# Influence of Video-Based Instruction on Physical Activity Participation of Youth with Disabilities

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ADAPTED PHYSICAL ACTIVITY
SLIPPERY ROCK UNIVERSITY

PIONEERING WELLNESS
Adapted Physical Activity

## Background

- Patel (2020) emphasizes that in the midst of chaos, it is even more important to look after the physical, mental, and emotional well-being of children with physical and intellectual disabilities
- The Department of Health and Human Services (2018), recommends that children engage in 60 minutes of moderate to vigorous physical activity, but according to Kirk (2019), youth with disabilities are less likely to meet the recommendations for physical activity
- School-aged youth with disabilities are engaged in higher levels of sedentary time and are at a higher risk for disease, stroke, diabetes, depression, and obesity when compared to their peers without disabilities (Kirk, 2019)
- Currently, any physical activity children were receiving in physical education, through a club, or through recreation, has a high possibility of being instructed virtually due to COVID-19 mitigation policies enacted by educational institutions
- Online education platforms and virtual instruction are in need of research-informed and evidence-based practices (Vasquez & Straub, 2012)
- There is very little research available regarding online instruction for student with disabilities (Vasquez & Straub, 2012)

## Purpose

- To assess the influence of video-based instruction on the physical activity level of school-aged youth with disabilities
- To determine if video-based instruction influences heart rate during the virtual physical activity time

## Method

Research Design

- Single-subject alternating treatment design with two treatments
- Participants were randomly assigned one of the alternating treatments (i.e., pre-recorded instruction, synchronous/live instruction) each session
- Treatments were counter balanced across the physical activity sessions
- Dependent variable: length of time spent in the light to maximum heart rate zone (60 - 80% of Max HR)
- Independent variables: pre-recorded instructional videos and synchronous (live) instructional videos

Participants

- 4 school-aged youth with disabilities
- Recruited from an after school physical activity practicum (i.e., Kids In Action)

Equipment

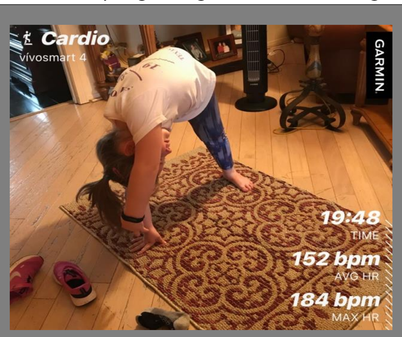
- Garmin Vivosmart fitness trackers tracked, scored, and output the data

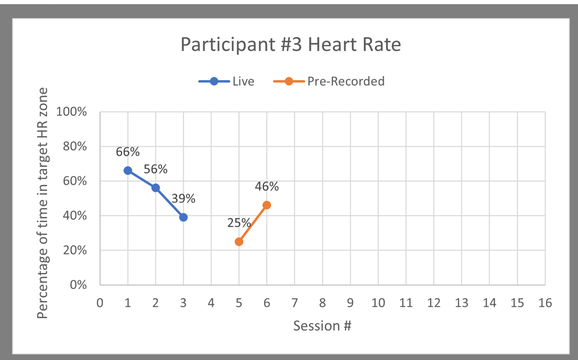
Procedure

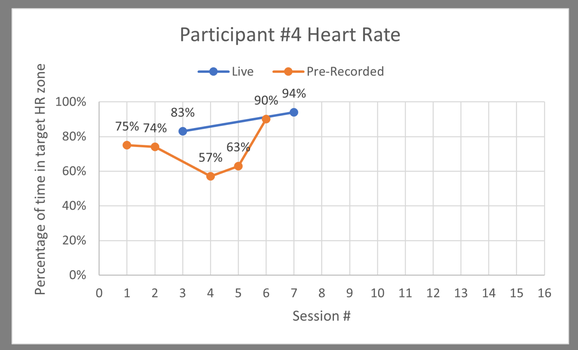
- 16 session; 20 minutes each
- Each participant was scheduled for two sessions per week and each session began at the same time of day
- The participant days and start times remained consistent through the entirety of the study
- Participants will engage in 8 pre-recorded videos (YouTube) and 8 synchronous (live) videos
- Session consisted of a 5-minute warm-up, 10-minute activity, and 5-minute cool down
- For each session, the warm-up and cool down were the same, only the 10-min activity changed on a weekly basis

Data Analysis

- Data was analyzed using visual analysis
- Graphing the data allowed trends and changes in the dependent variable level to be identified
- Visual analysis was the traditional method used for analyzing changes in data with single subject research designs




## Preliminary Results

- Time spent above a heart rate of 124 was recorded
- The lowest heart rate thus far for each participant occurred during a pre-recorded session
- The highest heart rate thus far for each participant occurred during a live session
- The least amount of time spent in the target heart rate zone during a live session was 39%
- The most amount of time spent in the target heart rate zone during a live session was 94%
- The lowest amount of time spent in the target heart rate zone during a pre-recorded session was 25%
- The most amount of time spent in the target heart rate zone during a pre-recorded session was 90%
- Participant 3: Live 39% - 66% ; Pre-recorded 25% - 46%
- Participant 4: Live 83% - 94% ; Pre-recorded 57% - 90%
- Participant 3: Time in the target heart rate zone decreased during live sessions and increased during pre-recorded sessions
- Participant 4: Time in the target heart rate zone increased during live sessions and most recently increased during pre-recorded sessions
- When asked what they preferred the participants stated that they enjoyed the live sessions more

## Discussion

- Educators are in need of research examining the effectiveness of online instruction practices for school-aged youth with disabilities (Means et al., 2009)
- Research on influencing the physical well-being of youth with disabilities through virtual formats has social validity, especially during the increased use of online instruction due to COVID-19 education mitigation policies
- The type of video-based instruction can have an affect on heart rate and student performance

Future Considerations

- Considerations should be taken as to what avenue of virtual instruction is best for the student and their goals
- Teachers, instructors, and trainers should be aware of correlations between heart rate and type of video-based instruction
- Data thus far appears to support that live instruction is influencing heart rate during online physical activity, more so than pre-recorded physical activity
- Reminders should be sent to parents for both live and pre-recorded sessions

Limitations

- Participants participating with a sibling or parent may have greater external motivation
- Parents giving feedback, cues, and assistance may act as the teacher during the pre-recorded sessions
- Schedule conflicts caused some sessions to be done different days and times or not completed at all
- Fitness trackers were sometimes not charged

References available upon request