

The Effect of Active Gaming on Pressure Pain Sensitivity

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An acute bout of moderate to vigorous exercise temporarily reduces pain sensitivity in healthy adults, a phenomenon termed exercise-induced hypoalgesia (EIH). Recently, active gaming, which allows an individual to be physically active during video game play, has been rising in popularity as a means of light to moderate exercise. While evidence has shown that active gaming elicits positive cardiovascular and balance outcomes, no research has investigated active gaming as a modifier of pain. The purpose of this study was to determine whether an acute bout of active gaming increases pressure pain thresholds (PPT) in healthy adults. Fourteen young adults were enrolled in this study. Participants completed a training session and four experimental sessions. During each session, participants played one of the following active games for 15 minutes: Kinect Boxing, Kinect Tennis, Wii Boxing, and Wii Tennis. Pressure pain thresholds were measured on the trapezius muscle and the forearm before and immediately after a 15-minute active gaming session. Heart rate was also measured during game play. PPT data was analyzed with repeated measures ANOVA. Bivariate correlations examined the relationship between average percentage of heart rate reserve (HRR%) during game play and magnitude of pain reduction (post – pre). The results showed that PPTs 1) on the forearm and trapezius muscle significantly increased from pre to posttest during the Kinect Boxing session, 2) increased on the trapezius muscle during the Wii Boxing session, and 3) decreased on the forearm during the control session ($p's < .05$). Greater HRR% during game play was associated with greater pain reduction (trapezius $r = .33$; forearm $r = 0.28$; $p's < .05$). In conclusion, active games played at a moderate intensity appear to be capable of temporarily reducing pressure pain sensitivity. This study was sponsored by the NIFS Student Research Fund.