Motivating Effects of Cooperative Exergame Play for Overweight and Obese Adolescents

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Abstract

Background:
Exergames (i.e., video games that require gross motor activity) may provide intrinsically motivating experiences that engage youth in sustained physical activity.

Method:
Thirty-one low-income 15- to 19-year-old overweight and obese African American adolescents were randomly assigned to a competitive exergame ($n = 17$) or a cooperative exergame ($n = 14$) condition. Participants played a preassigned Wii Active exergame routine that took between 30 and 60 min each school day, and sessions occurred during lunch time or an after-school program over a 6 month period. Participation was voluntary, so students decided whether to come or not on a given day. Cooperative exergame players worked together with a peer to expend calories and earn points, while competitive exergame players competed individually against a peer to expend calories and earn points. Motivation was measured through surveys and interviews at the end of the intervention, and energy expenditure was measured by accelerometry during game play.

Results:
Compared with the competitive group, the cooperative players were significantly more intrinsically motivated to play ($p = .034$, partial eta-squared = 0.366) and more psychologically attracted to the design of the exergame ($p = .034$, partial eta-squared = 0.320). Intrinsic motivation was significantly positively correlated with energy expenditure during game play: individuals who were motivated by control/choice had higher energy expenditure ($p = .026$), and those who were more goal motivated ($p = .004$) and more immersed in game play ($p = .024$) had lower energy expenditure during game play.

Conclusions:
Cooperative exergame play produced higher intrinsic motivation to play the exergame than competitive exergame play did. Intrinsic motivation that came from a desire for control/choice was related to higher energy expenditure during game play. Cooperative exergame play holds promise as a method for engaging overweight and obese youth in physical activity.


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Abbreviations: (M) mean, (MANOVA) multivariate analysis of variance, (SD) standard deviation

Keywords: competition, cooperation, exergame, motivation, obese adolescents, physical activity intervention

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