

The Impact of Exercise Intensity Level on Measures of Mood and Affect

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ABSTRACT

Prescribing the appropriate exercise intensity level for middle-aged individuals can be an especially difficult challenge due to the variations in goals and motivations, as well as health factors in this population group. Often, high intensity levels are avoided out of a fear of the feelings of displeasure that may be created, whereas low-intensity levels may also be avoided as they may be perceived as not being hard enough to be beneficial. **PURPOSE:** To examine the effects of different intensity levels of aerobic exercise on measures of mood and affect. **METHODS:** Thirty participants (mean age = 43.6 ± 1.83) completed three exercise sessions of 30-minutes at a comfortable walking pace at an intensity of either 45%, 60%, or 75% of their age-predicted heart rate reserve (HRR) on a motorized treadmill. Participants completed the POMS and AD-ACL surveys prior to and after a 30-min exercise bout at the randomized intensity level. Heart rate (HR) and perceived exertion (RPE) values were measured every 5-min, and treadmill speed and/or incline were adjusted to maintain the selected HRR for the entire exercise bout. After completing the exercise bout, participants once again completed the POMS and AD-ACL. **RESULTS:** Differences in speed ($F_{2, 56} = 56.88, p < 0.001$), HR ($F_{2, 56} = 781.52, p < 0.001$), and RPE ($F_{2, 58} = 396.86, p < 0.001$) were seen for all 3 conditions, with HR ($F_{3, 84} = 98.27, p < 0.001$) and RPE ($F_{8, 232} = 21.52, p < 0.001$) also increasing significantly across time. POMS total mood disturbance (TMD) scores showed a significant interaction ($F_{2, 58} = 23.24, p < 0.001$), with TMD decreasing significantly in the 45% HRR (2.30 ± 3.01) condition but increasing significantly during the 75% HRR (24.07 ± 5.29) condition. The 45% HRR condition resulted in greater levels of calmness than the 60% HRR and 75% HRR, and calmness levels did not change from pre- to post-exercise at the 45% or 60% HRR, but did decrease significantly in the 75% HRR ($t_{29} = 2.10, p < 0.05$). Energy increased significantly at 45% HRR ($t_{29} = 2.55, p < 0.05$) and decreased significantly at 75% HRR ($t_{29} = 3.43, p < 0.01$) but did not change at 65% HRR. Tiredness levels did not change from pre- to post-exercise at 45% or 60% HRR but increased significantly at 75% HRR condition ($t_{29} = 7.01, p < 0.001$). The 75% HRR resulted in greater levels of tension than in the 45% HRR ($p < 0.05$) and 60% HRR conditions ($p < 0.05$), and tension increased significantly at 60% HRR ($t_{29} = 2.07, p < 0.05$) and 75% HRR ($t_{29} = 4.55, p < 0.001$) but did not change in the 45% HRR condition. **CONCLUSION:** Exercising at different intensity levels does have a significant effect on mood and affect levels. Exercising at a lower intensity levels decreases tension while also increasing energy and calmness levels, whereas higher intensity exercise increases tension and tiredness while decreasing energy and calmness levels. The results of this study suggest that 45% HRR may be most beneficial for improvements in mood, whereas 75% HRR does seem to result in negative mood states.