Type B behavior pattern

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“is defined as the relative absence of the Pattern A characteristics” (Carver et al., 1976, p. 460). Research by Glass and his colleagues (Glass, 1977) suggests that the Type A behavior pattern is motivated by an intense need to maintain personal control over the environment.

These characteristics have led to the notion that A/B Type differences exist in psychophysiological responsivity to stress. Specifically, it has been hypothesized that A’s suppress subjective responses and thereby persist at tasks despite objective feelings of stress and strain as compared to B’s (Friedman, 1969). Carver et al. (1976) suggest that Type A’s are generally unaware of, or are unwilling to acknowledge, their internal states. This denial or defense mechanism can lead to delays in seeking treatment and/or the exacerbation of a diseased state. Thus, suppression of internal states by Type A’s may be an important factor contributing to coronary heart disease (CHD).

To test this “suppression hypothesis” Carver et al. (1976) had Type A and B college students, as determined by the student version of the Jenkins Activity Survey (Krantz, Glass, & Snyder, 1974), complete two exercise trials: a maximal work capacity test and a subject-terminated incremental walking test. Analysis of the amount of effort expended on the incremental walk test, expressed as a percentage of max $VO_2$, indicated that Type A’s performed at 91.4% of their aerobic capacities whereas B’s performed at 82.8%. Analyses on the fatigue ratings obtained during the walking trials demonstrated that A’s expressed less fatigue than B’s at equal workloads. These findings support the suppression hypothesis. That is, even though they were under greater physiologic strain, Type A’s reported lower levels of subjective fatigue than did Type B’s.

Rejeski, Morley, and Miller (1983) sought to determine the relationship between Type A behavior, respiratory exchange ratio (RER), and ratings of perceived exertion (RPE) during the final stage of a graded exercise test (GXT) among subjects with documented coronary heart disease (CHD). Correlational analysis indicated that Type A behavior was significantly related to RER, $r = .32, p = .05$. The correlation between RPE and Type A behavior, however, was not statistically significant, $r = -.05, p = .37$. Canonical correlation using RER and RPE as one variate and the subscales of the JAS (Type A, speed and impatience, job involvement, hard driving and competitive) as the second variate indicated that RER, job involvement, and Type A subscale scores were the salient variables in the two variates. These results were interpreted as indicating that Type A’s subjected themselves to greater metabolic strain than did Type B’s. However, no statistically significant relationship between RPE and JAS scores was found, thereby failing to directly support the suppression hypothesis.

Rejeski et al. (1983) suggested that symptom suppression may be mediated by the salience of physiological cues. Recent theoretical (Rejeski, 1985) and empirical reports (Hardy, Hall, & Prestholdt, 1986) suggest that the salience of psychological variables in the subjective perception of exertion is greatest when exercise is performed at or below moderate intensities. Thus, it may be inappropriate to expect individuals to suppress subjective feelings of stress near the termination of a high intensity exercise task.

Rejeski (1985) also inferred that the subjective feelings associated with work stem from both informational and emotional-distress components. The self-report of distress associated with objective work appears to be contingent upon the extent to which informational and/or emotional cues are brought into focal awareness.
Leventhal and Everhart (1979) have proposed that pain relevant cues are processed by affective schema. Rejeski (1985) contended that because RPE is a Gestalt measure it is quite possibly insensitive to whether reported exertion is based upon informational or emotional cues. Such an argument is supported by the considerable variability in subjects' perceptions of exertion and affect during exercise tests (Hardy, 1988; Rejeski, 1985).

Essau and Jamieson (1987) demonstrated that Type A's do not suppress their response to stress during a moderately stressful digit recall task. Subjects were asked to estimate their heart rate response both before and following the reception of feedback about their actual heart rate levels during performance. The results indicated that Type A's significantly overestimated their actual heart rate levels, both at rest and during the task. Simultaneously obtained affective data indicated that Type A's reported significantly more affective reactions (primarily negative) than did type B's. These findings suggest that Type A's do not underestimate their physiological and affective responses to moderately stressful tasks.

The evidence to date on the notion that Type A's suppress psychophysiological responsivity to stress, particularly exercise stress, is at best equivocal. Numerous studies (see Krantz & Manuck, 1984, for a review) have demonstrated that Type A's display larger episodic increases in catecholamines than do Type B's when confronted with challenging or stressful tasks. It appears therefore that catecholamine responses are important indicators of the degree of perceived challenge, a crucial ingredient for observing A/B Type differences. Additionally, as suggested by Rejeski (Rejeski et al., 1983, 1985), psychophysiological responses during exercise stress may be influenced by informational and affective schemas, individual differences, and exercise intensity. Thus the purpose of this study was to investigate the psychophysiological responses of A/B Types, utilizing measures of neuroendocrine reactivity and subjective perceptions of exertion and affect during different exercise intensities (light, moderate, high). It was predicted that compared to Type B's, Type A's would subjectively suppress heightened reactivity (as measured by catecholamine levels) by reporting lower perceived exertion scores and more positive affect scores. This effect was predicted to be most pronounced during challenging, high intensity exercise.

**Method**

**Subjects**

The student version of the Jenkins Activity Survey (JAS Form T; Krantz et al., 1974) and the Type A Self-Rating Inventory (TASRI; Blumenthal et al., 1985) were administered to 320 undergraduate males and females. Subjects were selected as Type A if their scores on both the JAS and TASRI were in the upper 20% of the pretest distributions, and as Type B if their scores were in the lower 20% of the distributions. Scores on the student version of the JAS ranged from 1 to 19, with a mean of 7.79±3.67. Scores on the TASRI ranged from 69 to 184, with a mean of 118.42±19.42. The correlation between the JAS and the TASRI for the pretest distribution was .54 (p<.001), indicating that the measures shared 29% common variance. Twenty healthy, nonsmoking subjects (10 Type A's and 10 Type B's) were contacted by telephone and individual appointments were
arranged for the experimental sessions. In order to control for gender, both groups were composed of five males and five females. The subjects for the experiment were all active but none were training for competition. An attempt was made to match the subjects for height, weight, and VO$_2$ max to minimize any training effect on catecholamines. As indicated in Table 1, no significant differences in these characteristics were found. It should be noted, however, that the mean age of Type A's was significantly greater than that of Type B's.

### Table 1

**Subject Characteristics as a Function of Behavior Pattern**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type A ($N=10$)</th>
<th>Type B ($N=10$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (cm)</td>
<td>171.1 ± 10.1</td>
<td>169.4 ± 11.1</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>68.2 ± 9.80</td>
<td>65.5 ± 10.90</td>
</tr>
<tr>
<td>Age (yr)</td>
<td>26.9 ± 6.70</td>
<td>21.0 ± 2.90*</td>
</tr>
<tr>
<td>VO$_2$max (ml/kg/min)</td>
<td>43.3 ± 8.80</td>
<td>43.2 ± 9.50</td>
</tr>
<tr>
<td>JAS (Form T)</td>
<td>16.0 ± 1.83</td>
<td>3.4 ± 0.97*</td>
</tr>
<tr>
<td>TASRI</td>
<td>154.9 ± 14.92</td>
<td>96.0 ± 6.83*</td>
</tr>
</tbody>
</table>

Means ± standard deviations.

*p<.05.

**Instrumentation**

*Behavioral Typing.* Classification of participants as Type A or Type B was based on their scores on the student version of the JAS (Krantz et al., 1974) and the TASRI (Blumenthal et al., 1985). The measurement of Type A behavior is one of the more troublesome issues in the literature. Although the structured interview (SI) is thought to be the most valid procedure for assessing coronary-prone behavior, it is less suitable than the JAS and/or the TASRI for screening large numbers of subjects. The use of two instruments to type the subjects is consistent with Matthews' (1982) suggestion that research should employ multiple measures to more accurately assess the Type A construct.

The JAS is a valid and reliable self-report measure of the Type A behavior pattern (Jenkins, Zyzanski, & Rosenman, 1979). However, the inventory was developed for use with working adults. Krantz et al. (1974) have proposed a modified version of the JAS (JAS Form T) to use with the college-student population. Their modified version contains 44 questions, with 3- and 4-point response sets. The JAS Form T is scored by assigning weights of 1 to A responses and 0 to B responses.

The TASRI is a list of 38 adjectives that subjects evaluate and indicate on a 7-point scale how much each adjective describes him/herself. The TASRI is also considered a valid and reliable measure of the Type A behavior pattern (Blumenthal et al., 1985). The total Type A score is obtained by summing the 21 Type A items and the 7 Type B items.
Psychological. Perceived exertion was measured by Borg’s (1973) scale. This is a categorical scale with points ranging in value from 6 to 20, and verbal expressions after the odd-numbered values (e.g., 7=very very light; 19=very very hard). This scale has been found to be both a valid and reliable measure of the stress and strain of physical work (Borg, 1982). Consistent with the suggestions of Borg (1985), both general (overall) and local (working musculature) RPE were assessed. The subjects were instructed on the use of this scale in conjunction with the procedures outlined by Morgan and Borg (1976).

A general affect measure (Hochstetler, Rejeski, & Best, 1985) was used to evaluate the subjects’ feelings of comfort and confidence prior to and following each trial. The instrument consists of 13 bipolar adjectives, formatted on a 7-point scale. Responses for each adjective are summed to obtain a single general affect score, with higher values representing greater feelings of comfort and confidence toward the task.

The Feeling Scale (Rejeski, 1985) was utilized to evaluate changes in affect during the task. This bipolar scale has values ranging from +5 (very good) to –5 (very bad). Subjects were instructed on the use of the scale with procedures outlined by Rejeski (1985). Both the general affect measure and the Feeling Scale have been employed in previous research to measure affect in exercise settings (Rejeski, 1985).

Physiological. All metabolic measurements were obtained via open circuit spirometry. Oxygen uptake was computed from minute ventilation using a Parkinson-Cowan dry gas meter and fractions of expired O₂ and CO₂ obtained from a mixing chamber using an Applied Electrochemistry S-3A oxygen analyzer and a Beckman LB-2 infrared CO₂ analyzer. Heart rate was continuously monitored on an oscilloscope and recorded at 5-min intervals using a Hewlett Packard electrocardiograph (model 1500B) using CM-5 lead placements.

Plasma epinephrine and norepinephrine concentrations were measured using high pressure liquid chromatography–HPLC (Bioanalytical Systems Technical Bulletin CEC Application 14). The HPLC unit was composed of a Waters U6K injector and M45 pump. The detector was a BAS LC-4A electrochemical detecting device. A Biophase ODS 5-u column was the stationary phase while the mobile phase was a 0.15-M monochlorecetate buffer, pH 3.0. The flow rate was established as 2.2 ml/min at 35° centigrade.

Procedures

Prior to testing, each subject was fully informed of the procedures of the investigation and consented in writing to participate. The subjects selected to participate in the exercise sessions were medically screened and familiarized with the cycle ergometer and breathing apparatus. Each subject participated in four exercise sessions over a 2-week period. Each session lasted approximately one hour. Subjects refrained from caffeine and vigorous activity prior to each test date.

Maximal Oxygen Uptake. The initial session for all subjects involved a test to determine maximal oxygen uptake (VO₂max). Each subject was weighed upon entering the laboratory. ECG leads were then attached using the CM-5 lead placement. The subject was then positioned on the cycle ergometer and fitted with the breathing apparatus. Following a 5-min rest period, preexercise ventilation, oxygen uptake, and heart rate were measured. The maximal exercise test began with the subject pedaling at a 300 kpm/min work rate. Every 3 minutes
the workload was increased until the subject could no longer continue (modified YMCA protocol). Heart rate, minute ventilation, and oxygen uptake were measured during the last minute of each 3-min stage and the final minute of exercise. VO₂max was validated using the following criteria: postexercise lactate greater than 8mM, failure of heart rate to rise with increasing workload, change in VO₂ of less than 150 ml with increasing workload, or an R value ≤1.10 (cf. Lamb, 1984). Values representing 40, 60, and 80% of subjects’ VO₂max were determined and used in computing the workloads for subsequent sessions.

**Submaximal Trials.** The remaining three sessions involved each subject cycling for 20 minutes at 40, 60, and 80% VO₂max. The performance apparatus was a Monark cycle ergometer. The ergometer was calibrated prior to each trial to ensure the accuracy of the resistance. The pedaling cadence was set at 50 rpm. The order of trials was randomized and the participants were blind to the intensity manipulation.

Upon entering the lab, the subject was weighed and ECG leads were attached. The subject then rested in the supine position and a catheter was inserted into an antecubital vein. Twenty minutes after catheterization, a 20-ml resting blood sample was taken. The subject was then positioned on the cycle ergometer where resting heart rate, ventilation, oxygen uptake, and a general affect measure were obtained. The subject then exercised for 20 minutes at the assigned workload. Heart rate, ventilation, oxygen uptake, perceived exertion, and affect were all measured at 5-, 10-, 15-, and 20-min intervals. Immediately following the exercise trial another 20-ml blood sample and the general affect measure were obtained. Subjects were debriefed after all of the data were collected.

**Results**

**Metabolic**

The VO₂ and heart rate data analysis evidenced no significant A/B Type differences across the exercise intensities. The VO₂ data were similar at 40% (A: 16.8±0.9; B: 17.4±0.9 ml/kg/min), 60% (A: 27.0±1.6; B: 27.0±1.8 ml/kg/min), and 80% (A: 34.4±2.6; B: 35.7±2.7 ml/kg/min), as were the two groups’ heart rates at 40% (A: 103.0±4.0; B: 109.0±4.0 bpm), 60% (A: 135.0±5.0; B: 147.0±5.0 bpm), and 80% (A: 160.0±5.0; B: 164.0±5.0 bpm). These data suggest that the subjects were experiencing similar metabolic strain at each exercise intensity.

**Catecholamines**

A 2 X 3 (Type X Intensity) ANOVA with repeated measures on the last factor was used to examine the change in norepinephrine and epinephrine (postrest). A significant intensity effect, F(2,36)=92.49, p<.001, and a significant Type X Intensity interaction, F(1,36)=4.54, p<.05, were found. Student Newman-Keuls post hoc analysis indicated that the change in norepinephrine increased significantly with each intensity (40% M=320 pg/ml; 60% M=682 pg/ml; and 80% M=1,730 pg/ml). Type A’s responded similar to Type B’s at 40 and 60% of VO₂max. However, at 80% VO₂max, Type A’s responded with a higher norepinephrine response than did Type B’s (see Table 2).

Results from the ANOVA for epinephrine evidenced a significant intensity
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**Table 2**

Pre- and Postexercise Catecholamine Responses of Type A's and B's (Mean ± S.E.M.)

<table>
<thead>
<tr>
<th>VO₂ max (in pg/ml)</th>
<th>Subject type</th>
<th>Pre</th>
<th>Post</th>
<th>Delta</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At 40% VO₂max</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epinephrine</td>
<td>A</td>
<td>151 ± 50</td>
<td>378 ± 61</td>
<td>226 ± 84</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>106 ± 25</td>
<td>283 ± 71</td>
<td>177 ± 36</td>
</tr>
<tr>
<td>Norepinephrine</td>
<td>A</td>
<td>345 ± 45</td>
<td>630 ± 73</td>
<td>284 ± 64</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>218 ± 22</td>
<td>573 ± 38</td>
<td>354 ± 54</td>
</tr>
<tr>
<td><strong>At 60% VO₂max</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epinephrine</td>
<td>A</td>
<td>105 ± 46</td>
<td>498 ± 29</td>
<td>393 ± 52</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>72 ± 19</td>
<td>490 ± 30</td>
<td>417 ± 39</td>
</tr>
<tr>
<td>Norepinephrine</td>
<td>A</td>
<td>244 ± 53</td>
<td>989 ± 73</td>
<td>745 ± 37</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>250 ± 27</td>
<td>869 ± 133</td>
<td>619 ± 134</td>
</tr>
<tr>
<td><strong>At 80% VO₂max</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epinephrine</td>
<td>A</td>
<td>77 ± 21</td>
<td>1011 ± 142</td>
<td>933 ± 138*</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>101 ± 25</td>
<td>752 ± 70</td>
<td>651 ± 90</td>
</tr>
<tr>
<td>Norepinephrine</td>
<td>A</td>
<td>306 ± 40</td>
<td>2317 ± 106</td>
<td>2011 ± 122*</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>241 ± 24</td>
<td>1689 ± 256</td>
<td>1447 ± 243</td>
</tr>
</tbody>
</table>

*p<0.0001 Delta for all trials.

*p<0.01 Type A vs. B.

effect, \( F(2,36) = 32.43, p<.001 \), and a marginally significant Type × Intensity interaction, \( F(2,36) = 2.30, p = .115 \). As with norepinephrine, post hoc analysis indicated that the change in epinephrine increased significantly with each intensity (40% \( M = 202 \) pg/ml, 60% \( M = 406 \) pg/ml, and 80% \( M = 793 \) pg/ml). Type A’s had a higher epinephrine response than Type B’s at 80% \( \text{VO₂max} \), but the two types responded similarly at 40 and 60% of \( \text{VO₂max} \) (see Table 2).

**RPE and Affect**

Results of a \( 2 \times 3 \times 4 \) (Type × Intensity × Time) ANOVA with repeated measures on the last two factors evidenced no significant main or interaction effects for local or general RPE scores. The means and standard deviations for Type A’s and B’s as a function of intensity were as follows: 40%: A’s LRPE=8.93 ± 1.94, GRPE=8.53 ± 2.01; B’s LRPE=9.43 ± 2.22, GRPE=9.12 ± 2.02; 60%: A’s LRPE=11.90 ± 2.73, GRPE=10.95 ± 2.50, B’s LRPE=12.15 ± 3.80, GRPE=11.23 ± 2.41; 80%: A’s LRPE=14.87 ± 2.34, GRPE=13.90 ± 1.85, B’s LRPE=14.30 ± 2.09, GRPE=13.33 ± 1.94. However, a significant Type × Intensity interaction was found for the Feeling Scale scores, \( F(2,36) = 3.19, p<.05 \). Figure 1 indicates that although Type A’s were more positive than Type B’s at 40 and 60% \( \text{VO₂max} \), A’s were more negative at 80% \( \text{VO₂max} \).
Figure 1 — Affective responses during light, moderate, and high intensity exercise for Type A’s and Type B’s (Mean±S.E.M.).

Discussion

The purpose of this study was to investigate A/B Type differences in psychophysiological responses during light, moderate, and high intensity exercise. The rationale for using three exercise intensities was based on evidence that psychophysiological responses (catecholamines) are intensity related (Fox, Bowers, & Foss, 1988). Overall, the present findings provide additional support for this hypothesis. However, the catecholamine data indicated that Type A’s had a greater response to high exercise stress than did Type B’s. No differences were noted at the moderate and light intensities. This finding is consistent with previous research on plasma catecholamine responses of Type A’s to challenging tasks (Contrada, Wright, & Glass, 1985; Krantz & Manuck, 1984). These data suggest that psychophysiological responses to exercise stress are a function of an interaction between intensity and behavior pattern.

It is possible that Type A’s in the present study perceived the high intensity exercise as challenging and/or threatening. Glass (1977) has argued that when a Type A’s sense of control is threatened, that individual will increase efforts to assert control. Thus when Type A’s performed the high intensity exercise, their attempts to control the disruptive state brought about by fatigue may have caused a larger episodic increase in neuroendocrine responses than that observed for Type B’s. However, it is also possible that Type A’s possess a physiological disposition that leads to elevated sympathetic nervous system activity (Dembroski, MacDougall, Herd, & Shields, 1979).
The RPE data evidenced no significant differences between Type A’s and B’s at any of the exercise intensities. Although inconsistent with the suppression hypothesis, this finding is consistent with the results of Rejeski et al. (1983). The failure to directly support the suppression hypothesis might be attributable to the use of RPE as the measure of subjective fatigue. However, it should be noted that no direct measure of subjective fatigue was administered in the present study or the Rejeski et al. (1983) study. Carver et al. (1976) employed an 11-point scale with endpoints labeled “As fresh as I have ever been” (1) and “As tired as I have ever been” (11). Perhaps the reporting of fatigue is a psychologically different task than reporting exertion and/or affect.

Borg (1985) maintains that RPE is an accurate measure of one’s internal state during physical exercise. Therefore, given that no differences existed between Type A’s and B’s on the metabolic indices (VO₂ and heart rate), RPE would not be expected to differ. The suppression hypothesis cannot be dismissed, however, because Type A’s differed from Type B’s in degree of stress (as measured by neuroendocrine responses) at the high intensity exercise trial but gave similar RPEs.

The affect data indicated that Type A’s reported more positive affect at light and moderate intensities than did Type B’s. The catecholamine and metabolic data indicate that Type A’s and B’s were experiencing similar strain at these intensities. This enhanced tendency to report more positive affect perhaps allows Type A’s to present an image that they are in control and mastering the environment. Because objective performance was controlled in the present study, one way the Type A could project this image was to report more positive affect during the tasks. However, inspection of the slopes indicates that Type A’s responded with more negative affect than Type B’s during highly stressful exercise. Glass (1977) suggests that when Type A’s are exposed to a prolonged uncontrollable stressor they decrease their efforts to assert control. Brunson and Matthews (1981) have also reported that Type A’s who are not successful in maintaining control over the environment express annoyance and anger at themselves and their circumstances. Essau and Jamieson (1987) found that Type A’s reported significantly more affective reactions to a challenging task than did Type B’s. It may be that performing the high intensity exercise task for 20 minutes in the present study caused Type A’s to increase their efforts to assert control. However, when these efforts were found to be ineffective, the Type A continued the task but reported negative rather than the hypothesized positive affect.

These data suggest that Type A’s do not differ from Type B’s in the perception of exertion across light, moderate, and high intensity exercise. However, Type A’s and B’s do differ in their affective reaction to work at various intensities, with A’s feeling more positive about light and moderate intensity exercise, but more negative then B’s at high intensity exercise. Analysis of the general affect measure scores revealed that these differences were not a function of differential pretask affect. In fact, the trend of the data suggests that Type A’s were more positive than B’s across all intensities on pretask affective measures.

In conclusion, the present study indicates that an A/B difference does exist in psychophysiological responsivity during exercise tasks. It appears that Type A’s have a greater amine response at high intensity exercise and report more positive affect during light and moderate intensity exercise tasks than do Type B’s. Contrary to the suppression hypothesis, Type A’s will continue to perform highly
stressful exercise yet report negative rather than positive affect. When Type A’s engage in high intensity exercise, their inability to maintain the perception of control over the situation and/or their physiological disposition may lead to a negative affective state.

References


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