

## The Effects of Cup Stacking and Video Game Play on the Performance of a Manual Dexterity Task

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### ABSTRACT

Dexterity and hand-eye coordination are important in daily life, and various methods of improving these skills have been developed. Most of the methods have been technological, brain training games that aren't physically strenuous and make the participant feel as though they are just playing a game. Cup stacking and video gaming have been used throughout the United States in schools for improving motor skills and hand-eye coordination because they offer various simulations of scenarios requiring motor, visual and cognitive coordination. **Purpose:** To determine the effects of different types of gaming on dexterity in college aged participants. **Methods:** The participants were 40 students enrolled at Southwestern University. A SPEED STACKS® set of 12 cups and timing mat were set up on a table, along with a nut and bolt, and the novel, *The Hunger Games*. Another station was set up with *Mario Kart 8* on the Nintendo® Wii. One trial at each station was completed by each participant, leading to 40 control trials, 40 cup stacking trials, and 40 video game trials. Upon completing randomized challenge on three separate days, participants assembled a nut a bolt and were timed using SPEED STACKS® timing mat. Data were recorded and analyzed in a repeated measures ANOVA. **Results:** A repeated measures ANOVA revealed a significant effect of cup stacking (5.69 sec ± .215) and video game play (5.79 sec ± .196) on dexterity  $F(2,78) = 46.205, p < .002$ . Bonferroni post hoc tests revealed that cup stacking elicited a reduction in dexterity times when compared to the control group (5.69 ± .215 s vs 5.86 ± .199 s, respectively,  $p < 0.05$ ). It was also revealed that video game play elicited a reduction in dexterity times when compared to the control group, (5.79 ± .196 s vs 5.86 ± .199 s, respectively,  $p < 0.05$ ). It was found that cup stacking elicited quicker dexterity times than video game play (5.69 ± .215 s vs 5.79 ± .196 s, respectively,  $p < 0.05$ ). **Conclusion:** Results suggest that cup stacking provides a greater effect on dexterity than video game play. This study suggests that completing a physical hands on activity is more beneficial to maintaining dexterity than playing a video game, although both types of activities provide a significant effect on dexterity compared to the control group.