



# Do children choose to play active video games when given the choice between seated and ambulatory video game play? A study of children's play choice

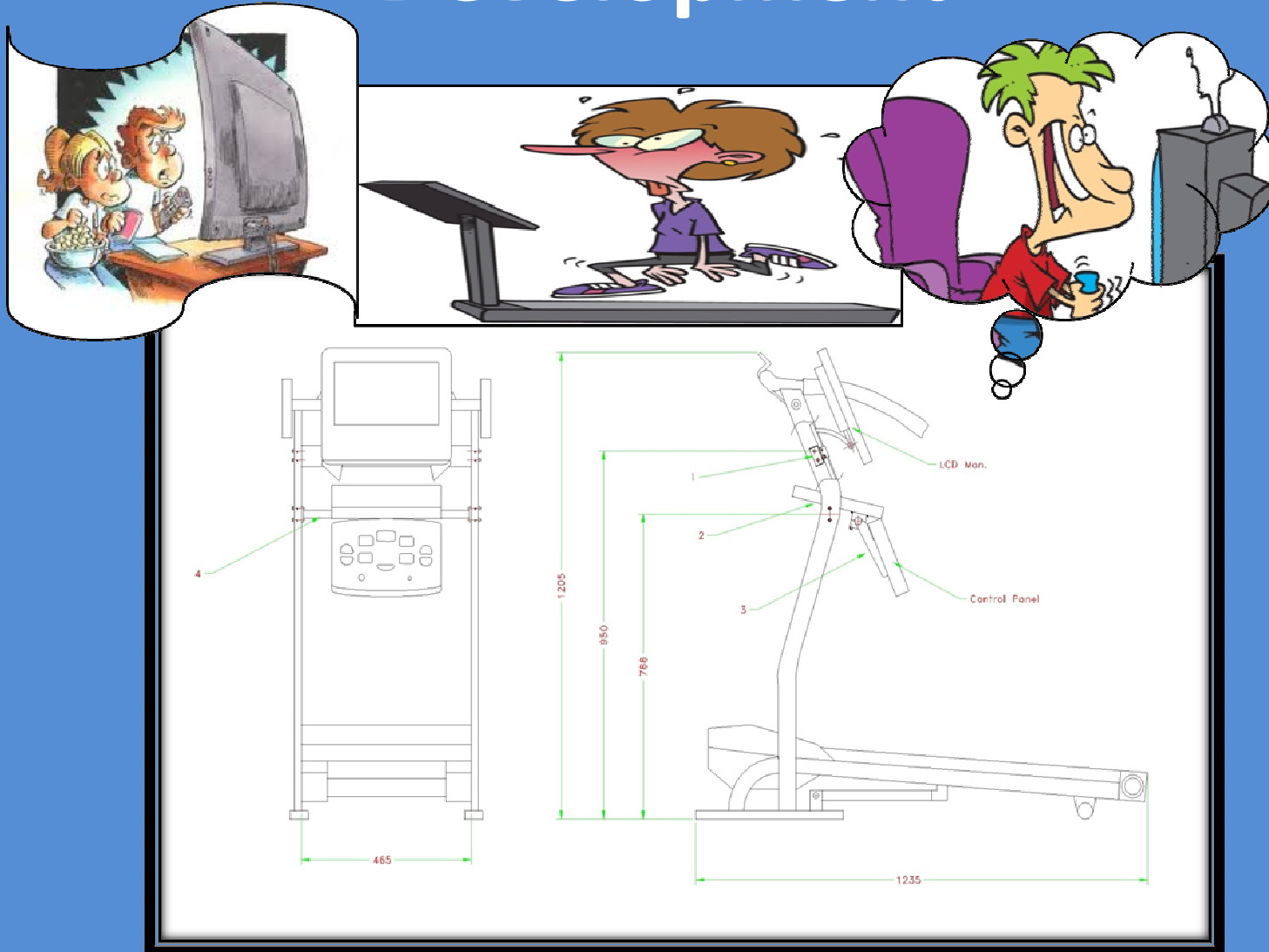
Mellecker RR, Lanningham-Foster L, Levine JA,  
McManus AM

# BACKGROUND

- Childhood obesity is increasing worldwide
- Conventional activity interventions have been largely unsuccessful
- Active video games (exergaming) combine video game technology and physical activity
- “Can Exergaming Contribute to Improving Physical Activity Levels and Health Outcomes in Children?”<sup>1</sup>

<sup>1</sup>Daley, A.J. (2009). *Pediatrics*, 124, 763 -771.

# Development



<sup>2</sup>Mellecker, R,R, et al., (2009). *International Journal of Pediatric Obesity*, 4, 106-111.

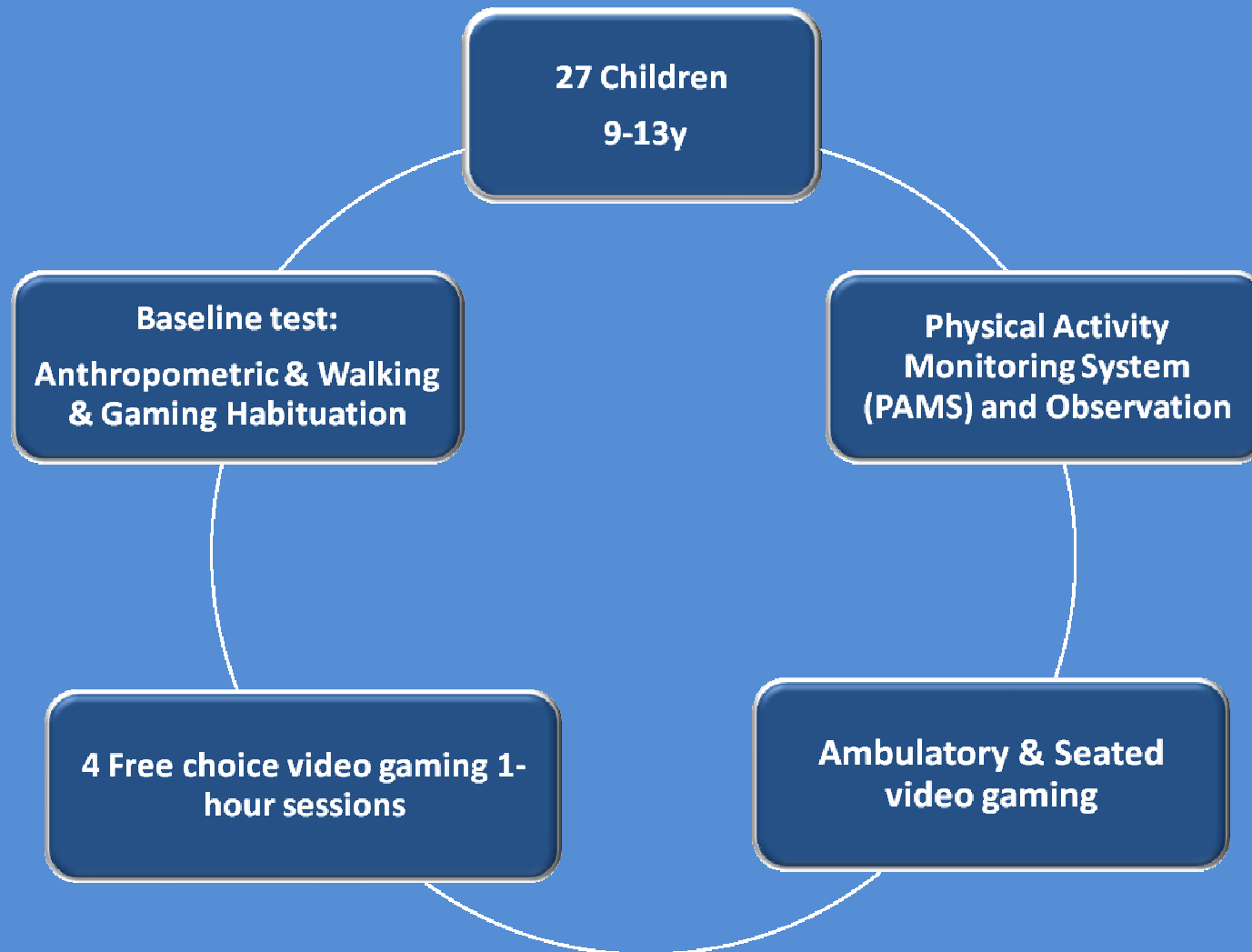
# Walking Gaming Station



# Question????

When given choice will children choose active over seated alternatives and will this choice be sustained over time?

# METHODS



# METHODS

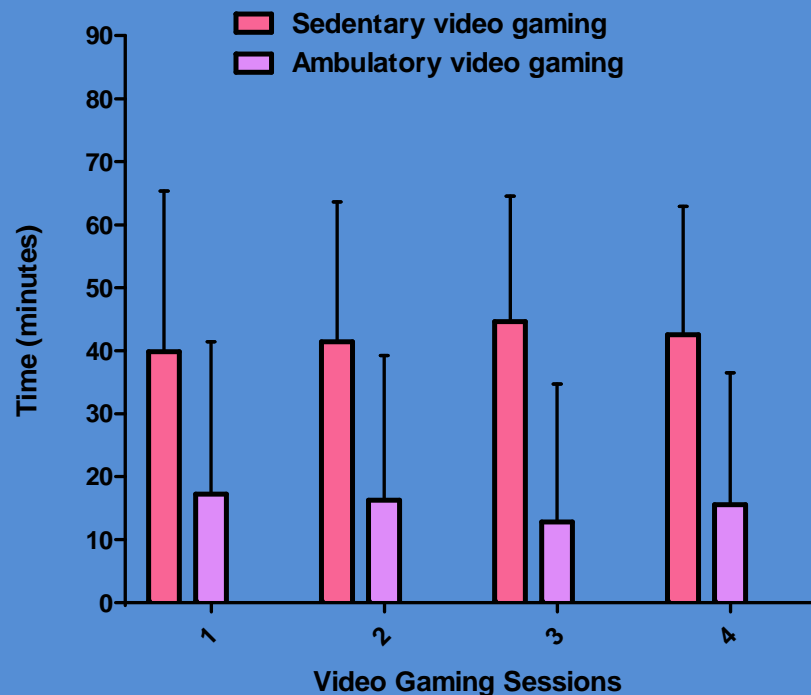


**Ambulatory video game condition**



**Sedentary video gaming condition**

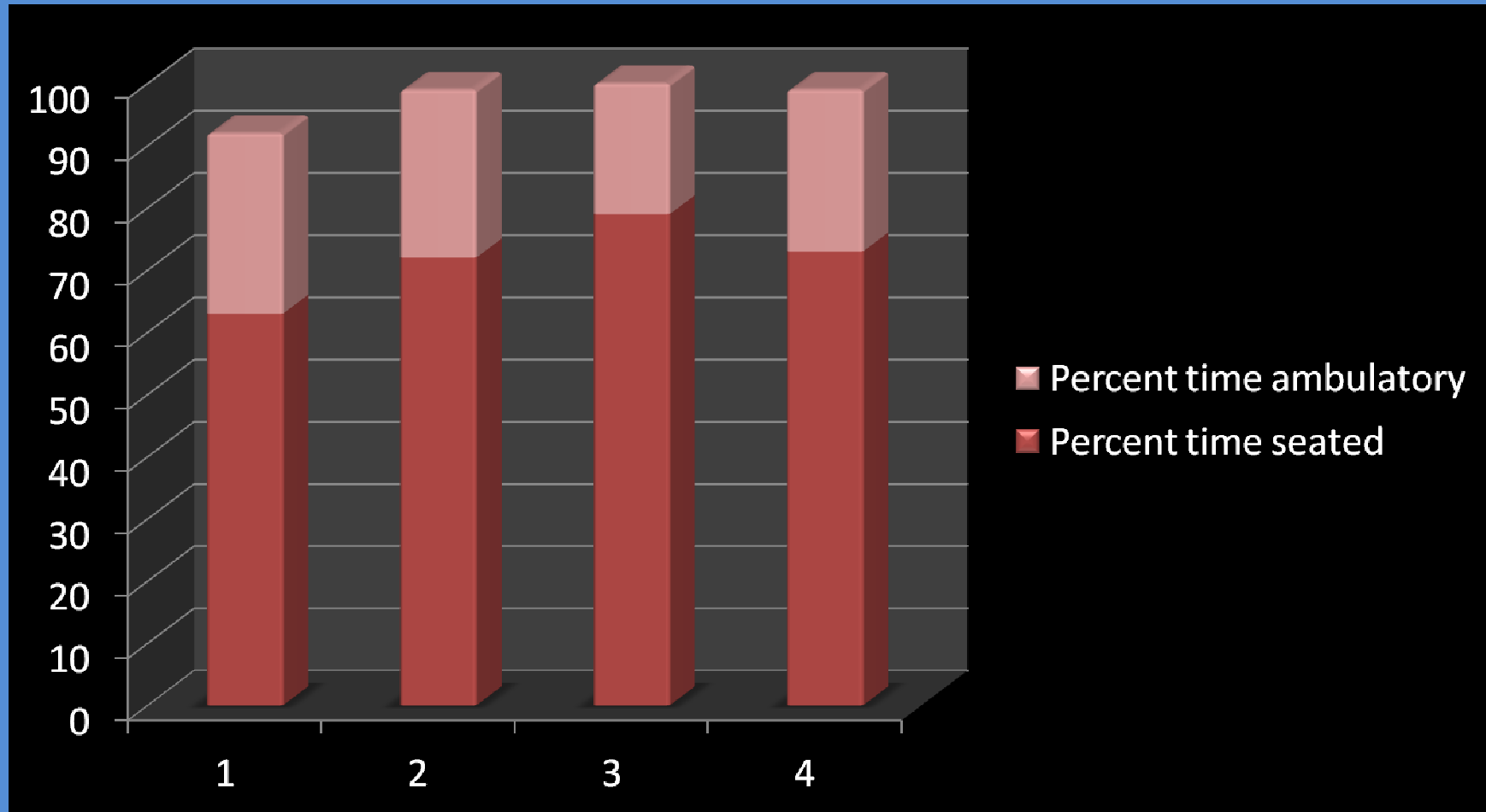
# RESULTS



- No significant effect across 4 VG sessions
- More time per session was spent playing seated than playing ambulatory
- Large variation in the time spent seated and active whilst video gaming suggest that choice may vary between individuals

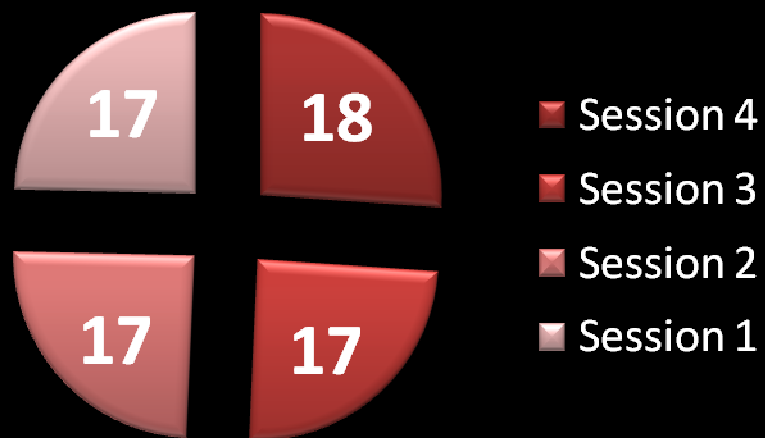


# RESULTS

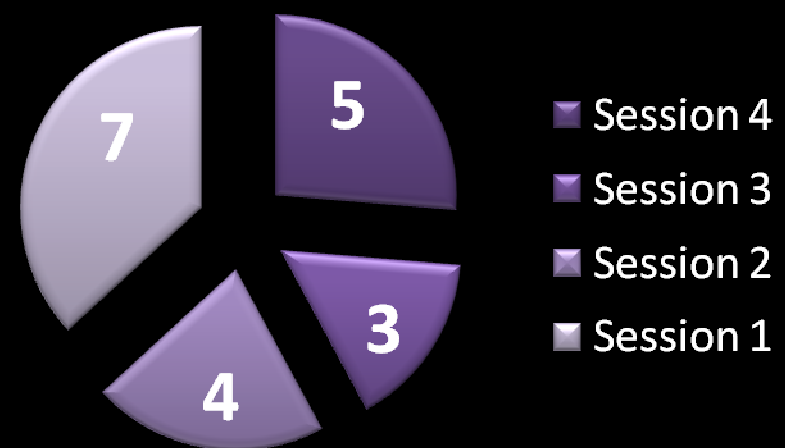


# RESULTS

100% time Seated



100% time Ambulatory



# OBSERVATIONAL RESULTS

- Postural changes were apparent in all 4 sessions
- In session 1-4 the number of children changing from ambulatory to seated was 2, 6, 5, 3
- Four children made postural changes in 2 of the four sessions and 1 child changed posture in 3 of the four sessions
- Once seated children did not return to ambulatory video game play

# EXPLANATIONS

- Feedback interface requiring video game play to be contingent on being active<sup>3</sup>
- Children perceived the motor task to be contrary to their intended goal “beat the game”
- Attentional resources for cognitive and motor function are overloaded disrupts skill and “flow”

<sup>3</sup>Duncan, M.J. et al., (2010). *Medicina Sportiva*, 15, 81-87.

# LIMITATIONS

- Disconnect between the game and the motor task
- Study design prohibited social interaction
  - social isolation contributed to lack of sustained Dance Dance Revolution video gaming<sup>4</sup>
- Examined short-term game play
- Small sample size limited the exploration of large variation
- Failure to record video game titles

<sup>4</sup>Madsen, K.A. et al., (2007). *Archives of Pediatric and Adolescent Medicine*, 161, 105-107

# FUTURE DIRECTIONS

- Investigate group participation
- Investigating preferences for games that incorporate bodily movements, levels of exercise intensity and the demands on cognition
- Examine sustainability of active gaming

# REFERENCES

- Daley, A.J. Can Exergaming Contribute to Improving Physical Activity Levels and Health Outcomes in Children? *Pediatrics*, , 124, 763 -771.
- Mellecker, R.R., McManus, A.M., Lanningham-Foster, L.H. & Levine, J.A. (2009). The Feasibility of Ambulatory Screen Time in Children. *International Journal of Pediatric Obesity*, 4, 106--111.
- Duncan, M. J., Birch, S., Woodfield, L. & Hankey, J. (2010). Physical Activity Levels During a 6-Week, School-Based, Active Videogaming Intervention Using the Gamercize Power Stepper in British Children. *Medicina Sportiva*, 15, 81-87.
- Madsen, K.A., Yen, S., Wlasiuk, L., Newman, T.B. & Lustig, R. (2007). Feasibility of a Dance Videogame to Promote Weight Loss Among Overweight Children and Adolescents. *Archives of Pediatric and Adolescent Medicine*, 161, 105-107.

# THANK YOU

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Questions ?