

## **Effects of Acute Low-Intensity Cycling on Perceived Stress, Arousal, and Attention**

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### **ABSTRACT**

Generally, acute bouts of aerobic exercise have been shown to enhance psychological measures of emotion, mood, and affect. Previous investigations suggest that perceived stress and arousal levels are especially influenced by exercise. Interestingly, very few studies have examined the influence of exercise on attention and whether changes in stress and arousal may augment adaptations in attentional orientation that are often required during exercise. Furthermore, very little is known about the timing of the effects of exercise on these psychological outcomes. **PURPOSE:** The primary purpose of this study was to examine the effects of low-intensity aerobic exercise on stress, arousal, and attention. A secondary aim was to evaluate the time-course effects of exercise on stress, arousal, and attention. **METHODS:** Twenty ( $M_{age} = 23.2 \pm 3.1$  years old) college-aged individuals were counterbalanced into low-intensity exercise (LI) and seated control (SC) conditions. During each condition, participants completed a 10-minute resting baseline period, 20 minutes of either sustained cycling or seated rest, and a 20-minute recovery period. Primary outcomes of stress, arousal, and attention were assessed at 10-minute intervals throughout each condition via a Visual Analog Scale for Stress (VAS-S), Felt Arousal Scale (FAS), and Attentional Focus Scale (AFS), respectively. **RESULTS:** For the VAS-S, a Time main effect was revealed,  $F(4,16) = 5.76, p = .005$ , suggesting general reductions in stress following both LI and SC conditions. A Time main effect was also found for the FAS, which was superseded by a Condition  $\times$  Time interaction,  $F(4,16) = 3.08, p = .047$ , indicating a greater increase in arousal levels during the LI condition compared to the SC condition. Lastly, a Time main effect for the AFS was found,  $F(4,16) = 3.05, p = .049$ , indicating general shifts from internal to external focus during each condition. **CONCLUSION:** Taken together, the current results suggest that exercise at lower doses (i.e., low-intensity for 20 minutes) may have minimal influence on more complex psychological perceptions of stress and attention. These results may help us better understand the complicated interactions between common psychological measures used in exercise science research. Additionally, this study may aid in the development of appropriate exercise prescriptions for populations looking to specifically target stress, arousal, and attention.