

## 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.

*J Diabetes Sci Technol* 2012;6(4):812-819

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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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