

AlterG Awareness: Attentional Focus Responses to Weighted and Unweighted Walking and Running on a Treadmill

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Attentional focus reflects the degree to which an individual utilizes or attends to internal cues (i.e. association) or to external cues (i.e. dissociation) during exercise. Lower body positive pressure (LBPP) treadmills provide varying levels of weight support while exercising. The degree of unweighting may result an individual shifting their attention internally or externally during exercise depending on the demand. Thus, understanding shifts in attentional focus while using a LBPP treadmill as compared to a normal treadmill (NT) might provide insight in terms of LBPP treadmill utilization and rehabilitation programming. **PURPOSE:** The purpose of this investigation was to examine attentional focus (AFS) during bouts of walking and running on a LBPP treadmill and a normal treadmill. **METHODS:** Nineteen non-obese participants (age: 24.4 ± 7.2 years; BMI: $24.0 \pm 2.6 \text{ kg m}^{-2}$) completed randomized counterbalanced bouts of walking and running on both a normal and LBPP treadmill at 40%, 60%, 85%, and 100% (60%, 40%, 15%, and 0% of body weight supported, respectively) for either (a) a 2 min walking stage at 0.89 m s^{-1} or (b) 4 min stages of running at 2.24, 2.68, and 3.13 m s^{-1} . Participants reported AFS at the end of every stage. **RESULTS:** Repeated measures ANOVA indicated a significant two-way interaction between treadmill condition and speed on AFS, $F(9, 162) = 4.002, p < .0005$, partial $\eta^2 = .182$. Simple main effects for treadmill condition revealed significant differences at 2.24 m s^{-1} (40% vs. 100%, $p < .001$), 2.68 m s^{-1} (40% vs. 60%, $p < .0005$; 40% vs. 100%, $p < .005$; 60% vs. 85%, $p < .0005$), and 3.13 m s^{-1} (40% vs. 60%, $p < .01$). Simple main effects for treadmill speed revealed significant linear decreases in AFS at each speed for the 60% and 100% weighted conditions (both $ps < .0005$). AFS was significantly lower at 3.13 m s^{-1} compared to 0.89 m s^{-1} in the 40% ($p < .0005$) and 85% ($p < .05$) weighted conditions. **CONCLUSIONS:** Findings suggest that attentional focus shifts from a more dissociative to a more associative awareness as less body weight is supported and speed increases. This shift in focal awareness may reflect greater attention towards physiological strain and mechanical loading with increasing body weight and/or speed. This may have compliance implications for LBPP utilization and rehabilitative programming.