

The Effect of Active Gaming on Cardiovascular Outcomes

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The U.S. society has become more accustomed to a sedentary lifestyle in the past few decades, partially due to increased time spent in front of a screen. Recently, active gaming, which allows an individual to be physically active during video game play, has been rising in popularity as a means of exercise. However, more research is needed to evaluate whether active gaming can produce cardiovascular responses that fall within the recommended ranges for daily physical activity given by the American College of Sports Medicine (40-60% of heart rate reserve (HRR)). The purpose of this study was to determine the effects of active gaming on cardiovascular outcomes and enjoyment. Nine young adults have been enrolled in this study and data collection is ongoing. Participants completed a training session and four experimental sessions. During each session, participants played one of the following active games at a self-selected intensity for 15 minutes. Heart rate (HR) and rate of perceived exertion (RPE) were measured during game play. Enjoyment was assessed on a 10-cm VAS after each game. Repeated measures ANOVAs were used to determine differences in HRR%, RPE, and enjoyment between games. The results showed that HRR% was greater for Kinect boxing ($M=42.7\pm12.5$) compared to all other games ($p=.012$; Kinect Tennis= 35.4 ± 10.7 , Wii Boxing= 31.8 ± 14.5 , Wii Tennis= 35.4 ± 10.8). RPE was significantly greater for Kinect Boxing ($M=11.3\pm2.0$) compared to Wii Tennis ($M=9.67\pm1.5$), $p=.038$. Enjoyment levels did not differ between games, $p=.58$ (Kinect Boxing= 6.6 ± 2.1 , Kinect Tennis= 7.1 ± 1.2 , Wii Boxing= 5.9 ± 0.8 , Wii Tennis= 6.9 ± 0.9). In conclusion, the active games played at a self-selected intensity were perceived as moderately to highly enjoyable and were able to increase cardiovascular responses. However, the intensity of activity depended on the game. Participants achieved a moderate intensity level (i.e., 40-60% of HRR) while playing Kinect Boxing, but only achieved a light intensity level while playing the other games.

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